3.15-11/24/1998-2636

FINAL

PRE-REMEDIAL INVESTIGATION SCREENING STUDY SITES 12, 68, 75, 76, 84, 85 AND 87

MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

APPENDICES

VOLUME II OF II

CONTRACT TASK ORDER 0314

NOVEMBER 24, 1998

Prepared for:

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

Under the:

LANTDIV CLEAN PROGRAM
Contract N62470-89-D-4814

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY

Prepared by:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

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APPENDIX A
TEST BORING RECORDS AND WELL CONSTRUCTION

SITE 12

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 12-GW01

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 12- EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: PARTLY CLOUDY, COLD
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/23/96 DATE COMPLETED: 1/23/96

GROUND SURFACE ELEVATION: 52.668' msl
TOP OF PVC CASING ELEVATION: 54.963' msl

WELL DETAILS (FT)

STICKUP:	2.29'
LENGTH OF RISER (2"I.D.)	6.29
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
	4.0										4.0	
58:00	3.0										3.0	
57:00	2.0										2.0	
56:00	1.0										1.0	
55:00	0.0										0.0	
54:00	1.0		S-1	SS	2 2 3 4	1.3	0.1	0.1		SAND: Fine grained w/trace silt light gray, damp, loose	1.0	
53:00	2.0										2.0	
52:00	3.0		S-2	SS	3 3 4 5	1.5	0.1	0.1		SAND: Fine grained w/trace silt light gray/dark brown, moist to wet, loose	3.0	
51:00	4.0										4.0	
50:00	5.0		S-3	SS	4 5 7 11	1.5	0.1	0.1		SAND: Fine grained w/trace silt dark brown, wet, medium dense to dense	5.0	
49:00	6.0										6.0	
48:00	7.0		S-4	SS	8 9 12 11	1.4	0.1	0.1			7.0	
47:00	8.0										8.0	
46:00	9.0		S-5	SS	8 8 10 12	2.0	0.1	0.1			9.0	
45:00	10.0										10.0	
44:00	11.0		S-6	SS	11 17 21 24	2.0	0.1	0.1			11.0	
43:00	12.0										12.0	
42:00	13.0		S-7	SS	19 33 44 48	1.5	0.1	0.1		SAND: Fine grained w/trace silt and wood (-14.0' only) dark brown, wet, dense to very dense	13.0	
41:00	14.0										14.0	
40:00	15.0									BOTTOM OF BOREHOLE @ 15.0'	15.0	
39:00	16.0									NOTES:	16.0	
38:00	17.0									1) Groundwater encountered @ 4.0' during drilling	17.0	
37:00	18.0									2) Borehole sampled to 15.0'	18.0	
36:00	19.0									3) Borehole drilled out to 15.0'	19.0	
35:00	20.0									4) Type II monitoring well set @ 14.5'	20.0	
34:00	21.0										21.0	
33:00	22.0										22.0	
32:00	23.0										23.0	
31:00	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 12-GW02

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 12- EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: OVERCAST, COLD, VERY WINDY
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST: NONE
DATE BEGUN: 1/22/96 DATE COMPLETED: 1/22/96

GROUND SURFACE ELEVATION: 49.158' msl
TOP OF PVC CASING ELEVATION: 51.357' msl

WELL DETAILS (FT)

STICKUP:	2.19'
LENGTH OF RISER (2"I.D.):	6.19
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
55-00	4.0										4.0	
54-00	3.0										3.0	
53-00	2.0										2.0	
52-00	1.0										1.0	
51-00	0.0										0.0	
50-00	1.0		S-1	SS	5 5 7 7	1.5	0.1	0.1		SAND: Fine grained w/trace silt gray/yellowish brown, damp, medium dense	1.0	
49-00	2.0										2.0	
48-00	3.0		S-2	SS	7 6 6 5	1.5	0.1	0.1		SAND: Fine grained w/trace silt yellowish brown, moist to wet, medium dense	3.0	
47-00	4.0										4.0	
46-00	5.0		S-3	SS	6 5 4 5	2.0	0.1	0.1		SAND: Fine grained w/trace silt dark brown, wet, very losse to loose to medium dense	5.0	
45-00	6.0										6.0	
44-00	7.0		S-4	SS	5 6 9 11	1.3	0.1	0.1			7.0	
43-00	8.0										8.0	
42-00	9.0		S-5	SS	2 2 1 1	1.5	0.1	0.1			9.0	
41-00	10.0										10.0	
40-00	11.0		S-6	SS	1 1 1 2	1.5	0.1	0.1			11.0	
39-00	12.0										12.0	
38-00	13.0		S-7	SS	2 2 4 5	1.3	0.1	0.1			13.0	
37-00	14.0										14.0	
36-00	15.0									BOTTOM OF BOREHOLE @ 15.0'	15.0	
35-00	16.0									NOTES: 1) Groundwater encountered @ 4.5' during drilling 2) Borehole sampled to 15.0' 3) Borehole drilled out to 15.0' 4) Type II monitoring well set @ 14.5'	16.0	
34-00	17.0										17.0	
33-00	18.0										18.0	
32-00	19.0										19.0	
31-00	20.0										20.0	
30-00	21.0										21.0	
29-00	22.0										22.0	
28-00	23.0										23.0	
27-00	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 12-GW03

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 12- EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COLD
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/22/96 DATE COMPLETED: 1/22/96

GROUND SURFACE ELEVATION: 42.991' msl
TOP OF PVC CASING ELEVATION: 45.470' msl

WELL DETAILS (FT)

STICKUP:	2.47'
LENGTH OF RISER (2"I.D.):	6.47
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION
42.99	0.0									
42.00	1.0		S-1	SS	4 4 5 5	1.6	0.1	0.1		SAND: Fine grained w/trace silt light gray/dark gray, damp, loose to medium dense
41.00	2.0		S-2	SS	6 7 8 8	1.6	0.1	0.1		SAND: Fine grained w/trace silt dark gray, moist to wet, medium dense
40.00	3.0		S-3	SS	9 8 11 13	1.7	0.1	0.1		
39.00	4.0		S-4	SS	9 8 11 7	1.6	0.1	0.1		
38.00	5.0		S-5	SS	5 8 13 13	1.7	0.1	0.1		
37.00	6.0		S-6	SS	6 8 10 14	2.0	0.1	0.1		SAND: Fine grained w/trace silt dark gray/brown, wet, medium dense
36.00	7.0		S-7	SS	8 10 11 17	1.9	0.1	0.1		
35.00	8.0									BOTTOM OF BOREHOLE @ 15.0'
34.00	9.0									NOTES:
33.00	10.0									1) Groundwater encountered @ 4.0' during drilling
32.00	11.0									2) Borehole sampled to 15.0'
31.00	12.0									3) Borehole drilled out to 15.0'
30.00	13.0									4) Type II monitoring well set @ 14.5'
29.00	14.0									
28.00	15.0									
27.00	16.0									
26.00	17.0									
25.00	18.0									
24.00	19.0									
23.00	20.0									
22.00	21.0									
21.00	22.0									
	23.0									
	24.0									

DEPTH: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0, 23.0, 24.0

WELL INSTALLATION

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 12-GW09

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 12- EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: PARTLY CLOUDY, MILD
GEOLOGIST: J E ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/23/96 DATE COMPLETED: 1/23/96

GROUND SURFACE ELEVATION: 46.837' msl
TOP OF PVC CASING ELEVATION: 49.475' msl

WELL DETAILS (FT)

STICKUP:	2.47'
LENGTH OF RISER (2"I.D.):	6.47
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
53.00	4.0										4.0	
52.00	3.0										3.0	
51.00	2.0										2.0	
50.00	1.0										1.0	
49.00	0.0										0.0	
48.00	1.0		S-1	SS	2 3 3 4	1.3	0.1	0.1		SAND: fine grained w/trace silt light gray, damp, loose	1.0	
47.00	2.0										2.0	
46.00	3.0		S-2	SS	3 4 4 5	1.7	0.1	0.1		SAND: fine grained w/trace silt yellowish brown/brown, moist to wet, loose	3.0	
45.00	4.0										4.0	
44.00	5.0		S-3	SS	4 4 4 6	1.4	0.1	0.1		SAND: fine grained w/trace silt brown/dark brown, wet, loose	5.0	
43.00	6.0										6.0	
42.00	7.0		S-4	SS	8 9 11 13	1.2	0.1	0.1		SAND: fine grained w/trace silt dark brown, wet, medium dense to dense	7.0	
41.00	8.0										8.0	
40.00	9.0										9.0	
39.00	10.0		S-5	SS	6 7 10 10	1.1	0.1	0.1			10.0	
38.00	11.0										11.0	
37.00	12.0		S-6	SS	7 12 14 18	2.0	0.1	0.1			12.0	
36.00	13.0										13.0	
35.00	14.0		S-7	SS	15 18 22 19	2.0	0.1	0.1			14.0	
34.00	15.0										15.0	
33.00	16.0									BOTTOM OF BOREHOLE @ 15.0' NOTES: 1) Groundwater encountered @ 9.0' during drilling 2) Borehole sampled to 15.0' 3) Borehole drilled out to 15.0' 4) Type II monitoring well set @ 14.5'	16.0	
32.00	17.0										17.0	
31.00	18.0										18.0	
30.00	19.0										19.0	
29.00	20.0										20.0	
28.00	21.0										21.0	
27.00	22.0										22.0	
26.00	23.0										23.0	
25.00	24.0										24.0	

SITE 68

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW01DW

SHEET: 1 OF 3

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 68- RIFLE RANGE DUMP
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COLD, LIGHT WINDS
GEOLOGIST: JEFF TEPSIC / JOHN ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/9/96 DATE COMPLETED: 1/16\96

GROUND SURFACE ELEVATION: 51.40' msl
TOP OF CASING ELEVATION:

WELL DETAILS (FT)

STICKUP:	2.5'
OUTER CASING (6"I.D.):	
LENGTH OF RISER (2"I.D.):	52.5
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	39.5
THICKNESS OF SEAL:	11.5
THICKNESS OF SAND PACK:	14.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
57.00	0.0		S-1	SS	1 3 4 4	1.8	-	-		SAND: fine grained, lt brown, loose, dry Sample 68-GW01DW-00 collected	0.0	
52.00	1.0										1.0	
51.00	2.0		S-2	SS	4 4 4 5	1.4	-	-		SAND: fine grained, light yellow damp, loose, 68-GW01-02 collected	2.0	
50.00	3.0										3.0	
49.00	4.0		S-3	SS	8 6 6 8	1.6	-	-		SAND, fine to medium grained, trace silt, med. dense, lt. yellow to lt. brown Water at 5.5 feet	4.0	
48.00	5.0										5.0	
47.00	6.0		S-4	SS	4 7 9 13	1.7	-	-			6.0	
46.00	7.0										7.0	
45.00	8.0		S-5	SS	10 15 16 16	1.7	-	-			8.0	
44.00	9.0										9.0	
43.00	10.0		S-6	SS	7 9 10 11	1.6	-	-		SAND: fine to medium grained, light yellow to light brown. Silt and clay stringers present lt. gray to olive gray. some iron staining. sample was wet, medium dense.	10.0	
42.00	11.0										11.0	
41.00	12.0		S-7	SS	7 6 6 8	2.0	-	-			12.0	
40.00	13.0										13.0	
39.00	14.0		S-8	SS	11 15 18 20	1.6	-	-			14.0	
38.00	15.0										15.0	
37.00	16.0		S-9	SS	4 8 4 7	1.6	-	-			16.0	
36.00	17.0										17.0	
35.00	18.0		S-10	SS	17 20 6 4	1.5	-	-		CLAY: olive gray, trace silt, trace sand Fine grained, wet, medium stiff	18.0	
34.00	19.0										19.0	
33.00	20.0										20.0	
32.00	21.0										21.0	
31.00	22.0		S-11	SS	2 3 1 1	1.4	-	-			22.0	
30.00	23.0										23.0	
	24.0										24.0	

BAKER

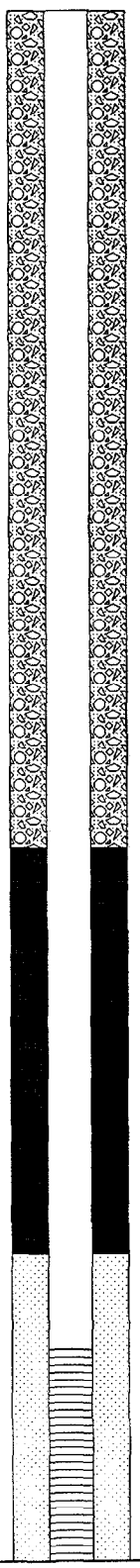
WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW01DW

SHEET: 2 OF: 3

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
31:00	22.0										22.0
30:00	23.0		S-11	SS	2 3 1 1	1.4	0.1	0.1		CLAY: little sand - fine, damp, soft, olive gray	23.0
29:00	24.0		S-12	SS	2 1 1 2	0	0.1	0.1			24.0
28:00	25.0		S-13	SS	1 1 1 1	1.8	0.1	0.1			25.0
27:00	26.0		S-14	SS	2 2 2 2	2.0	0.1	0.1			26.0
26:00	27.0		S-15	SS	1 1 1 1	2.0	0.1	0.1			27.0
25:00	28.0		S-16	SS	2 2 2 2	2.0	0.1	0.1			28.0
24:00	29.0		S-17	SS	1 2 2 2	2.0	0.1	0.1			29.0
23:00	30.0		S-18	SS	1 1 1 2	2.0	0.1	0.1			30.0
22:00	31.0		S-19	SS	2 2 3 3	2.0	0.1	0.1			31.0
21:00	32.0		S-20	SS	1 1 3 6	2.0	0.1	0.1			32.0
20:00	33.0		S-21	SS	8 11 19 26	2.0	0.1	0.1			33.0
19:00	34.0		S-22	SS	20 33 27 44	1.3	0.1	0.1		SILT: trace sand- fine, damp, med dense olive gray	34.0
18:00	35.0		S-23	SS	42 46 90 -	1.0	0.1	0.1			35.0
17:00	36.0		S-24	SS	9 20 24 18	1.2	0.1	0.1			36.0
16:00	37.0		S-25	SS	26 28 30 31	0.4	0.1	0.1			37.0
15:00	38.0		S-26	SS	126/6" - - -	0.5	0.1	0.1		SAND: fine, trace silt, trace shell fragments. moist to wet, dense, greenish gray to white	38.0
14:00	39.0										39.0
13:00	40.0										40.0
12:00	41.0										41.0
11:00	42.0										42.0
10:00	43.0										43.0
9:00	44.0										44.0
8:00	45.0										45.0
7:00	46.0										46.0
6:00	47.0										47.0
5:00	48.0										48.0
4:00	49.0										49.0
3:00	50.0										50.0
2:00	51.0										51.0
1:00	52.0										52.0
0:00	53.0										53.0
	54.0										54.0

WELL INSTALLATION



BAKER

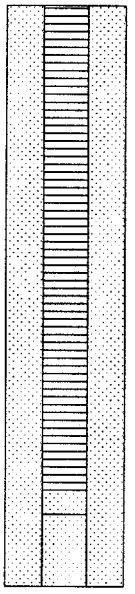
WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW01DW

SHEET: 3 OF: 3

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION
20-00	50.0									
21-00	51.0		S-25	SS	26 28 30 31		0.1	0.1		SAND: Fine grained w/trace silt, fossiliferous limestone, gray to white, dense, wet
22-00	52.0									
23-00	53.0		S-26	SS	126/6" - - -		0.1	0.1		
24-00	54.0									
25-00	55.0		S-27	SS	18 22 25 27		0.1	0.1		
26-00	56.0									
27-00	57.0		S-28	SS	27 21 24 26		0.1	0.1		
28-00	58.0									
29-00	59.0		S-29	SS	31 73 104 -		0.1	0.1		
30-00	60.0									
31-00	61.0									BOTTOM OF BOREHOLE @ 62.0'
32-00	62.0									NOTES:
33-00	63.0									1) Groundwater encountered @ 5.5' during drilling
34-00	64.0									2) Borehole sampled to 60.0'
35-00	65.0									3) Borehole drilled out to 62.0'
36-00	66.0									3) Type III monitoring well set @ 60'
37-00	67.0									
38-00	68.0									
39-00	69.0									
40-00	70.0									
41-00	71.0									
42-00	72.0									
43-00	73.0									
44-00	74.0									
45-00	75.0									
46-00	76.0									
47-00	77.0									
48-00	78.0									
49-00	79.0									
50-00	80.0									
51-00	81.0									
	82.0									

DEPTH	WELL INSTALLATION
50.0	
51.0	
52.0	
53.0	
54.0	
55.0	
56.0	
57.0	
58.0	
59.0	
60.0	
61.0	
62.0	
63.0	
64.0	
65.0	
66.0	
67.0	
68.0	
69.0	
70.0	
71.0	
72.0	
73.0	
74.0	
75.0	
76.0	
77.0	
78.0	
79.0	
80.0	
81.0	
82.0	



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW04

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 68- RIFLE RANGE DUMP
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COLD
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/11/96 DATE COMPLETED: 1/11/96

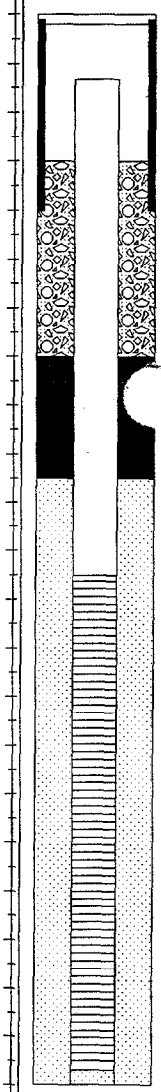
GROUND SURFACE ELEVATION: 28.9' msl
TOP OF PVC CASING ELEVATION: 30.08' msl

WELL DETAILS (FT)

STICKUP:	1.68'
LENGTH OF RISER (2"I.D.):	10.18
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	4.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	12.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
34:00	4.0										4.0
33:00	3.0										3.0
32:00	2.0										2.0
31:00	1.0										1.0
30:00	0.0		S-1	SS	-	-	-	-		SILTY SAND: fine grained w/trace to little rooted material dark brown/gray, damp, very loose. Sample 68-GW04-00 is collected	0.0
29:00	1.0										1.0
28:00	2.0		S-2	SS	2 2 2 3	1.6	0.1	0.1		SAND: Fine grained w/trace silt brown, damp, loose	2.0
27:00	3.0										3.0
26:00	4.0		S-3	SS	3 4 6 5	1.5	0.1	0.1		CLAYEY SILT w/sand, fine grained, brown/ light yellow brown light gray/light brown w/orange to light yellowish orange to orange brown to dark brownish orange staining, damp to wet, loose to medium dense to very stiff to soft. Sample 68-GW04-07 is collected	4.0
25:00	5.0										5.0
24:00	6.0		S-4	SS	2 3 5 5	1.3	0.1	0.1			6.0
23:00	7.0										7.0
22:00	8.0		S-5	SS	7 9 10 14	1.6	0.1	0.1			8.0
21:00	9.0										9.0
20:00	10.0		S-6	SS	6 8 9 12	1.8	0.1	0.1			10.0
19:00	11.0										11.0
18:00	12.0		S-7	SS	7 12 10 10	1.8	0.1	0.1			12.0
17:00	13.0										13.0
16:00	14.0		S-8	SS	3 4 3 3	1.8	0.1	0.1			14.0
15:00	15.0										15.0
14:00	16.0		S-9	SS	1 1 2 1	1.2	0.1	0.1			16.0
13:00	17.0										17.0
12:00	18.0		S-10	SS	3 3 4 3	1.0	0.1	0.1		CLAY: w/little silt and trace sand, fine grained, olive gray, damp, medium stiff	18.0
11:00	19.0										19.0
10:00	20.0									BOTTOM OF BOREHOLE @ 19.0'	20.0
9:00	21.0									NOTES: 1) Groundwater encountered @ 16.0' during drilling 2) Borehole sampled to 19.0' 3) Borehole drilled out to 19.0' 4) Type II monitoring well set @ 18.5'	21.0
8:00	22.0										22.0
7:00	23.0										23.0
6:00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW04DW

SHEET 1 OF 2

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 68- RIFLE RANGE DUMP
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COLD, LIGHT WINDS
GEOLOGIST: J E ZIMMERMAN
ENV SCIENTIST:
DATE BEGUN: 1/10/96 DATE COMPLETED: 1/12/96

GROUND SURFACE ELEVATION: 28.40' msl
TOP OF CASING ELEVATION:

WELL DETAILS (FT)

STICKUP:	2.3'
OUTER CASING (6"I.D.):	
LENGTH OF RISER (2"I.D.):	23.5
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	26.4
THICKNESS OF SEAL:	2.6
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
34:00	4.0										4.0	
33:00	3.0										3.0	
32:00	2.0										2.0	
31:00	1.0										1.0	
30:00	0.0		S-1	SS	-	-	0.2	0.2		SILTY SAND: fine grained w/little to some rooted material, dk brown/gray, damp, very loose. Sample 68-GW04DW-00 is collected	0.0	
29:00	1.0										1.0	
28:00	2.0		S-2	SS	2 3 4 5	1.9	0.2	0.2		SAND: fine grained w/trace silt, light yellowish brown/gray, damp to moist, loose	2.0	
27:00	3.0										3.0	
26:00	4.0		S-3	SS	6 5 9 9	1.8	0.2	0.2		CLAYEY SILT: w/little SAND, fine grained, tannish/light gray/light brown/dark brown w/light yellowish orange, orange brown, orange yellowish staining, moist/damp to wet, loose to medium dense to medium stiff. Sample 68-GW04DW-06 is collected	4.0	
25:00	5.0										5.0	
24:00	6.0		S-4	SS	9 11 13 12	1.3	0.2	0.2			6.0	
23:00	7.0										7.0	
22:00	8.0		S-5	SS	5 6 7 8	1.9	0.2	0.2			8.0	
21:00	9.0										9.0	
20:00	10.0		S-6	SS	5 6 6 6	1.6	0.2	0.2			10.0	
19:00	11.0										11.0	
18:00	12.0		S-7	SS	6 5 5 5	2.0	0.2	0.2			12.0	
17:00	13.0										13.0	
16:00	14.0		S-8	SS	2 2 4 5	2.0	0.2	0.2			14.0	
15:00	15.0										15.0	
14:00	16.0		S-9	SS	2 2 2 2	1.5	0.2	0.2			16.0	
13:00	17.0										17.0	
12:00	18.0		S-10	SS	2 1 2 2	1.3	0.2	0.2		CLAY: w/little silt and trace sand, fine grained, olive gray, damp, soft to medium stiff	18.0	
11:00	19.0										19.0	
10:00	20.0		S-11	SS	2 3 2 2	1.5	0.2	0.2			20.0	
9:00	21.0										21.0	
8:00	22.0										22.0	
7:00	23.0										23.0	
	24.0		S-12	SS	8 7 4	0.9	0.1	0.1		SAND: fine grained w/trace to little silt, brown/white/light brown? w/reddish orange brown, dark brownish orange staining, moist/wet,	24.0	

BAKER

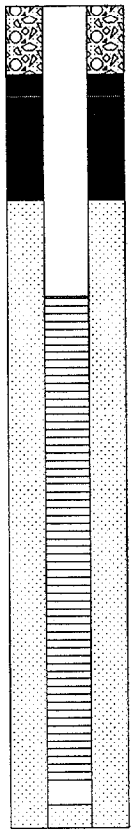
WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68GW04DW

SHEET 2 OF 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
5:00	25.0		S-13	SS	1 5 8 13	0.5	0.1	0.1		SAND: Fine grained w/trace to little silt and trace clay, brown w/brownish orange staining, wet, medium dense	25.0
4:00	26.0										26.0
3:00	27.0		S-14	SS	8 9 11 6	0.9	0.1	0.1		SAND: Fine to coarse grained w/trace silt, dark brown wet, medium dense	27.0
2:00	28.0										28.0
1:00	29.0		S-15	SS	10 11 7 8	0.9	0.1	0.1		SAND: Fine to medium grained w/little cemented sandstone, trace to little shell material, light gray/white w/orange yellowish staining (only at .7'), wet, medium dense	29.0
0:00	30.0										30.0
1:00	31.0		S-16	SS	5 9 14 25	1.8	0.1	0.1		CLAYEY SILTY SAND: Fine grained, brown w/orange brown staining wet, medium dense to stiff	31.0
2:00	32.0										32.0
3:00	33.0		S-17	SS	11 13 21 25	1.8	0.1	0.1		SILTY SAND: Fine grained w/trace clay and trace shell material, olive gray/white, moist, medium dense to stiff	33.0
4:00	34.0										34.0
5:00	35.0		S-18	SS	11 19 31 48	1.8	0.1	0.1		SILTY SAND: Fine grained w/trace to little shell material, olive gray/white, wet, medium dense to very dense	35.0
6:00	36.0										36.0
7:00	37.0		S-19	SS	11 22 26 33	1.8	0.1	0.1			37.0
8:00	38.0										38.0
9:00	39.0		S-20	SS	10 17 24 33	1.8	0.1	0.1			39.0
10:00	40.0										40.0
11:00	41.0										41.0
12:00	42.0									BOTTOM OF BOREHOLE @ 42.0'	42.0
13:00	43.0									NOTES:	43.0
14:00	44.0									1) Groundwater encountered @ 16.0' during drilling	44.0
15:00	45.0									2) Borehole sampled to 41.0'	45.0
16:00	46.0									3) Borehole drilled out to 42.0'	46.0
17:00	47.0									3) Type III monitoring well set @ 41.5'	47.0
18:00	48.0										48.0
19:00	49.0										49.0
20:00	50.0										50.0
21:00	51.0										51.0
22:00	52.0										52.0
23:00	53.0										53.0
24:00	54.0										54.0
25:00	55.0										55.0
26:00	56.0										56.0
	57.0										57.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW05DW

SHEET: 1 OF 2

PROJECT NUMBER	62470-314
PROJECT NAME	SITE 68- RIFLE RANGE DUMP
LOCATION	MCB CAMP LEJEUNE, NC
DRILLING COMPANY	PARRATT-WOLFF, INC.
RIG TYPE & NUMBER	TRUCK RIG B-56
DRILLING METHOD	HOLLOW STEM AUGERS
WEATHER	CLEAR, COLD, CALM
GEOLOGIST	J E. ZIMMERMAN
ENV. SCIENTIST	
DATE BEGUN	1/14/96 DATE COMPLETED: 1/14/96

GROUND SURFACE ELEVATION: 22.3' msl

TOP OF PVC CASING ELEVATION: 24.76' msl

WELL DETAILS (FT)

STICKUP	2.46'
LENGTH OF RISER (2"I.D.)	23.5
LENGTH OF SCREEN (2"I.D.)	10.0
THICKNESS OF GROUT	15.0
THICKNESS OF SEAL	3.0
THICKNESS OF SAND PACK	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
28:00	4.0										4.0	
27:00	3.0										3.0	
26:00	2.0										2.0	
25:00	1.0										1.0	
24:00	0.0		S-1	SS	-	-	0.1	0.1		SILTY SAND: Fine grained w/trace to little rooted material, dark brownish gray, damp to very moist, very loose. Samples 68-GW05DW-00, 68-GW05D and 68-GW05 MS/MSD are collected	0.0	
23:00	1.0		S-2	SS	1 3 5 6	1.8	0.1	0.1			1.0	
22:00	2.0		S-3	SS	4 5 6 6	1.8	0.1	0.1		SILTY SAND: Fine grained, brown w/orange staining, very moist, loose	2.0	
21:00	3.0		S-4	SS	2 2 3 4	1.8	0.1	0.1		CLAYEY SILT: w/trace sand, fine grained, light brown/light gray/brown w/orange staining, damp to moist, medium stiff/medium dense to stiff. Sample 68-GW05DW-08 is collected	3.0	
20:00	4.0		S-5	SS	3 5 5 5	2.0	0.1	0.1			4.0	
19:00	5.0		S-6	SS	2 2 4 5	2.0	0.1	0.1			5.0	
18:00	6.0		S-7	SS	WOH/6" 3 3 3	2.0	0.1	0.1			6.0	
17:00	7.0		S-8	SS	3 4 5 4	1.8	0.1	0.1			7.0	
16:00	8.0		S-9	SS	2 2 3 4	2.0	0.1	0.1			8.0	
15:00	9.0		S-10	SS	4 5 8 7	1.7	0.1	0.1			9.0	
14:00	10.0		S-11	SS	2 1 2 1	1.3	0.1	0.1		SAND: Fine to medium grained w/trace silt, brown w/dark orange brown (heavy) staining, wet, loose to very loose	10.0	
13:00	11.0		S-12	SS	1 1 2 2	-	-	-		No Recovery	11.0	
12:00	12.0		S-13	SS	3 3	1.0	0.1	0.1		SAND: Fine to medium grained w/trace silt, brown, wet, loose	12.0	
11:00	13.0										13.0	
10:00	14.0										14.0	
9:00	15.0										15.0	
8:00	16.0										16.0	
7:00	17.0										17.0	
6:00	18.0										18.0	
5:00	19.0										19.0	
4:00	20.0										20.0	
3:00	21.0										21.0	
2:00	22.0										22.0	
1:00	23.0										23.0	
	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER
68-GW05DW
SHEET 2 OF 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
	25.0				4						25.0	
1:00	26.0		S-14	SS	6 7 7	1.0	0.1	0.1		SAND: Fine to medium grained w/trace silt, brown/tan, wet, medium dense	26.0	
2:00	27.0				7						27.0	
3:00	28.0		S-15	SS	9 21 27	1.8	0.1	0.1			28.0	
4:00	29.0				17						29.0	
5:00	30.0		S-16	SS	28 30 26	2.0	0.1	0.1		SAND: Fine grained w/trace silt and trace shell fragments (at very bottom only), brown/white, wet, dense	30.0	
6:00	31.0									BOTTOM OF BOREHOLE @ 31.0'	31.0	
7:00	32.0									NOTES:	32.0	
8:00	33.0									1) Groundwater encountered @ 20.0' during drilling	33.0	
9:00	34.0									2) Borehole sampled to 31.0'	34.0	
10:00	35.0									3) Borehole drilled out to 31.0'	35.0	
11:00	36.0									4) Type II monitoring well set @ 30.5'	36.0	
12:00	37.0										37.0	
13:00	38.0										38.0	
14:00	39.0										39.0	
15:00	40.0										40.0	
16:00	41.0										41.0	
17:00	42.0										42.0	
18:00	43.0										43.0	
19:00	44.0										44.0	
20:00	45.0										45.0	
21:00	46.0										46.0	
22:00	47.0										47.0	
23:00	48.0										48.0	
24:00	49.0										49.0	
25:00	50.0										50.0	
26:00	51.0										51.0	
27:00	52.0										52.0	
28:00	53.0										53.0	
29:00	54.0										54.0	
30:00	55.0										55.0	
31:00	56.0										56.0	
32:00	57.0										57.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW06

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 68- RIFLE RANGE DUMP
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: Tracked ATV
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COLD
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/13/96 DATE COMPLETED: 1/13/96

GROUND SURFACE ELEVATION: 21.90' msl
TOP OF PVC CASING ELEVATION: 24.11' msl

WELL DETAILS (FT)

STICKUP:	2.21'
LENGTH OF RISER (2"I.D.):	7.71
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	1.5
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	12.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
28:00	4.0											
27:00	3.0											
26:00	2.0											
25:00	1.0											
24:00	0.0		S-1	SS	-	-	-	-		SILTY SAND: Fine grained w/trace rooted material dark brown, damp, very loose. Sample 68-GW06-00 is collected	0.0	
23:00	1.0		S-2	SS	WOH/6" 1 1 1	1.1	0.1	0.1		SAND: Fine grained w/trace silt, light brown to tan, moist, very loose to loose. Sample 68-GW06-01 is collected	1.0	
22:00	2.0										2.0	
21:00	3.0		S-3	SS	1 3 5 5	1.0	0.1	0.1			3.0	
20:00	4.0										4.0	
19:00	5.0		S-4	SS	4 4 5 3	2.0	0.1	0.1			5.0	
18:00	6.0										6.0	
17:00	7.0		S-5	SS	2 3 4 4	1.8	0.1	0.1		SAND: Fine grained w/trace silt/clayey silt, tan/light gray w/orange staining, moist/wet, loose to medium stiff	7.0	
16:00	8.0										8.0	
15:00	9.0		S-6	SS	1 1 1 2	1.8	0.1	0.1		CLAYEY SILT w/trace to little sand, Fine grained, light gray w/orange to brownish orange staining, wet to moist to damp, medium stiff to soft to very soft	9.0	
14:00	10.0										10.0	
13:00	11.0		S-7	SS	1 1 1 1	1.8	0.1	0.1			11.0	
12:00	12.0										12.0	
11:00	13.0		S-8	SS	WOH /12" 1 2	1.8	0.1	0.1			13.0	
10:00	14.0										14.0	
9:00	15.0		S-9	SS	WOH/6" 1 1 1	1.7	0.1	0.1		CLAYEY SILT/SILTY CLAY: w/trace sand, Fine grained, olive gray, damp, very soft	15.0	
8:00	16.0										16.0	
7:00	17.0									BOTTOM OF BOREHOLE @ 17.0'	17.0	
6:00	18.0									NOTES: 1) Groundwater encountered @ 7.0' during drilling 2) Borehole sampled to 17.0' 3) Borehole drilled out to 16.0' 4) Type II monitoring well set @ 15.5'	18.0	
5:00	19.0										19.0	
4:00	20.0										20.0	
3:00	21.0										21.0	
2:00	22.0										22.0	
1:00	23.0										23.0	
0:00	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW06DW

SHEET: 1 OF 2

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 68- RIFLE RANGE DUMP
LOCATION: MCB CAMP LEJEUNE, NC
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEAR, COOL, VARIABLE WINDS
GEOLOGIST: J.E. ZIMMERMAN
ENV. SCIENTIST:
DATE BEGUN: 1/12/96 DATE COMPLETED: 1/13/96

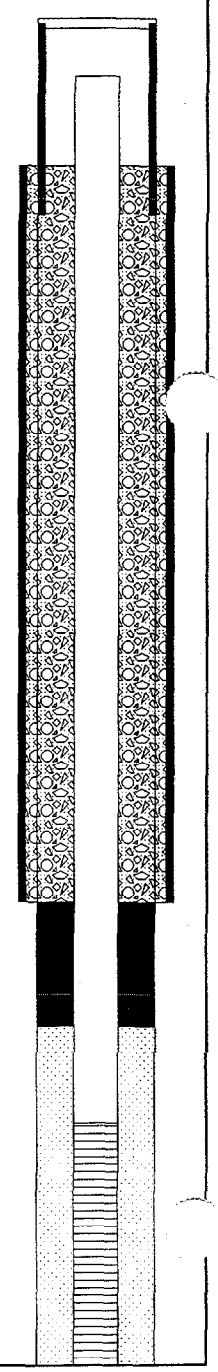
GROUND SURFACE ELEVATION: 21.4' msl
TOP OF CASING ELEVATION:

WELL DETAILS (FT)

STICKUP:	1.81'
OUTER CASING (6"I.D.):	
LENGTH OF RISER (2"I.D.):	21.31
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	15.0
THICKNESS OF SEAL:	2.5
THICKNESS OF SAND PACK:	12.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
27.00	4.0										4.0
26.00	3.0										3.0
25.00	2.0										2.0
24.00	1.0										1.0
23.00	0.0		S-1	SS	-	-	0.1	0.1		SILTY SAND: fine grained w/little to some rooted material, brownish gray, damp, very loose. Sample 68-GW06DW-00 is collected	0.0
22.00	1.0										1.0
21.00	2.0		S-2	SS	WOH/6" 1/ 12" 1	1.0	0.1	0.1		SAND: fine grained w/trace to little silt, dark brown/brown/light brown, damp to moist, very loose to loose. Sample 68-GW06DW-02 is collected	2.0
20.00	3.0										3.0
19.00	4.0		S-3	SS	1 2 4 6	1.5	0.1	0.1			4.0
18.00	5.0										5.0
17.00	6.0		S-4	SS	3 5 3 4	1.8	0.1	0.1			6.0
16.00	7.0										7.0
15.00	8.0		S-5	SS	4 3 4 3	1.6	0.1	0.1		SAND: fine grained w/trace silt/clayey silt, tan/light gray/w/orange staining, moist to wet, loose to medium stiff	8.0
14.00	9.0										9.0
13.00	10.0		S-6	SS	1 2 1 2	2.0	0.1	0.1		CLAYEY SILT: w/trace sand, fine grained, light gray/olive gray/w/orange and brownish orange staining, damp/moist, soft	10.0
12.00	11.0										11.0
11.00	12.0		S-7	SS	1 2 1 2	2.0	0.1	0.1			12.0
10.00	13.0										13.0
9.00	14.0		S-8	SS	WOH/6" 1 1 2	1.8	0.1	0.1			14.0
8.00	15.0										15.0
7.00	16.0		S-9	SS	1 1 1 2	2.0	0.1	0.1		CLAYEY SILT/SILTY CLAY: w/trace sand, fine grained, olive gray/brown, damp/moist, very soft	16.0
6.00	17.0										17.0
5.00	18.0		S-10	SS	2 1 2 2	2.0	0.1	0.1		SAND: fine to medium grained w/trace silt, brown/w/brownish orange and dark brownish orange staining (heavy), wet, very loose to medium dense	18.0
4.00	19.0										19.0
3.00	20.0		S-11	SS	1/ 12" 3 4	1.5	0.1	0.1			20.0
2.00	21.0										21.0
1.00	22.0										22.0
0.00	23.0		S-12	SS	1 2	0.6	0.1	0.1			23.0
-1.00	24.0										24.0

WELL INSTALLATION



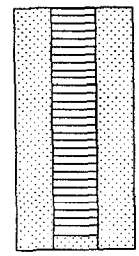
BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 68-GW06DW

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION
2:00	25.0		S-13	SS	1 2 4 5	0.5	0.1	0.1		SAND: Fine to medium grained w/trace silt, brown, wet, loose to medium dense
3:00	26.0									
4:00	27.0		S-14	SS	3 4 7 10	0.9	0.1	0.1		
5:00	28.0									
6:00	29.0									
7:00	30.0									BOTTOM OF BOREHOLE @ 30.0' NOTES: 1) Groundwater encountered @ 7.0' during drilling 2) Borehole sampled to 29.0' 3) Borehole drilled out to 30.0' 4) Type III monitoring well set @ 29.5'
8:00	31.0									
9:00	32.0									
10:00	33.0									
11:00	34.0									
12:00	35.0									
13:00	36.0									
14:00	37.0									
15:00	38.0									
16:00	39.0									
17:00	40.0									
18:00	41.0									
19:00	42.0									
20:00	43.0									
21:00	44.0									
22:00	45.0									
23:00	46.0									
24:00	47.0									
25:00	48.0									
26:00	49.0									
27:00	50.0									
28:00	51.0									
29:00	52.0									
30:00	53.0									
31:00	54.0									
32:00	55.0									
33:00	56.0									
34:00	57.0									

DEPTH	WELL INSTALLATION
25.0	
26.0	
27.0	
28.0	
29.0	
30.0	
31.0	
32.0	
33.0	
34.0	
35.0	
36.0	
37.0	
38.0	
39.0	
40.0	
41.0	
42.0	
43.0	
44.0	
45.0	
46.0	
47.0	
48.0	
49.0	
50.0	
51.0	
52.0	
53.0	
54.0	
55.0	
56.0	
57.0	

SITE 75

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 75-GW04

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 75-MCAS BASKETBALL COURT
LOCATION: MCAS NEW RIVER
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: OVERCAST, WARM, DRIZZLE
GEOLOGIST: J P. TEPSIC
ENV. SCIENTIST:
DATE BEGUN: 2/21/96 DATE COMPLETED: 2/21/96

GROUND SURFACE ELEVATION: 13.1' msl
TOP OF PVC CASING ELEVATION: 12.77' msl

WELL DETAILS (FT)

STICKUP:
LENGTH OF RISER (2"I.D.): 2.67
LENGTH OF SCREEN (2"I.D.): 15.0
THICKNESS OF GROUT:
THICKNESS OF SEAL: 1.0
THICKNESS OF SAND PACK: 16.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
16:00	4.0										4.0	
15:00	3.0										3.0	
14:00	2.0										2.0	
13:00	1.0										1.0	
12:00	0.0										0.0	
11:00	1.0		S-1	SS	2 3 5 5	1.4	-	-		SILT: w/trace clay, light brown/tan, damp, loose.	1.0	
10:00	2.0		S-2	SS	6 7 6 5	1.2	-	-			2.0	
9:00	3.0										3.0	
8:00	4.0		S-3	SS	7 11 14 14	1.0	-	-		SAND: Fine grained w/trace silt, light brown/tan/ light gray w/orange staining, wet, medium dense.	4.0	
7:00	5.0										5.0	
6:00	6.0		S-4	SS	8 8 6 6	1.2	-	-			6.0	
5:00	7.0										7.0	
4:00	8.0		S-5	SS	7 11 12 13	2.0	-	-			8.0	
3:00	9.0										9.0	
2:00	10.0		S-6	SS	4 6 8 5	1.8	-	-			10.0	
1:00	11.0										11.0	
0:00	12.0		S-7	SS	5 6 6 5	2.0	-	-			12.0	
1:00	13.0										13.0	
2:00	14.0		S-8	SS	6 5 3 2	2.0	-	-			14.0	
3:00	15.0										15.0	
4:00	16.0		S-9	SS	2 1 1 1	2.0	-	-		SAND: Fine grained w/some silt, dark gray, wet, very loose.	16.0	
5:00	17.0										17.0	
6:00	18.0									BOTTOM OF BOREHOLE @ 18.0'	18.0	
7:00	19.0									NOTES:	19.0	
8:00	20.0									1) Groundwater encountered @ 3.5' during drilling	20.0	
9:00	21.0									2) Borehole sampled to 18.0'	21.0	
10:00	22.0									3) Borehole drilled out to 18.5'	22.0	
11:00	23.0									4) Type II monitoring well set @ 18.0'	23.0	
	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 75-GW05
SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 75-MCAS BASKETBALL COURT
LOCATION: MCAS NEW RIVER
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEARING, WARM
GEOLOGIST: J.P. TEPSIC
ENV. SCIENTIST:
DATE BEGUN: 2/22/96 DATE COMPLETED: 2/22/96

GROUND SURFACE ELEVATION: 14.6' msl
TOP OF PVC CASING ELEVATION: 14.25' msl

WELL DETAILS (FT)
STICKUP:
LENGTH OF RISER (2"I.D.):
LENGTH OF SCREEN (2"I.D.):
THICKNESS OF GROUT:
THICKNESS OF SEAL: 1.0
THICKNESS OF SAND PACK: 16.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
18:00	4.0										4.0	
17:00	3.0										3.0	
16:00	2.0										2.0	
15:00	1.0										1.0	
14:00	0.0		S-1	SS	2 3 4 4	0.2	-	-		TOP SOIL: w/organic material, dark brown, damp, medium dense.	0.0	
13:00	1.0										1.0	
12:00	2.0		S-2	SS	4 4 4 4	2.0	-	-		SILT/SAND: fine grained, tan/brown, damp to moist, loose.	2.0	
11:00	3.0										3.0	
10:00	4.0		S-3	SS	7 11 11 13	1.8	-	-		SAND: fine grained w/little silt, light gray/ light brown/dark gray, wet, medium dense to loose.	4.0	
9:00	5.0										5.0	
8:00	6.0		S-4	SS	7 10 12 11	2.0	-	-			6.0	
7:00	7.0										7.0	
6:00	8.0		S-5	SS	4 5 6 12	2.0	-	-			8.0	
5:00	9.0										9.0	
4:00	10.0		S-6	SS	4 7 10 12	2.0	-	-			10.0	
3:00	11.0										11.0	
2:00	12.0		S-7	SS	4 6 6 7	2.0	-	-			12.0	
1:00	13.0										13.0	
0:00	14.0		S-8	SS	4 5 5 4	1.7	-	-			14.0	
1:00	15.0										15.0	
2:00	16.0		S-9	SS	3 1 1 1	2.0	-	-		SAND: fine grained w/little to some silt, light to dark gray, wet, very loose.	16.0	
3:00	17.0										17.0	
4:00	18.0									BOTTOM OF BOREHOLE @ 18.0'	18.0	
5:00	19.0									NOTES 1) Groundwater encountered @ 4.0' during drilling 2) Borehole sampled to 18.0' 3) Borehole drilled out to 18.5' 4) Type II monitoring well set @ 18.0'	19.0	
6:00	20.0										20.0	
7:00	21.0										21.0	
8:00	22.0										22.0	
9:00	23.0										23.0	
10:00	24.0										24.0	

SITE 76

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 76-GW03

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 76-MCAS CURTIS ROAD SITE
LOCATION: MCAS NEW RIVER
DRILLING COMPANY: PARRATT-WOLFF, INC
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: OVERCAST, WARM, DRIZZLE
GEOLOGIST: J.P. TEPSIC
ENV. SCIENTIST:
DATE BEGUN: 2/21/96 DATE COMPLETED: 2/22/96

GROUND SURFACE ELEVATION: 12.9' msl
TOP OF PVC CASING ELEVATION: 12.43' msl

WELL DETAILS (FT)

STICKUP:	
LENGTH OF RISER (2"I.D.):	2.53
LENGTH OF SCREEN (2"I.D.):	15.0
THICKNESS OF GROUT:	
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	16.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
16:00	4.0										4.0	
15:00	3.0										3.0	
14:00	2.0										2.0	
13:00	1.0										1.0	
12:00	0.0		S-1	SS	3 4 5 7	1.5	-	-		CLAY: mottled w/some silt, light brown/tan/red, damp to moist, stiff.	0.0	
11:00	1.0										1.0	
10:00	2.0		S-2	SS	7 8 7 7	1.8	-	-		SAND: fine grained w/trace silt, light brown, moist to wet, medium dense.	2.0	
9:00	3.0										3.0	
8:00	4.0		S-3	SS	5 4 4 4	2.0	-	-		SILT: w/little sand, fine grained, trace clay, light gray w/red staining, moist, loose.	4.0	
7:00	5.0										5.0	
6:00	6.0		S-4	SS	4 4 5 5	2.0	-	-		CLAY: mottled and silty, light gray w/reddish orange staining, moist, stiff.	6.0	
5:00	7.0										7.0	
4:00	8.0		S-5	SS	2 5 4 3	2.0	-	-		SAND: fine grained w/little to some silt, trace organic material light gray/dark gray, wet, very loose to medium dense.	8.0	
3:00	9.0										9.0	
2:00	10.0		S-6	SS	2 2 2 2	2.0	-	-			10.0	
1:00	11.0										11.0	
0:00	12.0		S-7	SS	3 5 4 5	0.9	-	-			12.0	
1:00	13.0										13.0	
2:00	14.0		S-8	SS	2 2 2 2	2.0	-	-			14.0	
3:00	15.0										15.0	
4:00	16.0		S-9	SS	5 8 16 16	2.0	-	-			16.0	
5:00	17.0										17.0	
6:00	18.0									BOTTOM OF BOREHOLE @ 18.0'	18.0	
7:00	19.0									NOTES:	19.0	
8:00	20.0									1) Groundwater encountered @ 4.0' during drilling	20.0	
9:00	21.0									2) Borehole sampled to 18.0'	21.0	
10:00	22.0									3) Borehole drilled out to 18.5'	22.0	
11:00	23.0									4) Type II monitoring well set @ 18.0'	23.0	
12:00	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 76-GW04

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 76-MCAS CURTIS ROAD SITE
LOCATION: MCAS NEW RIVER
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER: TRUCK RIG B-56
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: CLEARING, WARM
GEOLOGIST: J.P. TEPSIC
ENV. SCIENTIST:
DATE BEGUN: 2/22/96 DATE COMPLETED: 2/22/96

GROUND SURFACE ELEVATION: 16.9' msl
TOP OF PVC CASING ELEVATION: 16.56' msl

WELL DETAILS (FT)
STICKUP:
LENGTH OF RISER (2"I.D.):
LENGTH OF SCREEN (2"I.D.):
THICKNESS OF GROUT:
THICKNESS OF SEAL: 1.0
THICKNESS OF SAND PACK: 16.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
	0.0		S-1	SS	4 6 4 3	1.5	-	-		ORGANIC MATERIAL: w/silty sand, fine grained, dark brown, damp, medium dense.	0.0	
	2.0		S-2	SS	3 2 3 3	2.0	-	-		SILT: w/some sand, fine grained, dark brown, moist to wet, loose.	2.0	
	4.0		S-3	SS	14 16 16 18	2.0	-	-		SAND: fine grained w/trace silt, light gray/white, wet, dense to loose.	4.0	
	6.0		S-4	SS	7 9 9 6	2.0	-	-			6.0	
	8.0		S-5	SS	5 4 4 3	1.8	-	-			8.0	
	10.0		S-6	SS	2 2 3 4	2.0	-	-		SILT: light to dark gray, wet, loose.	10.0	
	12.0		S-7	SS	4 5 5 7	1.8	-	-		SILT/SAND: fine grained, dark gray, wet, medium dense.	12.0	
	14.0		S-8	SS	14 14 17 18	2.0	-	-		SAND: fine to medium grained w/trace silt, light brown/yellowish orange, wet, dense to medium dense.	14.0	
	16.0		S-9	SS	9 12 15 14	2.0	-	-			16.0	
	18.0									BOTTOM OF BOREHOLE @ 18.0' NOTES: 1) Groundwater encountered between 4.0' and 4.5' during drilling 2) Borehole sampled to 18.0' 3) Borehole drilled out to 18.5' 4) Type II monitoring well set @ 18.0'	18.0	
	20.0										20.0	
	22.0										22.0	
	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 76-GW05

SHEET: 1 OF 1

PROJECT NUMBER: 62470-314
PROJECT NAME: SITE 76-MCAS CURTIS ROAD SITE
LOCATION:
DRILLING COMPANY: PARRATT-WOLFF, INC.
RIG TYPE & NUMBER:
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: OVERCAST, WARM
GEOLOGIST: J.P. TEPSIC
ENV. SCIENTIST:
DATE BEGUN: 2/22/96 DATE COMPLETED: 2/22/96

GROUND SURFACE ELEVATION: 16.9' msl
TOP OF PVC CASING ELEVATION: 16.6' msl

WELL DETAILS (FT)
STICKUP:
LENGTH OF RISER (2"I.D.):
LENGTH OF SCREEN (2"I.D.):
THICKNESS OF GROUT:
THICKNESS OF SEAL: 1.0
THICKNESS OF SAND PACK: 16.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
20:00	4.0										4.0	
19:00	3.0										3.0	
18:00	2.0										2.0	
17:00	1.0										1.0	
16:00	0.0										0.0	
15:00	1.0		S-1	SS	3 6 6 6	2.0	-	-		SAND very fine grained w/little silt, light brown/tan, damp to wet, medium dense.	1.0	
14:00	2.0		S-2	SS	6 6 7 8	1.2	-	-			2.0	
13:00	3.0										3.0	
12:00	4.0		S-3	SS	8 10 11 13	1.8	-	-		SAND: fine grained w/trace to some silt, trace clay, light gray, wet, medium dense.	4.0	
11:00	5.0										5.0	
10:00	6.0		S-4	SS	6 8 8 7	2.0	-	-			6.0	
9:00	7.0										7.0	
8:00	8.0		S-5	SS	1 3 2 1	1.8	-	-			8.0	
7:00	9.0										9.0	
6:00	10.0		S-6	SS	1 2 2 3	1.0	-	-		SAND: fine grained and silt w/trace clay, light brown/tan, wet, loose. Silty clay present from 10.0' to 11.0' (bgs)	10.0	
5:00	11.0										11.0	
4:00	12.0		S-7	SS	4 7 13 19	1.5	-	-			12.0	
3:00	13.0										13.0	
2:00	14.0		S-8	SS	5 6 9 10	1.0	-	-		SAND: fine to medium grained w/trace silt, light gray, wet, medium dense to loose.	14.0	
1:00	15.0										15.0	
0:00	16.0										16.0	
1:00	17.0		S-9	SS	10 5 3 6	2.0	-	-			17.0	
2:00	18.0										18.0	
3:00	19.0										19.0	
4:00	20.0										20.0	
5:00	21.0										21.0	
6:00	22.0										22.0	
7:00	23.0										23.0	
	24.0										24.0	

BOTTOM OF BOREHOLE @ 18.0'

NOTES:
1) Groundwater encountered @ 3.5' during drilling
2) Borehole sampled to 18.0'
3) Borehole drilled out to 18.5'
4) Type II monitoring well set @ 18.0'

APPENDIX B
WELL DEVELOPMENT RECORDS

SITE 12

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 12-GW01

DATE: 1/25/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	0819
TIME FINISH	1114
INITIAL WATER LEVEL (FT)	6.31
TOTAL WELL DEPTH (TD)	16.74
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.7
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	2 HOURS, 55 MINUTES
AVERAGE FLOW (GPM)(B)	1.1
TOTAL ESTIMATED WITHDRAWAL AxB=	195.5 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0819	0	6.31	10.9	100.8	12.6	DARK BROWN VERY TURBID NA	3.28
0822	1 (1.7)	6.03	12.7	59.1	14.4	NA	3.09
0824	2 (3.4)	5.71	13.5	82.2	13.9	NA	3.12
0831	5 (8.5)	5.82	13.5	81.6	13.5	NA	2.04
0854	15 (25.5)	6.01	13.4	81.7	13.1	NA	2.56
0919	30 (51)	5.81	13.4	79.1	13.3	NA	2.24
0943	50 (85)	4.90	13.5	80.9	13.4	NA	2.53
0957	60 (102)	4.79	13.8	79.0	13.9	NA	2.51
1005	65 (110.5)	4.81	13.8	77.3	13.7	NA	2.27
1021	75 (127.5)	4.85	14.0	74.0	13.8	NA	3.21
1035	85 ( )	4.82	14.1	71.5	14.0	NA	2.28
1047	95 (161.5)	4.78	14.2	69.8	14.0	NA	2.03
1100	105 (178.5)	4.73	14.2	67.9	14.0	NA	2.49
1107	110 (187)	4.47	14.0	66.9	13.9	NA	2.28
1114	115 (195.5)	4.62	14.2	66.8	14.1	NA	2.62

DEVELOPMENT ENDED AT 1114

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 12-GW02

DATE: 1/26/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	0848
TIME FINISH	1148
INITIAL WATER LEVEL (FT)	9.75
TOTAL WELL DEPTH (TD)	16.80
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.15
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3-HOURS
AVERAGE FLOW (GPM)(B)	0.54
TOTAL ESTIMATED WITHDRAWAL AxB=	98 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0848	0	NA	NA	42.2	12.9	DARK BROWN VERY SILTY NA	6.83
0851	1 (1.15)	NA	NA	40.5	14.0	NA	6.13
0853	2 (2.3)	NA	NA	40.7	14.4	NA	5.89
0903	7 (8.05)	NA	NA	41.5	14.7	NA	4.92
0928	20 (23)	NA	NA	39.1	14.3	NA	4.48
0949	30 (34.5)	NA	NA	38.0	14.6	NA	4.20
1000	35 (40.25)	NA	NA	37.8	14.6	NA	4.07
1022	45 (51.75)	NA	NA	37.2	14.9	NA	4.63
1032	50 (57.5)	NA	NA	37.0	14.9	NA	5.25
1054	60 (69)	NA	NA	36.8	15.3	NA	3.88
1107	65 (74.75)	NA	NA	36.6	15.2	NA	3.77
1117	70 (80.5)	NA	NA	36.4	15.6	NA	4.03
1128	75 (86.25)	NA	NA	36.2	15.6	NA	3.53
1139	80 (92)	NA	NA	36.3	15.8	NA	3.50
1148	85 (≈98)	NA	NA.	36.1	15.7	NA	3.24

NOTES: 1) pH AND TURBIDITY METERS EXPERIENCING ELECTRICAL PROBLEMS.
2) DEVELOPMENT ENDED AT 1148

Baker
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FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUD
CTO NO.: 0314 WELL NO.: 12-GW03
DATE: 1/25/96
GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1155
TIME FINISH	1459
INITIAL WATER LEVEL (FT)	5.68
TOTAL WELL DEPTH (TD)	16.74
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.8
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 4 MINUTES
AVERAGE FLOW (GPM)(B)	0.73
TOTAL ESTIMATED WITHDRAWAL AxB=	135 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1155	0	6.05	13.1	85.3	13.1	DARK BROWN VERY SILTY	5.08
1157	1 (1.8)	6.21	13.8	78.9	14.1	NA	4.13
1159	2 (3.6)	6.39	13.9	79.6	14.2	NA	3.85
1209	4 (7.2)	6.06	14.4	71.8	14.5	NA	3.99
1234	15 (27)	5.72	14.7	60.4	14.6	NA	2.99
1249	20 (36)	5.70	15.0	58.8	14.8	NA	2.65
1302	25 (45)	5.69	15.0	56.5	14.7	NA	2.35
1331	35 (63)	5.69	15.1	53.2	14.9	NA	2.44
1349	40 (72)	5.68	15.1	51.6	14.8	NA	2.58
1417	50 (90)	5.18	14.2	47.2	14.6	NA	2.44
1425	55 (99)	5.78	14.1	46.3	14.4	NA	3.10
1433	60 (108)	6.24	14.1	45.6	14.5	NA	3.18
1441	65 (117)	6.45	13.8	45.1	14.4	NA	3.32
1450	70 (126)	6.57	13.7	44.3	14.3	NA	2.87
1459	75 (135)	6.62	14.0	44.3	14.6	NA	3.13

DEVELOPMENT ENDED AT 1459

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FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 12-GW04

DATE: 1/24/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1056
TIME FINISH	1409
INITIAL WATER LEVEL (FT)	11.38
TOTAL WELL DEPTH (TD)	16.54
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	0.8
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 13 MINUTES
AVERAGE FLOW (GPM)(B)	0.35
TOTAL ESTIMATED WITHDRAWAL AxB=	68 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1056	0	6.02	16.2	361.8	16.0	>200	3.99
1102	1 (0.8)	5.32	16.1	116.9	16.1	>200	4.47
1105	2 (1.6)	5.18	15.9	103.6	16.0	>200	3.78
1123	8 (6.4)	4.99	15.8	80.4	15.9	>200	3.43
1141	16 (12.8)	5.07	16.0	52.4	16.0	>200	3.48
1159	25 (20)	5.07	16.1	42.3	16.1	>200	3.59
1210	30 (24)	5.12	16.1	38.9	16.1	>200	3.61
1231	40 (32)	5.11	16.1	35.4	16.1	>200	3.41
1252	50 (40)	5.06	16.2	33.7	16.1	177.0	3.30
1305	55 (44)	4.91	15.9	33.0	16.0	177.2	3.32
1324	65 (52)	4.43	15.5	31.9	15.6	180.1	3.36
1334	70 (56)	5.60	15.5	31.8	15.6	163.1	3.91
1347	75 (60)	6.26	15.6	31.4	15.7	152.2	3.50
1358	80 (64)	6.49	15.7	31.3	15.8	141.7	3.68
1409	85 (68)	6.09	15.6	31.2	15.6	132.0	3.52

DEVELOPMENT ENDED AT 1409

SITE 68

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FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 68-GW01

DATE: 1/9/96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	1325
TIME FINISH	1620
INITIAL WATER LEVEL (FT)	7.98
TOTAL WELL DEPTH (TD)	20.18
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2 gals.
BOREHOLE DIAMETER (INCHES)	unknown
BOREHOLE VOLUME	unknown
AMOUNT OF WATER ADDED DURING DRILLING	unknown
DEVELOPMENT METHOD	Pump & Surge
PUMP TYPE	Watterra
TOTAL TIME (A)	3 hrs.
AVERAGE FLOW (GPM)(B)	2.4
TOTAL ESTIMATED WITHDRAWAL AxB=	75
HNU/OVA READING	—

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1327	2	5.92	14.3	43.5	14.1	Redish Brown 105.1
1337	4	6.25	14.1	39.9	14.3	Redish Brown 52.1
1341	5	6.48	14.2	39.5	14.0	Redish Brown 12.0
1345	7	6.58	13.8	40.7	13.8	Light Brown 9.1
1348	8	6.77	14.0	38.5	14.0	Light Brown 9.5
1351	9	6.79	14.1	40.0	14.0	Light Brown 8.8
1354	10	6.80	14.0	40.0	14.1	Light Brown 8.3
1356	11	6.72	13.4	38.8	13.3	Light Brown 9.1
1359	13	6.77	13.0	39.4	12.8	Bailed Dry 23.0
1405	14.5	6.87	13.6	38.9	13.8	Light Brown 14.7
1408	16	6.81	14.3	39.3	14.1	Light Brown 12.9
1411	18	7.00	14.0	39.5	14.1	Light Brown 15.3
1418	22	7.03	13.6	39.3	13.2	Light Brown 19.0
1428	32	6.92	11.9	39.8	11.9	Light Brown 19.6
1438	45	7.00	14.0	58.4	14.2	Light Brown 22

Notes 1) Re-development of existing well. Not installed by Baker.

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FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 68-GW01

DATE: 1/9/96

GEOLOGIST/ENGINEER: A. Swanson

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)	1458	56	7.04	12.9	58.6	12.9	Light Brown 23.4
TOTAL WELL DEPTH (TD)	1518	62	7.18	13.7	40.1	14.2	Light Brown 80.1
WELL DIAMETER (INCHES)	1540	65	7.14	13.6	39.7	13.7	Light Brown 81.3
CALCULATED WELL VOLUME	1610	72	7.25	13.0	39.9	13.2	Light Brown 101.2
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							

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FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW01DW

DATE: 1/22/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	0913
TIME FINISH	1215
INITIAL WATER LEVEL (FT)	35.78
TOTAL WELL DEPTH (TD)	61.20
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	4.1
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 2 MINUTES
AVERAGE FLOW (GPM)(B)	1.8
TOTAL ESTIMATED WITHDRAWAL AxB=	328
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0913	0	12.01	3.1	1710	3.2	>200	5.91
0917	1 (4.1)	10.77	12.7	697	13.5	>200	4.37
0920	2 (8.2)	10.30	14.7	645	15.6	>200	4.07
0930	6 (24.6)	9.40	15.9	477	16.3	>200	3.62
0958	20 (82)	8.60	15.4	393.1	15.5	>200	2.33
1011	25 (102.5)	8.60	15.2	385.7	15.8	>200	2.45
1034	35 (143.5)	8.48	15.7	383	11.3	>200	2.08
1058	45 (184.5)	9.31	16.1	375.2	16.7	178.9	1.87
1109	50 (205)	9.25	16.2	376.5	16.5	179.9	1.62
1120	55 (225.5)	8.12	16.2	373.1	16.4	181.8	1.67
1131	60 (246)	8.00	16.2	369.8	16.4	179.0	1.43
1149	65 (266.5)	8.07	15.8	365.0	16.0	180.5	1.47
1158	70 (287)	8.09	16.3	363.3	16.6	179.9	1.24
1207	75 (307.5)	7.97	16.4	367.4	16.5	180.3	1.29
1215	80 (328)	7.85	16.5	368.5	16.8	179.5	1.43

DEVELOPMENT ENDED AT 1215

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FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 68-GW02

DATE: 1/10/96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	0920
TIME FINISH	1220
INITIAL WATER LEVEL (FT)	16.98
TOTAL WELL DEPTH (TD)	23.05
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1 gal
BOREHOLE DIAMETER (INCHES)	Unknown
BOREHOLE VOLUME	Unknown
AMOUNT OF WATER ADDED DURING DRILLING	unknown
DEVELOPMENT METHOD	Pump & Surge
PUMP TYPE	Waterra
TOTAL TIME (A)	3 hrs.
AVERAGE FLOW (GPM)(B)	0.183
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	—

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0920	0.5	6.43	10.2	78.6	10.5	Redish Brown 183 +	5.1
0925	1	5.42	12.6	78.4	12.8	Redish Brown 200 +	5.1
0928	2	5.35	13.1	74.4	13.7	Reddish Brown 200 +	5.0
0934	3.5	5.43	14.3	75.6	14.6	Light Brown 200 +	5.1
0939	4.5	5.38	14.1	77.4	14.0	Light Brown 200 +	4.8
0948	6.0	5.40	14.3	77.7	14.6	Color Lightens 200 +	4.9
0954	7.0	5.38	14.2	80.6	14.2	200 +	4.9
0959	8.0	5.39	14.5	76.5	14.8	Turb. meter Malfunction	5.0
1004	9.0	5.39	14.4	76.2	14.6	—	5.0
1009	10.0	5.39	14.3	76.7	14.4	—	5.0
1015	11.0	5.38	14.2	75.8	14.5	—	5.1
1020	12.0	5.41	14.5	76.0	14.9	—	5.2
1025	13.0	5.37	14.6	76.2	15.0	—	5.2
1033	14.0	5.36	14.5	76.3	14.8	Cldy. white —	5.3
1039	15.0	5.37	14.6	76.4	14.8	Cldy. white —	5.2

Notes 1) Re-development of existing well. Not installed by Baker.

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FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 68-GW02

DATE: 1/10/96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	DEVELOPMENT DATA							
TIME FINISH	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
INITIAL WATER LEVEL (FT)	1049	17.0	5.35	14.8	76.5	14.9	cldy. white —	5.2
TOTAL WELL DEPTH (TD)	1112	20	5.37	15.1	76.8	14.9	cldy. white —	4.8
WELL DIAMETER (INCHES)	1117	22	5.37	15.3	76.2	15.0	Slowly clearing —	5.0
CALCULATED WELL VOLUME	1140	25	5.36	14.9	76.4	15.0	—	5.1
BOREHOLE DIAMETER (INCHES)	1200	28	5.36	15.0	76.2	15.1	—	5.2
BOREHOLE VOLUME	1220	33	5.35	15.0	76.9	15.2	—	5.2
AMOUNT OF WATER ADDED DURING DRILLING	1240	—	—	—	—	—	Turbidity 85	
DEVELOPMENT METHOD								
PUMP TYPE								
TOTAL TIME (A)								
AVERAGE FLOW (GPM)(B)								
TOTAL ESTIMATED WITHDRAWAL AxB=								
HNU/OVA READING								

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FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 68-GW03

DATE: 1/11/96

GEOLOGIST/ENGINEER: A. Swanson

	DEVELOPMENT DATA							
TIME START: 0800	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
TIME FINISH: 1100	0801	0	7.02	5.0	135.4	4.5	172.9	7.8
INITIAL WATER LEVEL (FT): 19.34	0806	0.25	6.15	4.5	73.0	4.4	177.5	6.8
TOTAL WELL DEPTH (TD): 22.61	0823	0.5	5.52	2.0	40.0	1.9	176.6	6.7
WELL DIAMETER (INCHES): 2	0858	0.75	5.40	1.5	58.3	0.7	173.5	9.8
CALCULATED WELL VOLUME: 0.5 gal	0939	Low Volume	6.37	1.6	Insufficient Volume		172.2	—
BOREHOLE DIAMETER (INCHES): Unknown	1012	Low Volume	6.30	2.8	Insufficient Volume		171.5	—
BOREHOLE VOLUME: Unknown	1100	1.25	5.78	5.1	67.8	4.5	172.1	7.4
AMOUNT OF WATER ADDED DURING DRILLING: Unknown								
DEVELOPMENT METHOD: Pump & Surge								
PUMP TYPE: Waterra								
TOTAL TIME (A): 3 hrs.								
AVERAGE FLOW (GPM)(B): .007								
TOTAL ESTIMATED WITHDRAWAL AxB=: 1.25								
HNU/OVA READING: 0 PPM								

Notes 1) Re-development of existing well. Not installed by Baker.

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FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW04

DATE: 1/16/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START: 0854

TIME FINISH: 1112

INITIAL WATER LEVEL (FT): 16.36

TOTAL WELL DEPTH (TD): 20.07

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 0.6

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: UNKNOWN

AMOUNT OF WATER ADDED DURING DRILLING: UNKNOWN

DEVELOPMENT METHOD: PUMP AND SURGE

PUMP TYPE: WATERRA

TOTAL TIME (A): 2 HOURS, 18 MINUTES

AVERAGE FLOW (GPM)(B): 0.03

TOTAL ESTIMATED WITHDRAWAL AxB=: 4 GALLONS

HNU/OVA READING: 9-PPM

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0854	0	7.30	11.1	255.3	11.9	SLIGHTLY TURBID	6.89
0900	2 (1.2)	6.50	15.0	201.9	15.5	47.2	5.46
0902	3 (1.8)	6.13	16.1	201.9	16.4	40.9	6.14
0904	4 (2.4)	6.32	16.1	205.4	16.3	38.4	5.43
0912	5 (3.0)	6.00	14.5	187.4	14.5	27.5	6.33
0930	5.1 (3.06)	7.24	12.2	173.9	12.1	26.9	6.28
1000	5.5 (3.3)	7.30	12.2	172.9	12.2	28.7	7.02
1020	6.0 (3.6)	7.25	12.1	173.4	12.2	28.8	7.08
1112	6.2 (3.72)	7.20	12.3	180.4	12.2	36.6	6.32

NOTES 1) WELL WAS PUMPED DRY DURING DEVELOPMENT OPERATIONS

2) DEVELOPMENT ENDED AT 1112

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FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW04DW

DATE: 1/16/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1151
TIME FINISH	1548
INITIAL WATER LEVEL (FT)	23.32
TOTAL WELL DEPTH (TD)	43.72
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	3.3
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 57 MINUTES
AVERAGE FLOW (GPM)(B)	1.4
TOTAL ESTIMATED WITHDRAWAL AxB=	330 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1151	0	11.36	15.9	125.9	15.7	VERY TURBID >200	5.87
1155	2 (6.6)	10.43	16.5	973	16.7	>200	3.27
1202	9 (29.7)	9.30	16.2	740	16.4	144.2	2.63
1223	20 (66)	8.10	16.3	626	16.1	178.7	4.60
1253	30 (99)	7.82	16.9	583	16.8	180.8	5.40
1316	40 (132)	7.49	16.7	538	16.7	179.3	5.84
1356	55 (181.5)	7.76	16.8	510	16.9	22.2	5...
1410	60 (198)	7.81	16.6	502	16.7	19.1	4.72
1428	65 (214.5)	7.66	16.6	502	16.7	15.8	4.88
1441	70 (231)	7.73	16.7	493	16.9	14.47	5.48
1454	75 (247.5)	7.90	17.0	500	16.8	12.00	5.26
1505	80 (264)	7.67	16.8	495	16.9	10.4	5.71
1520	85 (280.5)	7.75	16.7	493	16.7	11.8	5.59
1534	90 (297)	7.71	17.4	489	17.6	10.1	5.67
1548	100 (330)	7.73	16.6	496	16.5	10.6	5.82

DEVELOPMENT ENDED AT 1548

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW05

DATE: 1/22/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1340
TIME FINISH	1616
INITIAL WATER LEVEL (FT)	19.48
TOTAL WELL DEPTH (TD)	32.42
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.1
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA.
TOTAL TIME (A)	2 HOURS, 36 MINUTES
AVERAGE FLOW (GPM)(B)	1.41 GALLONS
TOTAL ESTIMATED WITHDRAWAL AxB=	221
HNU/OVA READING	1-PPM

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1340	0	7.31	15.5	605	15.6	>200	3.86
1341	1 (2.1)	7.08	16.6	682	17.1	>200	3.63
1342	2 (4.2)	7.07	17.0	688	17.2	>200	3.25
1346	6 (12.6)	6.94	16.9	689	17.1	>200	2.25
1353	10 (21)	6.84	16.6	675	16.8	>200	2.21
1412	20 (42)	6.90	16.4	655	16.8	>200	2.53
1435	30 (63)	6.80	16.5	600	16.9	183.5	2.17
1459	45 (94.5)	6.79	16.6	529	16.7	184.5	2.20
1512	55 (115.5)	6.79	16.5	506	16.9	183.3	2.55
1532	70 (147)	6.94	16.5	493	16.8	180.9	2.61
1552	85 (178.5)	7.08	16.3	447	16.8	179.2	2.75
1600	90 (189)	7.10	16.0	442.9	16.5	179.6	2.98
1605	95 (199.5)	7.12	16.0	439.3	16.5	142.9	2.56
1612	100 (210)	7.14	16.0	434.1	16.5	140.1	2.72
1616	105 (221)	7.15	16.1	434.2	16.4	135	2.45

DEVELOPMENT ENDED AT 1616

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW06

DATE: 1/23/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	0734
TIME FINISH	1034
INITIAL WATER LEVEL (FT)	14.22
TOTAL WELL DEPTH (TD)	17.24
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	0.5
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS
AVERAGE FLOW (GPM)(B)	.02
TOTAL ESTIMATED WITHDRAWAL AxB=	4 GALLONS
HNU/OVA READING	1-PPM

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0734	0	6.87	9.4	494	11.2	184.9	4.43
0735	0.5 (.25)	6.82	13.4	540	14.0	185.7	3.86
0737	1.0 (.5)	6.79	14.2	527	15.0	185.9	4.0
0738	1.5 (.75)	6.77	14.6	478	15.0	185.8	3.79
0742	2.0 (1.0)	6.94	14.4	484	14.9	185.9	3.56
0745	2.5 (1.25)	7.04	14.5	471	14.7	185.5	2.67
0750	3.0 (1.5)	7.10	14.5	459	14.7	185.2	3.00
0752	4.0 (2.0)	7.13	14.3	437.6	14.5	184.1	3.82
0754	5.0 (2.5)	7.16	14.2	408	14.4	185.1	5.0
0826	6.0 (3.0)	7.94	10.6	302.7	10.7	184.9	5.76
0942	7.0 (3.5)	8.05	9.3	233.3	9.4	185.6	5.87
1011	7.5 (3.75)	7.36	12.7	230.5	12.6	183.4	5.69
1034	7.75 (4.0)	7.31	12.9	229.7	13.1	183.3	6.3

NOTES: 1) WELL WAS PUMPED DRY
2) DEVELOPMENT ENDED AT 1034

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 68-GW06 DW

DATE: 1/23/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1120
TIME FINISH	1344
INITIAL WATER LEVEL (FT)	17.01
TOTAL WELL DEPTH (TD)	31.16
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.3
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	2 HOURS, 24 MINUTES
AVERAGE FLOW (GPM)(B)	1.6
TOTAL ESTIMATED WITHDRAWAL AxB=	230 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1120	0.5 (1.15)	12.06	16.2	4,332	16.7	>200	4.98
1122	1.0 (2.3)	11.47	17.1	2,339	16.7	>200	3.63
1123	2.0 (4.6)	10.46	17.3	1,497	17.5	>200	2.37
1129	8 (18.4)	9.16	17.3	891	17.4	177	2.42
1156	25 (57.5)	7.26	17.4	590	17.5	61.6	2.32
1204	30 (69)	7.02	17.4	521	17.5	61.2	2.2
1226	45 (103.5)	6.71	17.4	456	17.5	18.8	1.73
1240	55 (126.5)	6.62	17.3	423.3	17.4	13.2	1.72
1254	65 (149.5)	6.56	17.4	400.7	17.5	11.3	1.76
1301	70 (161)	6.53	17.4	389.8	17.5	10.8	1.81
1316	80 (184)	6.48	17.3	375.1	17.5	7.5	1.81
1323	85 (195.5)	6.46	17.5	369.5	17.5	6.3	205
1330	90 (207)	6.45	17.5	359.1	17.5	5.3	1.85
1337	95 (218.5)	6.43	17.5	355	17.7	4.8	1.84
1344	100 (230)	6.42	17.4	348.2	17.5	4.2	1.57

DEVELOPMENT ENDED AT 1344

SITE 75

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 75-GW01

DATE: 1/12/96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	0813
TIME FINISH	1120
INITIAL WATER LEVEL (FT)	5.97
TOTAL WELL DEPTH (TD)	22.36
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.67
BOREHOLE DIAMETER (INCHES)	UnKnown
BOREHOLE VOLUME	UnKnown
AMOUNT OF WATER ADDED DURING DRILLING	UnKnown
DEVELOPMENT METHOD	Pump & Surge
PUMP TYPE	Waterra
TOTAL TIME (A)	3 HOURS, 7 MINUTES
AVERAGE FLOW (GPM)(B)	2.43
TOTAL ESTIMATED WITHDRAWAL AxB=	454 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0813	0	6.04	9.9	63.1	10.1	Drk. Brn. Sand 166.9	5.83
0814	1.5	5.33	14.8	65.8	15.7	19.5	5.62
0818	2.0	5.22	15.1	65.0	15.2	+ 200	5.48
0820	3.0	5.23	14.9	63.9	14.9	+ 200	5.32
0821	4.0	5.21	15.0	65.0	15.1	+ 200	3.67
0822	5.0	5.19	15.0	58.7	15.2	+ 200	3.34
0824	6.0	5.18	15.2	63.4	15.3	+ 200	3.67
0825	7.0	5.22	15.0	65.7	15.0	Color Lightens + 200	3.95
0826	8.0	5.21	14.8	66.3	15.0	+ 200	3.57
0827	10.0	5.17	14.7	64.6	14.7	Lots of Sand + 200	3.04
0828	12.0	5.18	14.9	65.0	15.2	+ 200	3.52
0830	14.0	5.19	15.0	65.3	15.2	med. Brn. + 200	3.86
0836	20.0	5.14	15.2	66.0	15.3	Clearing. olive green 165.7	4.52
0842	25.0	5.13	15.1	66.0	15.2	154.1	4.26
0847	30.0	5.14	15.0	66.3	15.2	Lt. Brn. 110.8	4.86

Notes 1) Re-development of existing well. Not installed by Baker.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 75-GW01

DATE: 1/12/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	0813
TIME FINISH	1120
INITIAL WATER LEVEL (FT)	5.97
TOTAL WELL DEPTH (TD)	22.36
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.67
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 7 MINUTES
AVERAGE FLOW (GPM)(B)	2.43
TOTAL ESTIMATED WITHDRAWAL AxB=	454 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0858	40	5.11	14.7	65.4	14.9	88.9	4.59
0913	55	5.10	15.0	66.6	15.2	92.8	4.91
0930	70	5.09	14.8	66.5	15.2	84.8	4.41
0945	85	5.07	15.2	66.7	15.3	44.6	3.85
0956	95	5.05	15.1	66.1	15.3	43.6	3.88
1008	105	5.15	14.2	65.3	14.5	39.4	3.81
1019	115	5.05	15.4	67.7	15.4	39.5	3
1028	125	5.05	15.4	67.8	15.5	38.0	3.52
1039	135	5.08	15.1	66.9	15.4	33.5	3.68
1049	145	5.05	15.2	67.2	15.4	30.7	3.79
1054	150	5.04	15.1	67.3	15.2	31.9	3.84
1101	155	5.04	15.1	67.2	15.2	29.5	3.43
1107	160	5.04	15.1	67.1	15.2	30.6	3.40
1112	165	5.04	14.9	66.8	15.0	27.8	3.26
1117	170	5.02	15.2	67.2	15.2	28.3	3.47

DEVELOPMENT WAS ENDED AT 1120.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 75-GW02

DATE: 1/12/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	DEVELOPMENT DATA							
1255	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
TIME FINISH 1600	1255	0	6.15	13.5	123.8	13.5	ORANGE/BROWN VERY SILTY 170.5	5.83
INITIAL WATER LEVEL (FT) 7.37	1257	1	6.28	16.3	129.1	16.5	>200	7.02
TOTAL WELL DEPTH (TD) 22.54	1259	2	6.38	16.4	135.0	16.5	>200	5.54
WELL DIAMETER (INCHES) 2	1312	8	6.32	16.2	138.4	16.4	>200	4.98
CALCULATED WELL VOLUME 2.47	1339	25	6.26	16.4	138.2	16.6	>200	3.04
BOREHOLE DIAMETER (INCHES) UNKNOWN	1401	35	6.20	16.0	135.4	15.9	>200	3.43
BOREHOLE VOLUME UNKNOWN	1412	40	6.25	16.2	134.0	16.5	>200	3.27
AMOUNT OF WATER ADDED DURING DRILLING UNKNOWN	1436	50	6.21	16.2	134.0	16.4	>200	3.60
DEVELOPMENT METHOD PUMP AND SURGE	1450	55	6.18	14.6	132.6	15.2	>200	3.83
PUMP TYPE WATERRA	1459	60	6.53	15.7	133.6	15.9	>200	3.64
TOTAL TIME (A) 3 HOURS, 5 MINUTES	1512	65	6.44	15.9	135.6	15.8	150.6	3.32
AVERAGE FLOW (GPM)(B) 1.13 GALLONS	1525	70	6.68	15.4	131.4	15.5	165.8	3.27
TOTAL ESTIMATED WITHDRAWAL AxB= 210	1536	75	6.81	15.5	134.4	15.7	165.6	3.48
	1548	80	6.26	15.8	133.2	16.1	165.9	2.87
PID/OVA READING NON-DETECT	1600	85	6.19	15.5	133.1	16.1	169.6	2.94

NOTES 1) RE-DEVELOPMENT OF EXISTING WELL. NOT INSTALLED BY BAKER.

2) DEVELOPMENT ENDED AT 1600.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 75-GW03

DATE: 1/15/96

GEOLOGIST/ENGINEER: A. SWANSON

TIME START	1409
TIME FINISH	1716
INITIAL WATER LEVEL (FT)	5.36
TOTAL WELL DEPTH (TD)	21.27
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.59
BOREHOLE DIAMETER (INCHES)	UNKNOWN
BOREHOLE VOLUME	UNKNOWN
AMOUNT OF WATER ADDED DURING DRILLING	UNKNOWN
DEVELOPMENT METHOD	PUMP AND SURGE
PUMP TYPE	WATERRA
TOTAL TIME (A)	3 HOURS, 7 MINUTES
AVERAGE FLOW (GPM)(B)	2.10
TOTAL ESTIMATED WITHDRAWAL AxB=	394 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1409	0	5.33	19.5	68.7	18.3	ORANGE-BROWN VERY SILTY >200	1.47
1411	2	5.16	18.8	76.3	18.7	>200	.08
1412	3	5.10	18.8	88.8	18.8	>200	.09
1425	13	5.37	19.1	101.2	19.3	171.6	1.78
1444	30	5.39	19.0	104.5	19.3	175.4	1.48
1502	45	5.42	19.4	107.5	19.2	172.0	1.57
1525	65	5.41	19.1	115.5	19.4	172.7	1.
1541	80	5.35	19.1	120.6	18.9	168.4	1.46
1605	96	5.31	19.4	125.0	19.2	173.9	1.27
1625	111	5.26	18.8	126.4	18.8	174.3	1.22
1644	127	5.26	18.2	128.7	18.3	175.7	1.36
1657	137	5.25	17.8	127.8	18.1	176.9	1.30
1702	142	5.24	17.8	127.7	17.9	176.8	1.25
1709	147	5.29	18.0	127.7	18.0	175.7	1.39
1716	152	5.23	17.8	127.3	17.7	176.7	1.34

DEVELOPMENT ENDED AT 1716

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL SCREENING STUDY

CTO NO.: 0314 WELL NO.: 75-GW04

DATE: 2/24/96

GEOLOGIST/ENGINEER: J. TEPSIC

TIME START	0715
TIME FINISH	0850
INITIAL WATER LEVEL (FT)	NA
TOTAL WELL DEPTH (TD)	2
WELL DIAMETER (INCHES)	NA
CALCULATED WELL VOLUME	NA
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP
PUMP TYPE	HAND PUMP
TOTAL TIME (A)	1 HOUR, 35 MINUTES
AVERAGE FLOW (GPM)(B)	0.5
TOTAL ESTIMATED WITHDRAWAL AxB=	50 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0715	(5)	NA	NA	170	12	40	4.1
0800	(15)	NA	NA	170	15	30	3.0
0820	(20)	NA	NA	130	14	30	3.2
0830	(30)	NA	NA	130	15	<10	3.3
0838	(40)	NA	NA	130	16	<10	3.2
0850	(50)	NA	NA	145	15	<10	4.5

DEVELOPMENT ENDED AT 0850

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL SCREENING STUDY

CTO NO.: 0314 WELL NO.: 75-GW05

DATE: 2/24/96

GEOLOGIST/ENGINEER: J. TEPSIC

TIME START	0900
TIME FINISH	1000
INITIAL WATER LEVEL (FT)	NA
TOTAL WELL DEPTH (TD)	NA
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	NA
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP
PUMP TYPE	HAND PUMP
TOTAL TIME (A)	1 HOUR
AVERAGE FLOW (GPM)(B)	0.8
TOTAL ESTIMATED WITHDRAWAL AxB=	50 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
0900	(5)	NA	NA	245	15	(RANGE) 20 - 30	4.8
0915	(10)	NA	NA	230	14	20-30	3.8
0920	(15)	NA	NA	230	14	20-30	3.4
0925	(20)	NA	NA	220	14	20-30	3.7
0940	(30)	NA	NA	200	15	20-30	3.4
0950	(40)	NA	NA	170	16	10-20	3.4
1000	(50)	NA	NA	160	16	10-20	3.1

DEVELOPMENT ENDED AT 1000

SITE 76

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 76-GW01

DATE: 1-11-96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	1553
TIME FINISH	1736
INITIAL WATER LEVEL (FT)	7.42
TOTAL WELL DEPTH (TD)	18.96
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.88
BOREHOLE DIAMETER (INCHES)	Unknown
BOREHOLE VOLUME	Unknown
AMOUNT OF WATER ADDED DURING DRILLING	Unknown
DEVELOPMENT METHOD	Pump & Surge
PUMP TYPE	Waterra
TOTAL TIME (A)	1hr 44 min.
AVERAGE FLOW (GPM)(B)	0.96
TOTAL ESTIMATED WITHDRAWAL AxB=	100
HNU/OVA READING	—

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1553	0	5.50	10.2	238.9	10.7	Rust orange; Sand 1.2	4.2
1556	1	5.08	13.2	244.0	13.8	1.11	4.5
1600	2.5	5.04	15.7	245.0	15.8	0.16	4.7
1603	3.5	5.13	15.8	229.7	15.2	0.15	4.4
1605	5.0	5.10	16.1	220.3	16.3	0.36	4.2
1607	6.0	5.09	16.1	209.0	16.1	0.54	4.0
1609	7.0	5.07	16.6	195.7	16.0	0.79	3.6
1612	8.0	5.06	16.5	196.3	16.2	1.12	2.0
1614	9.0	5.09	15.7	191.2	15.0	2.36	3.8
1617	10.0	5.08	15.1	189.1	13.9	4.00	3.7
1619	12.0	5.07	16.1	188.2	16.4	6.70	3.4
1623	14.0	5.07	15.8	181.1	16.0	9.50	3.6
1631	20	5.03	16.4	162.8	16.8	109.7	3.4
1635	25	5.01	17.0	158.0	17.4	170.2	3.2
1639	30	4.99	17.4	154.5	17.8	170.8	2.9

Notes 1) Re-development of existing well. Not installed by Baker.

1/

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 76-GW01

DATE: 1/11/96

GEOLOGIST/ENGINEER: A Swanson

TIME START	DEVELOPMENT DATA							
TIME FINISH	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
INITIAL WATER LEVEL (FT)	1644	40	4.98	17.8	153.5	17.9	med. Brn. chalky color, little silt 173.1	2.4
TOTAL WELL DEPTH (TD)	1648	45	4.98	17.4	151.7	17.9	172.2	2.6
WELL DIAMETER (INCHES)	1652	50	4.96	17.5	150.8	17.8	171.9	2.6
CALCULATED WELL VOLUME	1656	55	4.98	17.4	150.1	17.5	171.6	2.5
BOREHOLE DIAMETER (INCHES)	1700	60	4.96	17.5	149.8	17.8	172.1	2.4
BOREHOLE VOLUME	1705	65	4.95	17.3	146.3	17.6	171.7	2.3
AMOUNT OF WATER ADDED DURING DRILLING	1709	70	4.95	17.5	148.3	17.6	172.0	2.2
DEVELOPMENT METHOD	1714	75	4.95	17.2	145.2	17.6	171.5	2.3
PUMP TYPE	1719	80	4.96	17.3	146.0	17.6	171.1	2.4
TOTAL TIME (A)	1724	85	4.98	16.2	143.6	16.4	171.0	2.3
AVERAGE FLOW (GPM)(B)	1727	90	4.93	17.5	145.2	17.6	171.3	1.8
TOTAL ESTIMATED WITHDRAWAL AxB=	1732	95	4.95	16.9	142.5	17.2	171.2	2.0
HNU/OVA READING	1736	100	4.98	16.5	142.8	16.7	172.4	1.8

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study
CTO NO.: 0314 WELL NO.: 76-GW02
DATE: 1/11/96
GEOLOGIST/ENGINEER: A. Swanson

TIME START	1230
TIME FINISH	1450
INITIAL WATER LEVEL (FT)	4.18
TOTAL WELL DEPTH (TD)	22.88
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	3 gals
BOREHOLE DIAMETER (INCHES)	Unknown
BOREHOLE VOLUME	Unknown
AMOUNT OF WATER ADDED DURING DRILLING	Unknown
DEVELOPMENT METHOD	Pump & Surge
PUMP TYPE	Waterra
TOTAL TIME (A)	2hr. 20 min
AVERAGE FLOW (GPM)(B)	0.71
TOTAL ESTIMATED WITHDRAWAL AxB=	100
HNU/OVA READING	—

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1230	0	6.90	7.10	298	7.2	Orang-brown 174.8	7.1
1232	1	7.08	13.0	292	13.4	Gray, DK. Gray 4.1	4.0
1237	2.5	7.19	14.4	306.6	14.8	Lighter Gray 6.5	3.1
1240	4.0	7.37	13.8	300.7	14.3	12.8	2.0
1242	5.0	7.40	14.3	297.1	14.4	13.5	2.5
1245	6.0	7.42	14.3	300.5	14.7	12.4	3.0
1247	7.0	7.44	13.9	297.1	14.0	12.2	2.2
1251	8.0	7.46	14.0	299.3	14.5	12.0	2.0
1255	10.0	7.49	14.2	301.1	14.4	5.8	1.2
1300	12.0	7.50	14.0	297.5	14.5	11.6	1.4
1307	14.0	7.53	13.9	297.2	14.0	11.4	2.5
1315	20.0	7.50	14.1	298.9	14.8	109.1	2.2
1321	25.0	7.46	15.0	299.2	15.3	168.0	2.4
1333	30.0	7.45	14.5	292.4	14.8	170.0	3.0
1338	35.0	7.46	14.8	295.5	14.9	168.1	2.8

Notes 1) Re-development of existing well. Not installed by Baker.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: Pre-Remedial Investigation Screening Study

CTO NO.: 0314 WELL NO.: 76-GW02

DATE: 1/11/96

GEOLOGIST/ENGINEER: A. Swanson

TIME START	DEVELOPMENT DATA							
TIME FINISH	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
INITIAL WATER LEVEL (FT)	1343	40.0	7.46	14.9	296.8	15.0	Dk. Brn. T. Sand 167.4	2.2
TOTAL WELL DEPTH (TD)	1348	45.0	7.44	15.3	298.8	15.3	169.6	2.3
	1354	50.0	7.46	14.8	296.0	15.1	170.0	2.3
WELL DIAMETER (INCHES)	1400	55.0	7.45	14.8	294.0	14.6	169.0	3.7
CALCULATED WELL VOLUME	1405	60.0	7.46	15.2	298.0	15.4	168.4	2.9
	1411	65.0	7.45	14.9	295.5	15.0	167.8	2.4
BOREHOLE DIAMETER (INCHES)	1416	70.0	7.44	15.4	298.0	15.9	168.3	2.8
BOREHOLE VOLUME	1421	75.0	7.45	15.4	297.4	15.5	167.8	2.3
AMOUNT OF WATER ADDED DURING DRILLING	1426	80.0	7.44	15.1	294.1	15.3	168.3	2.5
	1430	85.0	7.44	15.2	295.7	14.9	168.1	2.9
DEVELOPMENT METHOD	1435	90.0	7.45	14.9	294.6	15.2	168.3	2.8
PUMP TYPE	1440	95.0	7.43	15.3	298.1	15.7	169.1	2.8
TOTAL TIME (A)	1446	100.0	7.44	15.3	295.5	14.7	168.0	2.4
	1450	Stop Purging well						
AVERAGE FLOW (GPM)(B)								
TOTAL ESTIMATED WITHDRAWAL AxB=								
HNU/OVA READING								

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 76-GW03

DATE: 2/24/96

GEOLOGIST/ENGINEER: J. TEPSIC

TIME START	1115
TIME FINISH	1155
INITIAL WATER LEVEL (FT)	NA
TOTAL WELL DEPTH (TD)	NA
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	NA
BOREHOLE DIAMETER (INCHES)	NA
BOREHOLE VOLUME	NA
AMOUNT OF WATER ADDED DURING DRILLING	NA
DEVELOPMENT METHOD	PUMP
PUMP TYPE	HAND PUMP
TOTAL TIME (A)	40 MINUTES
AVERAGE FLOW (GPM)(B)	1.25
TOTAL ESTIMATED WITHDRAWAL AxB=	50 GALLONS
HNU/OVA READING	NON-DETECT

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1115	(5)	NA	NA	270	17	>200	2.3
1125	(20)	NA	NA	250	17	<50	3.1
1140	(30)	NA	NA	280	16	30-40	2.4
1145	(40)	NA	NA	270	16	<20	1.6
1155	(50)	NA	NA	270	16	<20	1.5

DEVELOPMENT ENDED AT 1155

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 76-GW04

DATE: 2/24/96

GEOLOGIST/ENGINEER: J. TEPSIC

TIME START: 1300	
TIME FINISH: 1340	
INITIAL WATER LEVEL (FT): NA	
TOTAL WELL DEPTH (TD): NA	
WELL DIAMETER (INCHES): 2	
CALCULATED WELL VOLUME: NA	
BOREHOLE DIAMETER (INCHES): NA	
BOREHOLE VOLUME: NA	
AMOUNT OF WATER ADDED DURING DRILLING: NA	
DEVELOPMENT METHOD: Pump	
PUMP TYPE: HAND Pump	
TOTAL TIME (A): 40 MINUTES	
AVERAGE FLOW (GPM)(B): 1.9	
TOTAL ESTIMATED WITHDRAWAL AxB= ≈85 GALLONS	
HNU/OVA READING: NON-DETECT	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
1300	(5)	NA	NA	220	12	>200	6.5
1303	(10)	NA	NA	200	15	>200	6.0
1308	(20)	NA	NA	200	16	≈100	3.8
1317	(40)	NA	NA	200	17	≈100	3.0
1322	(50)	NA	NA	220	17	≈100	2.9
1335	(70)	NA	NA	220	16	≈50	4.2
1340	(75)	NA	NA	220	17	<20	3..
1350	(85)	NA	NA	NA	NA	NA	NA

DEVELOPMENT ENDED AT 1350

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: PRE-REMEDIAL INVESTIGATION SCREENING STUDY

CTO NO.: 0314 WELL NO.: 76-GW05

DATE: 2/24/96

GEOLOGIST/ENGINEER: J. TEPSIC

TIME START: 1400	**DEVELOPMENT DATA**							
TIME FINISH: 1440	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY	D.O.
INITIAL WATER LEVEL (FT): NA	1400	(5)	NA	NA	140	12	>200	2.2
TOTAL WELL DEPTH (TD): NA	1410	(10)	NA	NA	140	13	>200	2.3
WELL DIAMETER (INCHES): 2	1415	(20)	NA	NA	130	15	≈150	2.3
CALCULATED WELL VOLUME: NA	1425	(30)	NA	NA	130	13	≈100	2.2
BOREHOLE DIAMETER (INCHES): NA	1430	(50)	NA	NA	125	15	<50	2.3
BOREHOLE VOLUME: NA	1440	(70)	NA	NA	125	15	<20	2.2
AMOUNT OF WATER ADDED DURING DRILLING: NA	1450	(80)	NA	NA	NA	NA	NA	NA
DEVELOPMENT METHOD: PUMP								
PUMP TYPE: HAND PUMP								
TOTAL TIME (A): 40 MINUTES								
AVERAGE FLOW (GPM)(B): 1.8								
TOTAL ESTIMATED WITHDRAWAL AxB= ≈ 80 GALLONS	DEVELOPMENT ENDED AT 1440							
HNU/OVA READING: NON-DETECT								

APPENDIX C
CHAIN OF CUSTODIES

317 001

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Page ____ of ____

Client: BAKER ENVIRONMENTAL, INC.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Boncli, 412-269-20[illegible]
AD Project Manager: Denise Waltman
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

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

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Metal	CN	No. of Bottles	Turnaround
	68-GW01DW-02			S	1/9/96	1553	✓	✓	✓		✓	✓	3	R
	68-GW01DW-01			S	1/9/96	1550	✓	✓	✓		✓	✓	3	R
	68-GW04DW-03			S	1/10/96	1325	✓	✓	✓		✓	✓	2	R
	68-GW04DW-07			S	1/10/96	1400	✓	✓	✓		✓	✓	2	R
	68-ER01			W	1/9/96	1600	✓	✓	✓		✓	✓	7	R
	TB01			W	12/29/95	1315	✓						2	R
	68-ER02			W	1/11/96	1400	✓	✓	✓		✓	✓	7	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Fed-Ex Airbill # 1627644841

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
[signature]	[signature]	1/11/96	1700

Relinquished by	Received by	Date	Time

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

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

381-596a

WESTON Analytics Use Only

314-002

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 2

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2039
AD Project Manager: Denise Woltman
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN	BTEX 8020	O&G 9071	TPH 8015 3550/5030		No. of Bottles	Turnaround
	12-GP-18			W	1/10/96	1510										✓				1	R
	12-GP-25			W	1/11/96	1215										✓				1	R
	12-GP-30			W	1/10/96	1630										✓				1	R
	44-SW10-01			W	1/12/96	1100	✓													2	R
	68-GW04-00			S	1/11/96	0820	✓	✓	✓					✓	✓					2	R
	68-GW04-07			S	1/11/96	0918	✓	✓	✓					✓	✓					2	R
	12-ER03			W	1/12/96	1500	✓	✓	✓					✓	✓					7	R
	12-SB01-02			S	1/9/96	1032										✓	✓	✓		2	R
	12-SB05-01			S	1/9/96	1205										✓	✓	✓		2	R
	12-SB30-01			S	1/9/96	1353										✓	✓	✓		2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Fed-Ex Airbill # 1627645095

12-GP-30, 12-GP-18, 12-GP-25 } Samples are not preserved

44-SW10-01 Falls under a diff. CTO

check date collected! Concerned about Holding Times for some samples

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Jeffrey P. [illegible]		1/12/96	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

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-002

WESTON

Client: Baker Environmental, INC
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	BTEX 8020	DEG 9071	TPH 8015 3550/5030		No. of Bottles	Turnaround
	12-SB25-01			S	1/10/96	0915							✓	✓	✓		2	R
	TB02			W	12/29/96	1315	✓										2	R

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: Fed-Ex Airbill # 1627645095

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
[signature]	P. Tepsi	1/12/96	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# ___ 381-596a

WESTON Analytics Use Only

314-003

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 15

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonell/412-269-2033
AD Project Manager: Denise 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
Other

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: No. of bottles	Preservation
	68-ER05			W	11/14/96	1300	7	R
	68-SW10-01			W	11/13/96	1410	7	R
	68-SW09-01			W	11/13/96	1345	7	R
	TB03			W	11/7/96	1135	2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645106

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
Jeffry P. Tupsic		11/16/96	1800

Relinquished by	Received by	Date	Time

RF 11-001/A-7/91 ___ L372 ___ L373 ___ 5 ___ L377 ___ L378 Ref# _____ Cooler# _____ 381-596a

WE... Analytics Use Only

34-003

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
AD Project Manager: Denise 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; INORG: Metal, CN

No. of Bottles: 12 Pinpoint

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								
	68-SW08-01			W	1/13/96	1210	✓	✓	✓				✓								7	R
	68-SW07-01			W	1/13/96	1130	✓	✓	✓				✓								7	R
	68-SW06-01			W	1/13/96	1030	✓	✓	✓				✓								7	R
	TB04			W	12/9/95	1345	✓														2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 162 7645106

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
Jeffrey P. Ipsic		1/16/96	1800

Relinquished by	Received by	Date	Time

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

___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___

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

381-596a

314-003

Custody Transfer Record/Lab Work Request

WESTON Analytics Use Only

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of bottles	Turnaround
	68-SW05-01			W	1/14/96	0810	✓	✓	✓		✓		7	R
	68-SW04-01			W	1/14/96	0850	✓	✓	✓		✓		7	R
	68-SW03-01			W	1/14/96	1040	✓	✓	✓		✓		7	R
	TB05			W	12/29/96	1315	✓						2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645106

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
Jeffrey	P. Tepsic	1/16/96	1800

Relinquished by	Received by	Date	Time

RFV 1-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# _____

381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-003

WESTON

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
AD Project Manager: Denise Weltman
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	Time Collected	WESTON Analytics Use Only	No. of Bottles	Turnaround
	68-SW02-01			W	1/14/96	1120	✓ ✓ ✓ ✓	7	R
	68-ER04			W	1/13/96	0730	✓ ✓ ✓ ✓	7	R
	TB06			W	12/29/95	1315	✓	2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
162764510 6

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
Jeffrey A Tupsic		1/16/96	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

314-003

Page 5 of 15

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
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

No. of Bottles

Turnaround

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	No. of Bottles	Turnaround
	68-SW01-01	✓	✓	W	1/15/96	0815	✓ ✓ ✓ ✓	14	R
	68-SW01-01D			W	1/15/96	0818	✓ ✓ ✓ ✓	7	R
	TB07			W	1/15/96	1315	✓		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
627645106

MS/MSD @ 68-SW01-01

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
Jeffrey Pierpoint		1/16/96	1800

Relinquished by	Received by	Date	Time

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

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

W. Analytics Use Only

314-005

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker Environmental Inc.
Est. Final Proj. Sampling Date 2-15-96
Work Order #
Project Contact/Phone # Rich Bonelli/412-269-2033
AD Project Manager Denise Wightman
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	5015 TPH	8015 TPH	8270	8010	8021	3550	No. of Containers	Turnaround Time

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													
	68-GW06DW-00			S	1/12/96	1409	✓	✓	✓				✓					2	R
	68-GW06DW-02			S	1/12/96	1418	✓	✓	✓				✓					2	R
	68-GW06-00			S	1/13/96	0805	✓	✓	✓				✓					2	R
	68-GW06-01			S	1/13/96	0812	✓	✓	✓				✓					2	R
	68-GW05DW-08			S	1/14/96	0916	✓	✓	✓				✓					2	R
	68-GW05DW-D			S	1/14/96	0835	✓	✓	✓				✓					2	R
	68-GW05DW-00	✓	✓	S	1/14/96	0835	✓	✓	✓				✓					2	R
	68-SB15-00			S	1/13/96	0848	✓	✓	✓				✓					2	R
	12-SB14-01			S	1/12/96	1018								✓	✓	✓		2	R
	12-SB17-01			S	1/11/96	1542								✓	✓	✓		2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
162764510b

MS/MSD @ 68-GW05DW-00

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
Jeffrey A. Stepien		1/16/96	1800

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

314-003

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Richbonell / 412-269-2033
AD Project Manager: Denise Woltman
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of bottles	Turnaround
	TB08			W	12/29/95	1315	✓						2	R
	68-SB14-03			S	1/13/96	1000	✓	✓	✓		✓		2	R
	68-SB09-04			S	1/13/96	1313	✓	✓	✓		✓		2	R
	68-SB10-00			S	1/13/96	1155	✓	✓	✓		✓		2	R
	68-SB09-00			S	1/13/96	1255	✓	✓	✓		✓		2	R
	68-SB08-00			S	1/13/96	1600	✓	✓	✓		✓		2	R
	68-SB17-06			S	1/14/96	0829	✓	✓	✓		✓		2	R
	68-SB10-05			S	1/13/96	1221	✓	✓	✓		✓		2	R
	68-SB15-03			S	1/13/96	0905	✓	✓	✓		✓		2	R
	68-SB06-00			S	1/13/96	1445	✓	✓	✓		✓		2	R

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645106

DATE/REVISIONS:
1. ____
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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
Jeffrey P. Tepsic		1/16/96	1800

Relinquished by	Received by	Date	Time

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

RF[illegible]21-001/A-7/91 ____ L372 ____ L373 ____ [illegible]75 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

314-003

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
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

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	Metal	CN	No of bottles	Turnaround
		68-SB13-00			S	1/13/96	1030	✓	✓	✓		✓		2	R
		68-SB14-03D			S	1/13/96	1000	✓	✓	✓		✓		2	R
		68-SB14-00			S	1/13/96	0942	✓	✓	✓		✓		2	R
		68-SB13-07			S	1/13/96	1105	✓	✓	✓		✓		2	R
		68-SB08-06			S	1/13/96	1622	✓	✓	✓		✓		2	R
		68-SB06-08D			S	1/13/96	1516	✓	✓	✓		✓		2	R
		68-SB06-08			S	1/13/96	1516	✓	✓	✓		✓		2	R
		68-SB17-00			S	1/14/96	0810	✓	✓	✓		✓		2	R
		68-SB05-08			S	1/13/96	1422	✓	✓	✓		✓		2	R
		68-SB05-00			S	1/13/96	1345	✓	✓	✓		✓		2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 162764510 6

DATE/REVISIONS:

1. ____
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4. ____
5. ____
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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
Jeffrey Pizzuto		1/16/96	1800

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

WEST[illegible] Analytics Use Only

314-003

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker Environmental Inc
Est. Final Proj. Sampling Date 2-15-96
Work Order #
Project Contact/Phone # Rich Bonelli / 912-269-2035
AD Project Manager Denise Woltman
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				No. of bottles	Turnaround

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												
	TB09			W	12/29/95	1315	✓											2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed Ex Airbill # 162764510 6

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
Jeffrey R. Tegenic		12/16/96	1800

Relinquished by	Received by	Date	Time

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

RFV [illegible]1-001/A-7/91 ____ L372 ____ L373 ____ L[illegible]75 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-003

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker Environmental, Inc.
Est. Final Proj. Sampling Date 2-15-96
Work Order #
Project Contact/Phone # Rich Bonelli/412-269-2033
AD Project Manager Denise 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; INORG: Metal, CN

No. of bottles

Turnaround

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														
	68-SD01-01	✓	✓	SE	1/15/96	0830	✓	✓	✓					✓						4	R
	68-SD01-01D			SE	1/15/96	0835	✓	✓	✓					✓						2	R
	68-SD02-01			SE	1/11/96	1125	✓	✓	✓					✓						2	R
	68-SD03-01			SE	1/14/96	1050	✓	✓	✓					✓						2	R
	68-SD04-01			SE	1/14/96	0855	✓	✓	✓					✓						2	R
	68-SD05-01			SE	1/14/96	0815	✓	✓	✓					✓						2	R
	68-SD06-01			SE	1/13/96	1045	✓	✓	✓					✓						2	R
	68-SD07-01			SE	1/13/96	1135	✓	✓	✓					✓						2	R
	68-SD08-01			SE	1/13/96	1215	✓	✓	✓					✓						2	R
	68-SD09-01			SE	1/13/96	1355	✓	✓	✓					✓						2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 162764510 6

MS/MSD @ 68-SD01-01

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
Jeffrey Pippin		1/16/96	1800

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 Environmental Inc
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
AD Project Manager: Denise Woltman
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							No. of bottles	Turnaround
								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													
	68-SD10-01			SE	1/13/96	1450	✓	✓	✓					✓				2	R
	TB10			W			✓											2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 627645106

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
Jeffrey A. Stephenson		1/16/96	1800

Relinquished by	Received by	Date	Time

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker Environmental Inc.
Est. Final Proj. Sampling Date 2-15-96
Work Order #
Project Contact/Phone # Rich Bonelli/412-269-2333
AD Project Manager Denise Wolman
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					No. of Bottles	Turnaround

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												
	FB01			W	1/16/96	1030	✓	✓	✓				✓					7	RB
	68-ER06			W	1/16/96	1100	✓	✓	✓				✓					7	RB
	FB-11			W	12/96	1315	✓											7	RB
	68-ER07			W	1/16/96	1700	✓	✓	✓				✓					7	RB

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645106

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
Jeffrey	P. Lepic	1/16/96	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

314-003

Custody Transfer Record/Lab Work Request

WESTON

Client: Baker Environmental INC
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
AD Project Manager: Denise Waterman
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; SQ - 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	No. of Containers	Turnaround Time
	68-SB01-09			S	1/15/96	0812	✓	✓	✓		✓		2	R
	68-SB07-00			S	1/16/96	0914	✓	✓	✓		✓		2	R
	68-SB11-00	✓	✓	S	1/16/96	1016	✓	✓	✓		✓		2	R
	68-SB11-06			S	1/16/96	1028	✓	✓	✓		✓		2	R
	68-SB01-00	✓	✓	S	1/15/96	0755	✓	✓	✓		✓		2	R
	68-SB11-00D			S	1/16/96	1016	✓	✓	✓		✓		2	R
	68-SB04-10			S	1/15/96	1038	✓	✓	✓		✓		2	R
	68-SB07-07			S	1/16/96	0937	✓	✓	✓		✓		2	R
	68-SB03-00			S	1/16/96	0825	✓	✓	✓		✓		2	R
	68-SB16-00			S	1/16/96	0845	✓	✓	✓		✓		2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 162764510 6

MS/MSD @ 68-SB11-00 and 68-SB01-00

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
Jeffrey P. Tepsic		1/16/96	1800

Relinquished by	Received by	Date	Time

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

RF 21-001/A-7/91 ___ L372 ___ L373 ___ 75 ___ L377 ___ L378 Ref# ____ Cooler# ____ 381-596a

WE... Analytics Use Only

314-003

Custody Transfer Record/Lab Work Request

WESTON

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
AD Project Manager: Denise Woltman
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of Bottles	Turnaround
	68-SB04-00			S	1/15/96	1000	✓	✓	✓		✓		2	R
	68-SB12-00			S	1/15/96	1240	✓	✓	✓		✓		2	R
	68-SB01-00D	✓	✓	S	1/15/	0735	✓	✓	✓		✓		2	R
	68-SB02-06			S	1/15/96	1420	✓	✓	✓		✓		2	R
	68-SB16-10			S	1/15/96	0923	✓	✓	✓		✓		2	R
	68-SB12-08			S	1/15/96	1309	✓	✓	✓		✓		2	R
	68-SB03-07			S	1/16/96	0850	✓	✓	✓		✓		2	R
	68-SB02-00			S	1/15/96	1355	✓	✓	✓		✓		2	R
	68-SB08-09			S	1/15/96	1207	✓	✓	✓		✓		2	R
	68-SB08-00			S	1/15/96	1138	✓	✓	✓		✓		2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
1627645106
MS/MSD @ 68SB11-00

DATE/REVISIONS:
1.
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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

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

Relinquished by	Received by	Date	Time
Jeffrey	P. Tepsic	1/16/96	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

314-003

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
AD Project Manager: Denise Woltman
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					No. of bottles	Turnaround
	WESTON Analytics Use Only														
Lab ID / Client ID/Description / Matrix QC Chosen (✓) MS MSD / Matrix / Date Collected / Time Collected															
TB12	W	12/29/95	1315	✓										2	R

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: Fed-EX Airbill #
1627645106

DATE/REVISIONS:
1.
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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

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

Relinquished by	Received by	Date	Time
Jeffrey P. Tepsic		1/17/96	1800

Relinquished by	Received by	Date	Time

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

381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-004

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 2-15-96
Work Order #:
Project Contact/Phone #: Rich Bonelli 1412-269-2033
AD Project Manager: Denise Woltman
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	Full TCLP Flashpoint	Reactive CN	Reactive Sulfide		No. of bottles	Turnaround
	68-BOX 1			S	1/22/96	1530										X				1	14
	TB 13			W	1/12/96	1445	X														

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:
Full TCLP Analysis
RCRA Characteristics for IDW
Disposal. Collected from
Roll off Box @ Site 68
(composite sample)

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
Jeffrey [illegible]		1/22/96	1800

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

314-005

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date 2-15-96
Work Order #
Project Contact/Phone # Rich Bondi / 412-269-2038
AD Project Manager Denise Woltman
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

Refrigerator #

#/Type Container	Volume	Preservatives
Liquid	Liquid	
Solid	Solid	

ANALYSES REQUESTED →

ORGANIC: VOA, BNA, Pest/PCB, Herb
INORG: Metal, CN
TCLP Metals, RCRA Char, Corrosivity, Reactivity, Flashpoint, No. of bottles, Turnaround (hr)

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	TCLP Metals	RCRA Char	Corrosivity	Reactivity	Flashpoint	No. of bottles	Turnaround (hr)
	86-WTP1-00			S	1/23/96	1000	✓	✓	✓	✓	✓	1	R
	85-WTP2-00			S	1/23/96	1024	✓	✓	✓	✓	✓	1	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Run TCLP Metals & RCRA Characteristics
Fed.Ex Airbill # 1627645084

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
Jeffrey C. Tymic		1/23/96	1800

Relinquished by	Received by	Date	Time

RFW 1-001/A-7/91 ____ L372 ____ L373 ____ ____ L377 ____ L378 Ref# ____ Cooler# ____

381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-006

WESTON MANAGERS DESIGNERS & CONSULTANTS

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bandi/412-269-2038
AD Project Manager: Denise Wolfman
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		

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	Metal	CN	# of Bottles	Turnaround
	68-GW01-01	✓	✓	W	1/24/96	1030	✓	✓	✓		✓		14	R
	85-ER08			W	1/24/96	1500	✓						2	R
	68-ER09			W	1/24/96	1530	✓						2	R
	68-GW02-01D			W	1/24/96	1330	✓						2	R
	68-GW02-01			W	1/24/96	1330	✓						2	R
	TB14			W	1/24/96	1445	✓						2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
162764505 1

MS/MSD collected @ 68-GW01-01

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
Jeffrey C. Ferguson		1/24/96	1800

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

314-006

Custody Transfer Record/Lab Work Request

WESTON

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
AD Project Manager: Denise Wortman
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; No. of bottles; Turnaround

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				Metal	CN					No. of bottles	Turnaround
	85-ER08			W	1/21/96	1500		✓	✓					✓						5	R
	68-ER09			W	1/24/96	1530		✓	✓					✓						5	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645051

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
Jeffrey Pepson		1/24/96	1800				

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

WESTON Analytics Use Only

314-006

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
AD Project Manager: Denise Woltman
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of bottles	Turnaround
	68-GW02-01			W	1/24/96	1330		✓	✓		✓		5	R
	68-GW02-01D			W	1/24/96	1330		✓	✓		✓		5	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-EX Airbill # 1627645051

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
Jeffrey P. Tepsic		1/24/96	1800

Relinquished by	Received by	Date	Time

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

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

381-596a

WESTON Analytics Use Only

314-007

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS-CONSULTANTS

Page 1 of 2

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
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 →

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of bottles	Remarks
	68-ER10			W	1/25/96	1400	✓	✓	✓		✓		7	R
	TB15			W	1/24/96	1445	✓						2	R
	68-GW03-01			W	1/25/96	0830	✓							
	68-GW04-01			W	1/25/96	1325	✓							
	68-GW04DW-01			W	1/25/96	1515	✓	✓	✓		✓		7	R

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: Fed-Ex Airbill # 1627645062

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

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

Relinquished by	Received by	Date	Time
Jeffrey P. Tepsic		1/25/96	1800

Relinquished by	Received by	Date	Time

RF 1-001/A-7/91 ___ L372 ___ L373 ___ L377 ___ L378 Ref# ___ Cooler# ___

381-596a

WESTON Analytics Use Only

314-007

Custody Transfer Record/Lab Work Request

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
AD Project Manager: Denise Wollerman
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:
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	Metal	CN	No. of bottles	Turnaround
	68-GWD3-01				1/25/96	0830		✓	✓		✓		5	R
	68-GW04-01				1/25/96	1325		✓	✓		✓		5	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
1627645062

DATE/REVISIONS:
1.
2.
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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
Jeffrey Pierce		1/25/96	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

314-008

WESTON Managers Designers Consultants

Page 1 of 1

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Ronell/412-269-2033
AD Project Manager: Denise Waterman
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

No. of Containers

Turnaround Time

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	Metal	CN									No. of Containers	Turnaround Time
	68-GW05DW-01			W	1-26-96	0910	✓	✓	✓		✓										7	RR
	68-GW06DW-01			W	1-26-96	1100	✓	✓	✓		✓										7	RR
	68-GW06-01			W	1-26-96	1135	✓	✓	✓		✓										8	RR
	TB 1-6			W	1/26/96	1445	✓														2	RR
					1/26/96		✓															
							✓															

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
1627645073

Note: 68-GW06-01 gets analyzed for total & dissolved metals

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
Jeffrey P. Tosi		1/26/96	1800

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314-009

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker Environmental Inc
Est. Final Proj. Sampling Date 1-31-96
Work Order #
Project Contact/Phone # Rich Bonelli 412-269-2033
AD Project Manager Denise Woltman
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container Liquid / Solid
Volume Liquid / Solid
Preservatives
ANALYSES REQUESTED →

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	WESTON Analytics Use Only	No of Containers	Turnaround
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		FB-02			W	1/27/96	0820	✓	✓	✓		✓			7	R
		68-ER11			W	1/26/96	1600	✓	✓	✓		✓			7	R
		TB17			W	1/29/96	1815	✓							2	R
		68-ER12			W	1/20/96	0830	✓							2	R
		68-GW01DW-01			W	1/27/96	1045	✓							2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 162764 5040

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
Jeffrey Pupsis	P. Pupsis	1/29/96	1800

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

394-009

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2033
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									
		VOA	BNA	Pest/PCB	Herb							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	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN					No. of bottles	Turnaround
	68-ER12			W	1/28/96	0830		✓	✓					✓						5	R
	68-GW01DW01			W	1/27/96	1045		✓	✓					✓						5	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill # 1627645040

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

Relinquished by	Received by	Date	Time
Jeffrey P. Tepsic		1/29/96	1800

Relinquished by	Received by	Date	Time

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

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WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental, INC
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli / 412-269-2033
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	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	No. of bottles	Turnaround
	12-GWØ1-Ø1			AQ	1-29-96	1320	✓	✓					4	R
	12-GWØ2-Ø1			AQ	1-29-96	1505	✓	✓					4	R
	12-GWØ1-Ø1D			AQ	1-29-96	1320	✓	✓					4	R
	12-GWØ1-Ø1	✓	✓	AQ	1-29-96	1320	✓	✓					4	R
	12-GWØ3-Ø1			AQ	1-30-96	0935	✓	✓					4	R
	12-GWØ4-Ø1			AQ	1-30-96	1045	✓	✓					4	R
	12-ER13			AQ	1-30-96	1235	✓	✓					4	R
	TB18			AQ	1-29-96	1600	✓						2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Fed Ex. Airbill #
1627645014

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
Andrew P Seaman		1-31-96	1500

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

314-011

WESTON MANAGEMENT DESIGN/ENGINEERING/CONSULTANTS

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 1-31-96
Work Order #:
Project Contact/Phone #: Rich Bonelli/412-269-2023
AD Project Manager: Denise 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
INORG: Metal | CN
Reactive Sulfide | Reactive Cyanide | Flash 200°F | Corrosivity | No. of Bottles | Turnaround

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	Metal	CN	Reactive Sulfide	Reactive Cyanide	Flash 200°F	Corrosivity	No. of Bottles	Turnaround
	87-TP01-01			S	1-29-96	1100	✓	✓	✓		✓						2	R
	87-TP02-01			S	1-29-96	1220	✓	✓	✓		✓						2	R
	87-TP03-01			S	1-30-96	1000	✓	✓	✓		✓						2	R
	87-TP04-01			S	1-30-96	1430	✓	✓	✓		✓						2	R
	TB19			W	1/2/96	1445	✓				✓						2	R
	68-TNK-01			W	1/31/96	0915	✓	✓	✓		✓		✓	✓	✓	✓	11	14 day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Fed-Ex Airbill #
162764502 5

Note:
Last shipment

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
Jeffrey P. Typsic		1/31/96	1800

Relinquished by	Received by	Date	Time

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

COC# 314-012

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker
Est. Final Proj. Sampling Date 2-28-96
Work Order #
Project Contact/Phone # K. Wood (412) 269-6000
AD Project Manager D. Waltman
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	Mod. 8270			Metal	CN			# 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 1996	Time Collected	WESTON Analytics Use Only												
		75-GW04-00			S	2/21	1310	X	X	X	X			X				3	R	
		75-GW04-01			S	2/21	1315	X	X	X	X			X				3		
		75-SB01-00			S	2/21	1350	X	X	X	X			X				3		
		75-SB01-0001			S	2/21	1350	X	X	X	X			X				3		
		75-SB01-01			S	2/21	1355	X	X	X	X			X				3		
		75-SB03-01			S	2/21	1425	X	X	X	X			X				3		
		75-SB03-02			S	2/21	1435	X	X	X	X			X				3		
		75-SB04-00			S	2/21	1500	X	X	X	X			X				3		
		75-SB04-01			S	2/21	1505	X	X	X	X			X				3		
		76-GW05-00			S	2/21	1535	X	X	X	X			X				3		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- Modified 8270 = chloropicrin & chloroacetophenone
- Airbill # 1627645003

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
JPT	Fed Ex	2/22	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

coc# 314-012

Custody Transfer Record/Lab Work Request

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood (412) 269-6000
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, Mod. 8270 | INORG: Metal, CN | # 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 1996	Time Collected	VOA	BNA	Pest/PCB	Herb	Mod. 8270	Metal	CN	# Bottles	Turn Around
	76-GW05-01			S	2/21	1540	X	X	X		X	X		3	R
	75-SB06-00			S	2/21	1600	X	X	X		X	X		3	
	75-SB06-01			S	2/21	1615	X	X	X		X	X		3	
	76-GW03-00			S	2/21	1635	X	X	X		X	X		3	
	76-GW03-02			S	2/21	1650	X	X	X		X	X		3	
	75-SB07-00			S	2/22	0730	X	X	X		X	X		3	
	75-SB07-00D			S	2/22	0730	X	X	X		X	X		3	
	75-SB07-01	X	X	S	2/22	0735	X	X	X		X	X		6	
	75-SB09-00			S	2/22	0820	X	X	X		X	X		3	
	75-SB09-02			S	2/22	0830	X	X	X		X	X		3	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- Modified 8270 = chloropicrin
  chloroacetophenone

* Weston Trip Blank enclosed
  Baker ID# TB20

- Airbill # 1627645003

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
JPT	FedEx	2/22/96	1800

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

3.4-012 3 TFT 2-22-96

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client Baker Environmental, INC.
Est. Final Proj. Sampling Date 2/28/96
Work Order #
Project Contact/Phone # Richbonelli/412-269-2033
AD Project Manager Denise 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, Mod 8270; INORG: Metal, CN; No. of bottles; Turnaround

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	Mod 8270	Metal	CN	No. of bottles	Turnaround
		75-ER14			W	2/22/96	0650	X	✓	✓		X	✓		5	R
		75-ER15			W	2/22/96	0710	X	✓	✓		X	✓		5	R
		75-SB10-00			S	2/22	0900	X	X	X		X	X		3	R
		75-SB10-01			S	2/22	0905	X	X	X		X	X		3	R
		75-SB12-00			S	2/22	1020	X	X	X		X	X		3	R
		75-SB12-01			S	2/22	1030	X	X	X		X	X		3	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Mod 8270 = chloropicrin
chloroacetophenone

Fed-Ex Airbill # 1627645003

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

Relinquished by	Received by	Date	Time
JPT	Fed Ex	2/22/96	1800

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

314-014

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS JPT 2/12

Page 1 of 15

Client Baker Environmental Inc.
Est. Final Proj. Sampling Date 2-28-96
Work Order #
Project Contact/Phone # Karen Wood / 412-269-6000
AD Project Manager Denise 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, Mod. 8270 (8270); INORG: Metal, CN

No. of Bottles

Turnaround Mod

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	WESTON Analytics Use Only	No. of Bottles	Turnaround Mod
	75-SB13-01	✓	✓	S	2/22	0935	✓	3	R
	75-SB14-00			S	2/22	1100	✓	3	R
	75-SB02-02			S	2/22	1235	✓	3	R
	75-SB07-00			S	2/22	1225	✓	3	R
	75-SB13-00			S	2/22	0930	✓	3	R
	75-SB14-01			S	2/22	1110	✓	3	R
	75-SB11-00			S	2/22	1455	✓	3	R
	75-SB08-00			S	2/22	1415	✓	3	R
	75-GW04-02	✓	✓	S	2/22	1550	✓	3	R
	75-SB08-01			S	2/22	1420	✓	3	R

JPT 2/23/96

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: chloropicrin =
Note: Mod. 8270 = chloroacetophenone

Fed-Ex Airbill # 1627644992

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
Jeffrey P. Lyon	Fed-EX	2/23/96	1800

Relinquished by	Received by	Date	Time

RF 1-001/A-7/91 ____ L372 ____ L373 ____ 5 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

314 · Ø14

WESTON JPT 2/23

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: Karen Wood/412-269-6000
AD Project Manager: Denise Woltman
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 1996	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Mod 8270			INORG Metal	CN					No. of bottles	Turnaround
	75-GWØ5-Ø1			S	2/22	1350	✓	✓	✓		✓			✓						3	R
	75-SBØ8-ØØD			S	2/22	1415	✓	✓	✓		✓			✓						3	R
	75-GWØ5-ØØ			S	2/22	1340	✓	✓	✓		✓			✓						3	R
	75-SBØ5-ØØ			S	2/22	1300	✓	✓	✓		✓			✓						3	R
	75-SB11-Ø1			S	2/22	1500	✓	✓	✓		✓			✓						3	R
	75-SBØ5-Ø2			S	2/22	1310	✓	✓	✓		✓			✓						3	R
	75-SB13-ØØD			S	2/22	0930	✓	✓	✓		✓			✓						3	R
	75-GWØ4-ØØ			S	2/22	1540	✓	✓	✓		✓			✓						3	R
	75-GWØ4-ØØD			S	2/22	1540	✓	✓	✓		✓			✓						3	R
	TB22			W	1/12	1445	✓													2	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Chloropicrin &
Note: Mod. 8270 = chloroacetophenone

Fed-Ex Airbill #
1627644992

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
Jeffrey P. Tepsin	Fed-Ex	2/23/96	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

314 - 015

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

2/23/96 JDT

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: Kara Wood/412-269-6000
AD Project Manager: Denise Wolfman
QC ____ Del ____ TAT
Date Rec'd ____ Date Due ____
Account #

Refrigerator #

		ORGANIC							INORG							
#/Type Container	Liquid/Solid	VOA	BNA	Pest/PCB	Herb	Mod 8270			Metal	CN					No. of bottles	Turnaround
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 1996	Time Collected	WESTON Analytics Use Only												
	76-SB05-01			S	2/23	0900	✓	✓	✓	✓			✓					3	R
	76-SB05-00			S	2/23	0850	✓	✓	✓	✓			✓					3	R
	76-SB03-01			S	2/23	0825	✓	✓	✓	✓			✓					3	R
	76-SB08-02			S	2/23	0940	✓	✓	✓	✓			✓					3	R
	76-SB08-00			S	2/23	0930	✓	✓	✓	✓			✓					3	R
	76-SB01-01			S	2/23	0745	✓	✓	✓	✓			✓					3	R
	76-SB03-00			S	2/23	0815	✓	✓	✓	✓			✓					3	R
	76-SB01-00			S	2/23	0730	✓	✓	✓	✓			✓					3	R
	76-SB01-00D			S	2/23	0730	✓	✓	✓	✓			✓					3	R
	76-SB11-00			S	2/23	1125	✓	✓	✓	✓			✓					3	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Chloropicrin ?
Note: Mod 8270 = Chloroacetophenone

Fed-Ex Airbill # 162764499 2

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
Jeffrey Pepa	Fed-Ex	2/23/96	1800

Relinquished by	Received by	Date	Time

RF 21-001/A-7/91 ____ L372 ____ L373 ____ 75 ____ L377 ____ L378 Ref# ____ Cooler# ____

381-596a

WE[illegible]N Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 4 of 45

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: Karen Wood/412-269-6000
AD Project Manager: Denise Woltman
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 1996	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Mod 8270			INORG Metal	CN					No. of bottles	Turnaround
	76-SB11-00D			S	2/23	1125	✓	✓	✓		✓			✓						3	R
	76-SB09-01			S	2/23	1100	✓	✓	✓		✓			✓						3	R
	76-SB11-01			S	2/23	1130	✓	✓	✓		✓			✓						3	R
	76-SB09-00			S	2/23	1050	✓	✓	✓		✓			✓						3	R
	76-ER16			W	2/23	0930	✓							✓						3	R
	TB23			W	1/12	1445	✓													2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Note: Mod 8270 = Chloropicrin & chloroacetophenone

Fed-Ex Airbill # 1627644992

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

Relinquished by	Received by	Date	Time
J. Hugh Tepai	Fed-Ex	2/23/96	1800

Relinquished by	Received by	Date	Time

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# _____ 381-596a

COC # 314-014 "

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental Inc.
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: Karen Wood/412-269-6000
AD Project Manager: Denise Woltman
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	Mod. 8270							Metal	CN							No. of bottles	Turnaround

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	Mod. 8270			Metal	CN					No. of bottles	Turnaround
					1996																
	76-ER16			W	2/23	0930		✓	✓		✓									4	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Note: Mod 8270 = chloropicrin & chloroacetophenone

Fed-Ex Airbill #
1627644992

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
[signature]	Fed-Ex	2/23/96	1800

Relinquished by	Received by	Date	Time

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

RF 21-001/A-7/91 ____ L372 ____ L373 ____ 75 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

COC# 314-015

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS-CONSULTANTS

Client: Baker

Est. Final Proj. Sampling Date: 2-28-96

Work Order #:

Project Contact/Phone #: K. Wood 412-269-6000

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 | Mod. 8270

INORG: Metal | CN

Bottles | Turn

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	Mod. 8270	Metal	CN	# Bottles	Turn
	76-SB10-00			S	2/23/96	1245	X	X	X		X	X		3	R
	76-SB10-02			S	2/23	1255	X	X	X		X	X		3	R
	76-SB12-00	X	X	S	2/23	1320	X	X	X		X	X		6	TFT R
	76-SB12-02			S	2/23	1330	X	X	X		X	X		3	R
	76-SB12-02D			S	2/23	1330	X	X	X		X	X		3	R
	76-SB13-00			S	2/23	1410	X	X	X		X	X		3	R
	76-SB13-01			S	2/23	1420	X	X	X		X	X		3	R
	76-SB07-00			S	2/23	1440	X	X	X		X	X		3	R
	76-SB07-01			S	2/23	1445	X	X	X		X	X		3	R
	76-SB06-00			S	2/23	1505	X	X	X		X	X		3	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Mod. 8270 = chloropicrin & chloroacetophenone

TB23 = weston Prepared Blank

R = Routine * See last column for turn

Airbill # 162764489 6

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
TFT	Fed Ex	2/24/96	1300

Relinquished by	Received by	Date	Time

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

COC # 314-015

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
AD Project Manager: D. 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, Mod. 8270 | INORG: Metal, CN | # Bottles | Turn

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	Mod. 8270	Metal	CN	# Bottles	Turn
	76-SB06-01			S	2/23	1515	X	X	X		X	X		3	R
	76-SB04-00			S	2/23	1530	X	X	X		X	X		3	R
	76-SB04-01			S	2/23	1535	X	X	X		X	X		3	R
	76-SB02-00			S	2/23	1550	X	X	X		X	X		3	R
	76-SB02-01			S	2/23	1555	X	X	X		X	X		3	R
	P58601-00			S	2/23	1730	X	X	X			X		2	R
	P58602-00			S	2/23	1740	X	X	X			X		2	R
	P58603-00			S	2/23	1745	X	X	X			X		2	R
	FB-03			W	2/24	0800	X							2	R
	75-ER17			W	2/24	0830	X							2	R

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Mod. 8270 = chloropicrin & chloroacetophenone
R = Routine
* See last column for sample turn

Airbill # 1627644896

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

Relinquished by	Received by	Date	Time
TFT	FedEx	2/24/96	1300

Relinquished by	Received by	Date	Time

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

RI 21-001/A-7/91 ____ L372 ____ L373 ____ 5 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

COC# 314-015

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood 412-261-6000
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							INORG						
	VOA	BNA	Pest/PCB	Herb	Mod 8270			Metal	CN				# Bottles	Turn
WESTON Analytics Use Only	(1)													
FB-03	X	X	X		X			X					5	R
75-ER17		X	X		X			X					5	R

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
	FB-03			W	2/24/1996	0800
	75-ER17			W	2/24	0830

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- Mod. 8270 = chloropicrin + chloroacetophenone
R = Routine
See last column for sample turn

Airbill # 1627644896

DATE/REVISIONS:
7.7.7 1. No VOAs in this cooler
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
TFT	FedEx	2/24/96	1300

Relinquished by	Received by	Date	Time

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

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

381-596a

WESTON Analytics Use Only

COC#314-016

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page 1 of 1

Client: Baker

Est. Final Proj. Sampling Date: 2-26-96

Work Order #:

Project Contact/Phone #: K. Wade 412-269-6000

AD Project Manager: D Wiltman

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, Mod. 8270

INORG: Metal, CN

Bottles

Turn Around Time

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	Mod. 8270			Metal	CN			# Bottles		Turn Around Time
	75-GW05-01			W	2/25/96	1730		X	X		X			X				5		RR
	76-GW01-01D			W	2/25/96	0930		X	X		X			X				5		RR

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

-see last column for sample turn around

R = Routine

Mod. 8270 = chloropicrin & chloroacetophenone

Airbill # 1627644966

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
JPT	Fed Ex	2/26/96	1700

Relinquished by	Received by	Date	Time

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

RF 21-001/A-7/91 ___ L372 ___ L373 ___ 5 ___ L377 ___ L378 Ref# _____ Cooler# 8

381-596a

COC # 314-016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker
Est. Final Proj. Sampling Date 2-26-96
Work Order #
Project Contact/Phone # K. Wood 412-269-6600
AD Project Manager D. Waltman
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	Mod 8270			Metal	CN				# Bottles		Turn

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1996	Time Collected	WESTON Analytics Use Only											
S - Soil		76-GW03-01			W	2/25	1345		X	X	X			X			6		R
SE - Sediment		76-GW05-01			W	2/25	1610		X	X	X			X			6		R
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
R = Routine
Mod 8270 = chloropicrin & chloroacetophenone

Airbill # 162764496 6

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
JPT	Fed Ex	2/26/96	1700

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# 10 381-596a

COC # 314-016

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: 2-26-96
Work Order #:
Project Contact/Phone #: K. Girard 412-269-6000
AD Project Manager: D. Wolfman
QC: Del TAT

Refrigerator #

	Liquid	Solid
#/Type Container		
Volume	Liquid	Solid
Preservatives		

ANALYSES REQUESTED

ORGANIC: VOA | BNA | Pest/PCB | Herb | Mod 8270 | Mod 8270

INORG: Metal | CN | Phenols | Sulfide | Total Solids

Date Rec'd: Date Due:
Account #:

WESTON Analytics Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Mod 8270	Mod 8270	Metal	CN	Phenols	Sulfide	Total Solids	Turn
						1996													
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		7.5-GW02-01			W	2/25	0800	X	X			X	X	X		X		7	R
		7.6-GW04-01			W	2/25	1230	X	X			X	X	X		X		7	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
-See last column for sample turn
R: Routine
Mod 8270 = chloropicrin & chloroacetophenone

Airbill # 1627644966

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
JPT	Fed Ex	2/26/96	1700

Relinquished by	Received by	Date	Time

RFW -001/A-7/91 ___ L372 ___ L373 ___ ___ L377 ___ L378 Ref# ___ Cooler# 5

381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Baker
Est. Final Proj. Sampling Date: 2-26-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
AD Project Manager: D. Waltman
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	Mod 8270			Metal	CN	Dissol Metals			# Bottles		Turn

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	WESTON Analytics Use Only														
	76-GW02-01			W	2/25	1130		X	X		X			X		X			7		R
	75-GW04-01			W	2/25	1445		X	X		X			X		X			7		R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for turn around
R = Routine
Mod. 8270 = chloropicrin + chloroacetophenone

Airbill # 1627644966

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
JPT	FedEx	2/26/96	1700				

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# 7 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Baker
Est. Final Proj. Sampling Date: 2-26-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1996	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Mod 8270			INORG Metal	CN				# Bottles		Turn
	76-GW01-01	X	X	W	2/25	0930		X	X		X			X					12		R

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
R = Routine
Mod. 8270 = chrolopicrin & chloroacetophenone

Airbill # 1627644966

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

Relinquished by	Received by	Date	Time
JPT	FedEx	2/26/96	1700

Relinquished by	Received by	Date	Time

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

RF[illegible]1-001/A-7/91 ___ L372 ___ L373 ___ ___ L377 ___ L378 Ref# ___ Cooler# 4

381-596a

COC # 314-016

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: 2-26-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected (1996)	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Mod 8270			INORG Metal	CN				# Bottles		Turn
	75-GW03-01			W	2/24	1800		X	X		X		X					6	4		R
	76-ER18			W	2/25	0900		X	X		X		X						5		R

WESTON Analytics Use Only

TFT 2-26-96

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
R = Routine
Mod. 8270 = chloropicrin & chloroacetophenone

Airbill # 1627644966

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

Relinquished by	Received by	Date	Time
JPT	FedEX	2/26/96	

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# 3

381-596a

COC # 314-016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGEMENT DESIGN/ENGINEERING/CONSULTANTS

Page 1 of 1

Client: Baker
Est. Final Proj. Sampling Date: 2-26-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
AD Project Manager: D. Wollman
QC: ____ Del: ____ TAT: ____
Date Rec'd: ____ Date Due: ____
Account #: ____

Refrigerator #

		ORGANIC							INORG								
#/Type Container	Liquid/Solid	VOA	BNA	Pest/PCB	Herb	Flash			Metal	CN	Reactivity	Sulfide	Cyanide			Hg	TCLP
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 1996	Time Collected	WESTON Analytics Use Only											
		7576-TNK			W	2/26	0845		X	X		X		X	X	X	X	6	R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
R = Routine

Airbill # 🖂 1627644966

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
JPT	Fed Ex	2/26/96	1700

Relinquished by	Received by	Date	Time

RF 1-001/A-7/91 ____ L372 ____ L373 ____ 5 ____ L377 ____ L378 Ref# ____ Cooler# 9

381-596a

WESTON Analytics Use Only

COC# 314-016

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
AD Project Manager: D. Woltman
QC: ____ Del: ____ TAT:
Date Rec'd: ____ Date Due: ____
Account #:

Refrigerator #

		ORGANIC							INORG							
#/Type Container	Liquid / Solid	VOA	BNA	Pest/PCB	Herb				Metal	CN				# 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 1996	Time Collected	WESTON Analytics Use Only												
		75-GW04-01			W	1445	2/25	X										2		R
		76-GW05-01			W	2/25	1610	X										2		R
		75-GW05-01			W	1730	2/25	X										2		R
		7576-TNK			W	0845	2/26	X										2		R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
R = Routine

Airbill # 162764419 66

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
JPT	Fed Ex	2/26/96	1700

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# 314-016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
AD Project Manager: P. 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., Mod 8270; INORG: Metal, CN; # 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 1996	Time Collected	WESTON Analytics Use Only											# Bottles		Turn Around
	75-GW01-01	X	X	W	2/24	1630	X											4		R
	75-GW01-01D			W	2/24	1630	X	X	X		X			X				8		R
	75-GW03-01			W	2/24	1800	X											2		R
	75-GW02-01			W	2/25	0800	X											2		R
	76-ER18			W	2/25	0900	X											2		R
	76-GW02-01			W	2/25	1130	X											2		R
	76-GW01-01	X	X	W	2/25	0930	X											4		R
	76-GW01-01D			W	2/25	0930	X											2		R
	76-GW04-01			W	2/25	1230	X											2		R
	76-GW03-01			W	2/25	1345	X											2		R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
R = Routine
TB24 = Weston Prepared Blank
Mod 8270 = chloropicrin & chloroacetophenone

Airbill # 1627644966

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
JPT	FedEx	2/26/96	1700

Relinquished by	Received by	Date	Time

COC # 314-016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker
Est. Final Proj. Sampling Date: 2-28-96
Work Order #:
Project Contact/Phone #: K. Wood 412-269-6000
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							INORG							
	VOA	BNA	Pest/PCB	Herb	Mod 8270			Metal	CN				# Bottles		Turn
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													
	75-GW01-01	X	X	W	2/24	1630		X	X		X			X				11		R

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn
R - Routine
Mod 8270 : Chloropicrin & chloroacetophenone?

Airbill # 162764496 6

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
JPT	Fed Ex	2/26/96	1700

Relinquished by	Received by	Date	Time

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

H8D210163

Chain of Custody Record

CHAIN OF CUSTODY NUMBER

* 0 0 1 0 7 1 - 0 0 1 *

Quanterra

QUA-4149-1

Client	Project Manager	Date	Page 1 of 3
Baker Environmental, Inc.	Jamie A. McKinney	04/10/1998	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Location**	**Analysis**
Airport Office Park Bldg 3	(412) 269-6000 / (000)	QUANTERRA - KNOXVILL	
City / **State** / **Zip Code**	**Site Contact**		
Coraopolis / PA / 15108			
Project Number/Name	**Carrier/Waybill Number**		
Camp LeJeune			

Contract/Purchase Order/Quote Number

CONTRACT / PURCHASE ORDER # :

QUOTE: 23194

Sample I.D. Number and Description	Date	Time	Sample Type	Containers: Volume	Containers: Type	Containers: No.	Preservative	Condition on Receipt/Comments	GC/LL	GC/LP	%MOI/ST	MSVC/P 3 3 0 2	
IR84-SW01-98B	4/19/98	1025	WATER	1L	AMBER	2	None		X				Rec'd @ 4°C w/custody seals intact 4/21/98
IR84-SW02-98B	4/19/98	1030	WATER	1L	AMBER	2	None		X				
IR84-SW03-98B	4/19/98	1040	WATER	1L	AMBER	2	None		X				
IR84-SW04-98B	4/19/98	1045	WATER	1L	AMBER	2	None		X				
IR84-SW05-98B	4/19/98	1055	WATER	1L	AMBER	2	None		X				
IR84-SW06-98B	4/19/98	1100	WATER	1L	AMBER	2	None		X				
~~IR84-ER01-98B~~			~~WATER~~	~~1L~~	~~AMBER~~	~~2~~	~~None~~		~~X~~				
~~IR84-ER02-98B~~			~~WATER~~	~~1L~~	~~AMBER~~	~~2~~	~~None~~		~~X~~				
~~IR84-BR03-98B~~			~~WATER~~	~~1L~~	~~AMBER~~	~~2~~	~~None~~		~~X~~				
IR84-SW01-98BD	4/19/98	1025	water	1L	Amber	2	None		X				
~~IR84-SW02D-98B~~	4/19/98	1025	water	1L	Amber	2	None		X				

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☒ Normal ☐ Rush ☐ Other _____

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Jeffrey Stepsis	4/20/98	1800	1. Received By: Fed-Ex		
2. Relinquished By			2. Received By: Bryan K Jamison	4-21-98	08:30
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

H8D210163

Quanterra

CHAIN OF CUSTODY NUMBER

* 0 0 1 0 7 1 - 0 0 2 *

QUA-4149-1

Client	Project Manager	Date
aker Environmental, Inc.	Jamie A. McKinney	04/10/1998
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Location**
irport Office Park Bldg 3	(412) 269-6000 / (000)	QUANTERRA - KNOXVILL
City / **State** / **Zip Code**	**Site Contact**	
oraopolis / PA / 15108		
Project Number/Name	**Carrier/Waybill Number**	
amp LeJeune		

Page 2 of 3

Contract/Purchase Order/Quote Number

CONTRACT / PURCHASE ORDER # :

QUOTE: 23194

Sample I.D. Number and Description	Date	Time	Sample Type	Containers: Volume	Containers: Type	Containers: No.	Preservative	Condition on Receipt/Comments	Analysis: GC/LPL 3 2	GC/LPL 3 2	XCOMS 3 3	MSVOC STLPH 3 2	Analysis: Full TCL
IR84-SD01-98B	4/19/98	1120	SOLID	250mL	CLEAR GL	1				X	X		X
~~IR84-SD02-98B~~			~~SOLID~~	~~250mL~~	~~CLEAR GL~~	~~1~~				~~X~~	~~X~~		
~~IR84-SD03-98B~~			~~SOLID~~	~~250mL~~	~~CLEAR GL~~	~~1~~				~~X~~	~~X~~		
~~IR84-SD04-98B~~			~~SOLID~~	~~250mL~~	~~CLEAR GL~~	~~1~~				~~X~~	~~X~~		
IR84-SD05-98B	4/19/98	1135	SOLID	250mL	CLEAR GL	1				X	X		X
IR84-SD06-98B	4/19/98	1115	SOLID	250mL	CLEAR GL	1				X	X		X
IR84-SD01-98BD	4/19/98	1120	Solid	250mL	Clear GL	1				X	X		X
IR-84SDER-98B	4/19/98	1500	Water	1L	Amber	2	None	2nd. corrected/Needle Sheared		X			
~~ER84-SB02-00~~	~~4/16/98~~	~~0845~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			
~~ER84-SB02-01~~	~~4/16/98~~	~~0845~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			
~~ER-84-SB04-00~~	~~4/16/98~~	~~0955~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			
~~ER-84-SB04-01~~	~~4/16/98~~	~~0955~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			
~~ER-84-SB23-00~~	~~4/16/98~~	~~1420~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			
~~ER-84-SB23-01~~	~~4/16/98~~	~~1420~~	~~Solid~~	~~250ml~~	~~Clear GL~~	~~1~~	~~None~~	~~24hr Turn~~		~~X~~			

Received PC 4/Custody Seals Intact + BB 4/21/98

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☒ Normal ☒ Rush ☐ Other _____ ~~CSC comment 5 PM~~

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: J. Kepsic	4/20/98	1800	1. Received By: FED-EX		
2. Relinquished By			2. Received By: Bryan K Johnson	4-21-98	08:30
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

00000009

Quote # 23194 H8D210105

Baker

Baker Environmental, Inc.
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108
412-269-6000
412-269-6097 (fax)

CHAIN-OF-CUSTODY RECORD

Lab and BOA #: Quanterra
Delivery Order # 62470-314
Project Number:
Project Name: J. Tepsic MCB Camp Lejeune
Field Team: J. Tepsic
SEND RESULTS TO: T. Tepsic

Sample Number	1998 Date	Time	Sample Location	Matrix Type (1) GB (2)	Matrix Type (1) COM (2)	Number of Container(s) #	Analytical Methods: PCBs	Type of Container(s) (3)	Remarks
84-SB02-00	4/16	0815		X		1		G	24 hr Turn
84-SB02-01	4/16	0815		X		1			
84-SB04-00	4/16	0855		X		1			
4-SB04-01	4/16	0855		X		1			
-SB23-00	4/16	1420		X		1			
4-SB23-01	4/16	1420		X		1			
									Recd @ 2°C
									w/custody Seals
									Intact BPB 4/21/98

Relinquished By: L. Tepsic Date: 4/20/98 Time: 1800
Received By: Fed-Ex Date: _____ Time: _____
Shipped by (check one): Hand ☐ Overnight ☒ Other ☐ _____

Relinquished By: _____ Date: _____ Time: _____
Received By: Bryan Blomquist Date: 4/21/98 Time: 08:30
Shipped by (check one): Hand ☐ Overnight ☐ Other ☐ _____

Relinquished By: _____ Date: _____ Time: _____
Received By: _____ Date: _____ Time: _____
Shipped by (check one): Hand ☐ Overnight ☐ Other ☐ _____

Sample Stored at 4 Degrees C: Yes ☐ No ☐
Chain-of-custody seal on cooler: Yes ☐ Number: _____ No ☐
Analysis turnaround: Priority ☐ _____ hrs. Regular ☐
See Work Order ☐
See Analysis Request Form ☐
Sample Disposal Return to Baker ☐ Lab Disposal ☐
Archive until: _____ (date)

NOTES:
(1) A - Air; GW - Groundwater; L - Leachate; S - Spring; SS - Surface Soil; SB - SubSurface Soil; SW - Surface Water; W - Waste; WP - Wipe; WW - Wastewater
(2) GB - Grab; COM - Composite
(3) P - Plastic; G - Glass

White - Return with analytical results; Yellow - Laboratory Copy; Pink - Field Copy

Courier Name: _____
Courier Pickup Number: _____
File Name: _____

00000005

Quanterra
Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
(423) 588-6401

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

H8D230716
Reference Document No. 4092
Page 1 of 2

Project Name/No.[1] 162470-314
Sample Team Members[2] J. Tepsic
Profit Center No.[3]
Project Manager[4] J. Tepsic
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 4/22/98
Lab Destination[8] Knoxville TN
Lab Contact[9] Jamie McKinney
Project Contact/Phone[12]
Carrier/Waybill No.[13]

Bill to:[5] Baker Environmental, Inc.
AoP Bldg. #3
420 Rouser Rd.
Coraopolis, PA 15108

Report to:[10] Same

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
IR68-GW01DW-98B	✓ water	4/20/98 1800	Plastic	1L	HNO_3	TAL metals	Rec'd @ 2°C	ph<2
R68-GW01-98B	✓ water	4/20/98 1830	Plastic	1L	HNO_3	TAL metals	W/ custody Seals Intact BM 4/23/98	
68-GW02-98B	✓ water	4/22/98 1040	Plastic	1L	HNO_3	TAL Metals		
68-GW03-98B	✓ water	4/21/98 1730	Plastic	1L	HNO_3	TAL Metals		
68-GW04-98B	✓ water	4/22/98 1000	Plastic	1L	HNO_3	TAL metals		
68-GW04DW-98B	✓ water	4/22/98 1000	Plastic	1L	HNO_3	TAL metals	FOR LAB USE	
R68-GW05DW-98B	✓ water	4/22/98 1135	Plastic	1L	HNO_3	TAL Metals		
68-GW45DW-98B DUP	✓ water	4/20/98 1135	Plastic	1L	HNO_3	TAL Metals		

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal:[25] Return to Client ☐ Disposal by Lab ☐ Archive (mos.)

Turnaround Time Required:[26] Normal ☒ Rush ☐

QC Level:[27] I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) J. Tepsic	Date: 4/22/98 Time: 1800	1. Received by[28] (Signature/Affiliation) Fed-EX	Date: 4/22/98 Time: 1800
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation) Bryan Blomquist	Date: 4/23/98 Time: 0840
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

CA 3/15/91

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

00000005

H8023017b

Quanterra
Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
(423) 588-6401

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 4092
Page 2 of 2

Project Name 62470-314

Project No. _____

Samples Shipment Date 4/22/98

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
R68-GW06-98B	Water ✓	4/22/98 1235	Plastic	1L	HNO_3	TAL Metals	Rec'd @ 2°C	pH<2
R68-GW06DW-98B	Water ✓	4/22/98 1235	Plastic	1L	HNO_3	TAL Metals	FOR LAB USE ONLY	LAB USE ONLY
~~R68-GW~~ JPT								
R68-ER01-98B	Water ✓	4/22/98 1600	Plastic	1L	HNO_3	TAL Metals		
R76-ER01-98B	Water	4/22/98 1630	Plastic	1L	HNO_3	TAL Metals		

FOR LAB USE ONLY

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

00000006

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
(423) 588-6401

Quote #23194

HSD240208

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 4093
Page 1 of ___

Project Name/No.[1] 62470-314
Sample Team Members[2] J. Tepsic
Profit Center No.[3]
Project Manager[4] J. Tepsic
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 4/23/98
Lab Destination[8] Knoxville, TN
Lab Contact[9] Jamie McKinney
Project Contact/Phone[12] 910-451-1725
Carrier/Waybill No.[13]

Bill to:[5]
Report to:[10]

White: To accompany samples Yellow: Field copy

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-servative[19]	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
IR84-SW07-98B	Surface Water	4/23/98 1000	Glass	4 40ml	HCL	CLP VOA		
IR84-SW07-98B	surface water	4/23/98 1000	Glass	2 L	—	CLP SVOA	FOR LAB USE	
IR84-SD07-98B	sediment	4/23/98 1020	Glass	4 oz	—	CLP VOA		
IR84-SD07-98B	Sediment	4/23/98 1020	Glass	8 oz	—	CLP SVOA	Custody Seal Intact received at GEC 4/24/98	
IR84-TB01-98B	Water	4/23/98 1135	Glass	40ml	HCL	CLP VOA		

Special Instructions:[23]

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☐ Archive (mos.)

Turnaround Time Required:[26]
Normal ☐ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation)	Date: Time:	1. Received by[28] (Signature/Affiliation) Diane Yange	Date: 4/24/98 Time: 8:45
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29] Samples are "DIRTY" Expect High Concentrations.

*See back of form for special instructions.

MCA 3/15/91

H8D240209

Chain of Custody Record

CHAIN OF CUSTODY NUMBER

* 0 0 1 0 7 2 - 0 0 1 *

Quanterra

IA-4149-1

Client	Project Manager	Date	Page 1 of 1
ker Environmental, Inc.	Jamie A. McKinney	04/10/1998	
Address	Telephone Number (Area Code)/Fax Number	Lab Location	Analysis
rport Office Park Bldg 3	(412) 269-6000 / (000)	QUANTERRA - KNOXVILL	
City / State / Zip Code	Site Contact		
raopolis / PA / 15108			
Project Number/Name	Carrier/Waybill Number		
mp LeJeune	802769750960		

Contract/Purchase Order/Quote Number

NTRACT / PURCHASE ORDER # :

QUOTE: 23194

Sample I.D. Number and Description	Date	Time	Sample Type	Containers: Volume	Containers: Type	Containers: No.	Preservative	Condition on Receipt/Comments	MTCL PP30 MCL PP30
IR76-GW01-98B	4/22/98	1602	WATER	1000mL	PLASTIC	1	Conc HNO3	pH< 2	X X
IR76-GW02-98B	↓	1710	WATER	1000mL	PLASTIC	1	Conc HNO3		X X
IR76-GW03-98B	↓	1440	WATER	1000mL	PLASTIC	1	Conc HNO3		X X
IR76-GW04-98B	4/23/98	0800	WATER	1000mL	PLASTIC	1	Conc HNO3		X X
IR76-GW05-98B	↓	0740	WATER	1000mL	PLASTIC	1	Conc HNO3		X X
~~IR76-DR01-98B~~	~~4/22/98~~	~~1440~~	WATER	1000mL	PLASTIC	1	Conc HNO3		X X
IR76-GW03-98BD	4/22/98	1440	water	1000mL	Plastic	1	HNO3		X X
								Custody seals intact received at 6°C 4/24/98	

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☒ Normal ☐ Rush ☐ Other _____

QC Level: ☐ I. ☒ II. ☐ III.

Project Specific Requirements (Specify)

Relinquished By	Date	Time	1. Received By	Date	Time
A. Tepsic	4/23/98	1630	Fed-Ex	4/23/98	1630
Relinquished By	Date	Time	2. Received By	Date	Time
			Diane Lange	4/24/98	8:45
Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

H8D240207

Quanterra

CHAIN OF CUSTODY NUMBER

* 0 0 1 0 7 1 - 0 0 3 *

QUA-4149-1

Client	Project Manager	Date	Page 1 of 1
Baker Environmental, Inc.	Jamie A. McKinney	04/10/1998	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Location**	
Airport Office Park Bldg 3	(412) 269-6000 / (000)	QUANTERRA - KNOXVILL	
City / **State** / **Zip Code**	**Site Contact**		
Coraopolis / PA / 15108			
Project Number/Name	**Carrier/Waybill Number**		
Camp LeJeune			
Contract/Purchase Order/Quote Number			
CONTRACT / PURCHASE ORDER # :		QUOTE: 23194	

Analysis

Sample I.D. Number and Description	Date	Time	Sample Type	Containers Volume	Containers Type	Containers No.	Preservative	Condition on Receipt/Comments	GCCLP32L	GCCLP32S	%MOIST30	MSVCLP32
AST781-GW03-98B	4/23/98	0900	WATER	40mL	VIAL	3	1:1 HCL					X
AST781-GW04-98B	4/23/98	0910	WATER	40mL	VIAL	3	1:1 HCL					X
AST781-GW07-98B	4/22/98	1730	WATER	40mL	VIAL	2 ~~3~~	1:1 HCL					X
AST781-GW08-98B	4/22/98	1650	WATER	40mL	VIAL	2 ~~3~~	1:1 HCL					X
AST781-GW11-98B	4/23/98	1040	WATER	40mL	VIAL	3	1:1 HCL					X
AST781-GW12-98B	4/23/98	1055	WATER	40mL	VIAL	3	1:1 HCL					X
~~IR84-ER04-98B~~			WATER	40mL	VIAL	3	1:1 HCL	custody seals intact				X
~~IR84-ER05-98B~~			WATER	40mL	VIAL	3	1:1 HCL	received at 6°C 4/24/98				X
AST781-GW04-98B	4/23/98	0910	water	40ml	vial	3	1:1 HCL					X
AST781-ER01-98B	4/23/98	1145	water	40ml	vial	3	1:1 HCL					X
AST781-TB01-98B	4/23/98	1130	water	40ml	vial	3	1:1 HCL					X

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☒ Normal ☐ Rush ☐ Other _____

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: J. Tepsi	4/23/98	1630	1. Received By: Fed-Ex	4/23/98	1630
2. Relinquished By			2. Received By: Diane Lange	4/24/98	8:45
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
(423) 588-6401

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

H80270144
Reference Document No. 4094
Page 1 of 2

Project Name/No.[1] MCB Camp Lejeune 62470-314
Sample Team Members[2] J. Tepsic
Profit Center No.[3]
Project Manager[4] J. Tepsic
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 4/25/98
Lab Destination[8] Knoxville, TN
Lab Contact[9] Jamie McKinney
Project Contact/Phone[12] 910-451-1725
Carrier/Waybill No.[13] 801314926810

Bill to:[5] Baker Environmental, Inc.
Aop Bldg #3
420 Rouser Rd.
Coraopolis, PA 15108
Report to:[10] same

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16] 1998	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
84-SB08-00	✓ SOIL	0946 4/16	GL	9 oz.	—	CLP PCBs		
84-SB08-01	✓	0926 4/16					FOR LAB USE	
84-SB10-00	✓	0940 4/16						
84-SB10-01	✓	0940 4/16					custody seals intact received at 2°C DL 4/27/98	
84-SB15-00	✓	1140 4/16						
84-SB15-01	✓	1140 4/16					FOR LAB USE	
84-SB21-00	✓	1350 4/16						
84-SB21-01		1350 4/16						

Special Instructions:[23]

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required:[26]
Normal ☒ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) J. Tepsic	Date: 4/25/98 Time: 1430	1. Received by[28] (Signature/Affiliation) Fed-EX	Date: 4/25/98 Time: 1430
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation) Diane Hamge	Date: 4/27/98 Time: 10:00
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

MCA 3/15/91

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

H80210144

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
(423) 588-6401

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 4094
Page 2 of 2

Project Name MCB Camp Lejeune Project No. 62470-314 Samples Shipment Date 4/25/98

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
84-SB25-00	SOIL ✓	1300 4/16	GL	9 oz.	—	CLP PCBs		
84-SB25-01	✓	1300 4/16					FOR LAB	
84-SB26-00	✓	0900 4/23					USE ONLY	
84-SB26-01	✓	0900 4/23						
84-SB27-00	✓	0930 4/23						
84-SB27-01	✓	0930 4/23						
84-SB28-00	✓	1000 4/23						
84-SB28-01	✓	1000 4/23						
84-SB29-00	✓	1015 4/23						
84-SB29-01	✓	1015 4/23						
84-SB30-00	✓	1030 4/23						
84-SB30-01	✓	1030 4/23						
84-SB31-00	✓	1100 4/23						
84-SB31-01	✓	1100 4/23						
84-SB15-00 Dup		1140 4/16						
84-SB10-01 Dup		0940 4/16						
84-SB27-00 Dup		0930 4/23					FOR LAB USE ONLY	

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

APPENDIX D
TEST PIT EXCAVATION RECORDS

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: PRE-RI SCREENING
CTO NO.: 0314
TEST PIT NO.: 87-TP01
COORDINATES: EAST: NA NORTH: NA
SURFACE ELEVATION: NA WATER LEVEL: 8FT (095)
WEATHER: OVERCAST AND COOL DATE: 1/29/96
REMARKS: TEST PIT DIMENSIONS: 30FT IN LENGTH, 2FT IN WIDTH, AND 8FT IN DEPTH.
NO WASTE WAS ENCOUNTERED AT 87-TP01

DEFINITIONS

HNU = Photoionization Detector Reading
OVA = Organic Vapor Analyzer Reading
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.	HNU or OVA (ppm) Field	HNU or OVA (ppm) Head-space	Lab Class.	Lab. Moist. (%)	Visual Description (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, Plasticity, and Other Observations)	Elevatio
1		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN WITH	
2						SOME ROOTS AND ORGANIC MATERIAL.	
3						(0 - 3 FT)	
4							
5		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT BROWN MOTTLED	
6						ORANGE, WITH SOME CLAY-GRAY (3-8FT)	
7	COMPOSITE SAMPLE			ID-87-TP01		NOTE: SAMPLE COLLECTED FROM ABOVE GROUNDWATER	
8						▽- GROUNDWATER BELOW 8FT	
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

CONTRACTOR: PARRATT WOLFF, INC. BAKER REP.: JEFF TEPSIC / KEN TUA
EQUIPMENT: CASE 580E / BACKHOE TEST PIT NO.: 87-TP01 SHEET 1 OF

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: PRE-RI SCREENING
CTO NO.: 0314 TEST PIT NO.: 87-TP02
COORDINATES: EAST: NA NORTH: NA
SURFACE ELEVATION: NA WATER LEVEL: 8 FT (0915)
WEATHER: OVERCAST AND COOL DATE: 1/29/96
REMARKS: TEST PIT DIMENSIONS: 30 FT IN LENGTH, 2 FT IN WIDTH, 8 FT IN DEPTH.
NO WASTE WAS ENCOUNTERED AT 87-TP02

DEFINITIONS

HNU = Photoionization Detector Reading
OVA = Organic Vapor Analyzer Reading
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.	HNU or OVA (ppm) Field	HNU or OVA (ppm) Head-space	Lab Class.	Lab. Moist. (%)	Visual Description (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, Plasticity, and Other Observations)	Elevation
1–4		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN WITH SOME ROOTS AND ORGANIC MATERIAL (0 – 4FT)	
5–7		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN TO CLAY-GRAY. SOME ROOTS PIECES OF CONCRETE AND WOOD. (4–8FT)	
8	COMPOSITE SAMPLE			I.D. 87-TP02		NOTE: SAMPLE COLLECTED FROM ABOVE GROUNDWATER	
9						▽-GROUNDWATER ENCOUNTERED BELOW 8 FT	
10–20							

CONTRACTOR: PARRATT WOLFF, INC. BAKER REP.: JEFF TERSIC / KEN TUA
EQUIPMENT: CASE 580E/BACKHOE TEST PIT NO.: 87-TP02 SHEET 1 OF

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: PRE-RI SCREENING
CTO NO.: 0314
TEST PIT NO.: 87-TP03
COORDINATES: EAST: NA NORTH: NA
SURFACE ELEVATION: NA WATER LEVEL: 8 FT (09S)
WEATHER: OVERCAST AND COOL DATE: 1/30/96
REMARKS: TEST PIT DIMENSIONS: 26 FT IN LENGTH, 2 FT IN WIDTH, 8 FT IN DEPT
NO WASTE WAS ENCOUNTERED AT 87-TP03

DEFINITIONS

HNU = Photoionization Detector Reading
OVA = Organic Vapor Analyzer Reading
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.	HNU or OVA (ppm) Field	HNU or OVA (ppm) Head-space	Lab Class.	Lab. Moist. (%)	Visual Description (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, Plasticity, and Other Observations)	Elevation
1–3		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN WITH SOME ROOTS AND ORGANIC MATERIAL (0-3 FT)	
4–6		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. GRAY TO LT. BROWN. FEW ROOTS. (3-8 FT)	
7	COMPOSITE	SAMPLE	I.D. 87-TP03			NOTE: SAMPLE COLLECTED FROM ABOVE GROUNDWATER	
8						▽-GROUNDWATER ENCOUNTERED BELOW 8FT	
9–20							

CONTRACTOR: PARRATT WOLFF, INC. BAKER REP.: JEFF TERSIC / KEN TUA
EQUIPMENT: CASE 580E/BACKHOE TEST PIT NO.: 87-TP03 SHEET 1 OF 1

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: PRE-RI SCREENING
CTO NO.: 0314 TEST PIT NO.: 87-TP04
COORDINATES: EAST: NA NORTH: NA
SURFACE ELEVATION: NA WATER LEVEL: 8 FT (695)
WEATHER: OVERCAST AND COOL DATE: 1/30/96
REMARKS: TEST PIT DIMENSIONS: 4 FT IN LENGTH, 2 FT IN WIDTH, 8 FT IN DEPTH
NO WASTE WAS ENCOUNTERED AT 87-TP04

DEFINITIONS

HNU = Photoionization Detector Reading
OVA = Organic Vapor Analyzer Reading
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.	HNU or OVA (ppm) Field	HNU or OVA (ppm) Head-space	Lab Class.	Lab. Moist. (%)	Visual Description (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, Plasticity, and Other Observations)	Elevation
1		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN WITH	
2						SOME ROOTS AND ORGANIC MATERIAL.	
3						(0-3 FT)	
4							
5		0-PPM	NA	NA	NA	FINE GRAINED SAND, LT. BROWN	
6						(3-8 FT)	
7	COMPOSITE	SAMPLE		I.D. 87-TP04		NOTE: SAMPLE COLLECTED FROM ABOVE GROUNDWATER	
8						▽- GROUNDWATER ENCOUNTERED BELOW 8 FT	
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

CONTRACTOR: PARRATT WOLFF, INC. BAKER REP.: JEFF TERSIC / KEN TUA
EQUIPMENT: CASE 580E/BACKHOE TEST PIT NO.: 87-TP04 SHEET 1 OF 1

APPENDIX E
DUPLICATE SAMPLE SUMMARY

DUPLICATE SAMPLE SUMMARY
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	12-GW01-01D
DATE SAMPLED	01-29-1996
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	10 U
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

DUPLICATE SAMPLE SUMMARY
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	12-GW01-01D
DATE SAMPLED	01-29-1996
SEMIVOLATILES (ug/L)	
PHENOL	9 U
BIS(2-CHLOROETHYL)ETHER	9 U
2-CHLOROPHENOL	9 U
1,3-DICHLOROBENZENE	9 U
1,4-DICHLOROBENZENE	9 U
1,2-DICHLOROBENZENE	9 U
2-METHYLPHENOL	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U
4-METHYLPHENOL	9 U
N-NITROSO-DI-N-PROPYLAMINE	9 U
HEXACHLOROETHANE	9 U
NITROBENZENE	9 U
ISOPHORONE	9 U
2-NITROPHENOL	9 U
2,4-DIMETHYLPHENOL	9 U
BIS(2-CHLOROETHOXY)METHANE	9 U
2,4-DICHLOROPHENOL	9 U
1,2,4-TRICHLOROBENZENE	9 U
NAPHTHALENE	9 U
4-CHLOROANILINE	9 U
HEXACHLOROBUTADIENE	9 U
4-CHLORO-3-METHYLPHENOL	9 U
2-METHYLNAPHTHALENE	9 U
HEXACHLOROCYCLOPENTADIENE	9 U
2,4,6-TRICHLOROPHENOL	9 U
2,4,5-TRICHLOROPHENOL	23 U
2-CHLORONAPHTHALENE	9 U
2-NITROANILINE	23 U
DIMETHYLPHTHALATE	9 U
ACENAPHTHYLENE	9 U
2,6-DINITROTOLUENE	9 U
3-NITROANILINE	23 U
ACENAPHTHENE	9 U
2,4-DINITROPHENOL	23 U
4-NITROPHENOL	23 UJ

DUPLICATE SAMPLE SUMMARY
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	12-GW01-01D
DATE SAMPLED	01-29-1996
SEMIVOLATILES (ug/L) (cont)	
DIBENZOFURAN	9 U
2,4-DINITROTOLUENE	9 U
DIETHYLPHTHALATE	9 U
4-CHLOROPHENYL-PHENYLETHER	9 U
FLUORENE	9 U
4-NITROANILINE	23 U
4,6-DINITRO-2-METHYLPHENOL	23 U
N-NITROSODIPHENYLAMINE (1)	9 U
4-BROMOPHENYL-PHENYLETHER	9 U
HEXACHLOROBENZENE	9 U
PENTACHLOROPHENOL	23 U
PHENANTHRENE	9 U
ANTHRACENE	9 U
CARBAZOLE	9 U
DI-N-BUTYLPHTHALATE	9 U
FLUORANTHENE	9 U
PYRENE	9 U
BUTYLBENZYLPHTHALATE	9 U
3,3'-DICHLOROBENZIDINE	9 U
BENZO(A)ANTHRACENE	9 U
CHRYSENE	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	9 U
DI-N-OCTYL PHTHALATE	9 U
BENZO(B)FLUORANTHENE	9 U
BENZO(K)FLUORANTHENE	9 U
BENZO(A)PYRENE	9 U
INDENO(1,2,3-CD)PYRENE	9 U
DIBENZO(A,H)ANTHRACENE	9 U
BENZO(G,H,I)PERYLENE	9 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION
SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB01-00D	68-SB11-00D
DATE SAMPLED	01-15-1996	01-16-1996
VOLATILES (ug/kg)		
CHLOROMETHANE	12 U	11 U
BROMOMETHANE	12 U	11 U
VINYL CHLORIDE	12 U	11 U
CHLOROETHANE	12 U	11 U
METHYLENE CHLORIDE	12 U	11 U
ACETONE	14 U	12 U
CARBON DISULFIDE	12 U	11 U
1,1-DICHLOROETHENE	12 U	11 U
1,1-DICHLOROETHANE	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U
CHLOROFORM	12 U	11 U
1,2-DICHLOROETHANE	12 U	11 U
2-BUTANONE	12 U	11 U
1,1,1-TRICHLOROETHANE	12 U	11 U
CARBON TETRACHLORIDE	12 U	11 U
BROMODICHLOROMETHANE	12 U	11 U
1,2-DICHLOROPROPANE	12 U	11 U
CIS-1,3-DICHLOROPROPENE	12 U	11 U
TRICHLOROETHENE	12 U	11 U
DIBROMOCHLOROMETHANE	12 U	11 U
1,1,2-TRICHLOROETHANE	12 U	11 U
BENZENE	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	11 U
BROMOFORM	12 U	11 U
4-METHYL-2-PENTANONE	12 U	11 U
2-HEXANONE	12 U	11 U
TETRACHLOROETHENE	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	11 U
TOLUENE	12 U	11 U
CHLOROBENZENE	12 U	11 U
ETHYLBENZENE	12 U	11 U
STYRENE	12 U	11 U
XYLENE (TOTAL)	12 U	11 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION
SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB01-00D	68-SB11-00D
DATE SAMPLED	01-15-1996	01-16-1996
SEMIVOLATILES (ug/kg)		
PHENOL	390 U	360 U
BIS(2-CHLOROETHYL)ETHER	390 U	360 U
2-CHLOROPHENOL	390 U	360 U
1,3-DICHLOROBENZENE	390 U	360 U
1,4-DICHLOROBENZENE	390 U	360 U
1,2-DICHLOROBENZENE	390 U	360 U
2-METHYLPHENOL	390 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	360 U
4-METHYLPHENOL	390 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	390 U	360 U
HEXACHLOROETHANE	390 U	360 U
NITROBENZENE	390 U	360 U
ISOPHORONE	390 U	360 U
2-NITROPHENOL	390 U	360 U
2,4-DIMETHYLPHENOL	390 U	360 U
BIS(2-CHLOROETHOXY)METHANE	390 U	360 U
2,4-DICHLOROPHENOL	390 U	360 U
1,2,4-TRICHLOROBENZENE	390 U	360 U
NAPHTHALENE	390 U	360 U
4-CHLOROANILINE	390 U	360 U
HEXACHLOROBUTADIENE	390 U	360 U
4-CHLORO-3-METHYLPHENOL	390 U	360 U
2-METHYLNAPHTHALENE	390 U	360 U
HEXACHLOROCYCLOPENTADIENE	390 U	360 U
2,4,6-TRICHLOROPHENOL	390 U	360 U
2,4,5-TRICHLOROPHENOL	980 U	910 U
2-CHLORONAPHTHALENE	390 U	360 U
2-NITROANILINE	980 U	910 U
DIMETHYLPHTHALATE	390 U	360 U
ACENAPHTHYLENE	390 U	360 U
2,6-DINITROTOLUENE	390 U	360 U
3-NITROANILINE	980 UJ	910 U
ACENAPHTHENE	390 U	360 U
2,4-DINITROPHENOL	980 U	910 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION
SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB01-00D	68-SB11-00D
DATE SAMPLED	01-15-1996	01-16-1996
SEMIVOLATILES (ug/kg) (cont)		
4-NITROPHENOL	980 U	910 U
DIBENZOFURAN	390 U	360 U
2,4-DINITROTOLUENE	390 U	360 U
DIETHYLPHTHALATE	390 U	360 U
4-CHLOROPHENYL-PHENYLETHER	390 U	360 U
FLUORENE	390 U	360 U
4-NITROANILINE	980 U	910 U
4,6-DINITRO-2-METHYLPHENOL	980 U	910 U
N-NITROSODIPHENYLAMINE (1)	390 U	360 U
4-BROMOPHENYL-PHENYLETHER	390 U	360 U
HEXACHLOROBENZENE	390 U	360 U
PENTACHLOROPHENOL	980 U	910 U
PHENANTHRENE	390 U	360 U
ANTHRACENE	390 U	360 U
CARBAZOLE	390 U	360 U
DI-N-BUTYLPHTHALATE	390 U	360 U
FLUORANTHENE	390 U	360 U
PYRENE	390 U	360 U
BUTYLBENZYLPHTHALATE	390 U	360 U
3,3'-DICHLOROBENZIDINE	390 U	360 U
BENZO(A)ANTHRACENE	390 U	360 U
CHRYSENE	390 U	360 U
BIS(2-ETHYLHEXYL)PHTHALATE	390 U	360 U
DI-N-OCTYL PHTHALATE	390 U	360 U
BENZO(B)FLUORANTHENE	390 U	360 U
BENZO(K)FLUORANTHENE	390 U	360 U
BENZO(A)PYRENE	390 U	360 U
INDENO(1,2,3-CD)PYRENE	390 U	360 U
DIBENZO(A,H)ANTHRACENE	390 U	360 U
BENZO(G,H,I)PERYLENE	390 U	360 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION
SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB01-00D	68-SB11-00D
DATE SAMPLED	01-15-1996	01-16-1996
PESTICIDES/PCBS (ug/kg)		
ALPHA-BHC	1.9 UJ	1.8 U
BETA-BHC	1.9 U	1.8 U
DELTA-BHC	1.9 U	1.8 U
GAMMA-BHC (LINDANE)	1.9 U	1.8 U
HEPTACHLOR	1.9 U	1.8 U
ALDRIN	1.9 U	1.8 U
HEPTACHLOR EPOXIDE	1.9 U	1.8 U
ENDOSULFAN I	1.9 U	1.8 U
DIELDRIN	3.9 U	3.6 UJ
4,4'-DDE	3.9 UJ	37
ENDRIN	3.9 U	3.6 UJ
ENDOSULFAN II	3.9 U	3.6 U
4,4'-DDD	3.9 U	3.6 U
ENDOSULFAN SULFATE	3.9 U	3.6 U
4,4'-DDT	3.9 U	18
METHOXYCHLOR	19 UJ	18 U
ENDRIN KETONE	3.9 U	3.6 U
ENDRIN ALDEHYDE	3.9 U	3.6 U
ALPHA-CHLORDANE	1.9 U	1.8 U
GAMMA-CHLORDANE	1.9 U	1.8 U
TOXAPHENE	190 U	180 U
AROCLOR-1016	39 U	36 U
AROCLOR-1221	78 U	73 U
AROCLOR-1232	39 U	36 U
AROCLOR-1242	39 U	36 U
AROCLOR-1248	39 U	36 U
AROCLOR-1254	39 U	36 U
AROCLOR-1260	39 U	36 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB01-00D	68-SB11-00D
DATE SAMPLED	01-15-1996	01-16-1996
INORGANICS (mg/kg)		
ALUMINUM, TOTAL	5140	2970
ANTIMONY, TOTAL	3.5 UJ	3.5 UJ
ARSENIC, TOTAL	0.62	0.22 J
BARIUM, TOTAL	20.1	10
BERYLLIUM, TOTAL	0.22	0.16
CADMIUM, TOTAL	0.39 U	0.39 U
CALCIUM, TOTAL	75	34.5
CHROMIUM, TOTAL	2.5	1.8
COBALT, TOTAL	0.84	0.53 U
COPPER, TOTAL	0.66	0.36 U
IRON, TOTAL	1220	669
LEAD, TOTAL	10.4	5.6 J
MAGNESIUM, TOTAL	116	66.9
MANGANESE, TOTAL	25.2	12.2
MERCURY, TOTAL	0.06 U	0.053 U
NICKEL, TOTAL	2.4	2.3
POTASSIUM, TOTAL	148 U	148 U
SELENIUM, TOTAL	0.23 U	0.23 U
SILVER, TOTAL	0.55 U	0.55 U
SODIUM, TOTAL	12.5	6.9 U
THALLIUM, TOTAL	0.29 UJ	0.3 UJ
VANADIUM, TOTAL	3.4	2.5
ZINC, TOTAL	4.5	3.8

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB06-08D	68-SB14-03D
DATE SAMPLED	01-13-1996	01-13-1996
VOLATILES (ug/kg)		
CHLOROMETHANE	13 U	12 U
BROMOMETHANE	13 U	12 U
VINYL CHLORIDE	13 U	12 U
CHLOROETHANE	13 U	12 U
METHYLENE CHLORIDE	13 U	12 U
ACETONE	13 U	12 U
CARBON DISULFIDE	13 U	12 U
1,1-DICHLOROETHENE	13 U	12 U
1,1-DICHLOROETHANE	13 U	12 U
1,2-DICHLOROETHENE (TOTAL)	13 U	12 U
CHLOROFORM	13 U	12 U
1,2-DICHLOROETHANE	13 U	12 U
2-BUTANONE	13 U	12 U
1,1,1-TRICHLOROETHANE	13 U	12 U
CARBON TETRACHLORIDE	13 U	12 U
BROMODICHLOROMETHANE	13 U	12 U
1,2-DICHLOROPROPANE	13 U	12 U
CIS-1,3-DICHLOROPROPENE	13 U	12 U
TRICHLOROETHENE	13 U	12 U
DIBROMOCHLOROMETHANE	13 U	12 U
1,1,2-TRICHLOROETHANE	13 U	12 U
BENZENE	13 U	12 U
TRANS-1,3-DICHLOROPROPENE	13 U	12 U
BROMOFORM	13 U	12 U
4-METHYL-2-PENTANONE	13 U	12 U
2-HEXANONE	13 U	12 U
TETRACHLOROETHENE	13 U	12 U
1,1,2,2-TETRACHLOROETHANE	13 U	12 U
TOLUENE	13 U	12 U
CHLOROBENZENE	13 U	12 U
ETHYLBENZENE	13 U	12 U
STYRENE	13 U	12 U
XYLENE (TOTAL)	13 U	12 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB06-08D	68-SB14-03D
DATE SAMPLED	01-13-1996	01-13-1996
SEMIVOLATILES (ug/kg)		
PHENOL	440 U	420 U
BIS(2-CHLOROETHYL)ETHER	440 U	420 U
2-CHLOROPHENOL	440 U	420 U
1,3-DICHLOROBENZENE	440 U	420 U
1,4-DICHLOROBENZENE	440 U	420 U
1,2-DICHLOROBENZENE	440 U	420 U
2-METHYLPHENOL	440 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	440 U	420 U
4-METHYLPHENOL	440 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	440 U	420 U
HEXACHLOROETHANE	440 U	420 U
NITROBENZENE	440 U	420 U
ISOPHORONE	440 U	420 U
2-NITROPHENOL	440 U	420 U
2,4-DIMETHYLPHENOL	440 U	420 U
BIS(2-CHLOROETHOXY)METHANE	440 U	420 U
2,4-DICHLOROPHENOL	440 U	420 U
1,2,4-TRICHLOROBENZENE	440 U	420 U
NAPHTHALENE	440 U	420 U
4-CHLOROANILINE	440 U	420 U
HEXACHLOROBUTADIENE	440 U	420 U
4-CHLORO-3-METHYLPHENOL	440 U	420 U
2-METHYLNAPHTHALENE	440 U	420 U
HEXACHLOROCYCLOPENTADIENE	440 U	420 U
2,4,6-TRICHLOROPHENOL	440 U	420 U
2,4,5-TRICHLOROPHENOL	1100 U	1000 U
2-CHLORONAPHTHALENE	440 U	420 U
2-NITROANILINE	1100 U	1000 U
DIMETHYLPHTHALATE	440 U	420 U
ACENAPHTHYLENE	440 U	420 U
2,6-DINITROTOLUENE	440 U	420 U
3-NITROANILINE	1100 U	1000 U
ACENAPHTHENE	440 U	420 U
2,4-DINITROPHENOL	1100 U	1000 U
4-NITROPHENOL	1100 U	1000 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB06-08D	68-SB14-03D
DATE SAMPLED	01-13-1996	01-13-1996
SEMIVOLATILES (ug/kg) (cont)		
DIBENZOFURAN	440 U	420 U
2,4-DINITROTOLUENE	440 U	420 U
DIETHYLPHTHALATE	440 U	420 U
4-CHLOROPHENYL-PHENYLETHER	440 U	420 U
FLUORENE	440 U	420 U
4-NITROANILINE	1100 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1000 U
N-NITROSODIPHENYLAMINE (1)	440 U	420 U
4-BROMOPHENYL-PHENYLETHER	440 U	420 U
HEXACHLOROBENZENE	440 U	420 U
PENTACHLOROPHENOL	1100 U	1000 U
PHENANTHRENE	440 U	420 U
ANTHRACENE	440 U	420 U
CARBAZOLE	440 U	420 U
DI-N-BUTYLPHTHALATE	440 U	420 U
FLUORANTHENE	440 U	420 U
PYRENE	440 U	420 U
BUTYLBENZYLPHTHALATE	440 U	420 U
3,3'-DICHLOROBENZIDINE	440 U	420 U
BENZO(A)ANTHRACENE	440 U	420 U
CHRYSENE	440 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	440 U	420 U
DI-N-OCTYL PHTHALATE	440 U	420 U
BENZO(B)FLUORANTHENE	440 U	420 U
BENZO(K)FLUORANTHENE	440 U	420 U
BENZO(A)PYRENE	440 U	420 U
INDENO(1,2,3-CD)PYRENE	440 U	420 U
DIBENZO(A,H)ANTHRACENE	440 U	420 U
BENZO(G,H,I)PERYLENE	440 U	420 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB06-08D	68-SB14-03D
DATE SAMPLED	01-13-1996	01-13-1996
PESTICIDES/PCBS (ug/kg)		
ALPHA-BHC	2.2 U	2.1 U
BETA-BHC	2.2 U	2.1 U
DELTA-BHC	2.2 U	2.1 U
GAMMA-BHC (LINDANE)	2.2 U	2.1 U
HEPTACHLOR	2.2 U	2.1 U
ALDRIN	2.2 U	2.1 U
HEPTACHLOR EPOXIDE	2.2 U	2.1 U
ENDOSULFAN I	2.2 U	2.1 U
DIELDRIN	4.4 UJ	4.1 UJ
4,4'-DDE	4.4 U	4.1 U
ENDRIN	4.4 U	4.1 U
ENDOSULFAN II	4.4 U	4.1 U
4,4'-DDD	4.4 U	4.1 U
ENDOSULFAN SULFATE	4.4 U	4.1 U
4,4'-DDT	4.4 U	4.1 U
METHOXYCHLOR	22 U	21 U
ENDRIN KETONE	4.4 U	4.1 U
ENDRIN ALDEHYDE	4.4 U	4.1 U
ALPHA-CHLORDANE	2.2 U	2.1 U
GAMMA-CHLORDANE	2.2 U	2.1 U
TOXAPHENE	220 U	210 U
AROCLOR-1016	44 U	41 U
AROCLOR-1221	87 U	83 U
AROCLOR-1232	44 U	41 U
AROCLOR-1242	44 U	41 U
AROCLOR-1248	44 U	41 U
AROCLOR-1254	44 U	41 U
AROCLOR-1260	44 U	41 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SB06-08D	68-SB14-03D
DATE SAMPLED	01-13-1996	01-13-1996
INORGANICS (mg/kg)		
ALUMINUM, TOTAL	13500	10300
ANTIMONY, TOTAL	3.9 UJ	4.6 UJ
ARSENIC, TOTAL	2.7	1.8 J
BARIUM, TOTAL	15.1	10
BERYLLIUM, TOTAL	0.21	0.18 U
CADMIUM, TOTAL	0.43 U	0.51 U
CALCIUM, TOTAL	363	18.9
CHROMIUM, TOTAL	18.9	20.2
COBALT, TOTAL	0.97	0.69 U
COPPER, TOTAL	3.9	2.2
IRON, TOTAL	10400	9640
LEAD, TOTAL	7.9	7.4
MAGNESIUM, TOTAL	843	354
MANGANESE, TOTAL	14.1	6.3
MERCURY, TOTAL	0.05 U	0.06 U
NICKEL, TOTAL	3	2.6 U
POTASSIUM, TOTAL	860	449
SELENIUM, TOTAL	0.29 U	0.26 U
SILVER, TOTAL	0.6 U	0.72 U
SODIUM, TOTAL	48.8	84.5
THALLIUM, TOTAL	0.38 UJ	0.33 U
VANADIUM, TOTAL	17.9	30.6
ZINC, TOTAL	15	4.8

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SD01-01D
DATE SAMPLED	01-15-1996
VOLATILES (ug/kg)	
CHLOROMETHANE	26 U
BROMOMETHANE	26 U
VINYL CHLORIDE	26 U
CHLOROETHANE	26 U
METHYLENE CHLORIDE	26 U
ACETONE	26 U
CARBON DISULFIDE	26 U
1,1-DICHLOROETHENE	26 U
1,1-DICHLOROETHANE	26 U
1,2-DICHLOROETHENE (TOTAL)	26 U
CHLOROFORM	26 U
1,2-DICHLOROETHANE	26 U
2-BUTANONE	26 U
1,1,1-TRICHLOROETHANE	26 U
CARBON TETRACHLORIDE	26 U
BROMODICHLOROMETHANE	26 U
1,2-DICHLOROPROPANE	26 U
CIS-1,3-DICHLOROPROPENE	26 U
TRICHLOROETHENE	26 U
DIBROMOCHLOROMETHANE	26 U
1,1,2-TRICHLOROETHANE	26 U
BENZENE	26 U
TRANS-1,3-DICHLOROPROPENE	26 U
BROMOFORM	26 U
4-METHYL-2-PENTANONE	26 U
2-HEXANONE	26 U
TETRACHLOROETHENE	26 U
1,1,2,2-TETRACHLOROETHANE	26 U
TOLUENE	26 U
CHLOROBENZENE	26 U
ETHYLBENZENE	26 U
STYRENE	26 U
XYLENE (TOTAL)	26 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SD01-01D
DATE SAMPLED	01-15-1996
SEMIVOLATILES (ug/kg)	
PHENOL	860 U
BIS(2-CHLOROETHYL)ETHER	860 U
2-CHLOROPHENOL	860 U
1,3-DICHLOROBENZENE	860 U
1,4-DICHLOROBENZENE	860 U
1,2-DICHLOROBENZENE	860 U
2-METHYLPHENOL	860 U
2,2'-OXYBIS(1-CHLOROPROPANE)	860 U
4-METHYLPHENOL	860 U
N-NITROSO-DI-N-PROPYLAMINE	860 U
HEXACHLOROETHANE	860 U
NITROBENZENE	860 U
ISOPHORONE	860 U
2-NITROPHENOL	860 U
2,4-DIMETHYLPHENOL	860 U
BIS(2-CHLOROETHOXY)METHANE	860 U
2,4-DICHLOROPHENOL	860 U
1,2,4-TRICHLOROBENZENE	860 U
NAPHTHALENE	860 U
4-CHLOROANILINE	860 U
HEXACHLOROBUTADIENE	860 U
4-CHLORO-3-METHYLPHENOL	860 U
2-METHYLNAPHTHALENE	860 U
HEXACHLOROCYCLOPENTADIENE	860 U
2,4,6-TRICHLOROPHENOL	860 U
2,4,5-TRICHLOROPHENOL	2100 U
2-CHLORONAPHTHALENE	860 U
2-NITROANILINE	2100 U
DIMETHYLPHTHALATE	860 U
ACENAPHTHYLENE	860 U
2,6-DINITROTOLUENE	860 U
3-NITROANILINE	2100 U
ACENAPHTHENE	860 U
2,4-DINITROPHENOL	2100 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SD01-01D
DATE SAMPLED	01-15-1996
SEMIVOLATILES (ug/kg) (cont)	
4-NITROPHENOL	2100 U
DIBENZOFURAN	860 U
2,4-DINITROTOLUENE	860 U
DIETHYLPHTHALATE	860 U
4-CHLOROPHENYL-PHENYLETHER	860 U
FLUORENE	860 U
4-NITROANILINE	2100 U
4,6-DINITRO-2-METHYLPHENOL	2100 U
N-NITROSODIPHENYLAMINE (1)	860 U
4-BROMOPHENYL-PHENYLETHER	860 U
HEXACHLOROBENZENE	860 U
PENTACHLOROPHENOL	2100 U
PHENANTHRENE	860 U
ANTHRACENE	860 U
CARBAZOLE	860 U
DI-N-BUTYLPHTHALATE	860 U
FLUORANTHENE	860 U
PYRENE	860 U
BUTYLBENZYLPHTHALATE	860 U
3,3'-DICHLOROBENZIDINE	860 U
BENZO(A)ANTHRACENE	860 U
CHRYSENE	860 U
BIS(2-ETHYLHEXYL)PHTHALATE	860 U
DI-N-OCTYL PHTHALATE	860 U
BENZO(B)FLUORANTHENE	860 U
BENZO(K)FLUORANTHENE	860 U
BENZO(A)PYRENE	860 U
INDENO(1,2,3-CD)PYRENE	860 U
DIBENZO(A,H)ANTHRACENE	860 U
BENZO(G,H,I)PERYLENE	860 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SD01-01D
DATE SAMPLED	01-15-1996
PESTICIDES/PCBS (ug/kg)	
ALPHA-BHC	4.3 U
BETA-BHC	4.3 U
DELTA-BHC	4.3 U
GAMMA-BHC (LINDANE)	4.3 U
HEPTACHLOR	4.3 U
ALDRIN	4.3 U
HEPTACHLOR EPOXIDE	4.3 U
ENDOSULFAN I	4.3 U
DIELDRIN	8.6 UJ
4,4'-DDE	7.8 J
ENDRIN	8.6 U
ENDOSULFAN II	8.6 U
4,4'-DDD	14
ENDOSULFAN SULFATE	8.6 U
4,4'-DDT	8.6 U
METHOXYCHLOR	43 UJ
ENDRIN KETONE	8.6 U
ENDRIN ALDEHYDE	8.6 U
ALPHA-CHLORDANE	4.3 U
GAMMA-CHLORDANE	4.3 U
TOXAPHENE	430 U
AROCLOR-1016	86 U
AROCLOR-1221	170 U
AROCLOR-1232	86 U
AROCLOR-1242	86 U
AROCLOR-1248	86 U
AROCLOR-1254	86 U
AROCLOR-1260	86 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SD01-01D	
DATE SAMPLED	01-15-1996	
INORGANICS (mg/kg)		
ALUMINUM, TOTAL	6800	
ANTIMONY, TOTAL	9.9	UJ
ARSENIC, TOTAL	1.3	J
BARIUM, TOTAL	17.8	
BERYLLIUM, TOTAL	0.4	U
CADMIUM, TOTAL	1.1	U
CALCIUM, TOTAL	2640	
CHROMIUM, TOTAL	5.2	
COBALT, TOTAL	2.4	
COPPER, TOTAL	1	U
IRON, TOTAL	9770	
LEAD, TOTAL	6.6	
MAGNESIUM, TOTAL	1360	
MANGANESE, TOTAL	29.5	
MERCURY, TOTAL	0.14	U
NICKEL, TOTAL	5.6	U
POTASSIUM, TOTAL	414	U
SELENIUM, TOTAL	0.77	
SILVER, TOTAL	1.5	U
SODIUM, TOTAL	1440	
THALLIUM, TOTAL	0.8	U
VANADIUM, TOTAL	6.1	
ZINC, TOTAL	6.5	

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-GW02-01D	IR68-GW05DW-98BDUP
DATE SAMPLED	01-24-1996	04-22-1998
VOLATILES (ug/L)		
Chloromethane	10 U	NA
Bromomethane	10 U	NA
Vinyl chloride	10 U	NA
Chloroethane	10 U	NA
Methylene chloride	10 U	NA
Acetone	10 U	NA
Carbon disulfide	10 U	NA
1,1-Dichloroethene	10 U	NA
1,1-Dichloroethane	10 U	NA
1,2-Dichloroethene (total)	10 U	NA
Chloroform	10 U	NA
1,2-Dichloroethane	10 U	NA
2-Butanone	10 U	NA
1,1,1-Trichloroethane	10 U	NA
Carbon tetrachloride	10 U	NA
Bromodichloromethane	10 U	NA
1,2-Dichloropropane	10 U	NA
cis-1,3-Dichloropropene	10 U	NA
Trichloroethene	10 U	NA
Dibromochloromethane	10 U	NA
1,1,2-Trichloroethane	10 U	NA
Benzene	10 U	NA
trans-1,3-Dichloropropene	10 U	NA
Bromoform	10 U	NA
4-Methyl-2-pentanone	10 U	NA
2-Hexanone	10 U	NA
Tetrachloroethene	10 U	NA
1,1,2,2-Tetrachloroethane	10 U	NA
Toluene	10 U	NA
Chlorobenzene	10 U	NA
Ethylbenzene	10 U	NA
Styrene	10 U	NA
Xylenes (total)	10 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-GW02-01D	IR68-GW05DW-98BDUP
DATE SAMPLED	01-24-1996	04-22-1998
SEMIVOLATILES (ug/L)		
PHENOL	9 U	NA
BIS(2-CHLOROETHYL)ETHER	9 U	NA
2-CHLOROPHENOL	9 U	NA
1,3-DICHLOROBENZENE	9 U	NA
1,4-DICHLOROBENZENE	9 U	NA
1,2-DICHLOROBENZENE	9 U	NA
2-METHYLPHENOL	9 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U	NA
4-METHYLPHENOL	9 U	NA
N-NITROSO-DI-N-PROPYLAMINE	9 U	NA
HEXACHLOROETHANE	9 U	NA
NITROBENZENE	9 U	NA
ISOPHORONE	9 U	NA
2-NITROPHENOL	9 U	NA
2,4-DIMETHYLPHENOL	9 U	NA
BIS(2-CHLOROETHOXY)METHANE	9 U	NA
2,4-DICHLOROPHENOL	9 U	NA
1,2,4-TRICHLOROBENZENE	9 U	NA
NAPHTHALENE	9 U	NA
4-CHLOROANILINE	9 U	NA
HEXACHLOROBUTADIENE	9 U	NA
4-CHLORO-3-METHYLPHENOL	9 U	NA
2-METHYLNAPHTHALENE	9 U	NA
HEXACHLOROCYCLOPENTADIENE	9 U	NA
2,4,6-TRICHLOROPHENOL	9 U	NA
2,4,5-TRICHLOROPHENOL	23 U	NA
2-CHLORONAPHTHALENE	9 U	NA
2-NITROANILINE	23 U	NA
DIMETHYLPHTHALATE	9 U	NA
ACENAPHTHYLENE	9 U	NA
2,6-DINITROTOLUENE	9 U	NA
3-NITROANILINE	23 U	NA
ACENAPHTHENE	9 U	NA
2,4-DINITROPHENOL	23 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-GW02-01D	IR68-GW05DW-98BDUP
DATE SAMPLED	01-24-1996	04-22-1998
SEMIVOLATILES (ug/L) (cont)		
4-NITROPHENOL	23 UJ	NA
DIBENZOFURAN	9 U	NA
2,4-DINITROTOLUENE	9 U	NA
DIETHYLPHTHALATE	9 U	NA
4-CHLOROPHENYL-PHENYLETHER	9 U	NA
FLUORENE	9 U	NA
4-NITROANILINE	23 U	NA
4,6-DINITRO-2-METHYLPHENOL	23 U	NA
N-NITROSODIPHENYLAMINE (1)	9 U	NA
4-BROMOPHENYL-PHENYLETHER	9 U	NA
HEXACHLOROBENZENE	9 U	NA
PENTACHLOROPHENOL	23 U	NA
PHENANTHRENE	9 U	NA
ANTHRACENE	9 U	NA
CARBAZOLE	9 U	NA
DI-N-BUTYLPHTHALATE	9 U	NA
FLUORANTHENE	9 U	NA
PYRENE	9 U	NA
BUTYLBENZYLPHTHALATE	9 U	NA
3,3'-DICHLOROBENZIDINE	9 U	NA
BENZO(A)ANTHRACENE	9 U	NA
CHRYSENE	9 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	9 U	NA
DI-N-OCTYL PHTHALATE	9 U	NA
BENZO(B)FLUORANTHENE	9 U	NA
BENZO(K)FLUORANTHENE	9 U	NA
BENZO(A)PYRENE	9 U	NA
INDENO(1,2,3-CD)PYRENE	9 U	NA
DIBENZO(A,H)ANTHRACENE	9 U	NA
BENZO(G,H,I)PERYLENE	9 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-GW02-01D	IR68-GW05DW-98BDUP
DATE SAMPLED	01-24-1996	04-22-1998
PESTICIDES/PCBS (ug/L)		
ALPHA-BHC	0.047 U	NA
BETA-BHC	0.047 U	NA
DELTA-BHC	0.047 U	NA
GAMMA-BHC (LINDANE)	0.047 U	NA
HEPTACHLOR	0.047 U	NA
ALDRIN	0.047 U	NA
HEPTACHLOR EPOXIDE	0.047 U	NA
ENDOSULFAN I	0.047 U	NA
DIELDRIN	0.094 U	NA
4,4'-DDE	0.094 U	NA
ENDRIN	0.094 U	NA
ENDOSULFAN II	0.094 U	NA
4,4'-DDD	0.094 U	NA
ENDOSULFAN SULFATE	0.094 U	NA
4,4'-DDT	0.094 U	NA
METHOXYCHLOR	0.47 U	NA
ENDRIN KETONE	0.094 U	NA
ENDRIN ALDEHYDE	0.094 U	NA
ALPHA-CHLORDANE	0.047 U	NA
GAMMA-CHLORDANE	0.047 U	NA
TOXAPHENE	4.7 U	NA
Aroclor 1016	0.94 U	NA
Aroclor 1221	1.9 U	NA
Aroclor 1232	0.94 U	NA
Aroclor 1242	0.94 U	NA
Aroclor 1248	0.94 U	NA
Aroclor 1254	0.94 U	NA
Aroclor 1260	0.94 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-GW02-01D	IR68-GW05DW-98BDUP
DATE SAMPLED	01-24-1996	04-22-1998
INORGANICS (ug/L)		
Aluminum	52.6 U	74.4 U
Antimony	19.8 U	60 U
Arsenic	0.9 UJ	10 U
Barium	26	8.6 J
Beryllium	0.8 U	5 U
Cadmium	2.2 U	5 U
Calcium	4000	98800
Chromium	2.4 U	6.4 J
Cobalt	3 U	50 U
Copper	2 U	6.2 J
Iron	15.4	101
Lead	0.8 U	3 U
Magnesium	2400	3420 J
Manganese	3.8 U	3.3 J
Mercury	0.1 U	0.2 U
Nickel	11.3 U	10.9 J
Potassium	933	2000 J
Selenium	1.3 U	5 U
Silver	3.1 U	10 U
Sodium	5140	9930
Thallium	0.9 U	10 U
Vanadium	2.4 U	20.6 J
Zinc	5.4	19.1 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SW01-01D
DATE SAMPLED	01-15-1996
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	10 UJ
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 UJ
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SW01-01D
DATE SAMPLED	01-15-1996
SEMIVOLATILES (ug/L)	
PHENOL	9 U
BIS(2-CHLOROETHYL)ETHER	9 U
2-CHLOROPHENOL	9 U
1,3-DICHLOROBENZENE	9 U
1,4-DICHLOROBENZENE	9 U
1,2-DICHLOROBENZENE	9 U
2-METHYLPHENOL	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U
4-METHYLPHENOL	9 U
N-NITROSO-DI-N-PROPYLAMINE	9 U
HEXACHLOROETHANE	9 U
NITROBENZENE	9 U
ISOPHORONE	9 U
2-NITROPHENOL	9 U
2,4-DIMETHYLPHENOL	9 U
BIS(2-CHLOROETHOXY)METHANE	9 U
2,4-DICHLOROPHENOL	9 U
1,2,4-TRICHLOROBENZENE	9 U
NAPHTHALENE	9 U
4-CHLOROANILINE	9 U
HEXACHLOROBUTADIENE	9 U
4-CHLORO-3-METHYLPHENOL	9 U
2-METHYLNAPHTHALENE	9 U
HEXACHLOROCYCLOPENTADIENE	9 U
2,4,6-TRICHLOROPHENOL	9 U
2,4,5-TRICHLOROPHENOL	24 U
2-CHLORONAPHTHALENE	9 U
2-NITROANILINE	24 U
DIMETHYLPHTHALATE	9 U
ACENAPHTHYLENE	9 U
2,6-DINITROTOLUENE	9 U
3-NITROANILINE	24 U
ACENAPHTHENE	9 U
2,4-DINITROPHENOL	24 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SW01-01D
DATE SAMPLED	01-15-1996
SEMIVOLATILES (ug/L) (cont)	
4-NITROPHENOL	24 U
DIBENZOFURAN	9 U
2,4-DINITROTOLUENE	9 U
DIETHYLPHTHALATE	9 U
4-CHLOROPHENYL-PHENYLETHER	9 U
FLUORENE	9 U
4-NITROANILINE	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U
N-NITROSODIPHENYLAMINE (1)	9 U
4-BROMOPHENYL-PHENYLETHER	9 U
HEXACHLOROBENZENE	9 U
PENTACHLOROPHENOL	24 U
PHENANTHRENE	9 U
ANTHRACENE	9 U
CARBAZOLE	9 U
DI-N-BUTYLPHTHALATE	9 U
FLUORANTHENE	9 U
PYRENE	9 U
BUTYLBENZYLPHTHALATE	9 U
3,3'-DICHLOROBENZIDINE	9 U
BENZO(A)ANTHRACENE	9 U
CHRYSENE	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	9 U
DI-N-OCTYL PHTHALATE	9 U
BENZO(B)FLUORANTHENE	9 U
BENZO(K)FLUORANTHENE	9 U
BENZO(A)PYRENE	9 U
INDENO(1,2,3-CD)PYRENE	9 U
DIBENZO(A,H)ANTHRACENE	9 U
BENZO(G,H,I)PERYLENE	9 U

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SW01-01D
DATE SAMPLED	01-15-1996
PESTICIDES/PCBS (ug/L)	
ALPHA-BHC	0.062 UJ
BETA-BHC	0.062 UJ
DELTA-BHC	0.062 UJ
GAMMA-BHC (LINDANE)	0.062 UJ
HEPTACHLOR	0.062 UJ
ALDRIN	0.062 UJ
HEPTACHLOR EPOXIDE	0.062 UJ
ENDOSULFAN I	0.062 UJ
DIELDRIN	0.12 UJ
4,4'-DDE	0.12 UJ
ENDRIN	0.12 UJ
ENDOSULFAN II	0.12 UJ
4,4'-DDD	0.12 UJ
ENDOSULFAN SULFATE	0.12 UJ
4,4'-DDT	0.12 UJ
METHOXYCHLOR	0.62 UJ
ENDRIN KETONE	0.12 UJ
ENDRIN ALDEHYDE	0.12 UJ
ALPHA-CHLORDANE	0.062 UJ
GAMMA-CHLORDANE	0.062 UJ
TOXAPHENE	6.2 UJ
Aroclor 1016	1.2 UJ
Aroclor 1221	2.5 UJ
Aroclor 1232	1.2 UJ
Aroclor 1242	1.2 UJ
Aroclor 1248	1.2 UJ
Aroclor 1254	1.2 UJ
Aroclor 1260	1.2 UJ

DUPLICATE SAMPLE SUMMARY
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-SW01-01D
DATE SAMPLED	01-15-1996
INORGANICS (ug/L)	
Aluminum	453
Antimony	19.8 U
Arsenic	1
Barium	12.5
Beryllium	0.8 U
Cadmium	2.2 U
Calcium	6820
Chromium	2.4 U
Cobalt	3 U
Copper	2 U
Iron	459
Lead	0.8 U
Magnesium	1310
Manganese	12.6
Mercury	0.27
Nickel	11.3 U
Potassium	828 U
Selenium	1.3 U
Silver	3.1 U
Sodium	9330
Thallium	1.7 U
Vanadium	2.4 U
Zinc	6.3

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-SB01-00D	75-SB07-00D	75-SB08-00D	75-SB13-00D
DATE SAMPLED	02-21-1996	02-22-1996	02-22-1996	02-22-1996
VOLATILES (ug/kg)				
CHLOROMETHANE	11 U	13 U	12 UJ	12 U
BROMOMETHANE	11 U	13 U	12 U	12 U
VINYL CHLORIDE	11 U	13 U	12 U	12 U
CHLOROETHANE	11 U	13 U	12 U	12 U
METHYLENE CHLORIDE	11 U	13 U	12 U	12 U
ACETONE	11 U	13 U	12 U	12 U
CARBON DISULFIDE	11 U	13 U	12 U	12 U
1,1-DICHLOROETHENE	11 U	13 U	12 U	12 U
1,1-DICHLOROETHANE	11 U	13 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	13 U	12 U	12 U
CHLOROFORM	11 U	13 U	12 U	12 U
1,2-DICHLOROETHANE	11 U	13 U	12 U	12 U
2-BUTANONE	11 U	13 U	12 U	12 U
1,1,1-TRICHLOROETHANE	11 U	13 U	12 U	12 U
CARBON TETRACHLORIDE	11 U	13 U	12 U	12 U
BROMODICHLOROMETHANE	11 U	13 U	12 U	12 U
1,2-DICHLOROPROPANE	11 U	13 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	13 U	12 U	12 U
TRICHLOROETHENE	11 U	13 U	12 U	12 U
DIBROMOCHLOROMETHANE	11 U	13 U	12 U	12 U
1,1,2-TRICHLOROETHANE	11 U	13 U	12 U	12 U
BENZENE	11 U	13 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	13 U	12 U	12 U
BROMOFORM	11 U	13 U	12 U	12 U
4-METHYL-2-PENTANONE	11 U	13 U	12 U	12 U
2-HEXANONE	11 U	13 U	12 U	12 U
TETRACHLOROETHENE	11 U	13 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	13 U	12 U	12 U
TOLUENE	11 U	13 U	12 U	12 U
CHLOROBENZENE	11 U	13 U	12 U	12 U
ETHYLBENZENE	11 U	13 U	12 U	12 U
STYRENE	11 U	13 U	12 U	12 U
XYLENE (TOTAL)	11 U	13 U	12 U	12 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-SB01-00D	75-SB07-00D	75-SB08-00D	75-SB13-00D
DATE SAMPLED	02-21-1996	02-22-1996	02-22-1996	02-22-1996
SEMIVOLATILES (ug/kg)				
PHENOL	370 U	410 U	380 U	420 U
BIS(2-CHLOROETHYL)ETHER	370 U	410 U	380 U	420 U
2-CHLOROPHENOL	370 U	410 U	380 U	420 U
1,3-DICHLOROBENZENE	370 U	410 U	380 U	420 U
1,4-DICHLOROBENZENE	370 U	410 U	380 U	420 U
1,2-DICHLOROBENZENE	370 U	410 U	380 U	420 U
2-METHYLPHENOL	370 U	410 U	380 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	410 U	380 U	420 U
4-METHYLPHENOL	370 U	410 U	380 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	370 U	410 U	380 U	420 U
HEXACHLOROETHANE	370 U	410 U	380 U	420 U
NITROBENZENE	370 U	410 U	380 U	420 U
ISOPHORONE	370 U	410 U	380 U	420 U
2-NITROPHENOL	370 U	410 U	380 U	420 U
2,4-DIMETHYLPHENOL	370 U	410 U	380 U	420 U
BIS(2-CHLOROETHOXY)METHANE	370 U	410 U	380 U	420 U
2,4-DICHLOROPHENOL	370 U	410 U	380 U	420 U
1,2,4-TRICHLOROBENZENE	370 U	410 U	380 U	420 U
NAPHTHALENE	370 U	410 U	380 U	420 U
4-CHLOROANILINE	370 U	410 U	380 U	420 U
HEXACHLOROBUTADIENE	370 U	410 U	380 U	420 U
4-CHLORO-3-METHYLPHENOL	370 U	410 U	380 U	420 U
2-METHYLNAPHTHALENE	370 U	410 U	380 U	420 U
HEXACHLOROCYCLOPENTADIENE	370 U	410 U	380 U	420 U
2,4,6-TRICHLOROPHENOL	370 U	410 U	380 U	420 U
2,4,5-TRICHLOROPHENOL	930 U	1000 U	950 U	1000 U
2-CHLORONAPHTHALENE	370 U	410 U	380 U	420 U
2-NITROANILINE	930 U	1000 U	950 U	1000 U
DIMETHYLPHTHALATE	370 U	410 U	380 U	420 U
ACENAPHTHYLENE	370 U	410 U	380 U	420 U
2,6-DINITROTOLUENE	370 U	410 U	380 U	420 U
3-NITROANILINE	930 U	1000 U	950 U	1000 U
ACENAPHTHENE	370 U	410 U	380 U	420 U
2,4-DINITROPHENOL	930 U	1000 U	950 U	1000 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-SB01-00D	75-SB07-00D	75-SB08-00D	75-SB13-00D
DATE SAMPLED	02-21-1996	02-22-1996	02-22-1996	02-22-1996
SEMIVOLATILES (ug/kg) (cont)				
4-NITROPHENOL	930 U	1000 U	950 U	1000 U
DIBENZOFURAN	370 U	410 U	380 U	420 U
2,4-DINITROTOLUENE	370 U	410 U	380 U	420 U
DIETHYLPHTHALATE	370 U	410 U	380 U	420 U
4-CHLOROPHENYL-PHENYLETHER	370 U	410 U	380 U	420 U
FLUORENE	370 U	410 U	380 U	420 U
4-NITROANILINE	930 U	1000 U	950 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	930 U	1000 U	950 U	1000 U
N-NITROSODIPHENYLAMINE (1)	370 U	410 U	380 U	420 U
4-BROMOPHENYL-PHENYLETHER	370 U	410 U	380 U	420 U
HEXACHLOROBENZENE	370 U	410 U	380 U	420 U
PENTACHLOROPHENOL	930 U	1000 U	950 U	1000 U
PHENANTHRENE	370 U	410 U	380 U	420 U
ANTHRACENE	370 U	410 U	380 U	420 U
CARBAZOLE	370 U	410 U	380 U	420 U
DI-N-BUTYLPHTHALATE	370 U	410 U	310 J	420 U
FLUORANTHENE	370 U	410 U	380 U	420 U
PYRENE	370 U	410 U	380 U	420 U
BUTYLBENZYLPHTHALATE	370 U	410 U	380 U	420 U
3,3'-DICHLOROBENZIDINE	370 U	410 U	380 U	420 U
BENZO(A)ANTHRACENE	370 U	410 U	380 U	420 U
CHRYSENE	370 U	410 U	380 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	53 J	100 J	380 U	420 U
DI-N-OCTYL PHTHALATE	370 U	410 U	380 U	420 U
BENZO(B)FLUORANTHENE	370 U	410 U	380 U	420 U
BENZO(K)FLUORANTHENE	370 U	410 U	380 U	420 U
BENZO(A)PYRENE	370 U	410 U	380 U	420 U
INDENO(1,2,3-CD)PYRENE	370 U	410 U	380 U	420 U
DIBENZO(A,H)ANTHRACENE	370 U	410 U	380 U	420 U
BENZO(G,H,I)PERYLENE	370 U	410 U	380 U	420 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-SB01-00D	75-SB07-00D	75-SB08-00D	75-SB13-00D
DATE SAMPLED	02-21-1996	02-22-1996	02-22-1996	02-22-1996
PESTICIDES/PCBS (ug/kg)				
ALPHA-BHC	1.9 UJ	2.1 UJ	1.9 UJ	2 UJ
BETA-BHC	1.9 U	2.1 U	1.9 U	2 U
DELTA-BHC	1.9 U	2.1 U	1.9 U	2 U
GAMMA-BHC (LINDANE)	1.9 U	2.1 U	1.9 U	2 U
HEPTACHLOR	1.9 U	2.1 U	1.9 U	2 U
ALDRIN	1.9 U	2.1 U	1.9 U	2 U
HEPTACHLOR EPOXIDE	1.9 U	2.1 U	1.9 U	2 U
ENDOSULFAN I	1.9 U	2.1 U	1.9 U	2 U
DIELDRIN	20	4.2 U	1.9 J	4.1 U
4,4'-DDE	1.9 J	6.2 J	3.8 UJ	17 J
ENDRIN	3.7 U	4.2 U	3.8 U	4.1 U
ENDOSULFAN II	3.7 U	4.2 U	3.8 U	4.1 U
4,4'-DDD	2.2 NJ	2.5 J	3.8 U	4.1 U
ENDOSULFAN SULFATE	3.7 U	4.2 U	3.8 U	4.1 U
4,4'-DDT	2.6 J	11	1.9 J	11
METHOXYCHLOR	19 U	21 U	19 U	20 U
ENDRIN KETONE	3.7 U	4.2 U	3.8 U	4.1 U
ENDRIN ALDEHYDE	3.7 U	4.2 U	3.8 U	4.1 U
ALPHA-CHLORDANE	14	2.1 U	1.9 U	2 U
GAMMA-CHLORDANE	12	2.1 U	1.9 U	2 U
TOXAPHENE	190 U	210 U	190 U	200 U
AROCLOR-1016	37 U	42 U	38 U	41 U
AROCLOR-1221	74 U	83 U	77 U	82 U
AROCLOR-1232	37 U	42 U	38 U	41 U
AROCLOR-1242	37 U	42 U	38 U	41 U
AROCLOR-1248	37 U	42 U	38 U	41 U
AROCLOR-1254	37 U	42 U	38 U	41 U
AROCLOR-1260	37 U	42 U	38 U	41 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-SB01-00D	75-SB07-00D	75-SB08-00D	75-SB13-00D
DATE SAMPLED	02-21-1996	02-22-1996	02-22-1996	02-22-1996
INORGANICS (mg/kg)				
ALUMINUM, TOTAL	5690	7250	7480	3080
ANTIMONY, TOTAL	4.1 UJ	4.4 UJ	3.3 UJ	4.1 UJ
ARSENIC, TOTAL	0.78 J	0.67 J	0.78 J	0.69
BARIUM, TOTAL	43.8	13.2	14.6	15.9
BERYLLIUM, TOTAL	0.16 U	0.18 U	0.13 U	0.17 U
CADMIUM, TOTAL	0.45 U	0.49 U	0.37 U	0.45 U
CALCIUM, TOTAL	2490	1530	1120	2160
CHROMIUM, TOTAL	7.2	6.5	7.5	3.9
COBALT, TOTAL	0.61 U	0.67 U	0.51 U	0.62 U
COPPER, TOTAL	1.5	4.7	0.9	5.6
IRON, TOTAL	2790	3150	3510 J	1730
LEAD, TOTAL	9.1 J	18.4 J	10 J	19.2
MAGNESIUM, TOTAL	241	213	227	98.1
MANGANESE, TOTAL	7.4	9.9	8.9	11.2
MERCURY, TOTAL	0.05 U	0.11	0.06	0.06
NICKEL, TOTAL	2.3 U	2.5 U	2.4	2.3 U
POTASSIUM, TOTAL	211	298	140 U	171 U
SELENIUM, TOTAL	0.39 J	0.31 UJ	0.22 UJ	0.23 U
SILVER, TOTAL	0.63 U	0.69 U	0.52 U	0.64 U
SODIUM, TOTAL	17.1	12.9	72.2	12.8 J
THALLIUM, TOTAL	0.2 U	0.22 U	0.28 U	0.16 U
VANADIUM, TOTAL	9.7	12.6	12.2	6.3
ZINC, TOTAL	6.3	22.5	7.3	19.7

mg/kg)
Diesel Range Organics

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-GW01-01D
DATE SAMPLED	02-24-1996
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	10 U
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-GW01-01D
DATE SAMPLED	02-24-1996
SEMIVOLATILES (ug/L)	
PHENOL	10 U
BIS(2-CHLOROETHYL)ETHER	10 U
2-CHLOROPHENOL	10 U
1,3-DICHLOROBENZENE	10 U
1,4-DICHLOROBENZENE	10 U
1,2-DICHLOROBENZENE	10 U
2-METHYLPHENOL	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U
4-METHYLPHENOL	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U
HEXACHLOROETHANE	10 U
NITROBENZENE	10 U
ISOPHORONE	10 U
2-NITROPHENOL	10 U
2,4-DIMETHYLPHENOL	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U
2,4-DICHLOROPHENOL	10 U
1,2,4-TRICHLOROBENZENE	10 U
NAPHTHALENE	10 U
4-CHLOROANILINE	10 U
HEXACHLOROBUTADIENE	10 U
4-CHLORO-3-METHYLPHENOL	10 U
2-METHYLNAPHTHALENE	10 U
HEXACHLOROCYCLOPENTADIENE	10 U
2,4,6-TRICHLOROPHENOL	10 U
2,4,5-TRICHLOROPHENOL	24 U
2-CHLORONAPHTHALENE	10 U
2-NITROANILINE	24 U
DIMETHYLPHTHALATE	10 U
ACENAPHTHYLENE	10 U
2,6-DINITROTOLUENE	10 U
3-NITROANILINE	24 U
ACENAPHTHENE	10 U
2,4-DINITROPHENOL	24 U
4-NITROPHENOL	24 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-GW01-01D
DATE SAMPLED	02-24-1996
SEMIVOLATILES (ug/L) (cont)	
DIBENZOFURAN	10 U
2,4-DINITROTOLUENE	10 U
DIETHYLPHTHALATE	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U
FLUORENE	10 U
4-NITROANILINE	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U
N-NITROSODIPHENYLAMINE (1)	10 U
4-BROMOPHENYL-PHENYLETHER	10 U
HEXACHLOROBENZENE	10 U
PENTACHLOROPHENOL	24 U
PHENANTHRENE	10 U
ANTHRACENE	10 U
CARBAZOLE	10 U
DI-N-BUTYLPHTHALATE	10 U
FLUORANTHENE	10 U
PYRENE	10 U
BUTYLBENZYLPHTHALATE	10 U
3,3'-DICHLOROBENZIDINE	10 U
BENZO(A)ANTHRACENE	10 U
CHRYSENE	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	12 U
DI-N-OCTYL PHTHALATE	10 U
BENZO(B)FLUORANTHENE	10 U
BENZO(K)FLUORANTHENE	10 U
BENZO(A)PYRENE	10 U
INDENO(1,2,3-CD)PYRENE	10 U
DIBENZO(A,H)ANTHRACENE	10 U
BENZO(G,H,I)PERYLENE	10 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-GW01-01D
DATE SAMPLED	02-24-1996
PESTICIDES/PCBS (ug/L)	
ALPHA-BHC	0.05 UJ
BETA-BHC	0.05 U
DELTA-BHC	0.05 U
GAMMA-BHC (LINDANE)	0.05 U
HEPTACHLOR	0.05 U
ALDRIN	0.05 U
HEPTACHLOR EPOXIDE	0.05 U
ENDOSULFAN I	0.05 U
DIELDRIN	0.1 U
4,4'-DDE	0.1 UJ
ENDRIN	0.1 U
ENDOSULFAN II	0.1 U
4,4'-DDD	0.1 U
ENDOSULFAN SULFATE	0.1 U
4,4'-DDT	0.1 U
METHOXYCHLOR	0.5 U
ENDRIN KETONE	0.1 U
ENDRIN ALDEHYDE	0.1 U
ALPHA-CHLORDANE	0.05 U
GAMMA-CHLORDANE	0.05 U
TOXAPHENE	5 U
Aroclor 1016	1 U
Aroclor 1221	2 U
Aroclor 1232	1 U
Aroclor 1242	1 U
Aroclor 1248	1 U
Aroclor 1254	1 U
Aroclor 1260	1 U

DUPLICATE SAMPLE SUMMARY
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	75-GW01-01D
DATE SAMPLED	02-24-1996
INORGANICS (ug/L)	
Aluminum	195 U
Antimony	19.8 U
Arsenic	0.9 U
Barium	18.5
Beryllium	0.8 U
Cadmium	2.2 U
Calcium	9050
Chromium	2.4 U
Cobalt	3 U
Copper	2 U
Iron	56.4 U
Lead	0.8 U
Magnesium	887
Manganese	3.6
Mercury	0.1 U
Nickel	11.3 U
Potassium	828 U
Selenium	1.3 U
Silver	3.1 U
Sodium	3380
Thallium	1.7 U
Vanadium	2.4 U
Zinc	75.1

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB01-00D	76-SB11-00D
DATE SAMPLED	02-23-1996	02-23-1996
VOLATILES (ug/kg)		
CHLOROMETHANE	12 U	12 U
BROMOMETHANE	12 U	12 U
VINYL CHLORIDE	12 U	12 U
CHLOROETHANE	12 U	12 U
METHYLENE CHLORIDE	12 U	12 U
ACETONE	12 U	12 U
CARBON DISULFIDE	12 U	12 U
1,1-DICHLOROETHENE	12 U	12 U
1,1-DICHLOROETHANE	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U
CHLOROFORM	12 U	12 U
1,2-DICHLOROETHANE	12 U	12 U
2-BUTANONE	12 U	12 U
1,1,1-TRICHLOROETHANE	12 U	12 U
CARBON TETRACHLORIDE	12 U	12 U
BROMODICHLOROMETHANE	12 U	12 U
1,2-DICHLOROPROPANE	12 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U
TRICHLOROETHENE	12 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 U
BENZENE	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U
BROMOFORM	12 U	12 U
4-METHYL-2-PENTANONE	12 U	12 U
2-HEXANONE	12 U	12 U
TETRACHLOROETHENE	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U
TOLUENE	12 U	12 U
CHLOROBENZENE	12 U	12 U
ETHYLBENZENE	12 U	12 U
STYRENE	12 U	12 U
XYLENE (TOTAL)	12 U	12 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB01-00D	76-SB11-00D
DATE SAMPLED	02-23-1996	02-23-1996
SEMIVOLATILES (ug/kg)		
PHENOL	400 U	420 U
BIS(2-CHLOROETHYL)ETHER	400 U	420 U
2-CHLOROPHENOL	400 U	420 U
1,3-DICHLOROBENZENE	400 U	420 U
1,4-DICHLOROBENZENE	400 U	420 U
1,2-DICHLOROBENZENE	400 U	420 U
2-METHYLPHENOL	400 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	420 U
4-METHYLPHENOL	400 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	400 U	420 U
HEXACHLOROETHANE	400 U	420 U
NITROBENZENE	400 U	420 U
ISOPHORONE	400 U	420 U
2-NITROPHENOL	400 U	420 U
2,4-DIMETHYLPHENOL	400 U	420 U
BIS(2-CHLOROETHOXY)METHANE	400 U	420 U
2,4-DICHLOROPHENOL	400 U	420 U
1,2,4-TRICHLOROBENZENE	400 U	420 U
NAPHTHALENE	400 U	420 U
4-CHLOROANILINE	400 U	420 U
HEXACHLOROBUTADIENE	400 U	420 U
4-CHLORO-3-METHYLPHENOL	400 U	420 U
2-METHYLNAPHTHALENE	400 U	420 U
HEXACHLOROCYCLOPENTADIENE	400 U	420 U
2,4,6-TRICHLOROPHENOL	400 U	420 U
2,4,5-TRICHLOROPHENOL	1000 U	1000 U
2-CHLORONAPHTHALENE	400 U	420 U
2-NITROANILINE	1000 U	1000 U
DIMETHYLPHTHALATE	400 U	420 U
ACENAPHTHYLENE	400 U	420 U
2,6-DINITROTOLUENE	400 U	420 U
3-NITROANILINE	1000 U	1000 U
ACENAPHTHENE	400 U	420 U
2,4-DINITROPHENOL	1000 U	1000 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB01-00D	76-SB11-00D
DATE SAMPLED	02-23-1996	02-23-1996
SEMIVOLATILES (ug/kg) (cont)		
4-NITROPHENOL	1000 U	1000 U
DIBENZOFURAN	400 U	420 U
2,4-DINITROTOLUENE	400 U	420 U
DIETHYLPHTHALATE	400 U	420 U
4-CHLOROPHENYL-PHENYLETHER	400 U	420 U
FLUORENE	400 U	420 U
4-NITROANILINE	1000 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	1000 U
N-NITROSODIPHENYLAMINE (1)	400 U	420 U
4-BROMOPHENYL-PHENYLETHER	400 U	420 U
HEXACHLOROBENZENE	400 U	420 U
PENTACHLOROPHENOL	1000 U	1000 U
PHENANTHRENE	400 U	420 U
ANTHRACENE	400 U	420 U
CARBAZOLE	400 U	420 U
DI-N-BUTYLPHTHALATE	400 U	420 U
FLUORANTHENE	54 J	420 U
PYRENE	50 J	420 U
BUTYLBENZYLPHTHALATE	400 U	420 U
3,3'-DICHLOROBENZIDINE	400 U	420 U
BENZO(A)ANTHRACENE	400 U	420 U
CHRYSENE	40 J	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	400 U	420 U
DI-N-OCTYL PHTHALATE	400 U	420 U
BENZO(B)FLUORANTHENE	400 U	420 U
BENZO(K)FLUORANTHENE	400 U	420 U
BENZO(A)PYRENE	400 U	420 U
INDENO(1,2,3-CD)PYRENE	400 U	420 U
DIBENZO(A,H)ANTHRACENE	400 U	420 U
BENZO(G,H,I)PERYLENE	400 U	420 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB01-00D	76-SB11-00D
DATE SAMPLED	02-23-1996	02-23-1996
PESTICIDES/PCBS (ug/kg)		
ALPHA-BHC	2 UJ	2 UJ
BETA-BHC	2 U	2 U
DELTA-BHC	2 U	2 U
GAMMA-BHC (LINDANE)	2 U	2 U
HEPTACHLOR	2 U	2 U
ALDRIN	2 U	2 U
HEPTACHLOR EPOXIDE	2 U	2 U
ENDOSULFAN I	2 U	2 U
DIELDRIN	4.1 U	4.1 U
4,4'-DDE	490 J	3.7 J
ENDRIN	4.1 U	4.1 U
ENDOSULFAN II	4.1 U	4.1 U
4,4'-DDD	4.1 U	4.1 U
ENDOSULFAN SULFATE	4.1 U	4.1 U
4,4'-DDT	120	5.7
METHOXYCHLOR	20 U	20 U
ENDRIN KETONE	4.1 U	4.1 U
ENDRIN ALDEHYDE	4.1 U	4.1 U
ALPHA-CHLORDANE	2 U	2 U
GAMMA-CHLORDANE	2 U	2 U
TOXAPHENE	200 U	200 U
AROCLOR-1016	41 U	41 U
AROCLOR-1221	81 U	82 U
AROCLOR-1232	41 U	41 U
AROCLOR-1242	41 U	41 U
AROCLOR-1248	41 U	41 U
AROCLOR-1254	41 U	41 U
AROCLOR-1260	41 U	41 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB01-00D	76-SB11-00D
DATE SAMPLED	02-23-1996	02-23-1996
INORGANICS (mg/kg)		
ALUMINUM, TOTAL	4030	4350
ANTIMONY, TOTAL	4.1 UJ	4.1 UJ
ARSENIC, TOTAL	0.41	0.68
BARIUM, TOTAL	12	15.4
BERYLLIUM, TOTAL	0.17 U	0.17 U
CADMIUM, TOTAL	0.46 U	0.46 U
CALCIUM, TOTAL	1650	2190
CHROMIUM, TOTAL	3.8	4.8
COBALT, TOTAL	0.62 U	0.63 U
COPPER, TOTAL	2.4	4.2
IRON, TOTAL	1280	3090
LEAD, TOTAL	28	12.6
MAGNESIUM, TOTAL	145	164
MANGANESE, TOTAL	5.3	15.9
MERCURY, TOTAL	0.05 U	0.05 U
NICKEL, TOTAL	2.3 U	2.4 U
POTASSIUM, TOTAL	172 U	173 U
SELENIUM, TOTAL	0.27 U	0.26 U
SILVER, TOTAL	0.64 U	0.65 U
SODIUM, TOTAL	17.7 J	16.4 J
THALLIUM, TOTAL	0.19 U	0.18 U
VANADIUM, TOTAL	6.8	11.1
ZINC, TOTAL	12	11.6

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB12-02D
DATE SAMPLED	02-23-1996
VOLATILES (ug/kg)	
CHLOROMETHANE	12 U
BROMOMETHANE	12 U
VINYL CHLORIDE	12 U
CHLOROETHANE	12 U
METHYLENE CHLORIDE	12 U
ACETONE	12 U
CARBON DISULFIDE	12 U
1,1-DICHLOROETHENE	12 U
1,1-DICHLOROETHANE	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U
CHLOROFORM	12 U
1,2-DICHLOROETHANE	12 U
2-BUTANONE	12 U
1,1,1-TRICHLOROETHANE	12 U
CARBON TETRACHLORIDE	12 U
BROMODICHLOROMETHANE	12 U
1,2-DICHLOROPROPANE	12 U
CIS-1,3-DICHLOROPROPENE	12 U
TRICHLOROETHENE	12 U
DIBROMOCHLOROMETHANE	12 U
1,1,2-TRICHLOROETHANE	12 U
BENZENE	12 U
TRANS-1,3-DICHLOROPROPENE	12 U
BROMOFORM	12 U
4-METHYL-2-PENTANONE	12 U
2-HEXANONE	12 U
TETRACHLOROETHENE	12 U
1,1,2,2-TETRACHLOROETHANE	12 U
TOLUENE	12 U
CHLOROBENZENE	12 U
ETHYLBENZENE	12 U
STYRENE	12 U
XYLENE (TOTAL)	12 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB12-02D
DATE SAMPLED	02-23-1996
SEMIVOLATILES (ug/kg)	
PHENOL	390 U
BIS(2-CHLOROETHYL)ETHER	390 U
2-CHLOROPHENOL	390 U
1,3-DICHLOROBENZENE	390 U
1,4-DICHLOROBENZENE	390 U
1,2-DICHLOROBENZENE	390 U
2-METHYLPHENOL	390 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U
4-METHYLPHENOL	390 U
N-NITROSO-DI-N-PROPYLAMINE	390 U
HEXACHLOROETHANE	390 U
NITROBENZENE	390 U
ISOPHORONE	390 U
2-NITROPHENOL	390 U
2,4-DIMETHYLPHENOL	390 U
BIS(2-CHLOROETHOXY)METHANE	390 U
2,4-DICHLOROPHENOL	390 U
1,2,4-TRICHLOROBENZENE	390 U
NAPHTHALENE	390 U
4-CHLOROANILINE	390 U
HEXACHLOROBUTADIENE	390 U
4-CHLORO-3-METHYLPHENOL	390 U
2-METHYLNAPHTHALENE	390 U
HEXACHLOROCYCLOPENTADIENE	390 U
2,4,6-TRICHLOROPHENOL	390 U
2,4,5-TRICHLOROPHENOL	970 U
2-CHLORONAPHTHALENE	390 U
2-NITROANILINE	970 U
DIMETHYLPHTHALATE	390 U
ACENAPHTHYLENE	390 U
2,6-DINITROTOLUENE	390 U
3-NITROANILINE	970 U
ACENAPHTHENE	390 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB12-02D
DATE SAMPLED	02-23-1996
SEMIVOLATILES (ug/kg) (cont)	
2,4-DINITROPHENOL	970 U
4-NITROPHENOL	970 U
DIBENZOFURAN	390 U
2,4-DINITROTOLUENE	390 U
DIETHYLPHTHALATE	390 U
4-CHLOROPHENYL-PHENYLETHER	390 U
FLUORENE	390 U
4-NITROANILINE	970 U
4,6-DINITRO-2-METHYLPHENOL	970 U
N-NITROSODIPHENYLAMINE (1)	390 U
4-BROMOPHENYL-PHENYLETHER	390 U
HEXACHLOROBENZENE	390 U
PENTACHLOROPHENOL	970 U
PHENANTHRENE	390 U
ANTHRACENE	390 U
CARBAZOLE	390 U
DI-N-BUTYLPHTHALATE	390 U
FLUORANTHENE	390 U
PYRENE	390 U
BUTYLBENZYLPHTHALATE	390 U
3,3'-DICHLOROBENZIDINE	390 U
BENZO(A)ANTHRACENE	390 U
CHRYSENE	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	390 U
DI-N-OCTYL PHTHALATE	390 U
BENZO(B)FLUORANTHENE	390 U
BENZO(K)FLUORANTHENE	390 U
BENZO(A)PYRENE	390 U
INDENO(1,2,3-CD)PYRENE	390 U
DIBENZO(A,H)ANTHRACENE	390 U
BENZO(G,H,I)PERYLENE	390 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB12-02D
DATE SAMPLED	02-23-1996
PESTICIDES/PCBS (ug/kg)	
ALPHA-BHC	1.9 UJ
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	3.8 U
4,4'-DDE	3.8 UJ
ENDRIN	3.8 UJ
ENDOSULFAN II	3.8 U
4,4'-DDD	3.8 U
ENDOSULFAN SULFATE	3.8 U
4,4'-DDT	3.8 U
METHOXYCHLOR	19 U
ENDRIN KETONE	3.8 U
ENDRIN ALDEHYDE	3.8 U
ALPHA-CHLORDANE	1.9 U
GAMMA-CHLORDANE	1.9 U
TOXAPHENE	190 U
AROCLOR-1016	38 U
AROCLOR-1221	77 U
AROCLOR-1232	38 U
AROCLOR-1242	38 U
AROCLOR-1248	38 U
AROCLOR-1254	38 U
AROCLOR-1260	38 U

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-SB12-02D
DATE SAMPLED	02-23-1996
INORGANICS (mg/kg)	
ALUMINUM, TOTAL	4260
ANTIMONY, TOTAL	3.5 UJ
ARSENIC, TOTAL	0.56
BARIUM, TOTAL	5.7
BERYLLIUM, TOTAL	0.14 U
CADMIUM, TOTAL	0.39 U
CALCIUM, TOTAL	66.6
CHROMIUM, TOTAL	4.8
COBALT, TOTAL	0.53 U
COPPER, TOTAL	0.36 U
IRON, TOTAL	2410
LEAD, TOTAL	3.5
MAGNESIUM, TOTAL	131
MANGANESE, TOTAL	3
MERCURY, TOTAL	0.05 U
NICKEL, TOTAL	2 U
POTASSIUM, TOTAL	212
SELENIUM, TOTAL	0.25 U
SILVER, TOTAL	0.55 U
SODIUM, TOTAL	25.4 U
THALLIUM, TOTAL	0.17 U
VANADIUM, TOTAL	8.1
ZINC, TOTAL	1.2

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-GW01-01D	76-GW04-00D	IR76-GW03-98BD
DATE SAMPLED	02-25-1996	02-22-1996	04-22-1998
VOLATILES (ug/L)			
Chloromethane	10 U	12 U	NA
Bromomethane	10 U	12 U	NA
Vinyl chloride	10 U	12 U	NA
Chloroethane	10 U	12 U	NA
Methylene chloride	10 U	12 U	NA
Acetone	10 U	12 U	NA
Carbon disulfide	10 U	12 U	NA
1,1-Dichloroethene	10 U	12 U	NA
1,1-Dichloroethane	10 U	12 U	NA
1,2-Dichloroethene (total)	10 U	12 U	NA
Chloroform	10 U	12 U	NA
1,2-Dichloroethane	10 U	12 U	NA
2-Butanone	10 U	12 U	NA
1,1,1-Trichloroethane	10 U	12 U	NA
Carbon tetrachloride	10 U	12 U	NA
Bromodichloromethane	10 U	12 U	NA
1,2-Dichloropropane	10 U	12 U	NA
cis-1,3-Dichloropropene	10 U	12 U	NA
Trichloroethene	10 U	12 U	NA
Dibromochloromethane	10 U	12 U	NA
1,1,2-Trichloroethane	10 U	12 U	NA
Benzene	10 U	12 U	NA
trans-1,3-Dichloropropene	10 U	12 U	NA
Bromoform	10 U	12 U	NA
4-Methyl-2-pentanone	10 U	12 U	NA
2-Hexanone	10 U	12 U	NA
Tetrachloroethene	10 U	12 U	NA
1,1,2,2-Tetrachloroethane	10 U	12 U	NA
Toluene	10 U	12 U	NA
Chlorobenzene	10 U	12 U	NA
Ethylbenzene	10 U	12 U	NA
Styrene	10 U	12 U	NA
Xylenes (total)	10 U	12 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-GW01-01D	76-GW04-00D	IR76-GW03-98BD
DATE SAMPLED	02-25-1996	02-22-1996	04-22-1998
SEMIVOLATILES (ug/L)			
PHENOL	11 U	390 U	NA
BIS(2-CHLOROETHYL)ETHER	11 U	390 U	NA
2-CHLOROPHENOL	11 U	390 U	NA
1,3-DICHLOROBENZENE	11 U	390 U	NA
1,4-DICHLOROBENZENE	11 U	390 U	NA
1,2-DICHLOROBENZENE	11 U	390 U	NA
2-METHYLPHENOL	11 U	390 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	11 U	390 U	NA
4-METHYLPHENOL	11 U	390 U	NA
N-NITROSO-DI-N-PROPYLAMINE	11 U	390 U	NA
HEXACHLOROETHANE	11 U	390 U	NA
NITROBENZENE	11 U	390 U	NA
ISOPHORONE	11 U	390 U	NA
2-NITROPHENOL	11 U	390 U	NA
2,4-DIMETHYLPHENOL	11 U	390 U	NA
BIS(2-CHLOROETHOXY)METHANE	11 U	390 U	NA
2,4-DICHLOROPHENOL	11 U	390 U	NA
1,2,4-TRICHLOROBENZENE	11 U	390 U	NA
NAPHTHALENE	11 U	390 U	NA
4-CHLOROANILINE	11 U	390 U	NA
HEXACHLOROBUTADIENE	11 U	390 U	NA
4-CHLORO-3-METHYLPHENOL	11 U	390 U	NA
2-METHYLNAPHTHALENE	11 U	390 U	NA
HEXACHLOROCYCLOPENTADIENE	11 U	390 U	NA
2,4,6-TRICHLOROPHENOL	11 U	390 U	NA
2,4,5-TRICHLOROPHENOL	26 U	970 U	NA
2-CHLORONAPHTHALENE	11 U	390 U	NA
2-NITROANILINE	26 U	970 U	NA
DIMETHYLPHTHALATE	11 U	390 U	NA
ACENAPHTHYLENE	11 U	390 U	NA
2,6-DINITROTOLUENE	11 U	390 U	NA
3-NITROANILINE	26 U	970 U	NA
ACENAPHTHENE	11 U	390 U	NA
2,4-DINITROPHENOL	26 U	970 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-GW01-01D	76-GW04-00D	IR76-GW03-98BD
DATE SAMPLED	02-25-1996	02-22-1996	04-22-1998
SEMIVOLATILES (ug/L) (cont)			
4-NITROPHENOL	26 U	970 U	NA
DIBENZOFURAN	11 U	390 U	NA
2,4-DINITROTOLUENE	11 U	390 U	NA
DIETHYLPHTHALATE	11 U	390 U	NA
4-CHLOROPHENYL-PHENYLETHER	11 U	390 U	NA
FLUORENE	11 U	390 U	NA
4-NITROANILINE	26 U	970 U	NA
4,6-DINITRO-2-METHYLPHENOL	26 U	970 U	NA
N-NITROSODIPHENYLAMINE (1)	11 U	390 U	NA
4-BROMOPHENYL-PHENYLETHER	11 U	390 U	NA
HEXACHLOROBENZENE	11 U	390 U	NA
PENTACHLOROPHENOL	26 U	970 U	NA
PHENANTHRENE	11 U	390 U	NA
ANTHRACENE	11 U	390 U	NA
CARBAZOLE	11 U	390 U	NA
DI-N-BUTYLPHTHALATE	11 U	390 U	NA
FLUORANTHENE	11 U	41 J	NA
PYRENE	11 U	39 J	NA
BUTYLBENZYLPHTHALATE	11 U	390 U	NA
3,3'-DICHLOROBENZIDINE	11 U	390 U	NA
BENZO(A)ANTHRACENE	11 U	390 U	NA
CHRYSENE	11 U	390 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	11 U	390 U	NA
DI-N-OCTYL PHTHALATE	11 U	390 U	NA
BENZO(B)FLUORANTHENE	11 U	46 J	NA
BENZO(K)FLUORANTHENE	11 U	390 U	NA
BENZO(A)PYRENE	11 U	390 U	NA
INDENO(1,2,3-CD)PYRENE	11 U	390 U	NA
DIBENZO(A,H)ANTHRACENE	11 U	390 U	NA
BENZO(G,H,I)PERYLENE	11 U	390 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-GW01-01D	76-GW04-00D	IR76-GW03-98BD
DATE SAMPLED	02-25-1996	02-22-1996	04-22-1998
PESTICIDES/PCBS (ug/L)			
ALPHA-BHC	0.047 UJ	1.9 UJ	NA
BETA-BHC	0.047 U	1.9 U	NA
DELTA-BHC	0.047 U	1.9 U	NA
GAMMA-BHC (LINDANE)	0.047 U	1.9 U	NA
HEPTACHLOR	0.047 U	1.9 U	NA
ALDRIN	0.047 U	1.9 U	NA
HEPTACHLOR EPOXIDE	0.047 U	1.9 U	NA
ENDOSULFAN I	0.047 U	1.9 U	NA
DIELDRIN	0.094 U	3.8 U	NA
4,4'-DDE	0.094 UJ	52 J	NA
ENDRIN	0.094 U	3.8 U	NA
ENDOSULFAN II	0.094 U	3.8 U	NA
4,4'-DDD	0.094 U	3.8 U	NA
ENDOSULFAN SULFATE	0.094 U	3.8 U	NA
4,4'-DDT	0.094 U	24 J	NA
METHOXYCHLOR	0.47 U	19 U	NA
ENDRIN KETONE	0.094 U	3.8 U	NA
ENDRIN ALDEHYDE	0.094 U	3.8 U	NA
ALPHA-CHLORDANE	0.047 U	1.9 U	NA
GAMMA-CHLORDANE	0.047 U	1.9 U	NA
TOXAPHENE	4.7 U	190 U	NA
Aroclor 1016	0.94 U	38 U	NA
Aroclor 1221	1.9 U	77 U	NA
Aroclor 1232	0.94 U	38 U	NA
Aroclor 1242	0.94 U	38 U	NA
Aroclor 1248	0.94 U	38 U	NA
Aroclor 1254	0.94 U	38 U	NA
Aroclor 1260	0.94 U	38 U	NA

DUPLICATE SAMPLE SUMMARY
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	76-GW01-01D	76-GW04-00D	IR76-GW03-98BD
DATE SAMPLED	02-25-1996	02-22-1996	04-22-1998
INORGANICS (ug/L)			
Aluminum	2640	6290	3370
Antimony	19.8 U	3.8 UJ	60 U
Arsenic	12.3	0.61	10 U
Barium	39.9	18.1	166 J
Beryllium	0.8 U	0.15 U	5 U
Cadmium	2.2 U	0.42 U	5 U
Calcium	30900	825	10900
Chromium	2.4 U	6.7	10 U
Cobalt	3 U	0.58 U	3.4 J
Copper	2 U	2	25 U
Iron	2520	3870	5390
Lead	1.1	16	4.4
Magnesium	2220	257	5010
Manganese	17	10.1	14.1 J
Mercury	0.1 U	0.05 U	0.2 U
Nickel	11.3 U	2.2 U	40 U
Potassium	828 U	237	2210 J
Selenium	1.3 U	0.27 U	5 U
Silver	3.1 U	0.6 U	10 U
Sodium	16800	33.1 J	40800
Thallium	1.7 U	0.19 U	4.2 J
Vanadium	8.8 U	13	15 J
Zinc	5	22.5	48.3

DUPLICATE SAMPLE SUMMARY
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SD01-98BD
DATE SAMPLED	04-19-1998
PCBs (ug/kg)	
Aroclor 1016	760 U
Aroclor 1221	1500 U
Aroclor 1232	760 U
Aroclor 1242	760 U
Aroclor 1248	760 U
Aroclor 1254	760 U
Aroclor 1260	49000
Miscellaneous	
Diesel Range Organics (mg/kg)	14000
Percent Moisture (%)	56.3
pH (solid)	6.6

DUPLICATE SAMPLE SUMMARY
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	AST781-GW04D-98B
DATE SAMPLED	04-23-1998
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	10 U
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	1.6 J
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	6.7 J
Styrene	10 U
Xylenes (total)	10 U

DUPLICATE SAMPLE SUMMARY
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SW01-98BD
DATE SAMPLED	04-19-1998
PCBS (ug/L)	
Aroclor 1016	1 UJ
Aroclor 1221	2 UJ
Aroclor 1232	1 UJ
Aroclor 1242	1 UJ
Aroclor 1248	1 UJ
Aroclor 1254	1 UJ
Aroclor 1260	1 UJ

APPENDIX F
FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-ER03	TB02	TB08	TB09
DATE SAMPLED	01/12/96	01/09/96	01/11/96	01/11/96
VOLATILES (ug/L)				
CHLOROMETHANE	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U
CHLOROFORM	4 J	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U
2-BUTANONE	10 UJ	10 UJ	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-ER03	TB02	TB08	TB09
DATE SAMPLED	01/12/96	01/09/96	01/11/96	01/11/96
SEMIVOLATILES (ug/L)				
PHENOL	10 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	NA	NA	NA
2-CHLOROPHENOL	10 U	NA	NA	NA
1,3-DICHLOROBENZENE	10 U	NA	NA	NA
1,4-DICHLOROBENZENE	10 U	NA	NA	NA
1,2-DICHLOROBENZENE	10 U	NA	NA	NA
2-METHYLPHENOL	10 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	NA	NA
4-METHYLPHENOL	10 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	NA	NA
HEXACHLOROETHANE	10 U	NA	NA	NA
NITROBENZENE	10 U	NA	NA	NA
ISOPHORONE	10 U	NA	NA	NA
2-NITROPHENOL	10 U	NA	NA	NA
2,4-DIMETHYLPHENOL	10 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	NA	NA	NA
2,4-DICHLOROPHENOL	10 U	NA	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	NA	NA	NA
NAPHTHALENE	10 U	NA	NA	NA
4-CHLOROANILINE	10 U	NA	NA	NA
HEXACHLOROBUTADIENE	10 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	NA	NA	NA
2-METHYLNAPHTHALENE	10 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	24 U	NA	NA	NA
2-CHLORONAPHTHALENE	10 U	NA	NA	NA
2-NITROANILINE	24 U	NA	NA	NA
DIMETHYLPHTHALATE	10 U	NA	NA	NA
ACENAPHTHYLENE	10 U	NA	NA	NA
2,6-DINITROTOLUENE	10 U	NA	NA	NA
3-NITROANILINE	24 U	NA	NA	NA
ACENAPHTHENE	10 U	NA	NA	NA
2,4-DINITROPHENOL	24 U	NA	NA	NA
4-NITROPHENOL	24 U	NA	NA	NA
DIBENZOFURAN	10 U	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-ER03	TB02	TB08	TB09
DATE SAMPLED	01/12/96	01/09/96	01/11/96	01/11/96
SEMIVOLATILES (ug/L) cont.				
2,4-DINITROTOLUENE	10 U	NA	NA	NA
DIETHYLPHTHALATE	10 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	NA	NA	NA
FLUORENE	10 U	NA	NA	NA
4-NITROANILINE	24 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	NA	NA	NA
HEXACHLOROBENZENE	10 U	NA	NA	NA
PENTACHLOROPHENOL	24 U	NA	NA	NA
PHENANTHRENE	10 U	NA	NA	NA
ANTHRACENE	10 U	NA	NA	NA
CARBAZOLE	10 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	10 U	NA	NA	NA
FLUORANTHENE	10 U	NA	NA	NA
PYRENE	10 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	10 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	NA	NA	NA
BENZO(A)ANTHRACENE	10 U	NA	NA	NA
CHRYSENE	10 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	1 J	NA	NA	NA
DI-N-OCTYL PHTHALATE	10 U	NA	NA	NA
BENZO(B)FLUORANTHENE	10 U	NA	NA	NA
BENZO(K)FLUORANTHENE	10 U	NA	NA	NA
BENZO(A)PYRENE	10 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	10 U	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	10 U	NA	NA	NA
BENZO(G,H,I)PERYLENE	10 U	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-ER03	TB02	TB08	TB09
DATE SAMPLED	01/12/96	01/09/96	01/11/96	01/11/96
PESTICIDE/PCBS (ug/L)				
ALPHA-BHC	0.048 UJ	NA	NA	NA
BETA-BHC	0.048 UJ	NA	NA	NA
DELTA-BHC	0.048 UJ	NA	NA	NA
GAMMA-BHC (LINDANE)	0.048 UJ	NA	NA	NA
HEPTACHLOR	0.048 UJ	NA	NA	NA
ALDRIN	0.048 UJ	NA	NA	NA
HEPTACHLOR EPOXIDE	0.048 UJ	NA	NA	NA
ENDOSULFAN I	0.048 UJ	NA	NA	NA
DIELDRIN	0.095 UJ	NA	NA	NA
4,4'-DDE	0.095 UJ	NA	NA	NA
ENDRIN	0.095 UJ	NA	NA	NA
ENDOSULFAN II	0.095 UJ	NA	NA	NA
4,4'-DDD	0.095 UJ	NA	NA	NA
ENDOSULFAN SULFATE	0.095 UJ	NA	NA	NA
4,4'-DDT	0.095 UJ	NA	NA	NA
METHOXYCHLOR	0.48 UJ	NA	NA	NA
ENDRIN KETONE	0.095 UJ	NA	NA	NA
ENDRIN ALDEHYDE	0.095 UJ	NA	NA	NA
ALPHA-CHLORDANE	0.048 UJ	NA	NA	NA
GAMMA-CHLORDANE	0.048 UJ	NA	NA	NA
TOXAPHENE	4.8 UJ	NA	NA	NA
AROCLOR-1016	0.95 UJ	NA	NA	NA
AROCLOR-1221	1.9 UJ	NA	NA	NA
AROCLOR-1232	0.95 UJ	NA	NA	NA
AROCLOR-1242	0.95 UJ	NA	NA	NA
AROCLOR-1248	0.95 UJ	NA	NA	NA
AROCLOR-1254	0.95 UJ	NA	NA	NA
AROCLOR-1260	0.95 UJ	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
TOTAL INORGANICS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-ER03
DATE SAMPLED	01/12/96
TOTAL METALS (ug/L)	
ALUMINUM, TOTAL	23.3 U
ANTIMONY, TOTAL	19.8 U
ARSENIC, TOTAL	0.9 U
BARIUM, TOTAL	1.4 U
BERYLLIUM, TOTAL	0.8 U
CADMIUM, TOTAL	2.2 U
CALCIUM, TOTAL	91.7 U
CHROMIUM, TOTAL	2.4 U
COBALT, TOTAL	3 U
COPPER, TOTAL	2 U
IRON, TOTAL	9.7 U
LEAD, TOTAL	0.8 U
MAGNESIUM, TOTAL	26.9 U
MANGANESE, TOTAL	1.6 U
MERCURY, TOTAL	0.1 U
NICKEL, TOTAL	11.3 U
POTASSIUM, TOTAL	828 U
SELENIUM, TOTAL	1.3 U
SILVER, TOTAL	3.1 U
SODIUM, TOTAL	111 U
THALLIUM, TOTAL	0.9 UJ
VANADIUM, TOTAL	2.4 U
ZINC, TOTAL	3.6 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	TB18	12-ER13
DATE SAMPLED	01/29/96	01/30/96
VOLATILES (ug/L)		
CHLOROMETHANE	10 U	10 U
BROMOMETHANE	10 U	10 U
VINYL CHLORIDE	10 U	10 U
CHLOROETHANE	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U
ACETONE	28	10 U
CARBON DISULFIDE	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U
CHLOROFORM	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U
2-BUTANONE	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U
TRICHLOROETHENE	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U
BENZENE	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U
BROMOFORM	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U
2-HEXANONE	10 U	10 U
TETRACHLOROETHENE	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U
TOLUENE	10 U	2 J
CHLOROBENZENE	10 U	10 U
ETHYLBENZENE	10 U	10 U
STYRENE	10 U	10 U
XYLENE (TOTAL)	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	TB18	12-ER13
DATE SAMPLED	01/29/96	01/30/96
SEMIVOLATILES (ug/L)		
PHENOL	NA	9 U
BIS(2-CHLOROETHYL)ETHER	NA	9 U
2-CHLOROPHENOL	NA	9 U
1,3-DICHLOROBENZENE	NA	9 U
1,4-DICHLOROBENZENE	NA	9 U
1,2-DICHLOROBENZENE	NA	9 U
2-METHYLPHENOL	NA	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	9 U
4-METHYLPHENOL	NA	9 U
N-NITROSO-DI-N-PROPYLAMINE	NA	9 U
HEXACHLOROETHANE	NA	9 U
NITROBENZENE	NA	9 U
ISOPHORONE	NA	9 U
2-NITROPHENOL	NA	9 U
2,4-DIMETHYLPHENOL	NA	9 U
BIS(2-CHLOROETHOXY)METHANE	NA	9 U
2,4-DICHLOROPHENOL	NA	9 U
1,2,4-TRICHLOROBENZENE	NA	9 U
NAPHTHALENE	NA	9 U
4-CHLOROANILINE	NA	9 U
HEXACHLOROBUTADIENE	NA	9 U
4-CHLORO-3-METHYLPHENOL	NA	9 U
2-METHYLNAPHTHALENE	NA	9 U
HEXACHLOROCYCLOPENTADIENE	NA	9 U
2,4,6-TRICHLOROPHENOL	NA	9 U
2,4,5-TRICHLOROPHENOL	NA	23 U
2-CHLORONAPHTHALENE	NA	9 U
2-NITROANILINE	NA	23 U
DIMETHYLPHTHALATE	NA	9 U
ACENAPHTHYLENE	NA	9 U
2,6-DINITROTOLUENE	NA	9 U
3-NITROANILINE	NA	23 U
ACENAPHTHENE	NA	9 U
2,4-DINITROPHENOL	NA	23 U
4-NITROPHENOL	NA	23 UJ
DIBENZOFURAN	NA	9 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 12, EXPLOSIVE ORDANANCE DISPOSAL AREA
PRE REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	TB18	12-ER13
DATE SAMPLED	01/29/96	01/30/96
SEMIVOLATILES (ug/L) cont.		
2,4-DINITROTOLUENE	NA	9 U
DIETHYLPHTHALATE	NA	9 U
4-CHLOROPHENYL-PHENYLETHER	NA	9 U
FLUORENE	NA	9 U
4-NITROANILINE	NA	23 U
4,6-DINITRO-2-METHYLPHENOL	NA	23 U
N-NITROSODIPHENYLAMINE (1)	NA	9 U
4-BROMOPHENYL-PHENYLETHER	NA	9 U
HEXACHLOROBENZENE	NA	9 U
PENTACHLOROPHENOL	NA	23 U
PHENANTHRENE	NA	9 U
ANTHRACENE	NA	9 U
CARBAZOLE	NA	9 U
DI-N-BUTYLPHTHALATE	NA	9 U
FLUORANTHENE	NA	9 U
PYRENE	NA	9 U
BUTYLBENZYLPHTHALATE	NA	9 U
3,3'-DICHLOROBENZIDINE	NA	9 U
BENZO(A)ANTHRACENE	NA	9 U
CHRYSENE	NA	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	130
DI-N-OCTYL PHTHALATE	NA	9 U
BENZO(B)FLUORANTHENE	NA	9 U
BENZO(K)FLUORANTHENE	NA	9 U
BENZO(A)PYRENE	NA	9 U
INDENO(1,2,3-CD)PYRENE	NA	9 U
DIBENZO(A,H)ANTHRACENE	NA	9 U
BENZO(G,H,I)PERYLENE	NA	9 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER01	68-ER02	68-ER04	68-ER05	68-ER06	68-ER07
DATE SAMPLED	01-09-1996	01-11-1996	01-13-1996	01-14-1996	01-16-1996	01-16-1996
VOLATILES (ug/L)						
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	4 J	5 J	3 J	10 U	4 J	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 UJ	10 UJ	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

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER01	68-ER02	68-ER04	68-ER05	68-ER06	68-ER07
DATE SAMPLED	01-09-1996	01-11-1996	01-13-1996	01-14-1996	01-16-1996	01-16-1996
SEMIVOLATILES (ug/L)						
PHENOL	10 U	9 U	10 U	9 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	9 U	10 U	9 U	10 U	10 U
2-CHLOROPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
2-METHYLPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	9 U	10 U	9 U	10 U	10 U
4-METHYLPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	9 U	10 U	9 U	10 U	10 U
HEXACHLOROETHANE	10 U	9 U	10 U	9 U	10 U	10 U
NITROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
ISOPHORONE	10 U	9 U	10 U	9 U	10 U	10 U
2-NITROPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	9 U	10 U	9 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
NAPHTHALENE	10 U	9 U	10 U	9 U	10 U	10 U
4-CHLOROANILINE	10 U	9 U	10 U	9 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	9 U	10 U	9 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	9 U	10 U	9 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	9 U	10 U	9 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	9 U	10 U	9 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	24 U	24 U	24 U	24 U	24 U	24 U
2-CHLORONAPHTHALENE	10 U	9 U	10 U	9 U	10 U	10 U
2-NITROANILINE	24 U	24 U	24 U	24 U	24 U	24 U
DIMETHYLPHTHALATE	10 U	9 U	10 U	9 U	10 U	10 U
ACENAPHTHYLENE	10 U	9 U	10 U	9 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	9 U	10 U	9 U	10 U	10 U
3-NITROANILINE	24 U	24 U	24 U	24 U	24 U	24 U
ACENAPHTHENE	10 U	9 U	10 U	9 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER01	68-ER02	68-ER04	68-ER05	68-ER06	68-ER07
DATE SAMPLED	01-09-1996	01-11-1996	01-13-1996	01-14-1996	01-16-1996	01-16-1996
SEMIVOLATILES (ug/L) (cont)						
2,4-DINITROPHENOL	24 U	24 U	24 U	24 U	24 U	24 U
4-NITROPHENOL	24 U	24 U	24 U	24 U	24 U	24 U
DIBENZOFURAN	10 U	9 U	10 U	9 U	10 U	10 U
2,4-DINITROTOLUENE	10 U	9 U	10 U	9 U	10 U	10 U
DIETHYLPHTHALATE	10 U	9 U	10 U	9 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	9 U	10 U	9 U	10 U	10 U
FLUORENE	10 U	9 U	10 U	9 U	10 U	10 U
4-NITROANILINE	24 U	24 U	24 U	24 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	24 U	24 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	9 U	10 U	9 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	9 U	10 U	9 U	10 U	10 U
HEXACHLOROBENZENE	10 U	9 U	10 U	9 U	10 U	10 U
PENTACHLOROPHENOL	24 U	24 U	24 U	24 U	24 U	24 U
PHENANTHRENE	10 U	9 U	10 U	9 U	10 U	10 U
ANTHRACENE	10 U	9 U	10 U	9 U	10 U	10 U
CARBAZOLE	10 U	9 U	10 U	9 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	9 U	10 U	9 U	10 U	10 U
FLUORANTHENE	10 U	9 U	10 U	9 U	10 U	10 U
PYRENE	10 U	9 U	10 U	9 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	9 U	10 U	9 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	9 U	10 U	9 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	9 U	10 U	9 U	10 U	10 U
CHRYSENE	10 U	9 U	10 U	9 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	2 J	10	2 J	1 J	14
DI-N-OCTYL PHTHALATE	10 U	9 U	10 U	9 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	9 U	10 U	9 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	9 U	10 U	9 U	10 U	10 U
BENZO(A)PYRENE	10 U	9 U	10 U	9 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	9 U	10 U	9 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	9 U	10 U	9 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	9 U	10 U	9 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER01	68-ER02	68-ER04	68-ER05	68-ER06	68-ER07
DATE SAMPLED	01-09-1996	01-11-1996	01-13-1996	01-14-1996	01-16-1996	01-16-1996
PESTICIDES/PCBS (ug/L)						
ALPHA-BHC	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
BETA-BHC	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
DELTA-BHC	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
GAMMA-BHC (LINDANE)	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
HEPTACHLOR	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
ALDRIN	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
HEPTACHLOR EPOXIDE	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
ENDOSULFAN I	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
DIELDRIN	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
4,4'-DDE	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
ENDRIN	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
ENDOSULFAN II	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
4,4'-DDD	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
ENDOSULFAN SULFATE	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
4,4'-DDT	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
METHOXYCHLOR	0.48 U	0.49 U	0.47 UJ	0.47 UJ	0.48 UJ	0.49 UJ
ENDRIN KETONE	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
ENDRIN ALDEHYDE	0.095 U	0.098 U	0.094 UJ	0.094 UJ	0.095 UJ	0.098 UJ
ALPHA-CHLORDANE	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
GAMMA-CHLORDANE	0.048 U	0.049 U	0.047 UJ	0.047 UJ	0.048 UJ	0.049 UJ
TOXAPHENE	4.8 U	4.9 U	4.7 UJ	4.7 UJ	4.8 UJ	4.9 UJ
AROCLOR-1016	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ
AROCLOR-1221	1.9 U	2 U	1.9 UJ	1.9 UJ	1.9 UJ	2 UJ
AROCLOR-1232	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ
AROCLOR-1242	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ
AROCLOR-1248	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ
AROCLOR-1254	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ
AROCLOR-1260	0.95 U	0.98 U	0.94 UJ	0.94 UJ	0.95 UJ	0.98 UJ

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER09	68-ER10	68-ER11	68-ER12	TB01	TB03
DATE SAMPLED	01-24-1996	01-25-1996	01-26-1996	01-28-1996	01-09-1996	01-13-1996
VOLATILES (ug/L)						
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	11	47 U	80 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 UJ	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	3 J	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

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER09	68-ER10	68-ER11	68-ER12	TB01	TB03
DATE SAMPLED	01-24-1996	01-25-1996	01-26-1996	01-28-1996	01-09-1996	01-13-1996
SEMIVOLATILES (ug/L)						
PHENOL	10 U	10 U	11	19	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	9 U	10 U	NA	NA
2-CHLOROPHENOL	10 U	10 U	9 U	10 U	NA	NA
1,3-DICHLOROBENZENE	10 U	10 U	9 U	10 U	NA	NA
1,4-DICHLOROBENZENE	10 U	10 U	9 U	10 U	NA	NA
1,2-DICHLOROBENZENE	10 U	10 U	9 U	10 U	NA	NA
2-METHYLPHENOL	10 U	10 U	9 U	10 U	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	9 U	10 U	NA	NA
4-METHYLPHENOL	10 U	10 U	9 U	10 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	9 U	10 U	NA	NA
HEXACHLOROETHANE	10 U	10 U	9 U	10 U	NA	NA
NITROBENZENE	10 U	10 U	9 U	10 U	NA	NA
ISOPHORONE	10 U	10 U	9 U	10 U	NA	NA
2-NITROPHENOL	10 U	10 U	9 U	10 U	NA	NA
2,4-DIMETHYLPHENOL	10 U	10 U	9 U	10 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	9 U	10 U	NA	NA
2,4-DICHLOROPHENOL	10 U	10 U	9 U	10 U	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	10 U	9 U	10 U	NA	NA
NAPHTHALENE	10 U	10 U	9 U	10 U	NA	NA
4-CHLOROANILINE	10 U	10 U	9 U	10 U	NA	NA
HEXACHLOROBUTADIENE	10 U	10 U	9 U	10 U	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	9 U	10 U	NA	NA
2-METHYLNAPHTHALENE	10 U	10 U	9 U	10 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	9 U	10 U	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	9 U	10 U	NA	NA
2,4,5-TRICHLOROPHENOL	25 U	25 U	24 U	24 U	NA	NA
2-CHLORONAPHTHALENE	10 U	10 U	9 U	10 U	NA	NA
2-NITROANILINE	25 U	25 U	24 U	24 U	NA	NA
DIMETHYLPHTHALATE	10 U	10 U	9 U	10 U	NA	NA
ACENAPHTHYLENE	10 U	10 U	9 U	10 U	NA	NA
2,6-DINITROTOLUENE	10 U	10 U	9 U	10 U	NA	NA
3-NITROANILINE	25 U	25 U	24 U	24 U	NA	NA
ACENAPHTHENE	10 U	10 U	9 U	10 U	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER09	68-ER10	68-ER11	68-ER12	TB01	TB03
DATE SAMPLED	01-24-1996	01-25-1996	01-26-1996	01-28-1996	01-09-1996	01-13-1996
SEMIVOLATILES (ug/L) (cont)						
2,4-DINITROPHENOL	25 U	25 U	24 U	24 U	NA	NA
4-NITROPHENOL	25 UJ	25 UJ	24 UJ	24 UJ	NA	NA
DIBENZOFURAN	10 U	10 U	9 U	10 U	NA	NA
2,4-DINITROTOLUENE	10 U	10 U	9 U	10 U	NA	NA
DIETHYLPHTHALATE	10 U	10 U	9 U	10 U	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	9 U	10 U	NA	NA
FLUORENE	10 U	10 U	9 U	10 U	NA	NA
4-NITROANILINE	25 U	25 U	24 U	24 U	NA	NA
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	24 U	24 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 UJ	10 U	9 U	10 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	9 U	10 U	NA	NA
HEXACHLOROBENZENE	10 U	10 U	9 U	10 U	NA	NA
PENTACHLOROPHENOL	25 U	25 U	24 U	24 U	NA	NA
PHENANTHRENE	10 U	10 U	9 U	10 U	NA	NA
ANTHRACENE	10 U	10 U	9 U	10 U	NA	NA
CARBAZOLE	10 UJ	10 U	9 U	10 U	NA	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	9 U	10 U	NA	NA
FLUORANTHENE	10 U	10 U	9 U	10 U	NA	NA
PYRENE	10 U	10 U	9 U	10 U	NA	NA
BUTYLBENZYLPHTHALATE	10 U	1 J	9 U	10 U	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	9 U	10 U	NA	NA
BENZO(A)ANTHRACENE	10 U	10 U	9 U	10 U	NA	NA
CHRYSENE	10 U	10 U	9 U	10 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	3 U	50 U	6 J	3 J	NA	NA
DI-N-OCTYL PHTHALATE	10 UJ	10 U	9 U	10 U	NA	NA
BENZO(B)FLUORANTHENE	10 UJ	10 U	9 U	10 U	NA	NA
BENZO(K)FLUORANTHENE	10 UJ	10 U	9 U	10 U	NA	NA
BENZO(A)PYRENE	10 UJ	10 U	9 U	10 U	NA	NA
INDENO(1,2,3-CD)PYRENE	10 UJ	10 U	9 U	10 U	NA	NA
DIBENZO(A,H)ANTHRACENE	10 UJ	10 U	9 U	10 U	NA	NA
BENZO(G,H,I)PERYLENE	10 UJ	10 U	9 U	10 U	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER09	68-ER10	68-ER11	68-ER12	TB01	TB03
DATE SAMPLED	01-24-1996	01-25-1996	01-26-1996	01-28-1996	01-09-1996	01-13-1996
PESTICIDES/PCBS (ug/L)					NA	NA
ALPHA-BHC	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
BETA-BHC	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
DELTA-BHC	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
GAMMA-BHC (LINDANE)	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
HEPTACHLOR	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
ALDRIN	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
HEPTACHLOR EPOXIDE	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
ENDOSULFAN I	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
DIELDRIN	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
4,4'-DDE	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
ENDRIN	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
ENDOSULFAN II	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
4,4'-DDD	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
ENDOSULFAN SULFATE	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
4,4'-DDT	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
METHOXYCHLOR	0.49 U	0.47 U	0.47 UJ	0.47 UJ	NA	NA
ENDRIN KETONE	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
ENDRIN ALDEHYDE	0.098 U	0.094 U	0.094 UJ	0.094 UJ	NA	NA
ALPHA-CHLORDANE	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
GAMMA-CHLORDANE	0.049 U	0.047 U	0.047 UJ	0.047 UJ	NA	NA
TOXAPHENE	4.9 U	4.7 U	4.7 UJ	4.7 UJ	NA	NA
AROCLOR-1016	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA
AROCLOR-1221	2 U	1.9 U	1.9 UJ	1.9 UJ	NA	NA
AROCLOR-1232	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA
AROCLOR-1242	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA
AROCLOR-1248	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA
AROCLOR-1254	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA
AROCLOR-1260	0.98 U	0.94 U	0.94 UJ	0.94 UJ	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB04	TB05	TB06	TB07	TB08	TB10	TB-11
DATE SAMPLED	01-13-1996	01-14-1996	01-13-1996	01-15-1996	01-11-1996	01-13-1996	01-16-1996
VOLATILES (ug/L)							
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 UJ	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	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 UJ	10 U	10 U	10 UJ	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB04	TB05	TB06	TB07	TB08	TB10	TB-11
DATE SAMPLED	01-13-1996	01-14-1996	01-13-1996	01-15-1996	01-11-1996	01-13-1996	01-16-1996
SEMIVOLATILES (ug/L)							
PHENOL	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB04	TB05	TB06	TB07	TB08	TB10	TB-11
DATE SAMPLED	01-13-1996	01-14-1996	01-13-1996	01-15-1996	01-11-1996	01-13-1996	01-16-1996
SEMIVOLATILES (ug/L) (cont)							
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB04	TB05	TB06	TB07	TB08	TB10	TB-11
DATE SAMPLED	01-13-1996	01-14-1996	01-13-1996	01-15-1996	01-11-1996	01-13-1996	01-16-1996
PESTICIDES/PCBS (ug/L)	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB12	TB14	TB15	TB16	TB17	FB-02
DATE SAMPLED	01-15-1996	01-24-1996	01-25-1996	01-26-1996	01-26-1996	01-27-1996
VOLATILES (ug/L)						
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	16	22 J	22	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	5 J
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	6 J
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	13
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	14
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

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB12	TB14	TB15	TB16	TB17	FB-02
DATE SAMPLED	01-15-1996	01-24-1996	01-25-1996	01-26-1996	01-26-1996	01-27-1996
SEMIVOLATILES (ug/L)						
PHENOL	NA	NA	NA	NA	NA	9 UJ
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	9 UJ
2-CHLOROPHENOL	NA	NA	NA	NA	NA	9 UJ
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	9 UJ
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	9 UJ
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	9 UJ
2-METHYLPHENOL	NA	NA	NA	NA	NA	9 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	9 UJ
4-METHYLPHENOL	NA	NA	NA	NA	NA	9 UJ
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	9 UJ
HEXACHLOROETHANE	NA	NA	NA	NA	NA	9 UJ
NITROBENZENE	NA	NA	NA	NA	NA	9 UJ
ISOPHORONE	NA	NA	NA	NA	NA	9 UJ
2-NITROPHENOL	NA	NA	NA	NA	NA	9 UJ
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	9 UJ
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	9 UJ
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	9 UJ
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	9 UJ
NAPHTHALENE	NA	NA	NA	NA	NA	9 UJ
4-CHLOROANILINE	NA	NA	NA	NA	NA	9 UJ
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	9 UJ
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	9 UJ
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	9 UJ
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	9 UJ
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	9 UJ
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	23 UJ
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	9 UJ
2-NITROANILINE	NA	NA	NA	NA	NA	23 UJ
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	9 UJ
ACENAPHTHYLENE	NA	NA	NA	NA	NA	9 UJ
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	9 UJ
3-NITROANILINE	NA	NA	NA	NA	NA	23 UJ
ACENAPHTHENE	NA	NA	NA	NA	NA	9 UJ

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB12	TB14	TB15	TB16	TB17	FB-02
DATE SAMPLED	01-15-1996	01-24-1996	01-25-1996	01-26-1996	01-26-1996	01-27-1996
SEMIVOLATILES (ug/L) (cont)						
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	23 UJ
4-NITROPHENOL	NA	NA	NA	NA	NA	23 UJ
DIBENZOFURAN	NA	NA	NA	NA	NA	9 UJ
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	9 UJ
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	9 UJ
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	9 UJ
FLUORENE	NA	NA	NA	NA	NA	9 UJ
4-NITROANILINE	NA	NA	NA	NA	NA	23 UJ
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	23 UJ
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	9 UJ
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	9 UJ
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	9 UJ
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	23 UJ
PHENANTHRENE	NA	NA	NA	NA	NA	9 UJ
ANTHRACENE	NA	NA	NA	NA	NA	9 UJ
CARBAZOLE	NA	NA	NA	NA	NA	9 UJ
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	9 UJ
FLUORANTHENE	NA	NA	NA	NA	NA	9 UJ
PYRENE	NA	NA	NA	NA	NA	9 UJ
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	9 UJ
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	9 UJ
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	9 UJ
CHRYSENE	NA	NA	NA	NA	NA	9 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	9 U
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	9 UJ
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	9 UJ
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	9 UJ
BENZO(A)PYRENE	NA	NA	NA	NA	NA	9 UJ
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	9 UJ
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	9 UJ
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	9 UJ

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB12	TB14	TB15	TB16	TB17	FB-02
DATE SAMPLED	01-15-1996	01-24-1996	01-25-1996	01-26-1996	01-26-1996	01-27-1996
PESTICIDES/PCBS (ug/L)	NA	NA	NA	NA	NA	
ALPHA-BHC	NA	NA	NA	NA	NA	0.048 U
BETA-BHC	NA	NA	NA	NA	NA	0.048 U
DELTA-BHC	NA	NA	NA	NA	NA	0.048 U
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	0.048 U
HEPTACHLOR	NA	NA	NA	NA	NA	0.048 U
ALDRIN	NA	NA	NA	NA	NA	0.048 U
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	0.048 U
ENDOSULFAN I	NA	NA	NA	NA	NA	0.048 U
DIELDRIN	NA	NA	NA	NA	NA	0.095 U
4,4'-DDE	NA	NA	NA	NA	NA	0.095 U
ENDRIN	NA	NA	NA	NA	NA	0.095 U
ENDOSULFAN II	NA	NA	NA	NA	NA	0.095 U
4,4'-DDD	NA	NA	NA	NA	NA	0.095 U
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	0.095 U
4,4'-DDT	NA	NA	NA	NA	NA	0.095 U
METHOXYCHLOR	NA	NA	NA	NA	NA	0.48 U
ENDRIN KETONE	NA	NA	NA	NA	NA	0.095 U
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	0.095 U
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	0.048 U
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	0.048 U
TOXAPHENE	NA	NA	NA	NA	NA	4.8 U
AROCLOR-1016	NA	NA	NA	NA	NA	0.95 U
AROCLOR-1221	NA	NA	NA	NA	NA	1.9 U
AROCLOR-1232	NA	NA	NA	NA	NA	0.95 U
AROCLOR-1242	NA	NA	NA	NA	NA	0.95 U
AROCLOR-1248	NA	NA	NA	NA	NA	0.95 U
AROCLOR-1254	NA	NA	NA	NA	NA	0.95 U
AROCLOR-1260	NA	NA	NA	NA	NA	0.95 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
TOTAL INORGANICS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER01	IR68-ER01-98B	68-ER02	68-ER04	68-ER05	68-ER06	68-ER07
DATE SAMPLED	01-09-1996	04-22-1998	01-11-1996	01-13-1996	01-14-1996	01-16-1996	01-16-1996
TOTAL METALS (ug/L)							
ALUMINUM, TOTAL	23.3 U	25.3 U	23.3 U	31	23.3 U	23.3 U	24.4
ANTIMONY, TOTAL	19.8 U	60 U	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U
ARSENIC, TOTAL	0.9 U	10 U	0.9 U	0.9 U	0.9 U	0.9 U	1.2
BARIUM, TOTAL	1.4 U	0.92 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
BERYLLIUM, TOTAL	0.8 U	5 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
CADMIUM, TOTAL	2.2 U	5 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
CALCIUM, TOTAL	106 U	669 J	166 U	100 U	67 U	52.2 U	55.9 U
CHROMIUM, TOTAL	2.4 U	10 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	50 U	3 U	3 U	3 U	3 U	3 U
COPPER, TOTAL	2 U	2.4 J	2 U	2 U	2 U	2 U	2 U
IRON, TOTAL	9.7 U	100 U	9.7 U	132	22.7 U	9.7 U	9.7 U
LEAD, TOTAL	0.8 U	3 U	0.8 U	0.98	0.8 U	0.9 U	0.9 U
MAGNESIUM, TOTAL	26.9 U	115 J	26.9 U	26.9 U	60.7	26.9 U	26.9 U
MANGANESE, TOTAL	1.6 U	15 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
MERCURY, TOTAL	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	40 U	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U
POTASSIUM, TOTAL	828 U	5000 U	828 U	828 U	828 U	828 U	828 U
SELENIUM, TOTAL	1.3 U	5 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	10 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	65.3 U	470 J	90 U	133 U	87.9 U	93.2	63.6
THALLIUM, TOTAL	0.9 UJ	3.7 J	0.9 UJ	1.7 U	1.7 U	1.7 U	1.7 U
VANADIUM, TOTAL	2.4 U	50 U	2.4 U	2.4 U	2.4 U	2.4 UJ	2.4 UJ
ZINC, TOTAL	3.6 U	6.8 U	3.6 U	3.7	13.8	3.6 U	3.6 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
TOTAL INORGANICS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	68-ER09	68-ER10	68-ER11	68-ER12	FB-02
DATE SAMPLED	01-24-1996	01-25-1996	01-26-1996	01-28-1996	01-27-1996
TOTAL METALS (ug/L)					
ALUMINUM, TOTAL	23.3 U	23.3 U	23.3 U	32.5 U	23.3 U
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U	20	19.8 U
ARSENIC, TOTAL	0.9 UJ	0.9 UJ	0.9 U	0.9 U	0.9 U
BARIUM, TOTAL	1.4 U	1.4 U	1.4 U	1.4 U	2.1
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U	1.1 U	0.8 U
CADMIUM, TOTAL	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
CALCIUM, TOTAL	65.3 U	76.1 U	75.1 U	453 U	1850
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	3 U	3 U	3.6	3 U
COPPER, TOTAL	2 U	2 U	2 U	2 U	3.6
IRON, TOTAL	9.7 U	9.7 U	9.7 U	11.5	81.1
LEAD, TOTAL	0.8 U	0.8 U	1.2 U	1.2 U	1.2 U
MAGNESIUM, TOTAL	29.3 U	26.9 U	26.9 U	26.9 U	951
MANGANESE, TOTAL	1.6 U	1.6 U	1.6 U	2.6	4.7
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U
POTASSIUM, TOTAL	828 U	828 U	828 UJ	828 UJ	8280 J
SELENIUM, TOTAL	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	53.8 U	36.8 U	315 U	183 U	171000
THALLIUM, TOTAL	0.9 U	0.9 U	1.7 U	1.7 U	1.7 U
VANADIUM, TOTAL	2.4 U	2.4 U	2.4 UJ	2.4 UJ	2.4 UJ
ZINC, TOTAL	3.9	3.6 U	6.6 U	5.8 U	3.6 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-ER14	75-ER15	FB-03	TB20	TB22
DATE SAMPLED	02/22/96	02/22/96	02/24/96	02/21/96	02/22/96
VOLATILES (ug/L)					
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	3 J	10 U
ACETONE	10 U	10 U	130	46	10 U
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)	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	4 J	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	10 U	10 U	10 U	10 U
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	10 U	10 U	10 U	10 U
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	10 U	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

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-ER14	75-ER15	FB-03	TB20	TB22
DATE SAMPLED	02/22/96	02/22/96	02/24/96	02/21/96	02/22/96
SEMIVOLATILES (ug/L)					
PHENOL	9 U	10 U	27	NA	NA
BIS(2-CHLOROETHYL)ETHER	9 U	10 U	10 U	NA	NA
2-CHLOROPHENOL	9 U	10 U	10 U	NA	NA
1,3-DICHLOROBENZENE	9 U	10 U	10 U	NA	NA
1,4-DICHLOROBENZENE	9 U	10 U	10 U	NA	NA
1,2-DICHLOROBENZENE	9 U	10 U	10 U	NA	NA
2-METHYLPHENOL	9 U	10 U	10 U	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U	10 U	10 U	NA	NA
4-METHYLPHENOL	9 U	10 U	10 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	9 U	10 U	10 U	NA	NA
HEXACHLOROETHANE	9 U	10 U	10 U	NA	NA
NITROBENZENE	9 U	10 U	10 U	NA	NA
ISOPHORONE	9 U	10 U	10 U	NA	NA
2-NITROPHENOL	9 U	10 U	10 U	NA	NA
2,4-DIMETHYLPHENOL	9 U	10 U	10 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	9 U	10 U	10 U	NA	NA
2,4-DICHLOROPHENOL	9 U	10 U	10 U	NA	NA
1,2,4-TRICHLOROBENZENE	9 U	10 U	10 U	NA	NA
NAPHTHALENE	9 U	10 U	10 U	NA	NA
4-CHLOROANILINE	9 U	10 U	10 U	NA	NA
HEXACHLOROBUTADIENE	9 U	10 U	10 U	NA	NA
4-CHLORO-3-METHYLPHENOL	9 U	10 U	10 U	NA	NA
2-METHYLNAPHTHALENE	9 U	10 U	10 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	9 U	10 U	10 U	NA	NA
2,4,6-TRICHLOROPHENOL	9 U	10 U	10 U	NA	NA
2,4,5-TRICHLOROPHENOL	24 U	26 U	25 U	NA	NA
2-CHLORONAPHTHALENE	9 U	10 U	10 U	NA	NA
2-NITROANILINE	24 U	26 U	25 U	NA	NA
DIMETHYLPHTHALATE	9 U	10 U	10 U	NA	NA
ACENAPHTHYLENE	9 U	10 U	10 U	NA	NA
2,6-DINITROTOLUENE	9 U	10 U	10 U	NA	NA
3-NITROANILINE	24 U	26 U	25 U	NA	NA
ACENAPHTHENE	9 U	10 U	10 U	NA	NA
2,4-DINITROPHENOL	24 U	26 U	25 U	NA	NA
4-NITROPHENOL	24 U	26 U	25 U	NA	NA
DIBENZOFURAN	9 U	10 U	10 U	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-ER14	75-ER15	FB-03	TB20	TB22
DATE SAMPLED	02/22/96	02/22/96	02/24/96	02/21/96	02/22/96
SEMIVOLATILES (ug/L) cont.					
2,4-DINITROTOLUENE	9 U	10 U	10 U	NA	NA
DIETHYLPHTHALATE	9 U	10 U	10 U	NA	NA
4-CHLOROPHENYL-PHENYLETHER	9 U	10 U	10 U	NA	NA
FLUORENE	9 U	10 U	10 U	NA	NA
4-NITROANILINE	24 U	26 U	25 U	NA	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	26 U	25 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	9 U	10 U	10 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	9 U	10 U	10 U	NA	NA
HEXACHLOROBENZENE	9 U	10 U	10 U	NA	NA
PENTACHLOROPHENOL	24 U	26 U	25 U	NA	NA
PHENANTHRENE	9 U	10 U	10 U	NA	NA
ANTHRACENE	9 U	10 U	10 U	NA	NA
CARBAZOLE	9 U	10 U	10 U	NA	NA
DI-N-BUTYLPHTHALATE	9 U	10 U	10 U	NA	NA
FLUORANTHENE	9 U	10 U	10 U	NA	NA
PYRENE	9 U	10 U	10 U	NA	NA
BUTYLBENZYLPHTHALATE	9 U	10 U	10 U	NA	NA
3,3'-DICHLOROBENZIDINE	9 U	10 U	10 U	NA	NA
BENZO(A)ANTHRACENE	9 U	10 U	10 U	NA	NA
CHRYSENE	9 U	10 U	10 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	9 U	10 U	10 U	NA	NA
DI-N-OCTYL PHTHALATE	9 U	10 U	10 U	NA	NA
BENZO(B)FLUORANTHENE	9 U	10 U	10 U	NA	NA
BENZO(K)FLUORANTHENE	9 U	10 U	10 U	NA	NA
BENZO(A)PYRENE	9 U	10 U	10 U	NA	NA
INDENO(1,2,3-CD)PYRENE	9 U	10 U	10 U	NA	NA
DIBENZO(A,H)ANTHRACENE	9 U	10 U	10 U	NA	NA
BENZO(G,H,I)PERYLENE	9 U	10 U	10 U	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-ER14	75-ER15	FB-03	TB20	TB22
DATE SAMPLED	02/22/96	02/22/96	02/24/96	02/21/96	02/22/96
PEST/PCB's					
ALPHA-BHC	0.052 UJ	0.048 UJ	0.048 UJ	NA	NA
BETA-BHC	0.052 UJ	0.048 U	0.048 U	NA	NA
DELTA-BHC	0.052 UJ	0.048 U	0.048 U	NA	NA
GAMMA-BHC (LINDANE)	0.052 UJ	0.048 U	0.048 U	NA	NA
HEPTACHLOR	0.052 UJ	0.048 U	0.048 U	NA	NA
ALDRIN	0.052 UJ	0.048 U	0.048 U	NA	NA
HEPTACHLOR EPOXIDE	0.052 UJ	0.048 U	0.048 U	NA	NA
ENDOSULFAN I	0.052 UJ	0.048 U	0.048 U	NA	NA
DIELDRIN	0.1 UJ	0.095 U	0.097 U	NA	NA
4,4'-DDE	0.1 UJ	0.095 UJ	0.097 UJ	NA	NA
ENDRIN	0.1 UJ	0.095 U	0.097 U	NA	NA
ENDOSULFAN II	0.1 UJ	0.095 U	0.097 U	NA	NA
4,4'-DDD	0.1 UJ	0.095 U	0.097 U	NA	NA
ENDOSULFAN SULFATE	0.1 UJ	0.095 U	0.097 U	NA	NA
4,4'-DDT	0.1 UJ	0.095 U	0.097 U	NA	NA
METHOXYCHLOR	0.52 UJ	0.48 U	0.48 U	NA	NA
ENDRIN KETONE	0.1 UJ	0.095 U	0.097 U	NA	NA
ENDRIN ALDEHYDE	0.1 UJ	0.095 U	0.097 U	NA	NA
ALPHA-CHLORDANE	0.052 UJ	0.048 U	0.048 U	NA	NA
GAMMA-CHLORDANE	0.052 UJ	0.048 U	0.048 U	NA	NA
TOXAPHENE	5.2 UJ	4.8 U	4.8 U	NA	NA
AROCLOR-1016	1 UJ	0.95 U	0.97 U	NA	NA
AROCLOR-1221	2.1 UJ	1.9 U	1.9 U	NA	NA
AROCLOR-1232	1 UJ	0.95 U	0.97 U	NA	NA
AROCLOR-1242	1 UJ	0.95 U	0.97 U	NA	NA
AROCLOR-1248	1 UJ	0.95 U	0.97 U	NA	NA
AROCLOR-1254	1 UJ	0.95 U	0.97 U	NA	NA
AROCLOR-1260	1 UJ	0.95 U	0.97 U	NA	NA

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
TOTAL METALS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-ER14	75-ER15	FB-03
DATE SAMPLED	02/22/96	02/22/96	02/24/96
TOTAL METALS (ug/L)			
ALUMINUM, TOTAL	23.3 U	31	23.3 U
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U
ARSENIC, TOTAL	0.9 U	0.9 U	0.9 U
BARIUM, TOTAL	1.4 U	1.4 U	1.4 U
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U
CADMIUM, TOTAL	2.2 U	2.2 U	2.2 U
CALCIUM, TOTAL	76.6 U	83.5 U	49 U
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	3 U	3 U
COPPER, TOTAL	2 U	2 U	2 U
IRON, TOTAL	9.7 U	9.7 U	9.7 U
LEAD, TOTAL	0.8 U	0.8 U	0.9 U
MAGNESIUM, TOTAL	26.9 U	26.9 U	26.9 U
MANGANESE, TOTAL	1.8	1.8	1.7
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	12.6	11.3 U
POTASSIUM, TOTAL	828 U	828 U	828 U
SELENIUM, TOTAL	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	139 U	131 U	159 U
THALLIUM, TOTAL	1.7 U	1.7 U	0.9 UJ
VANADIUM, TOTAL	2.4 U	2.4 U	2.4 U
ZINC, TOTAL	3.6 U	3.6 U	3.6 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-ER18
DATE SAMPLED	02/25/96
VOLATILES (ug/L)	
CHLOROMETHANE	10 U
BROMOMETHANE	10 U
VINYL CHLORIDE	10 U
CHLOROETHANE	10 U
METHYLENE CHLORIDE	10 U
ACETONE	10 U
CARBON DISULFIDE	10 U
1,1-DICHLOROETHENE	10 U
1,1-DICHLOROETHANE	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U
CHLOROFORM	10 U
1,2-DICHLOROETHANE	10 U
2-BUTANONE	10 U
1,1,1-TRICHLOROETHANE	10 U
CARBON TETRACHLORIDE	10 U
BROMODICHLOROMETHANE	10 U
1,2-DICHLOROPROPANE	10 U
CIS-1,3-DICHLOROPROPENE	10 U
TRICHLOROETHENE	10 U
DIBROMOCHLOROMETHANE	10 U
1,1,2-TRICHLOROETHANE	10 U
BENZENE	10 U
TRANS-1,3-DICHLOROPROPENE	10 U
BROMOFORM	10 U
4-METHYL-2-PENTANONE	10 U
2-HEXANONE	10 U
TETRACHLOROETHENE	10 U
1,1,2,2-TETRACHLOROETHANE	10 U
TOLUENE	10 U
CHLOROBENZENE	10 U
ETHYLBENZENE	10 U
STYRENE	10 U
XYLENE (TOTAL)	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-ER18
DATE SAMPLED	02/25/96
SEMIVOLATILES (ug/L)	
PHENOL	10 U
BIS(2-CHLOROETHYL)ETHER	10 U
2-CHLOROPHENOL	10 U
1,3-DICHLOROBENZENE	10 U
1,4-DICHLOROBENZENE	10 U
1,2-DICHLOROBENZENE	10 U
2-METHYLPHENOL	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U
4-METHYLPHENOL	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U
HEXACHLOROETHANE	10 U
NITROBENZENE	10 U
ISOPHORONE	10 U
2-NITROPHENOL	10 U
2,4-DIMETHYLPHENOL	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U
2,4-DICHLOROPHENOL	10 U
1,2,4-TRICHLOROBENZENE	10 U
NAPHTHALENE	10 U
4-CHLOROANILINE	10 U
HEXACHLOROBUTADIENE	10 U
4-CHLORO-3-METHYLPHENOL	10 U
2-METHYLNAPHTHALENE	10 U
HEXACHLOROCYCLOPENTADIENE	10 U
2,4,6-TRICHLOROPHENOL	10 U
2,4,5-TRICHLOROPHENOL	25 U
2-CHLORONAPHTHALENE	10 U
2-NITROANILINE	25 U
DIMETHYLPHTHALATE	10 U
ACENAPHTHYLENE	10 U
2,6-DINITROTOLUENE	10 U
3-NITROANILINE	25 U
ACENAPHTHENE	10 U
2,4-DINITROPHENOL	25 U
4-NITROPHENOL	25 U
DIBENZOFURAN	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-ER18
DATE SAMPLED	02/25/96
SEMIVOLATILES (ug/L) cont.	
2,4-DINITROTOLUENE	10 U
DIETHYLPHTHALATE	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U
FLUORENE	10 U
4-NITROANILINE	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U
N-NITROSODIPHENYLAMINE (1)	10 U
4-BROMOPHENYL-PHENYLETHER	10 U
HEXACHLOROBENZENE	10 U
PENTACHLOROPHENOL	25 U
PHENANTHRENE	10 U
ANTHRACENE	10 U
CARBAZOLE	10 U
DI-N-BUTYLPHTHALATE	10 U
FLUORANTHENE	10 U
PYRENE	10 U
BUTYLBENZYLPHTHALATE	10 U
3,3'-DICHLOROBENZIDINE	10 U
BENZO(A)ANTHRACENE	10 U
CHRYSENE	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U
DI-N-OCTYL PHTHALATE	10 U
BENZO(B)FLUORANTHENE	10 U
BENZO(K)FLUORANTHENE	10 U
BENZO(A)PYRENE	10 U
INDENO(1,2,3-CD)PYRENE	10 U
DIBENZO(A,H)ANTHRACENE	10 U
BENZO(G,H,I)PERYLENE	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-ER18
DATE SAMPLED	02/25/96
PESTICIDE/PCBS (ug/L)	
ALPHA-BHC	0.047 UJ
BETA-BHC	0.047 UJ
DELTA-BHC	0.047 UJ
GAMMA-BHC (LINDANE)	0.047 UJ
HEPTACHLOR	0.047 UJ
ALDRIN	0.047 UJ
HEPTACHLOR EPOXIDE	0.047 UJ
ENDOSULFAN I	0.047 UJ
DIELDRIN	0.093 UJ
4,4'-DDE	0.093 UJ
ENDRIN	0.093 UJ
ENDOSULFAN II	0.093 UJ
4,4'-DDD	0.093 UJ
ENDOSULFAN SULFATE	0.093 UJ
4,4'-DDT	0.093 UJ
METHOXYCHLOR	0.47 UJ
ENDRIN KETONE	0.093 UJ
ENDRIN ALDEHYDE	0.093 UJ
ALPHA-CHLORDANE	0.047 UJ
GAMMA-CHLORDANE	0.047 UJ
TOXAPHENE	4.7 UJ
AROCLOR-1016	0.93 UJ
AROCLOR-1221	1.9 UJ
AROCLOR-1232	0.93 UJ
AROCLOR-1242	0.93 UJ
AROCLOR-1248	0.93 UJ
AROCLOR-1254	0.93 UJ
AROCLOR-1260	0.93 UJ

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
TOTAL METALS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-ER18
DATE SAMPLED	02/25/96
TOTAL METALS (ug/L)	
ALUMINUM, TOTAL	23.3 U
ANTIMONY, TOTAL	19.8 U
ARSENIC, TOTAL	0.9 U
BARIUM, TOTAL	1.4 U
BERYLLIUM, TOTAL	0.8 U
CADMIUM, TOTAL	2.2 U
CALCIUM, TOTAL	150 U
CHROMIUM, TOTAL	2.4 U
COBALT, TOTAL	3 U
COPPER, TOTAL	2 U
IRON, TOTAL	20.7 U
LEAD, TOTAL	0.8 U
MAGNESIUM, TOTAL	26.9 U
MANGANESE, TOTAL	1.6 U
MERCURY, TOTAL	0.1 U
NICKEL, TOTAL	11.3 U
POTASSIUM, TOTAL	828 U
SELENIUM, TOTAL	1.3 U
SILVER, TOTAL	3.1 U
SODIUM, TOTAL	57.3
THALLIUM, TOTAL	1.7 U
VANADIUM, TOTAL	2.4 U
ZINC, TOTAL	3.6 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	76-ER16	76-ER18	FB-03	TB22	TB23	IR76-ER01-98B
DATE_SAMP	02-23-1996	02-25-1996	02-24-1996	02-22-1996	02-23-1996	04-22-1998
VOLATILES (ug/L)						
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	NA
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	NA
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	NA
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	NA
ACETONE	10 U	10 U	130	10 U	10 U	NA
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	NA
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	NA
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	NA
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	NA
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	NA
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	NA
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	NA
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	NA
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	NA
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	NA
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	NA
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
BENZENE	10 U	10 U	10 U	10 U	10 U	NA
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	NA
BROMOFORM	10 U	10 U	10 U	10 U	10 U	NA
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	NA
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	NA
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	NA
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA
TOLUENE	10 U	10 U	10 U	10 U	10 U	NA
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	NA
STYRENE	10 U	10 U	10 U	10 U	10 U	NA
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	76-ER16	76-ER18	FB-03	TB22	TB23	IR76-ER01-98B
DATE_SAMP	02-23-1996	02-25-1996	02-24-1996	02-22-1996	02-23-1996	04-22-1998
SEMIVOLATILES (ug/L)						
PHENOL	10 U	10 U	27	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	NA	NA	NA
2-CHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA
1,3-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA
1,4-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA
1,2-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA
2-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	NA	NA	NA
4-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	NA	NA	NA
HEXACHLOROETHANE	10 U	10 U	10 U	NA	NA	NA
NITROBENZENE	10 U	10 U	10 U	NA	NA	NA
ISOPHORONE	10 U	10 U	10 U	NA	NA	NA
2-NITROPHENOL	10 U	10 U	10 U	NA	NA	NA
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	NA	NA	NA
2,4-DICHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA
NAPHTHALENE	10 U	10 U	10 U	NA	NA	NA
4-CHLOROANILINE	10 U	10 U	10 U	NA	NA	NA
HEXACHLOROBUTADIENE	10 U	10 U	10 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA
2-METHYLNAPHTHALENE	10 U	10 U	10 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	24 U	25 U	25 U	NA	NA	NA
2-CHLORONAPHTHALENE	10 U	10 U	10 U	NA	NA	NA
2-NITROANILINE	24 U	25 U	25 U	NA	NA	NA
DIMETHYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA
ACENAPHTHYLENE	10 U	10 U	10 U	NA	NA	NA
2,6-DINITROTOLUENE	10 U	10 U	10 U	NA	NA	NA
3-NITROANILINE	24 U	25 U	25 U	NA	NA	NA
ACENAPHTHENE	10 U	10 U	10 U	NA	NA	NA
2,4-DINITROPHENOL	24 U	25 U	25 U	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	76-ER16	76-ER18	FB-03	TB22	TB23	IR76-ER01-98B
DATE_SAMP	02-23-1996	02-25-1996	02-24-1996	02-22-1996	02-23-1996	04-22-1998
SEMIVOLATILES (ug/L) (cont)						
4-NITROPHENOL	24 U	25 U	25 U	NA	NA	NA
DIBENZOFURAN	10 U	10 U	10 U	NA	NA	NA
2,4-DINITROTOLUENE	10 U	10 U	10 U	NA	NA	NA
DIETHYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	NA	NA	NA
FLUORENE	10 U	10 U	10 U	NA	NA	NA
4-NITROANILINE	24 U	25 U	25 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	25 U	25 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	NA	NA	NA
HEXACHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA
PENTACHLOROPHENOL	24 U	25 U	25 U	NA	NA	NA
PHENANTHRENE	10 U	10 U	10 U	NA	NA	NA
ANTHRACENE	10 U	10 U	10 U	NA	NA	NA
CARBAZOLE	10 U	10 U	10 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA
FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA
PYRENE	10 U	10 U	10 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	NA	NA	NA
BENZO(A)ANTHRACENE	10 U	10 U	10 U	NA	NA	NA
CHRYSENE	10 U	10 U	10 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	NA	NA	NA
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	NA	NA	NA
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA
BENZO(A)PYRENE	10 U	10 U	10 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	NA	NA	NA
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	76-ER16	76-ER18	FB-03	TB22	TB23	IR76-ER01-98B
DATE_SAMP	02-23-1996	02-25-1996	02-24-1996	02-22-1996	02-23-1996	04-22-1998
PESTICIDES/PCBS (ug/L)						
ALPHA-BHC	0.048 UJ	0.047 UJ	0.048 UJ	NA	NA	NA
BETA-BHC	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
DELTA-BHC	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
GAMMA-BHC (LINDANE)	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
HEPTACHLOR	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
ALDRIN	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
HEPTACHLOR EPOXIDE	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
ENDOSULFAN I	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
DIELDRIN	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
4,4'-DDE	0.097 UJ	0.093 UJ	0.097 UJ	NA	NA	NA
ENDRIN	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
ENDOSULFAN II	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
4,4'-DDD	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
ENDOSULFAN SULFATE	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
4,4'-DDT	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
METHOXYCHLOR	0.48 UJ	0.47 UJ	0.48 U	NA	NA	NA
ENDRIN KETONE	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
ENDRIN ALDEHYDE	0.097 UJ	0.093 UJ	0.097 U	NA	NA	NA
ALPHA-CHLORDANE	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
GAMMA-CHLORDANE	0.048 UJ	0.047 UJ	0.048 U	NA	NA	NA
TOXAPHENE	4.8 UJ	4.7 UJ	4.8 U	NA	NA	NA
AROCLOR-1016	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA
AROCLOR-1221	1.9 UJ	1.9 UJ	1.9 U	NA	NA	NA
AROCLOR-1232	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA
AROCLOR-1242	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA
AROCLOR-1248	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA
AROCLOR-1254	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA
AROCLOR-1260	0.97 UJ	0.93 UJ	0.97 U	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	76-ER16	76-ER18	FB-03	TB22	TB23	IR76-ER01-98B
DATE_SAMP	02-23-1996	02-25-1996	02-24-1996	02-22-1996	02-23-1996	04-22-1998
INORGANICS (ug/L)						
ALUMINUM, TOTAL	23.3 U	23.3 U	23.3 U	NA	NA	37.4 U
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U	NA	NA	60 U
ARSENIC, TOTAL	0.9 U	0.9 U	0.9 U	NA	NA	10 U
BARIUM, TOTAL	1.4 U	1.4 U	1.4 U	NA	NA	200 U
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U	NA	NA	5 U
CADMIUM, TOTAL	2.2 U	2.2 U	2.2 U	NA	NA	5 U
CALCIUM, TOTAL	67.4 U	150 U	49 U	NA	NA	740 J
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U	NA	NA	10 U
COBALT, TOTAL	3 U	3 U	3 U	NA	NA	50 U
COPPER, TOTAL	2 U	2 U	2 U	NA	NA	2.4 J
IRON, TOTAL	9.7 U	20.7 U	9.7 U	NA	NA	100 U
LEAD, TOTAL	1.1	0.8 U	0.9 U	NA	NA	3 U
MAGNESIUM, TOTAL	26.9 U	26.9 U	26.9 U	NA	NA	135 J
MANGANESE, TOTAL	1.8	1.6 U	1.7	NA	NA	15 U
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U	NA	NA	0.2 U
NICKEL, TOTAL	11.3 U	11.3 U	11.3 U	NA	NA	40 U
POTASSIUM, TOTAL	828 U	828 U	828 U	NA	NA	5000 U
SELENIUM, TOTAL	1.3 U	1.3 U	1.3 U	NA	NA	5 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U	NA	NA	10 U
SODIUM, TOTAL	97 U	57.3	159 U	NA	NA	494 J
THALLIUM, TOTAL	0.9 UJ	1.7 U	0.9 UJ	NA	NA	10 U
VANADIUM, TOTAL	2.4 U	2.4 U	2.4 U	NA	NA	50 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	AST781-ER01-98B
DATE SAMPLED	04-23-1998
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	9.9 J
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	AST781-TB01-98B	IR84-TB01-98B
DATE SAMPLED	04-23-1998	04-23-1998
VOLATILES (ug/L)		
Chloromethane	10 U	10 U
Bromomethane	10 U	10 U
Vinyl chloride	10 U	10 U
Chloroethane	10 U	10 U
Methylene chloride	10 U	10 U
Acetone	10 U	10 U
Carbon disulfide	10 U	10 U
1,1-Dichloroethene	10 U	10 U
1,1-Dichloroethane	10 U	10 U
1,2-Dichloroethene (total)	10 U	10 U
Chloroform	10 U	10 U
1,2-Dichloroethane	10 U	10 U
2-Butanone	10 U	10 U
1,1,1-Trichloroethane	10 U	10 U
Carbon tetrachloride	10 U	10 U
Bromodichloromethane	10 U	10 U
1,2-Dichloropropane	10 U	10 U
cis-1,3-Dichloropropene	10 U	10 U
Trichloroethene	10 U	10 U
Dibromochloromethane	10 U	10 U
1,1,2-Trichloroethane	10 U	10 U
Benzene	10 U	10 U
trans-1,3-Dichloropropene	10 U	10 U
Bromoform	10 U	10 U
4-Methyl-2-pentanone	10 U	10 U
2-Hexanone	10 U	10 U
Tetrachloroethene	10 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U
Toluene	10 U	10 U
Chlorobenzene	10 U	10 U
Ethylbenzene	10 U	10 U
Styrene	10 U	10 U
Xylenes (total)	10 U	10 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTP-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SDER-98B
DATE SAMPLED	04-19-1998
PCBS (ug/L)	
Aroclor 1016	1 U
Aroclor 1221	2 U
Aroclor 1232	1 U
Aroclor 1242	1 U
Aroclor 1248	1 U
Aroclor 1254	1 U
Aroclor 1260	1 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	85-ER08
DATE SAMPLED	01-24-1996
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	10 U
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	85-ER08
DATE SAMPLED	01-24-1996
SEMIVOLATILES (ug/L)	
PHENOL	10 U
BIS(2-CHLOROETHYL)ETHER	10 U
2-CHLOROPHENOL	10 U
1,3-DICHLOROBENZENE	10 U
1,4-DICHLOROBENZENE	10 U
1,2-DICHLOROBENZENE	10 U
2-METHYLPHENOL	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U
4-METHYLPHENOL	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U
HEXACHLOROETHANE	10 U
NITROBENZENE	10 U
ISOPHORONE	10 U
2-NITROPHENOL	10 U
2,4-DIMETHYLPHENOL	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U
2,4-DICHLOROPHENOL	10 U
1,2,4-TRICHLOROBENZENE	10 U
NAPHTHALENE	10 U
4-CHLOROANILINE	10 U
HEXACHLOROBUTADIENE	10 U
4-CHLORO-3-METHYLPHENOL	10 U
2-METHYLNAPHTHALENE	10 U
HEXACHLOROCYCLOPENTADIENE	10 U
2,4,6-TRICHLOROPHENOL	10 U
2,4,5-TRICHLOROPHENOL	25 U
2-CHLORONAPHTHALENE	10 U
2-NITROANILINE	25 U
DIMETHYLPHTHALATE	10 U
ACENAPHTHYLENE	10 U
2,6-DINITROTOLUENE	10 U
3-NITROANILINE	25 U
ACENAPHTHENE	10 U
2,4-DINITROPHENOL	25 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	85-ER08
DATE SAMPLED	01-24-1996
SEMIVOLATILES (ug/L) (cont)	
4-NITROPHENOL	25 UJ
DIBENZOFURAN	10 U
2,4-DINITROTOLUENE	10 U
DIETHYLPHTHALATE	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U
FLUORENE	10 U
4-NITROANILINE	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U
N-NITROSODIPHENYLAMINE (1)	10 U
4-BROMOPHENYL-PHENYLETHER	10 U
HEXACHLOROBENZENE	10 U
PENTACHLOROPHENOL	25 U
PHENANTHRENE	10 U
ANTHRACENE	10 U
CARBAZOLE	10 U
DI-N-BUTYLPHTHALATE	10 U
FLUORANTHENE	10 U
PYRENE	10 U
BUTYLBENZYLPHTHALATE	10 U
3,3'-DICHLOROBENZIDINE	10 U
BENZO(A)ANTHRACENE	10 U
CHRYSENE	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	11 U
DI-N-OCTYL PHTHALATE	10 U
BENZO(B)FLUORANTHENE	10 U
BENZO(K)FLUORANTHENE	10 U
BENZO(A)PYRENE	10 U
INDENO(1,2,3-CD)PYRENE	10 U
DIBENZO(A,H)ANTHRACENE	10 U
BENZO(G,H,I)PERYLENE	10 U

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	85-ER08
DATE SAMPLED	01-24-1996
PESTICIDES/PCBS (ug/L)	
ALPHA-BHC	0.05 UJ
BETA-BHC	0.05 UJ
DELTA-BHC	0.05 UJ
GAMMA-BHC (LINDANE)	0.05 UJ
HEPTACHLOR	0.05 UJ
ALDRIN	0.05 UJ
HEPTACHLOR EPOXIDE	0.05 UJ
ENDOSULFAN I	0.05 UJ
DIELDRIN	0.1 UJ
4,4'-DDE	0.1 UJ
ENDRIN	0.1 UJ
ENDOSULFAN II	0.1 UJ
4,4'-DDD	0.1 UJ
ENDOSULFAN SULFATE	0.1 UJ
4,4'-DDT	0.1 UJ
METHOXYCHLOR	0.5 UJ
ENDRIN KETONE	0.1 UJ
ENDRIN ALDEHYDE	0.1 UJ
ALPHA-CHLORDANE	0.05 UJ
GAMMA-CHLORDANE	0.05 UJ
TOXAPHENE	5 UJ
Aroclor 1016	1 UJ
Aroclor 1221	2 UJ
Aroclor 1232	1 UJ
Aroclor 1242	1 UJ
Aroclor 1248	1 UJ
Aroclor 1254	1 UJ
Aroclor 1260	1 UJ

FREQUENCY OF DETECTION SUMMARY - QAQC SAMPLES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	85-ER08
DATE SAMPLED	01-24-1996
INORGANICS (ug/L)	
Aluminum	23.3 U
Antimony	19.8 U
Arsenic	0.9 UJ
Barium	1.4 U
Beryllium	0.8 U
Cadmium	2.2 U
Calcium	70 U
Chromium	2.4 U
Cobalt	3 U
Copper	2 U
Iron	9.7 U
Lead	0.8 U
Magnesium	27.3 U
Manganese	1.6 U
Mercury	0.1 U
Nickel	11.3 U
Potassium	828 U
Selenium	1.3 U
Silver	3.1 U
Sodium	86.5 U
Thallium	0.9 U
Vanadium	2.4 U
Zinc	3.6 U

FREQUENCY OF DETECTION SUMMARY - QA/QC SAMPLES
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	TB19
DATE SAMPLED	01-29-1996
VOLATILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	23
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	10 U
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	10 U
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	10 U

APPENDIX G
GEOPHYSICAL REPORT

GEO-CENTERS, INC.

June 3, 1996

Mr. Jeffrey Pepsic
Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Rd
Corapolis, PA 15108

Reference: Subcontract Agreement - Navy CLEAN Program
Prime Contract No. N62470-89-D-4814
GEO REF: #2758-014

Dear Mr. Pepsic:

Enclosed is the Final Report including maps and findings from the Portable STOLS® survey performed at Sites 75 & 76, New River Naval Air Station, Camp Lejeune, North Carolina.

If you have any questions, please do not hesitate to contact either Larry Koppe or the undersigned at (301) 292-1010.

Very truly yours,

Fenoy W. Butler
Manager, Environmental Programs

10903 Indian Head Highway
Fort Washington • Maryland • 20744
(301) 292-1010

BOSTON
WASHINGTON, D.C.
ALBUQUERQUE

Final Report

for

Sites 75 & 76

New River Naval Air Station

Jacksonville, North Carolina

Prepared for

Baker Environmental, Inc.
Airport Office Road, Building 3
420 Rouser Rd
Corapolis, PA 15108

May 1995

Prepared by

GEO-CENTERS, INC.
10903 Indian Head Highway
Fort Washington, MD 20744

Final Report

Background:

Previous personal interviews and records searching uncovered the possibility of a potential hazardous waste burial pit located within the confines of base housing of the New River Naval Air Station. Documents indicated that a burial pit was created but contained no confirmation of the removal of such a site. This site supposedly contains approximately 75 each 55 gallon drums of hazardous waste buried in a trench measuring approximately 75 feet by 125 feet.

Survey

GEO-CENTERS was contracted to perform a portable magnetometer survey of the suspected acres of sites 75 & 76 that may have contained the suspected burial pit. The survey was divided into two phases. Phase I required the surveying of approximately 6 acres of site 75 and 9 acres of site 76. Phase II occurred after examination of the findings from Phase I and required resurveying selected portions of Site 75 and a continuation (east side) of survey of site 76. The survey results were divided into 4 sections: Camp Lejeune, Site 75, Full Site; Camp Lejeune Site 75, Trailer Site; Camp Lejeune, Site 76, Western Half; Camp Lejeune, Site 76 Easter Half.. The results and assumptions of each survey will be discussed individually in the following paragraphs and tables. All maps of the site and quadrants are contained in the appendixes.

Camp Lejeune, Site 75, Full Site:

Site 75 was surveyed with the Portable STOLS® and presented rather unique magnetic anomalies visible in quadrants C1 through C3. Quadrant C1 contains a basketball court with reinforced rebar obvious in the negative streaks. Quadrant C2 & C3 revealed a potential positive anomaly of the type of magnitude that would have been produced by a large quantity of buried barrels. Preliminary findings indicated that this area may have been the burial site that the survey was seeking. The site also produced several negative anomalies (deep wells) and a pipeline (sewer line) anomaly bordering on the western side of the site. Other survey results have been indicated in the following table. Site and quadrant pictures are contained in Appendix A.

SITE 75 - FULL SITE

MISSION	QUADRANT	FINDINGS
1	A1	Southernmost corner of the site - contains a well and some tie-down lines (steel) for the telephone pole including a sign post -
1	A2	Reveals portion of the well and indicated the line of the sewer line that borders the western side of the site.
1	A3	Continued presence of the sewer line.
1	A4	Continued presence of the sewer line.
1	B1	Indicates a small nestle of tree and the southern side of building 1027.
1	B2	Reveals another nestle of trees including a dog pen. Negative anomalies (dark) indicate the presence of above ground clothes hangers.
1	B3	Presence of a treeline that runs east to west through the southern half of the site.
1	B4	2nd well on site and indication of the sewer line with manhole cover and trap doors.

MISSION	QUADRANT	FINDINGS
1	C1	Large anomaly is a fire hydrant and dipole located north-east along missed area is a signpost. Anomaly in the northwest corner is the carport of building 1027.
1	C2	Buildings 1023 & 1025 and associated anomalies (carport and waterlines).
1	C3	Buildings 1019 & 1021 and associated anomalies (carport and waterlines).
1	C4	Buildings 1015 & 1017 and associated anomalies (carport and waterlines).
1	D4	Associated anomalies (carport and waterlines) from building 1015.
2	B1	Sewer line and portion of basketball court
2	B2	West side of staging area including sewer line and above ground steel trash bin (very large).
2	B3	Sewer line
2	C1	Basketball court and edge of buildings

MISSION	QUADRANT	FINDINGS
2	C2	Staging area with very large unknown positive anomaly. This anomaly was centered under the Baker Environmental Storage (Very large steel trailer with power lines) and Work Trailer. This quadrant also included the base station. This anomaly is the one thought to be the burial site.
2	C3	Northern side of the positive anomaly.
2	C4	Sewer line.
2	D1	Building 1013 & 1011 with associated anomalies.
2	D2	Bldg 1011 with swing set and "monkey bars" located in the northwest corner of the quadrant
2	D3	Area boarding a small swell
2	D4	Northeast corner of the site.

Camp Lejeune, Site 75, Trailer Site:

Site 75 was partially resurveyed with the Portable STOLS® after the Storage Trailer and Work Trailer had been removed. The results of this survey were puzzling and indicated that the anomaly was a result of the positioning of the storage and work trailer. Consultation with GEO-CENTERS' engineers produced no definite explanation for this phenomena. It is assumed that the steel body of the storage trailer coupled with the internal power lines produced this electromagnetic anomaly. The trailer was on rubber wheels but was tied down with steel bars driven into the ground on all corners The position of the sensors (approximately under the bottom of the trailer) allowed the registration of only the positive side of the anomaly.. This site did produce a multiple of small anomalies that resulted from a large quantity of pipe fitting and

metallic trash on the surface of the site. The site and quadrant pictures are contained in Appendix B.

SITE 75 - TRAILER SITE

MISSION	QUADRANT	FINDINGS
1	A1	Shadow of the above ground trash bin and sewer line.
1	A2	Sewer line
1	A3	Sewer line
1	B1	No indication
1	B2	No indication
1	B3	No indication

Camp Lejeune, Site 76, Western Half:

Site 76, Western Half, was surveyed with the Portable STOLS® and presented no findings of any significance. The following table examines each quadrant. The site and quadrant pictures are contained in Appendix C.

SITE 76 - Western Half

MISSION	QUADRANT	FINDINGS
1	A3	Southwest corner of the site included water pump and electrical box
1	A4	Sewer line along road with fire hydrant
1	B3	Nothing indicated
1	B4	Nothing indicated

MISSION	QUADRANT	FINDINGS
1	C2/C3/C4	Nothing indicated
1	D2/D3	Nothing indicated
1	E2/E3	Nothing indicated
1	F2/F3	Presence of a water line or similar item
2	A2	Contains the base station and corner of base housing
2	A3	Base housing and associated anomalies
2	A4/B1	Nothing indicated
2	B2	Telephone pole guide wires
2	B3	Base housing and associated anomalies. North west end of sewer/water line.
2	B4	Base housing and associated anomalies. North west end of sewer/water line.
2	C1	Nothing indicated
2	C2	Sewer/water line
2	C3	Sewer/water line & base housing
2	C4	Base housing and associated anomalies.
2	C1	Southern end of sewer/water line
2	C2	Sewer/water line.

MISSION	QUADRANT	FINDINGS
2	C3	Base housing, associated anomalies, and sewer/water line.
2	C4	Nothing indicated
2	D1	Southern end of sewer/water line
2	D2	Nothing indicated
2	D3/D4	Base housing and associated anomalies.
2	E1/E2/E3	Base housing and associated anomalies.
2	F1/F2/F3	Base housing and associated anomalies.

Camp Lejeune, Site 76, Eastern Half:

Site 76, Eastern Half, was surveyed with the Portable STOLS® and presented no findings of any significance. The areas within quadrants B3/4, C3/4, and D3/4 were difficult to survey due to the tree coverage and the base installed apparatus such as swings, monkeybars, slides, sandboxes, etc. One sewer/water line is present in E/F/G2. The base reference station for the GPS was established in quadrant E1 on the corner over a manhole. The following table examines each quadrant. The site and quadrant pictures are contained in Appendix D.

SITE 76 - Eastern Half

MISSION	QUADRANT	FINDINGS
1	A2/3	No significant findings
1	B2/3/4	No significant findings
1	C1/2/3/4	No significant findings

MISSION	QUADRANT	FINDINGS
1	D1/2	No significant finding. D1 was used for the establishment of the base station and D2 was used for the position of a repeater to reach the B/C/D area for the GPS.
1	D3/4	No significant findings
1	E1/2/3/4	No significant findings
1	F1/2/3	No significant findings
1	G1/2/3	No significant findings

Conclusions:

After review of all four site's magnetometer data, the detection of the burial of over 75 barrels of potentially hazardous waste does not appear to be within the surveyed boundaries. Initially, the burial "appeared" to be within the staging area on Site 75 but was determined clean by resurvey.

APPENDIX H
BASE BACKGROUND ANALYTICAL RESULTS AND EVALUATION REPORTS

EVALUATION OF METALS IN SURFACE AND SUBSURFACE SOIL AT MCB, CAMP LEJEUNE

MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0314

JULY 19, 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

1.0 INTRODUCTION

Under the Department of the Navy (DoN) Installation Restoration Program (IRP). Baker Environmental, Inc. (Baker) has conducted numerous remedial investigations at Marine Corps Base (MCB), Camp Lejeune, North Carolina. As part of these investigations soil, surface and subsurface, samples have been collected. These samples provide the basis for a compilation of data that is representative of the natural concentration of metals in soils within the boundaries of MCB, Camp Lejeune. In general, chemical specific standards and criteria are not available for soil and as a result, base-specific background concentrations have been compiled from a number of locations throughout MCB, Camp Lejeune, allowing for the evaluation of background levels of metals in the surface and subsurface soils. The objectives of this report are as follows:

- To provide insight into the selection of soil locations used as control or background sample locations.
- To discuss general soil types encountered in each area that samples were collected.
- To provide the base background concentrations for each of the metals.
- To provide maps illustrating the locations of each of the background and/or control samples.

2.0 SELECTION OF SAMPLE LOCATIONS

The samples selected for inclusion into the basewide database were collected during nine Remedial Investigations including 23 sites. These samples were collected in areas not known to have been impacted by site operations or disposal activities based on the site histories. In some cases, these soils are representative of naturally occurring conditions and in other cases the soils have been impacted by other base related activities. In the later case the samples are referred to as "control" samples. Control samples are samples which may not represent background conditions, but represent the current state of soil quality upgradient of the site. Examples of activities that may not be site related but still impact the quality of the soils upgradient and across the entire site would include troop maneuvers, artillery practice, and various forms of combat training. Fifty-two surface and forty-six subsurface soil samples were collected from the following sites for inclusion into the base background data base: Sites 6, 78, 41, 69, 74, 1, 2, 28, 30, 35, 48, 16, 80, 7, 36, 43, 44, 54, 86, and 65 (see Figures 1 through 21).

Site background and base background concentration values for metal elements in surface and subsurface soil are presented in Tables 1 and 2, respectively. At the end of each of the tables, the minimum and maximum concentrations, the average and 2 times average concentrations are presented for each of the elements of concern.

3.0 GENERALIZED SOIL COMPARISON

MCB, Camp Lejeune is situated within the Tidewater region of the Atlantic Coastal Plain physiographic province. The sediments of the Atlantic Coastal Plain consist mostly of interbedded sand, silt, clay, calcareous clay, shell beds, sandstone and limestone. These sediments are layered in interfingering beds and lenses that gently dip and thicken to the southeast to a combined thickness of approximately 1,500 feet. These sediments were deposited in marine or near-shore environments and range in age from early Cretaceous to Quaternary time. Regionally, they comprise 10 aquifers and 9 confining units which overlie

TABLES

TABLE 1
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.

TABLE 1
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.

TABLE 1
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								

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.

TABLE 1
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	65-DW04-00	MIN	MAX	AVG	2Xaverage
Aluminum	2730	4950	8990	4950	6590	773	17.7	9570	2928.041	5856.083
Antimony	2.2	1.2	1.25	1.3	1.95	5.55	0.33	8	2.727	5.455
Arsenic	0.67	1.3	1.1	1.2	0.45	1.1	0.065	3.9	0.661	1.322
Barium	13	14.9	18.7	13.3	13.9	6.9	0.65	20.8	8.646	17.292
Beryllium	0.095	0.08	0.0345	0.0375	0.085	0.11	0.02	0.26	0.103	0.205
Cadmium	0.3	0.325	0.335	0.34	0.265	0.55	0.04	1	0.348	0.696
Calcium	1610	668	1020	3590	3960	79.3	4.25	10700	686.488	1372.977
Chromium	2.9	5.9	9.2	6.8	6.5	1.1	0.33	12.5	3.303	6.607
Cobalt	0.32	0.43	0.375	0.41	0.285	4.15	0.185	4.15	1.023	2.046
Copper	0.75	2.5	2.1	4.2	2.2	1.1	0.5	87.2	3.552	7.104
Iron	1110	3220	4700	2780	4030	509	69.7	9640	1851.213	3702.427
Lead	13.8	19.6	3.95	12.3	21.5	2	0.47	142	11.685	23.370
Magnesium	60.5	189	371	259	233	30.3	2.55	610	101.480	202.960
Manganese	6.5	6.7	14.8	19.9	11.5	9.6	0.87	66	9.255	18.510
Mercury	0.05	0.06	0.041	0.04	0.04	0.055	0.01	0.13	0.047	0.094
Nickel	1.15	1.7	1.3	1.6	7.2	2.25	0.45	7.2	1.727	3.455
Potassium	73.5	220	223	175	160	111.5	1	416	100.030	200.060
Selenium	0.185	0.34	0.145	0.13	0.43	0.55	0.075	1.3	0.377	0.753
Silver	0.32	0.28	0.285	0.295	0.285	0.55	0.0435	4.3	0.440	0.880
Sodium	12.7	12.75	8.3	9.55	18.3	22.25	4.7	126	29.507	59.013
Thallium	0.11	0.065	0.065	0.06	0.13	1.1	0.055	1.2	0.462	0.924
Vanadium	4	11.8	13.4	9.1	48.6	1.1	0.305	48.6	5.723	11.447
Zinc	4.5	7.4	7.2	9.1	18.4	3.9	0.3	28.3	6.882	13.763
Cyanide							0.265	2.4	1.453	2.905

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.

TABLE 2
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

TABLE 2
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

TABLE 2
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	65-DW04-05	MIN	MAX	AVG	2Xaverage
Aluminum	2260	10300	1100	1040	2460	4560	16.900	11000.000	3706.615	7413.230
Antimony	2.25	1.15	1.25	1.25	2	5.25	0.355	6.900	3.249	6.498
Arsenic	0.31	1.2	0.16	0.195	0.22	1.05	0.033	15.400	0.985	1.971
Barium	9.1	12.5	1.15	1.05	4.4	10.9	0.650	22.600	7.185	14.370
Beryllium	0.1	0.065	0.06	0.0345	0.09	0.105	0.010	0.310	0.096	0.191
Cadmium	0.305	0.305	0.325	0.335	0.275	0.5	0.155	1.200	0.359	0.718
Calcium	295	20.9	24.6	14.7	50.8	111	4.750	4410.000	193.912	387.824
Chromium	2	11	1.15	1	3.1	5.7	0.650	66.400	6.268	12.537
Cobalt	0.33	0.495	0.26	0.305	0.29	3.2	0.175	7.000	0.805	1.611
Copper	0.265	0.86	0.45	0.46	0.185	1.05	0.160	9.500	1.205	2.410
Iron	507	4720	392	319	3160	925	63.300	90500.000	3567.320	7134.639
Lead	2.8	4.15	0.8	1.75	2.4	2.7	0.465	21.400	4.132	8.264
Magnesium	49.3	302	16.4	17.35	71.3	192	2.850	852.000	131.699	263.398
Manganese	2.5	3.9	0.5	0.6	1.8	5.6	0.395	19.900	3.995	7.990
Mercury	0.055	0.0425	0.11	0.05	0.055	0.05	0.010	0.680	0.065	0.129
Nickel	1.2	0.92	9.2	7.7	1.05	2.1	0.450	9.200	1.863	3.725
Potassium	75	207	29.9	14.45	66.5	105	1.050	1250.000	172.126	344.252
Selenium	0.17	0.155	0.145	0.17	0.175	0.5	0.085	2.400	0.403	0.806
Silver	0.33	0.26	0.28	0.29	0.29	0.5	0.175	1.000	0.434	0.869
Sodium	8.75	86.4	4.4	2.2	6.8	69.9	2.200	141.000	27.285	54.570
Thallium	0.105	0.07	0.065	0.08	0.13	1.05	0.055	2.700	0.490	0.980
Vanadium	1.7	17.1	0.85	0.8	1.85	4.1	0.340	69.400	6.670	13.340
Zinc	1.6	2.5	0.92	1.3	0.37	3.45	0.320	26.600	3.334	6.668

TABLE 3

SUMMARY OF SURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter
		Classification	Depth		Description	Depth	Soil Reaction pH	Moist Bulk Density	
6-20IN-SB11	Site 6	SP, SP-SM	0 - 80"	KuB	Fine sand with trace to little silt and clay	0 - 1'	4.5 - 7.3	-0.2	<2
6-201N-SB12	Site 6	SP, SP-SM	0 - 80"	KuB	Fine sand with trace to little silt and clay	0 - 1'	4.5 - 7.3	-0.2	<2
6-201C-SB38	Site 6	SP, SP-SM	0 - 80"	KuB	Fine sand with trace to little silt and clay	0 - 1'	4.5 - 7.3	-0.2	<2
6-201C-SB39	Site 6	SP, SP-SM	0 - 80"	KuB	Fine sand with trace to little silt and clay	0 - 1'	4.5 - 7.3	-0.2	<2
78-BB-SB01	Site 78	SP, SP-SM	0 - 21"	On	Fine sand with trace to little silt and clay	0 - 1'	3.6 - 5.5	-0.2	.5 - 2
41-BB-SB01	Site 41	ML, SC, SM, SM-SC	0 - 28"	Mk	Silty sand fine grained with trace clay	0 - 1'	5.1 - 7.3	---	.5 - 2
41-BB-SB02	Site 41	SM, SP-SM	0 - 36"	BmB	Silty sand fine grained with trace clay	0 - 1'	4.5 - 6.5	-0.15	.5 - 1
41-BB-SB03	Site 41	SM	0 - 12"	MaC	Silty sand fine grained with trace clay	0 - 1'	4.5 - 6.5	---	<2
41-BB-SB04	Site 41	SM	0 - 12"	MaC	Silty sand fine grained with trace clay	0 - 1'	4.5 - 6.0	---	<2
69-BB-SB01	Site 69	SM, SP-SM	0 - 30"	BmB	Fine grained sand with silt	0 - 1'	4.5 - 6.5	-0.15	.5 - 1

TABLE 3 (Continued)

SUMMARY OF SURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter
		Classification	Depth		Description	Depth	Soil Reaction pH	Moist Bulk Density	
28-GW09DW	Site 28	SM, SP-SM	0 - 30"	BaB	Fine sand with trace to little silt and clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
30-BB-SB12	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-BB-SB13	Site 30	SP, SP-SM	0 - 80"	KuB	Fine grained sand with trace silt	0 - 1'	4.5 - 7.3	1.60 - 1.80	<2
30-BB-SB14	Site 30	SP, SP-SM	0 - 80"	KuB	Fine grained sand with trace silt	0 - 1'	4.5 - 7.3	1.60 - 1.80	<2
30-BB-SB15	Site 30	SP, SP-SM	0 - 80"	KuB	Fine grained sand with trace silt	0 - 1'	4.5 - 7.3	1.60 - 1.80	<2
30-BB-SB16	Site 30	SP, SP-SM	0 - 80"	KuB	Fine grained sand with trace silt	0 - 1'	4.5 - 7.3	1.60 - 1.80	<2
30-GW03	Site 30	SP, SP-SM	0 - 80"	KuB	Fine grained sand with trace silt	0 - 1'	4.5 - 7.3	1.60 - 1.80	<2
35-GWD-1	NA	NA	NA	NA	NA	NA	NA	NA	NA
35-SS01	Site 35	SM, SP-SM	0 - 30"	BaB	Silty sand fine grained	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
48-BB-SB02	Site 48	SM, SP-SM	0 - 30"	BmB	Fine grained sand with silt, trace clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
48-BB-SB03	Site 48	SM, SP-SM	0 - 30"	BmB	Fine grained sand with silt, trace clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
16-BB-SB01	Site 16	SM, SP-SM	0 - 30"	BmB	Fine grained, little to trace silt, trace clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
16-BB-SB02	Site 16	SM, SP-SM	0 - 30"	BmB	Fine grained, little to trace silt, trace clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1

TABLE 3 (Continued)

SUMMARY OF SURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter
		Classification	Depth		Description	Depth	Soil Reaction pH	Moist Bulk Density	
43-BB-SB03	Site 43	SM, SP-SM	0 - 30"	BaB	Fine sand with trace silt and clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
44-BB-SB01	Site 44	SM, SP-SM	0 - 30"	BaB	Fine sand with trace silt and clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
54-BB-SB01	Site 54	SM, SP-SM	0 - 30"	BaB	Fine sand with trace silt and clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
54-BB-SB02	Site 54	SM, SP-SM	0 - 30"	BaB	Fine sand with trace silt and clay	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1
86-BB-SB01	Site 86	SM, SM-SC	0 - 13"	GpB	Fine grained sand with some silt, trace clay	0 - 1'	4.5 - 6.0	1.40 - 1.60	.5 - 2
65-DW04	Site 65	SM, SP-SM	0 - 30"	BmB	Fine grained sand with trace silt	0 - 1'	4.5 - 6.5	1.60 - 1.75	.5 - 1

Notes:

SP = Fine sand
SM = Loamy fine sand
ML = Loam
SC = Clayey sand
---- = Not estimated
NA = Not Available - No surface sample collected

TABLE 4

SUMMARY OF SUBSURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter (%)
		Classification	Depth (inches)		Description	Depth (feet)	Soil Reaction pH	Moist Bulk Density	
6-201N-SB11-07	Site 6	SP, SP-SM	0 - 80	--	Fine to medium grained sand, trace silt	13 - 15	4.5 - 7.3	1.60 - 1.80	>2
6-201N-SB12-02	Site 6	SP, SP-SM	0 - 80	KuB	Fine to medium grained sand, trace silt	3 - 5	4.5 - 7.3	1.60 - 1.80	>2
6-201C-SB38-01	Site 6	SP, SP-SM	0 - 80	KuB	Fine to medium grained sand, trace silt	1 - 3	4.5 - 7.3	1.60 - 1.80	>2
6-201C-SB39-04	Site 6	SP, SP-SM	0 - 80	KuB	Fine to medium grained sand, trace silt	7 - 9	4.5 - 7.3	1.60 - 1.80	>2
78-BB-SB01-01	Site 78	SM, SP-SM	21 - 68	On	Fine sand, little silt	1 - 3	3.6 - 5.5	1.30 - 1.50	.5 - 2
2-GW09-01	Site 2	SM	12 - 80	Wo	Fine grained sand, some silt	1 - 3	3.6 - 5.5	1.45 - 1.65	2 - 4
1-BB-SB38-05	Site 1	SM, SP-SM	56 - 80	--	Fine grained sand, little silt	9 - 11	4.5 - 6.5	1.60 - 1.75	.5 - 1
1-BB-SB39-06	Site 1	SM, SP-SM	56 - 80	--	Fine grained sand, little silt	11 - 13	4.5 - 6.5	1.60 - 1.75	.5 - 1
1-GW13-04	Site 1	SM, SP-SM	56 - 80	BmB	Fine grained sand with silt, trace clay	7 - 9	4.5 - 6.5	1.60 - 1.75	.5 - 1
1-GW13-08	Site 1	SM, SP-SM	56 - 80	--	Fine grained sand with silt, trace clay	15 - 17	4.5 - 6.5	1.60 - 1.75	.5 - 1

TABLE 4 *(Continued)*

SUMMARY OF SUBSURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter (%)
		Classification	Depth (inches)		Description	Depth (feet)	Soil Reaction pH	Moist Bulk Density	
48-BB-SB03-05	Site 48	SM, SP-SM	56 - 80	--	Fine grained sand, little silt, trace clay	9 - 11	4.5 - 6.5	1.60 - 1.75	.5 - 1
16-BB-SB01-07	Site 16	SM, SP-SM	56 - 80	--	Fine grained sand, little to trace silt, trace clay	13 - 15	4.5 - 6.5	1.60 - 1.75	.5 - 1
16-BB-SB02-07	Site 16	SM, SP-SM	56 - 80	--	Fine grained sand, little to trace silt, trace clay	13 - 15	4.5 - 6.5	1.60 - 1.75	.5 - 1
16-BB-SB03-05	Site 16	SM, SP-SM	56 - 80	--	Fine grained sand, little to trace silt	9 - 11	4.5 - 6.5	1.60 - 1.75	.5 - 1
80-BB-SB01-06	Site 80	SM, SC, ML, CL	45 - 80	--	Clay, trace silt	11 - 13	4.5 - 5.5	1.30 - 1.60	1 - 6
80-BB-SB01-03	Site 80	SM, SC, ML, CL	45 - 80	Ra	Fine to medium grained sand, little to trace silt, trace clay	5 - 7	4.5 - 5.5	1.30 - 1.60	1 - 6
80-BB-SB02-03	Site 80	SM, SC, ML, CL	45 - 80	Ra	Clay, trace silt, and fine grained sand	5 - 7	4.5 - 5.5	1.30 - 1.60	1 - 6
80-BB-SB02-06	Site 80	SM, SC, ML, CL	45 - 80	--	Fine grained sand, little clay, trace silt	11 - 13	4.5 - 5.5	1.30 - 1.60	1 - 6
80-BB-SB03-03	Site 80	SM, SC, ML, CL	45 - 80	Ra	Silt, trace to some clay, little fine grained sand	5 - 7	4.5 - 5.5	1.30 - 1.60	1 - 6

TABLE 4 (Continued)

SUMMARY OF SUBSURFACE SOILS, PHYSICAL PROPERTIES
EVALUATION OF METALS AT
MCB CAMP LEJEUNE, NORTH CAROLINA

Soil Boring Identification	Location	USCS		USDA Soil Symbol	Field Observation		Physical Characteristics		Organic Matter (%)
		Classification	Depth (inches)		Description	Depth (feet)	Soil Reaction pH	Moist Bulk Density	
44-BB-SB01-03	Site 44	SM, SP-SM	56 - 80	BaB	Fine grained sand, some silt and clay	5 - 7	4.5 - 6.5	1.60 - 1.75	.5 - 1
54-BB-SB01-04	Site 54	SM, SP-SM	56 - 80	BaB	Fine to medium grained sand, little silt	7 - 9	4.5 - 6.5	1.60 - 1.75	.5 - 1
54-BB-SB02-04	Site 54	SM, SP-=SM	56 - 80	BaB	fine to coarse grained sand, trace to little silt, trace clay	7 - 9	4.5 - 6.5	1.60 - 1.75	.5 - 1
86-BB-SB01-02	Site 86	SM-SC, SC, CL-ML, CL	13 - 80	GpB	Fine to medium grained sand, some silt, little clay	3 - 5	4.5 - 5.5	1.30 - 1.50	.5 - 2
65-DW04-05	Site 65	SM, SP-SM	56 - 80	--	Sand, fine grained, trace silt	9 - 11	4.5 - 6.5	1.60 - 1.75	.5 - 1

Notes:

CL = Clayey sand
SP = Fine sand
SM = Loamy fine sand
ML = Loam
SC = Clayey sand
---- = Not estimated
NA = Not Available - No subsurface sample collected

FIGURES

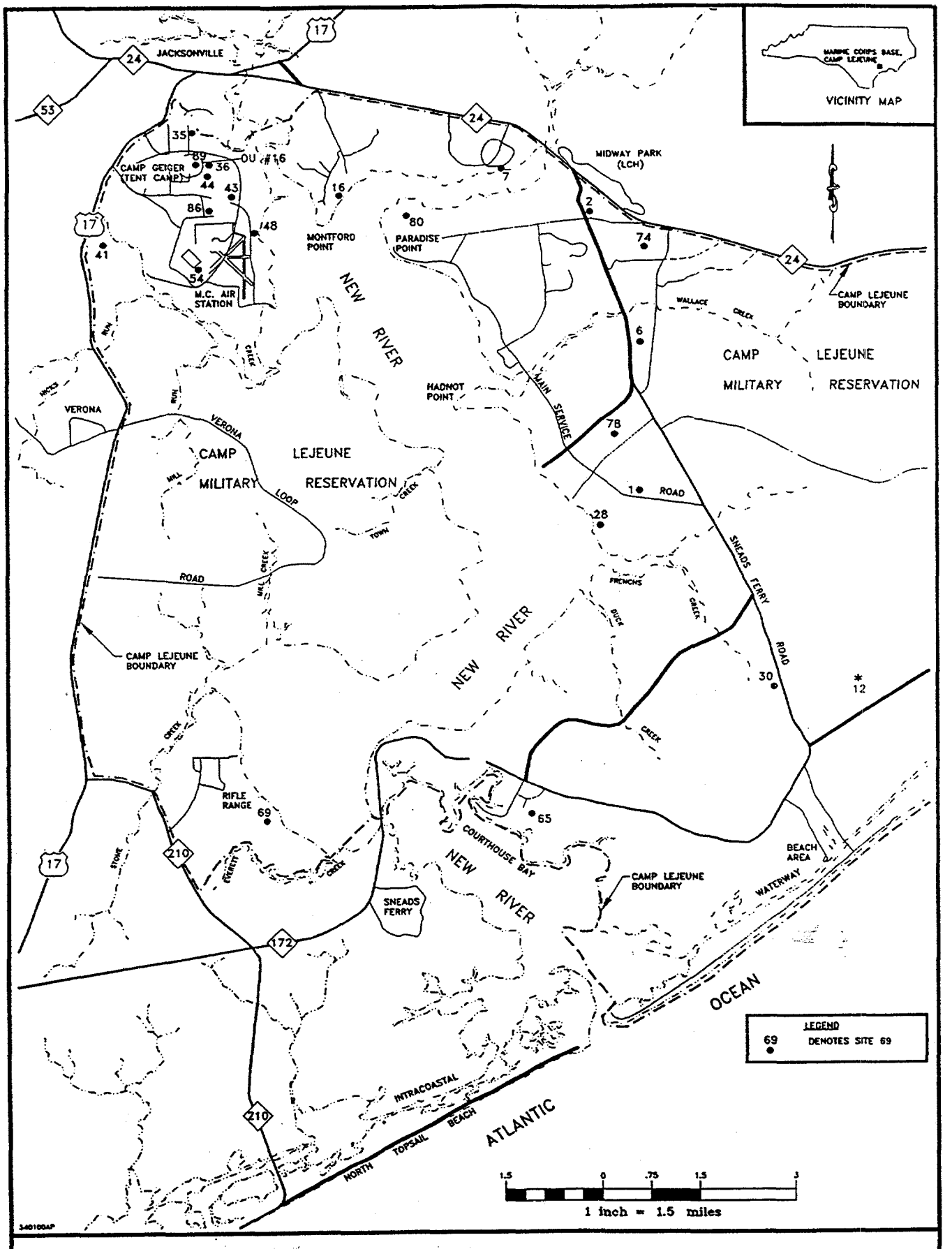
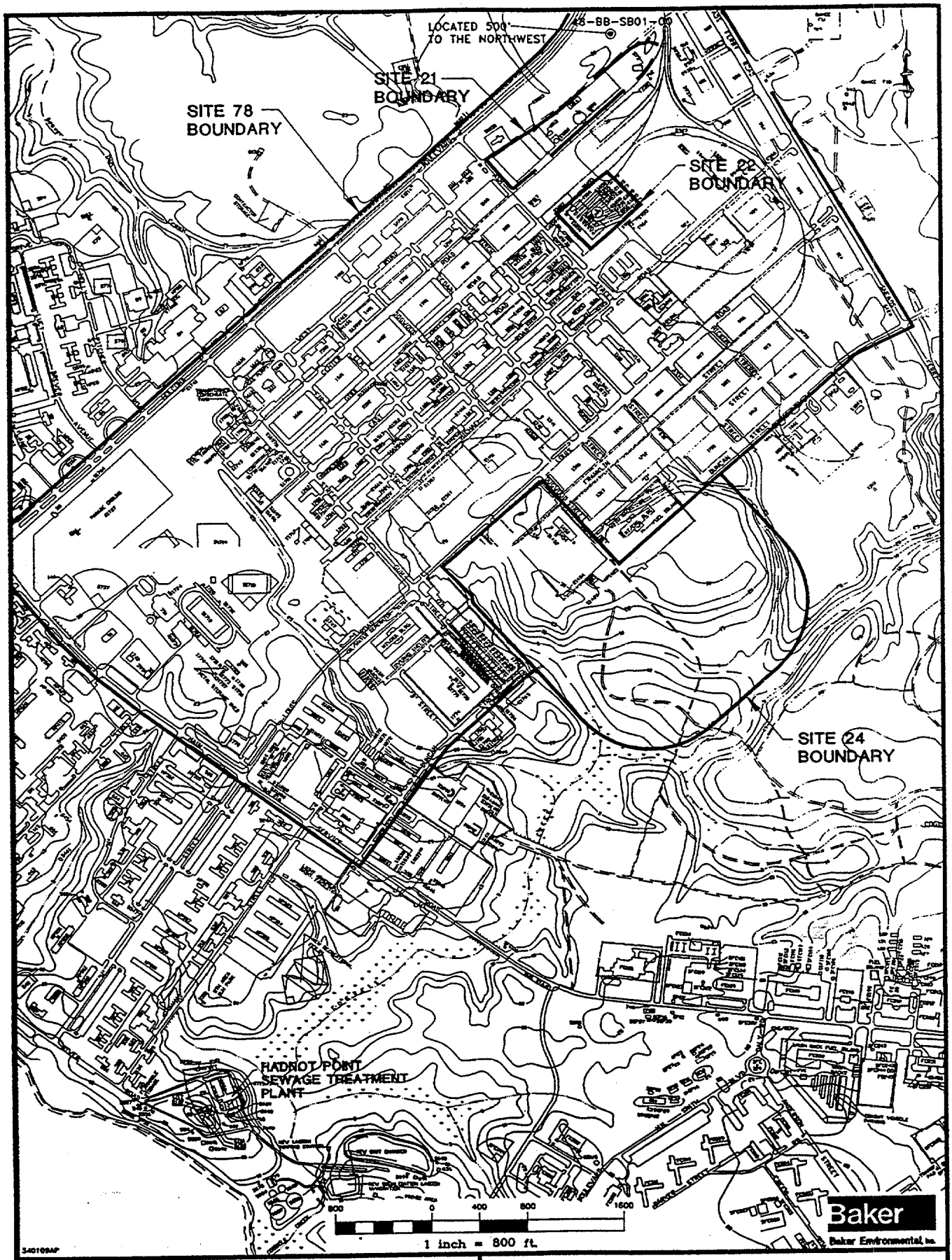


FIGURE 1
SITE LOCATIONS AT
MARINE CORPS BASE CAMP LEJEUNE

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



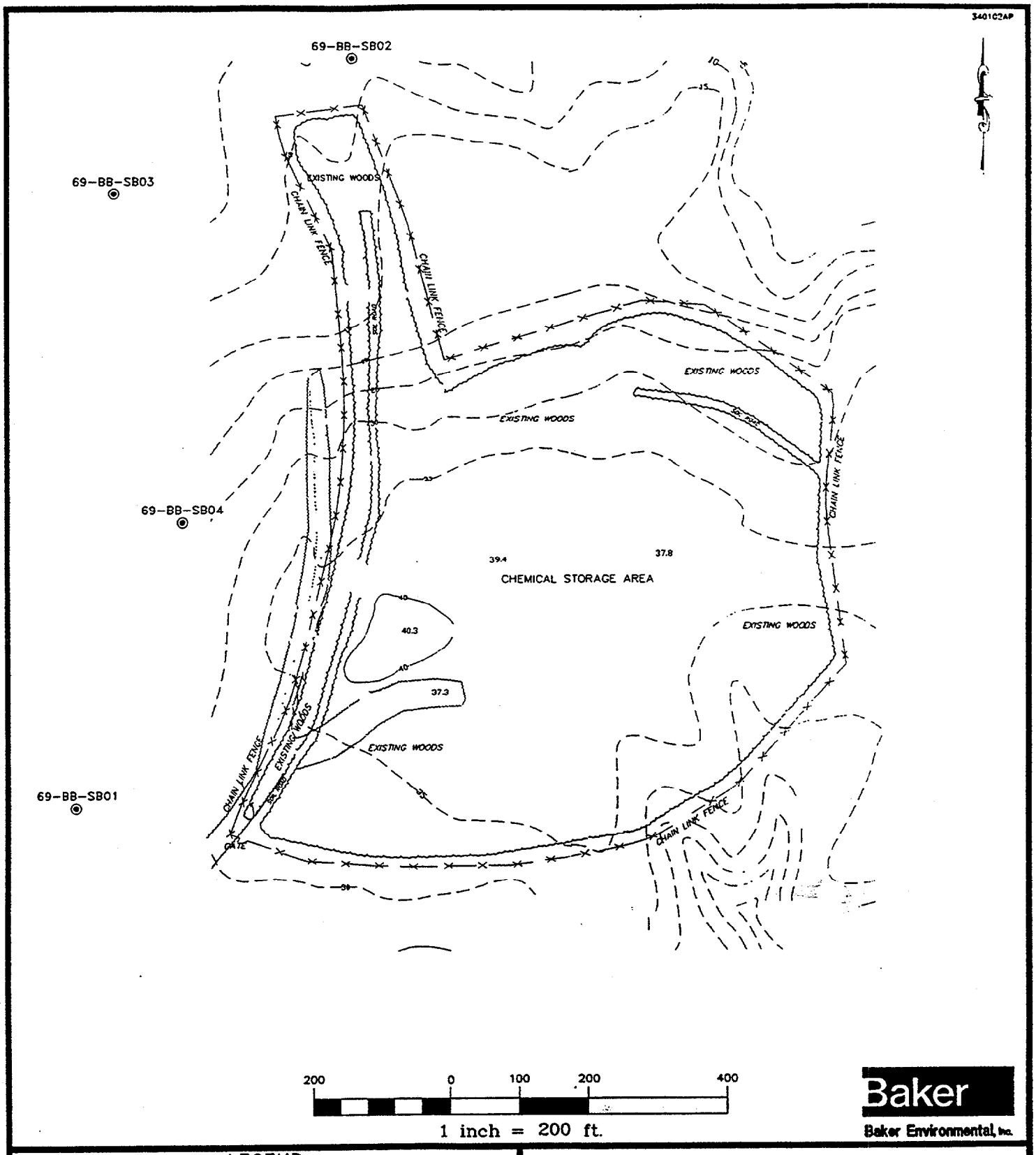
LEGEND

X

SOURCE: LANTDIV, FEBRUARY 1992

FIGURE 3
SITE MAP
SITE 78: HPIA
REMEDIAL INVESTIGATION CTO-0177

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



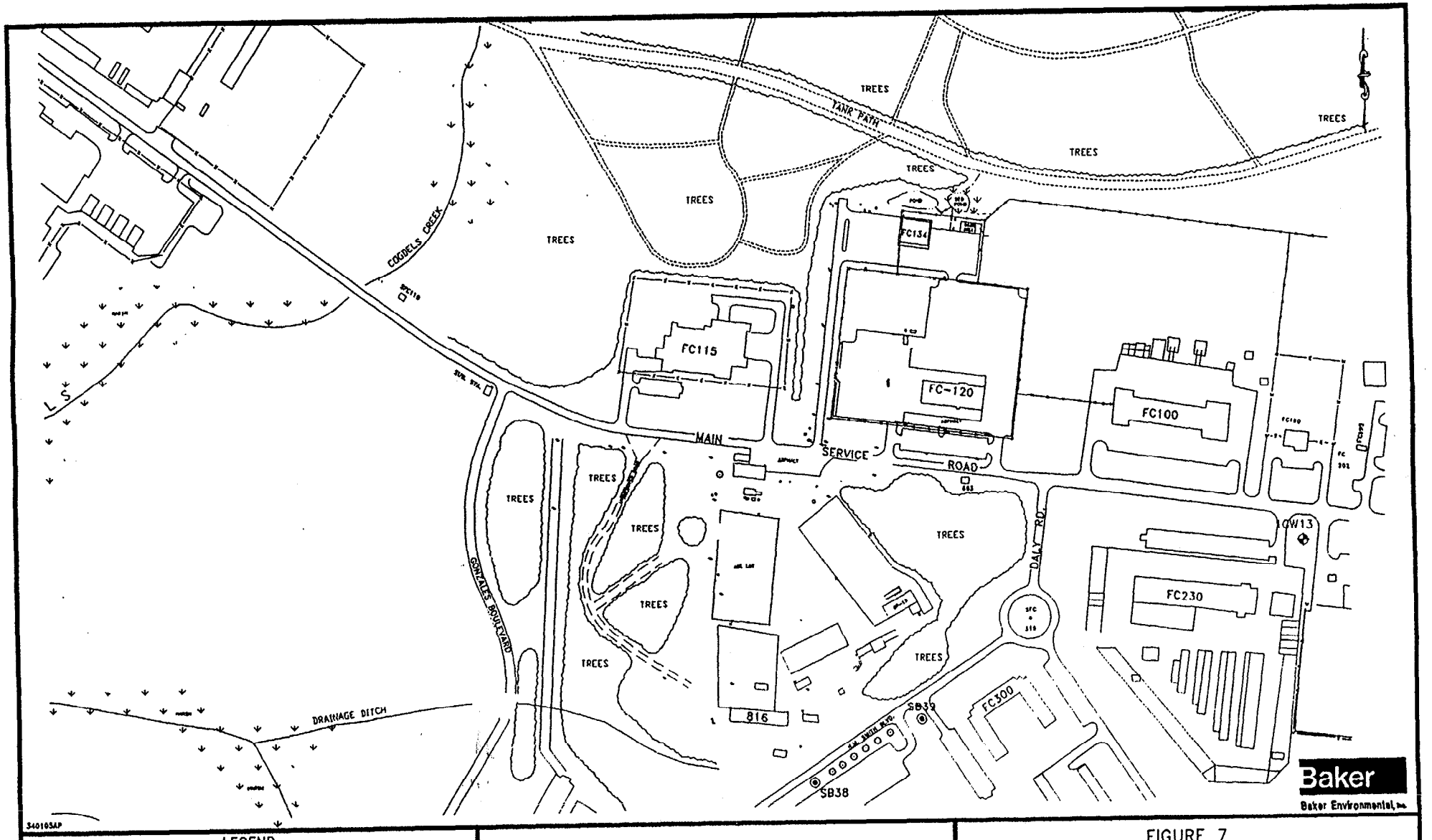
69-BB-SB01 SOIL BORING LOCATION

LEGEND

- FENCE
- VEGETATION
- TOPOGRAPHIC ELEVATION LINES (FEET, MSL)

SOURCE: REVISED FROM LANTDIV, OCT. 1991

FIGURE 5
SURFACE AND SUBSURFACE SOIL SAMPLING LOCATIONS
SITE 69 – RIFLE RANGE CHEMICAL DUMP
REMEDIAL INVESTIGATION CTO-0212
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



LEGEND

1GW13 SHALLOW MONITORING WELL

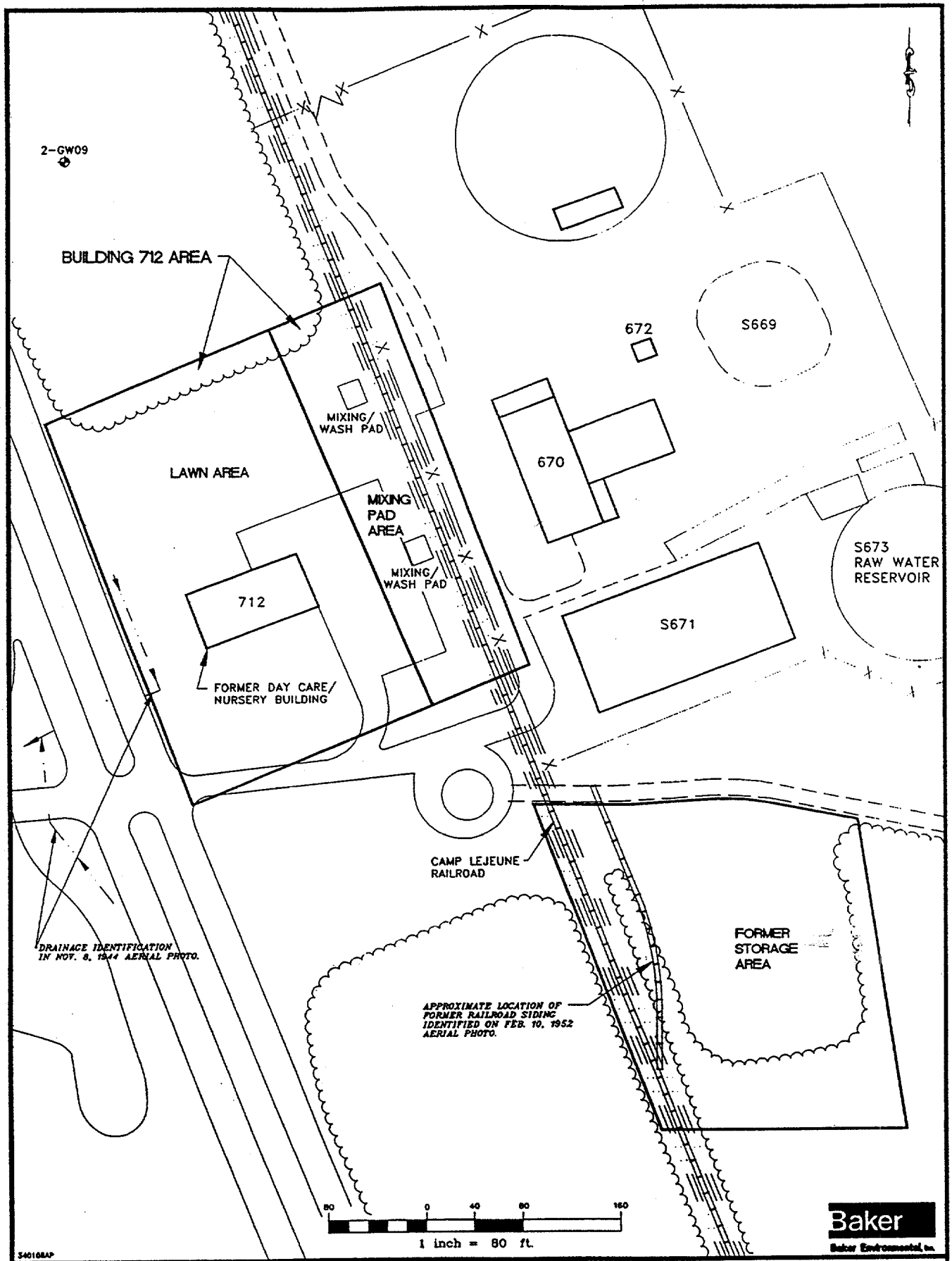
SB39 SOIL BORING LOCATION

300 0 150 300 600

1 inch = 300 ft.

SOURCE: LANTDIV, FEBRUARY 1992, ESE, SEPTEMBER 1990, AND W.K. DICKSON & ASSOC., JUNE 1994

FIGURE 7
SAMPLING LOCATIONS
CONFIRMATION STUDY
SITE 1 – FRENCH CREEK LIQUIDS DISPOSAL AREA
REMEDIAL INVESTIGATION CTO-0231
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



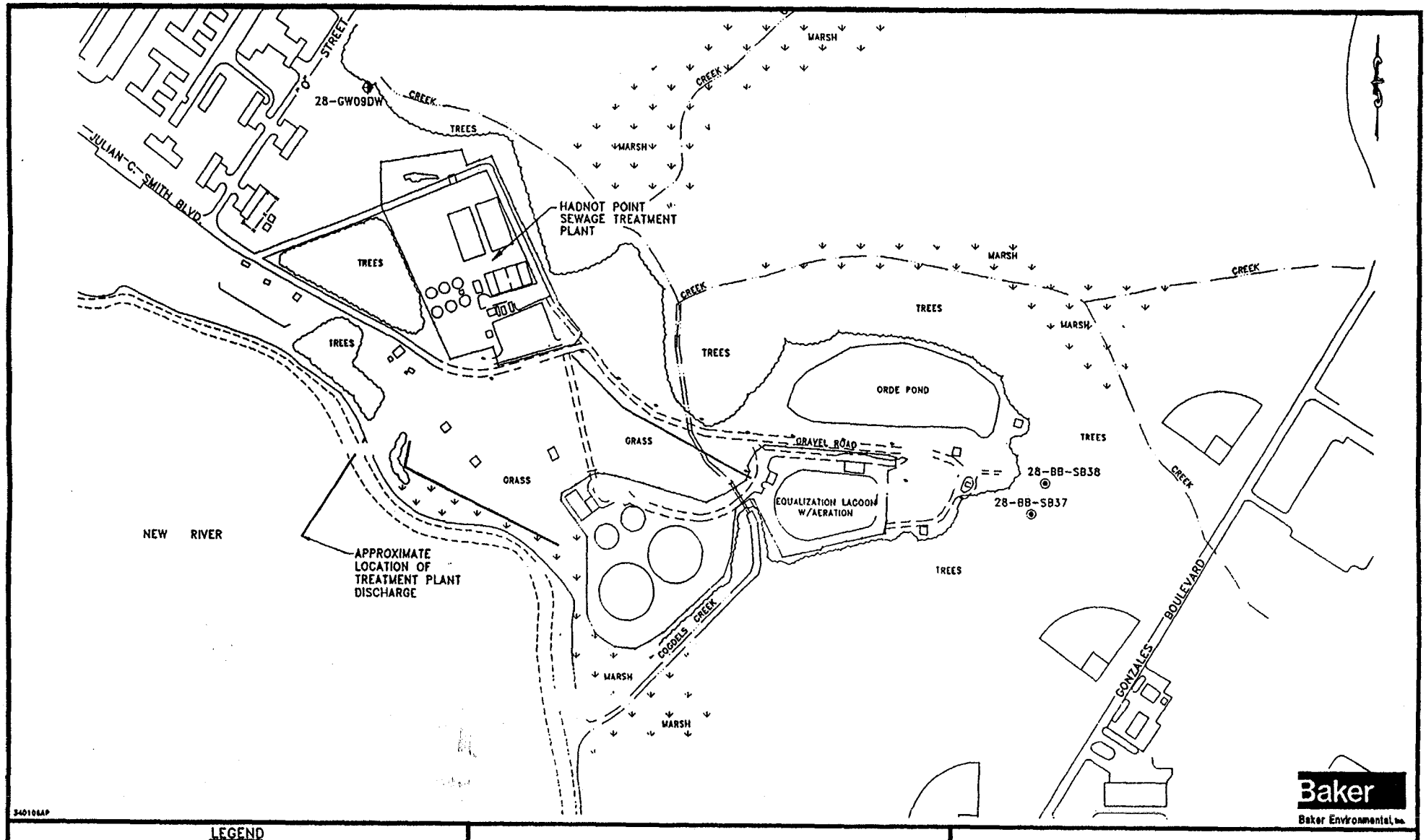
LEGEND

2-GW09 SOIL BORING FOR SHALLOW MONITORING WELL

SOURCE: LANTDIV, FEB. 1992

FIGURE 8
STUDY AREA
SITE 2
REMEDIAL INVESTIGATION CTO-0174

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



LEGEND

28-GW01DW NEWLY INSTALLED DEEP MONITORING WELL (BAKER, 1994)

SB37 SOIL BORING LOCATION

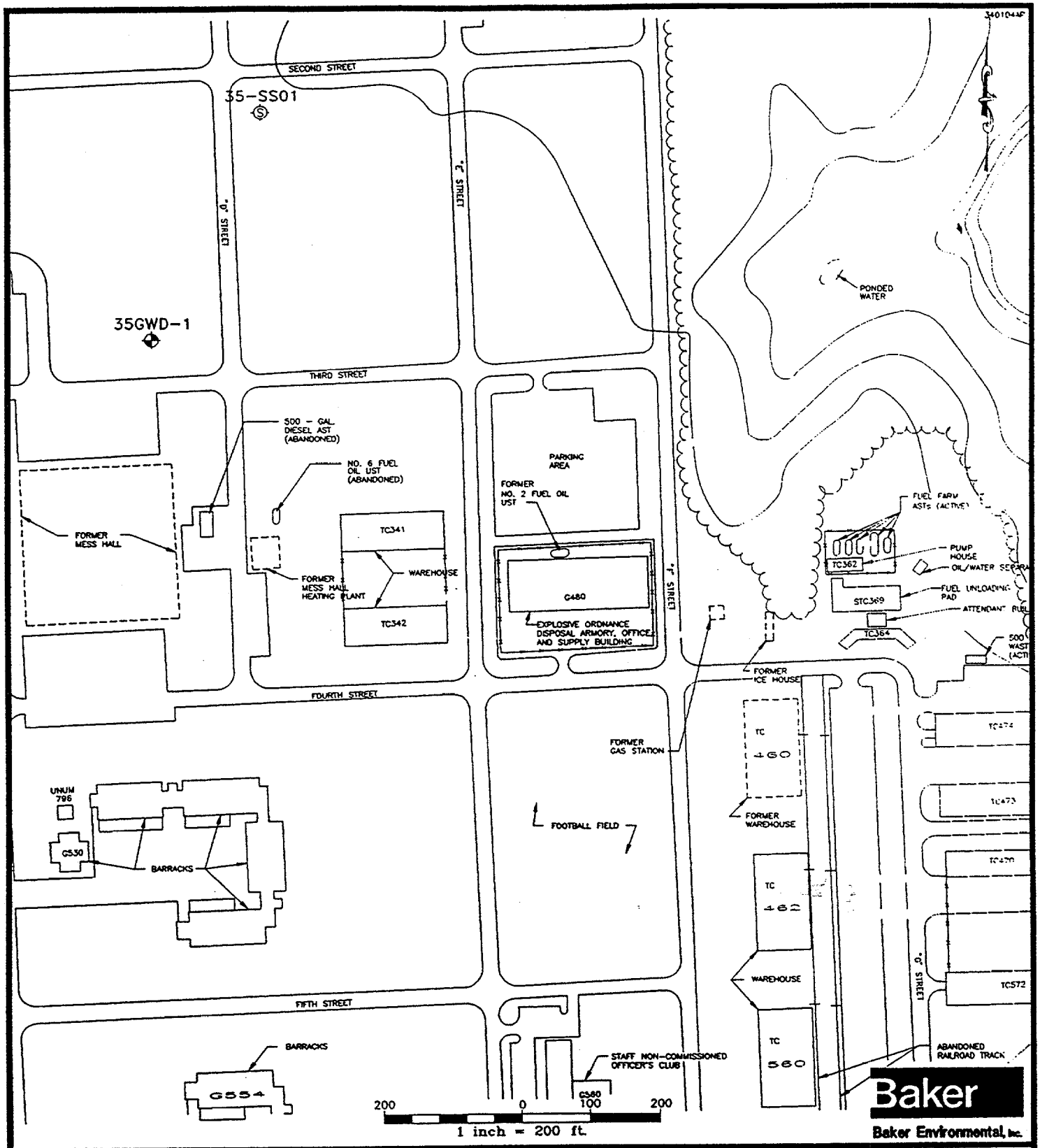
SOURCE: LANTDIV, FEBRUARY 1992 AND W.K. DICKSON, JUNE 1994

300 0 150 300 600

1 inch = 300 ft.

FIGURE 9
SHALLOW AND DEEP MONITORING WELL LOCATIONS
SITE 28 - HADNOT POINT BURN DUMP
REMEDIAL INVESTIGATION CTO-0231

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



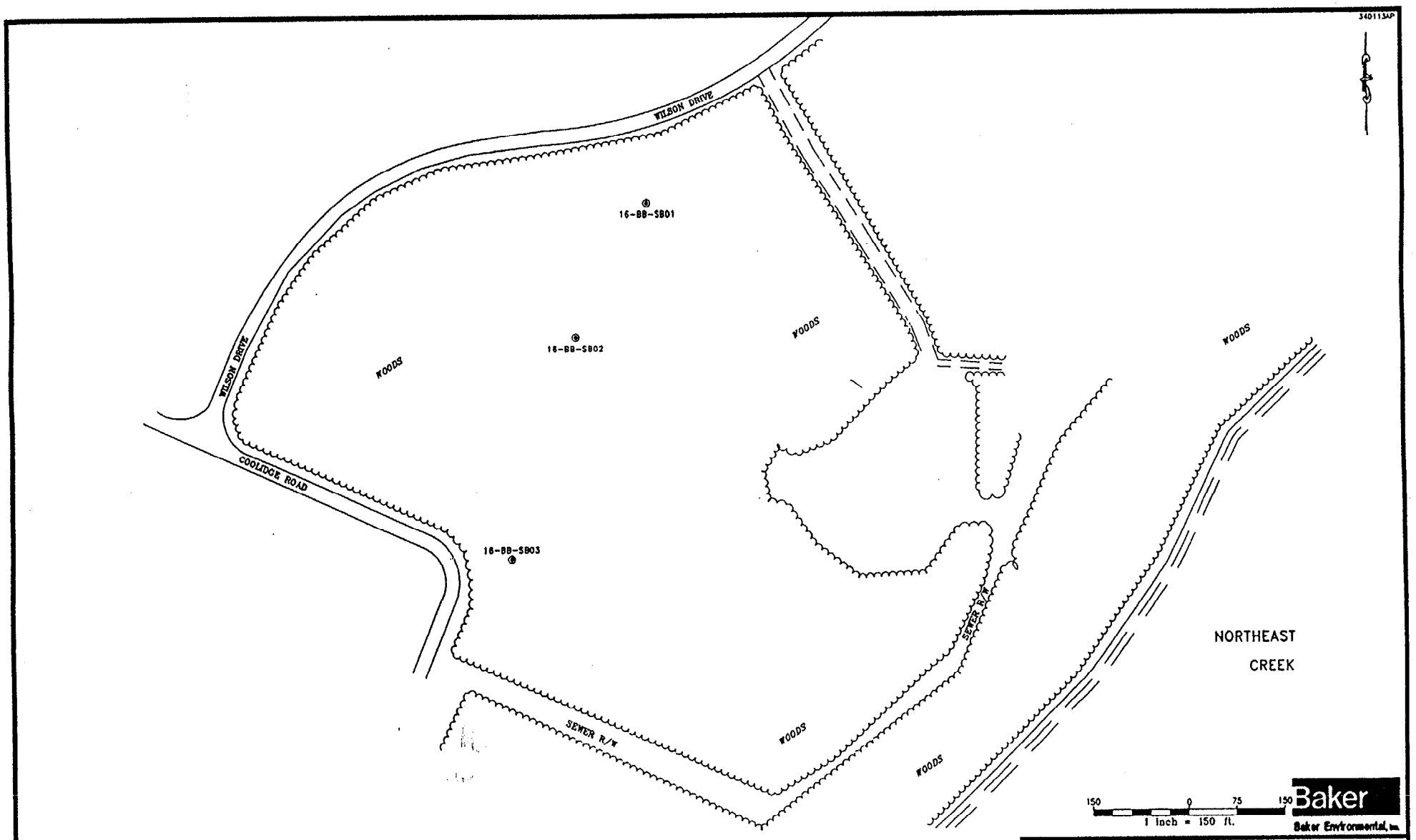
LEGEND

35-SS01 (S) SOIL BORING LOCATION

35GWD-1 ◆ SOIL BORING FOR SHALLOW MONITORING WELL

SOURCE: FEB. 1992

FIGURE 11
SAMPLING LOCATIONS
SITE 35, CAMP GEIGER
AREA FUEL FARM
CTO-0232
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

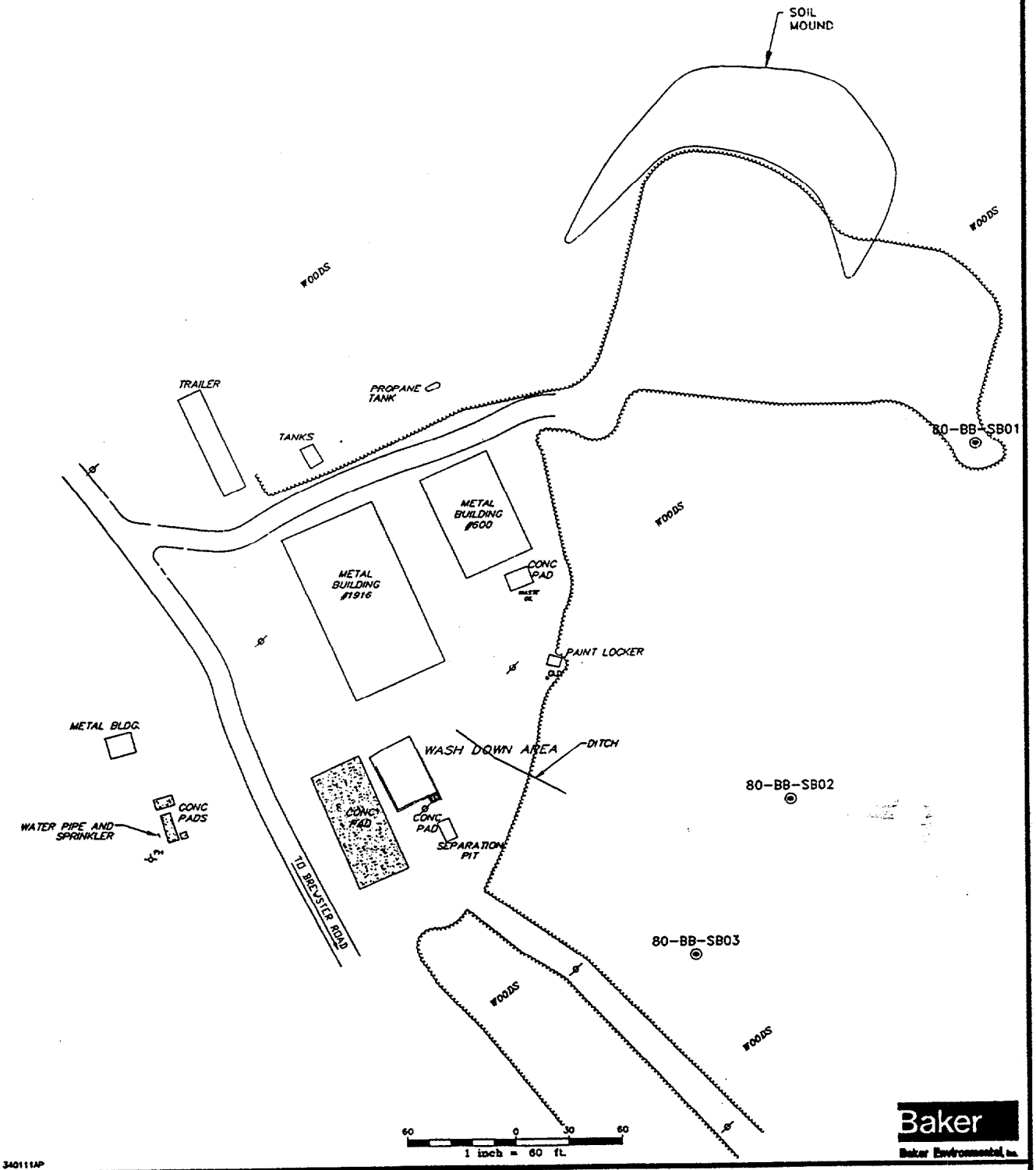


LEGEND

16-BB-SB03 SOIL BORING LOCATION

SOURCE: W.K. DICKSON & CO., INC., JANUARY 1995

FIGURE 13
SOIL SAMPLING LOCATIONS
SITE 16 - MONTFORD POINT BURN DUMP
REMEDIAL INVESTIGATION CTO-0274
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

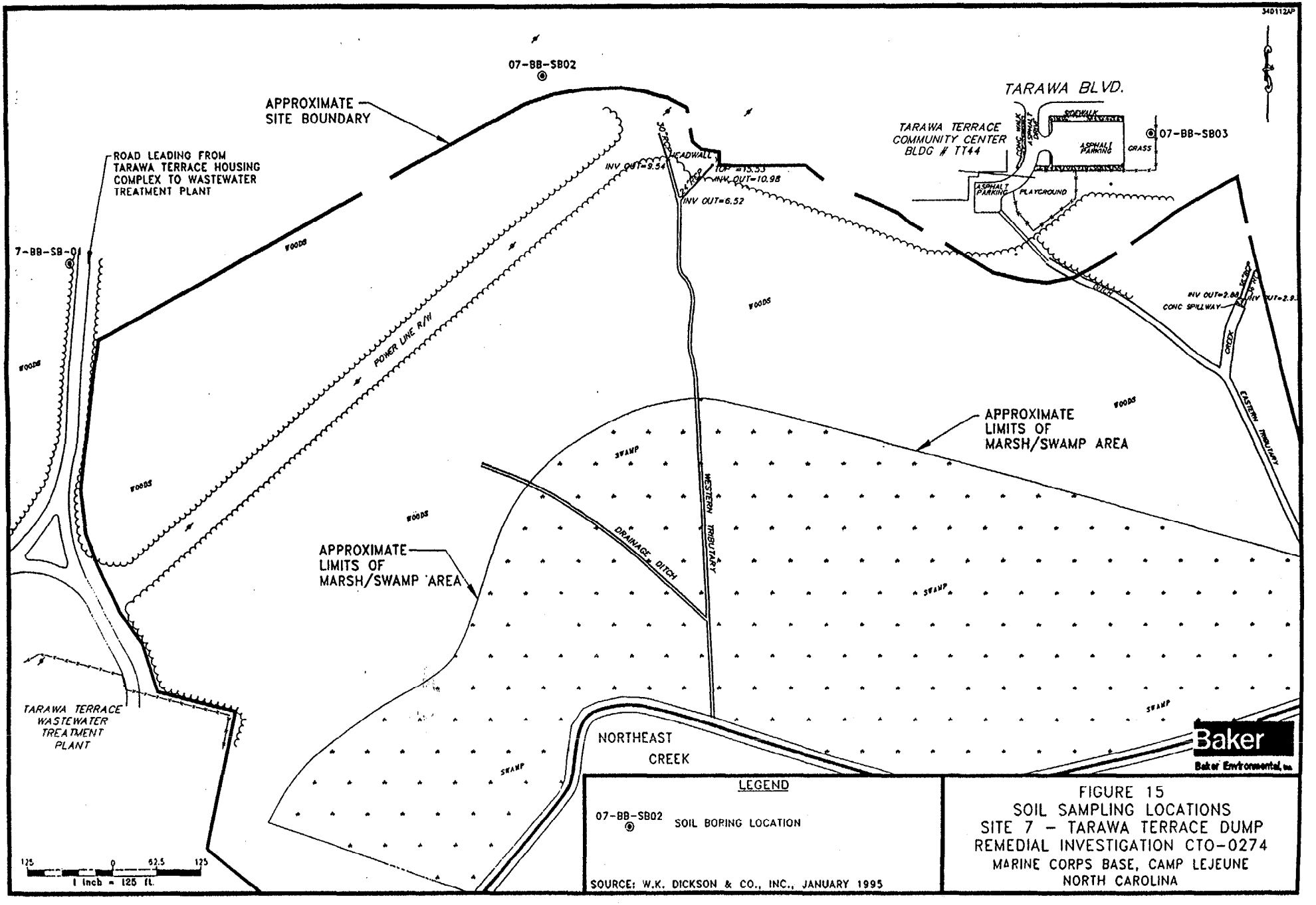


LEGEND

80-BB-SB01 ◉ SOIL BORING LOCATION (INSTALLED DURING THE FIRST PART OF THE SOIL INVESTIGATION NOVEMBER 1 THROUGH NOVEMBER 7, 1994).

SOURCE: W.K. DICKSON & CO., INC., JANUARY 1995

FIGURE 14
SOIL SAMPLING LOCATIONS
SITE 80 - PARADISE POINT
GOLF COURSE MAINTENANCE AREA
REMEDIAL INVESTIGATION CTO-0274
MARINE CORPS BASE, CAMP, LEJEUNE
NORTH CAROLINA


340112AP
07-BB-SB02
APPROXIMATE SITE BOUNDARY
ROAD LEADING FROM TARAWA TERRACE HOUSING COMPLEX TO WASTEWATER TREATMENT PLANT
7-BB-SB-01
WOODS
POWER LINE R/W
TARAWA BLVD.
SIDEWALK
TARAWA TERRACE COMMUNITY CENTER BLDG # TT44
ASPHALT PARKING
GRASS
07-BB-SB03
ASPHALT PARKING
PLAYGROUND
30" RCP
HEADWALL
TOP =15.53
INV OUT=10.98
INV OUT=9.54
24" RCP
INV OUT=6.52
INV OUT=2.68
CONC SPILLWAY
INV OUT=2.9
CREEK
EASTERN TRIBUTARY
APPROXIMATE LIMITS OF MARSH/SWAMP AREA
SWAMP
WESTERN TRIBUTARY
DRAINAGE DITCH
APPROXIMATE LIMITS OF MARSH/SWAMP AREA
TARAWA TERRACE WASTEWATER TREATMENT PLANT
NORTHEAST CREEK
125 0 62.5 125
1 inch = 125 ft.
Baker
Baker Environmental, Inc.
LEGEND
07-BB-SB02 SOIL BORING LOCATION
SOURCE: W.K. DICKSON & CO., INC., JANUARY 1995
FIGURE 15
SOIL SAMPLING LOCATIONS
SITE 7 – TARAWA TERRACE DUMP
REMEDIAL INVESTIGATION CTO-0274
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

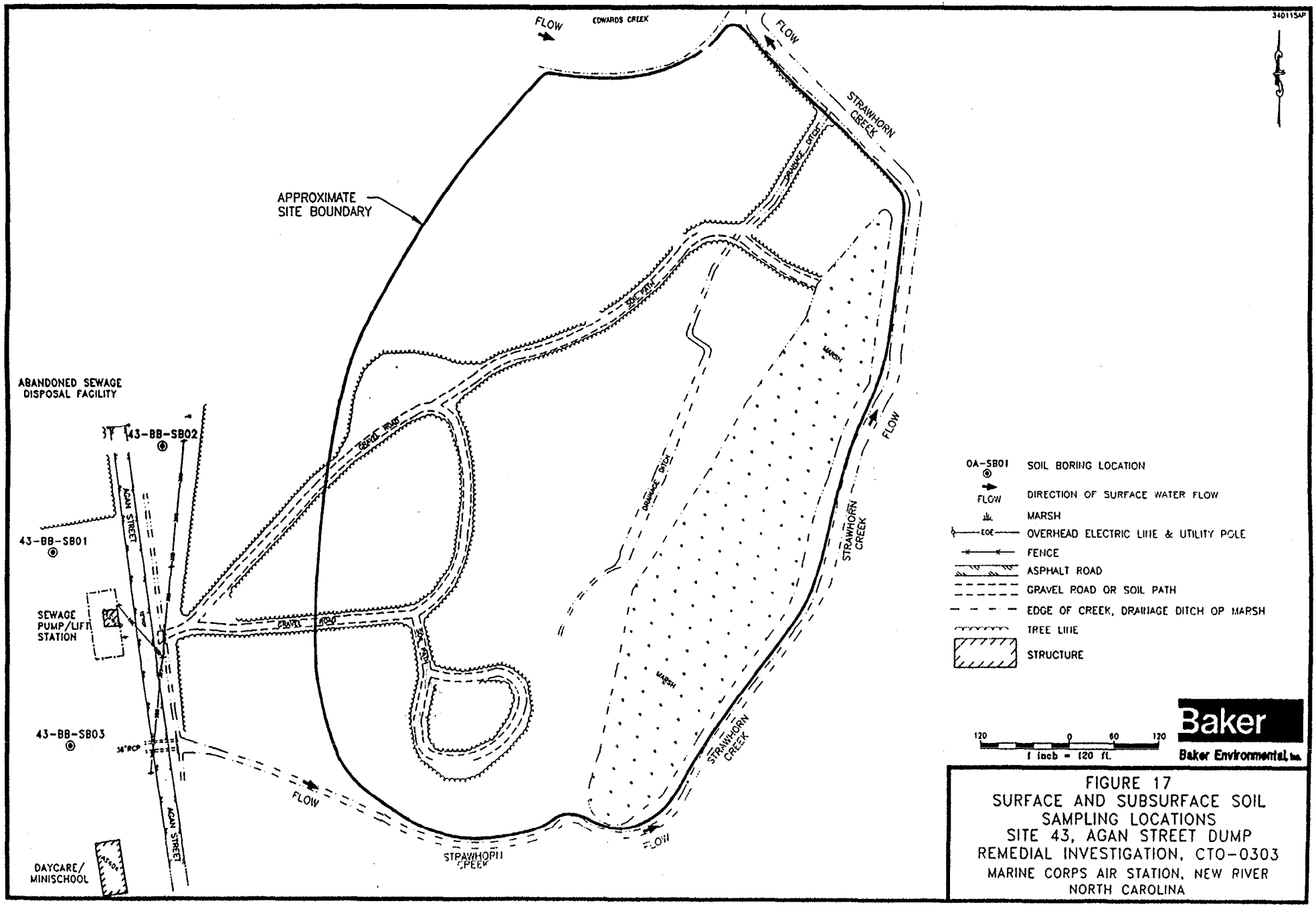


FIGURE 17
SURFACE AND SUBSURFACE SOIL SAMPLING LOCATIONS
SITE 43, AGAN STREET DUMP
REMEDIAL INVESTIGATION, CTO-0303
MARINE CORPS AIR STATION, NEW RIVER
NORTH CAROLINA

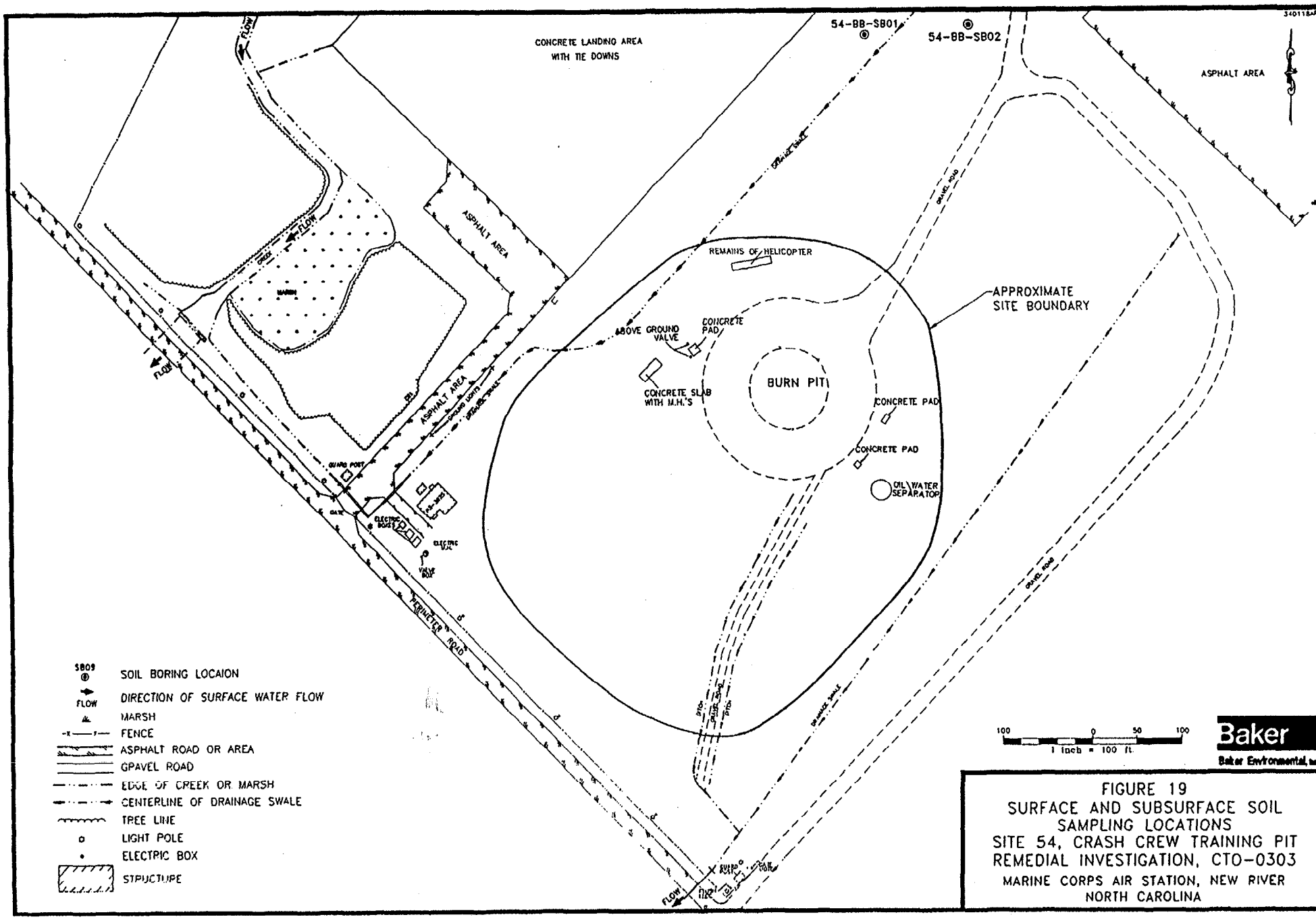
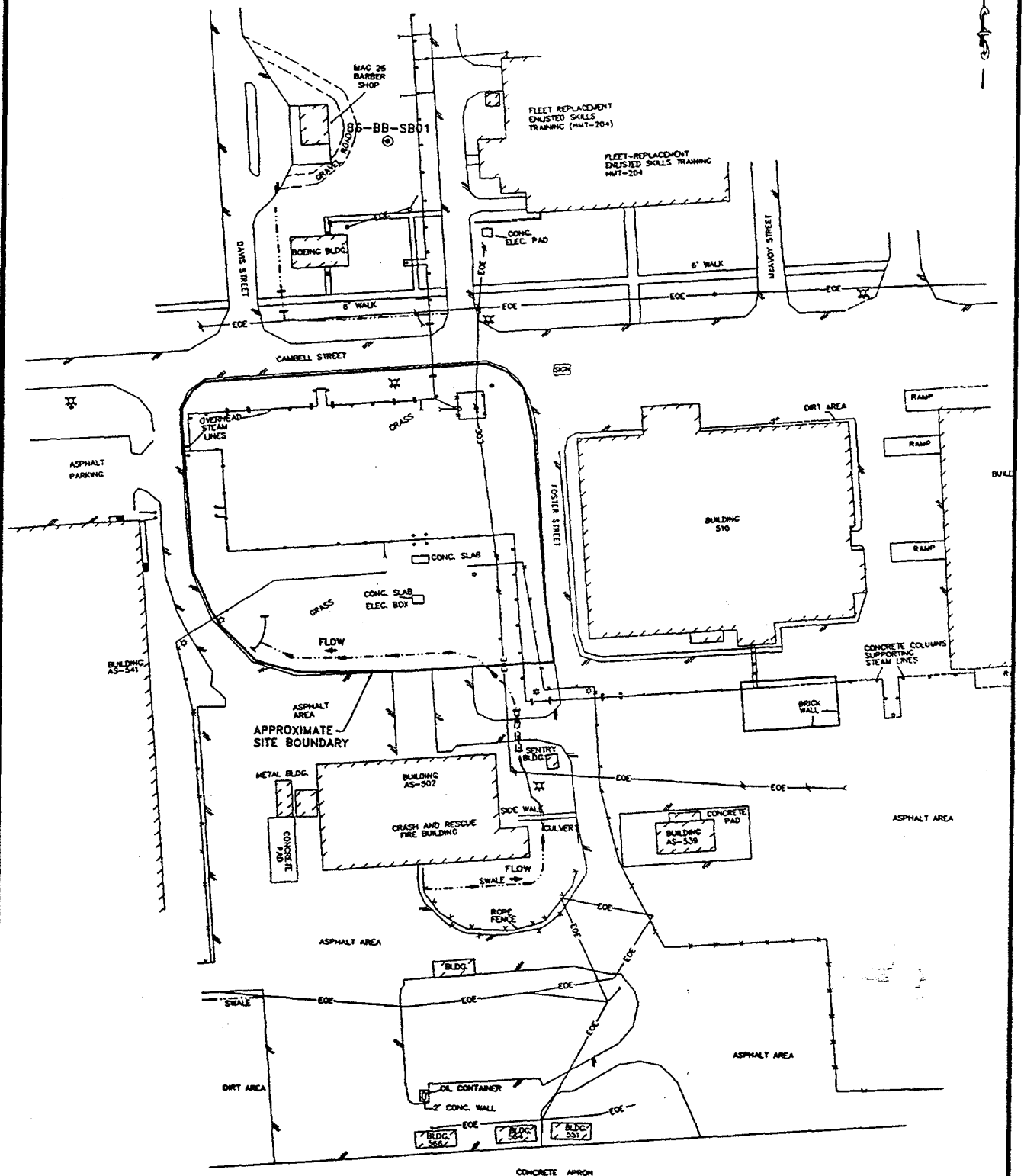


FIGURE 19
SURFACE AND SUBSURFACE SOIL
SAMPLING LOCATIONS
SITE 54, CRASH CREW TRAINING PIT
REMEDIAL INVESTIGATION, CTO-0303
MARINE CORPS AIR STATION, NEW RIVER
NORTH CAROLINA



340116AP

LEGEND

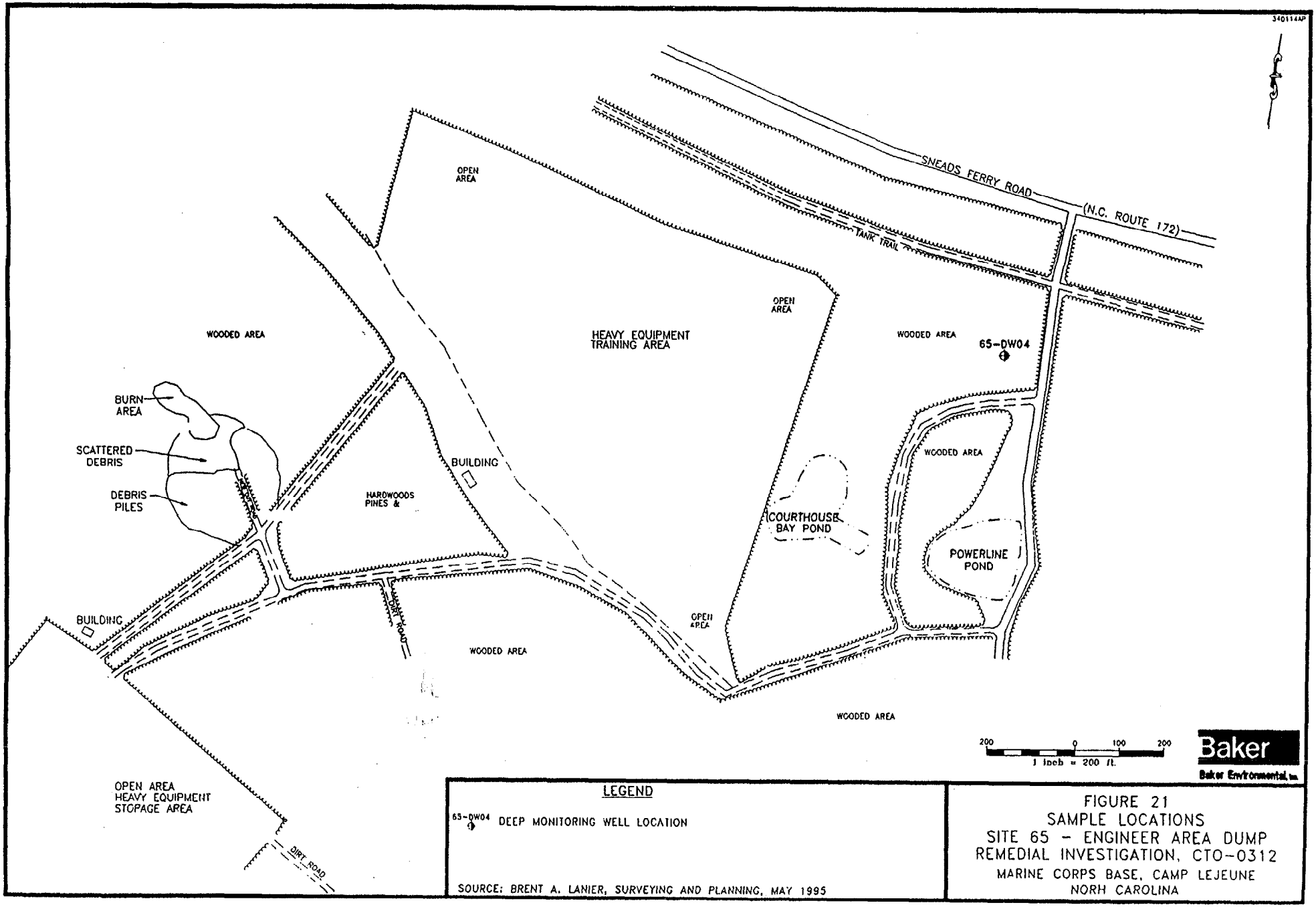
- SB09 — SOIL BORING LOCATION
- FLOW — DIRECTION OF SURFACE WATER FLOW
- OHE — OVERHEAD ELECTRIC LINE & UTILITY POLE
- ASPHALT ROAD
- CENTERLINE OF DRAINAGE SWALE
- LIGHTPOLE
- STRUCTURE
- FENCE
- GUY WIRE
- FIRE HYDRANT

SOURCE: LANTDIV, OCT. 1991

80 0 40 80
1 inch = 80 ft.

Baker
Baker Environmental Inc.

FIGURE 20
SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION
SITE 86, ABOVE GROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MARINE CORPS AIR STATION, NEW RIVER
BAMP LEJEUNE


340114AP
SNEADS FERRY ROAD
(N.C. ROUTE 172)
TANK TRAIL
OPEN AREA
WOODED AREA
HEAVY EQUIPMENT TRAINING AREA
OPEN AREA
WOODED AREA
65-DW04
BURN AREA
SCATTERED DEBRIS
DEBRIS PILES
BUILDING
HARDWOODS PINES &
COURTHOUSE BAY POND
WOODED AREA
POWERLINE POND
BUILDING
DIRT ROAD
OPEN AREA
WOODED AREA
WOODED AREA
OPEN AREA HEAVY EQUIPMENT STORAGE AREA
DIRT ROAD
200 0 100 200
1 inch = 200 ft.
Baker
Baker Environmental, Inc.
LEGEND
65-DW04 DEEP MONITORING WELL LOCATION
SOURCE: BRENT A. LANIER, SURVEYING AND PLANNING, MAY 1995
FIGURE 21
SAMPLE LOCATIONS
SITE 65 - ENGINEER AREA DUMP
REMEDIAL INVESTIGATION, CTO-0312
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

APPENDIX I
FREQUENCY OF DETECTION SUMMARY - ENVIRONMENTAL SAMPLES

SITE 12

SITE 12 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-GW01-01	12-GW02-01	12-GW03-01	12-GW04-01
DATE SAMPLED	1/29/96	1/29/96	1/30/96	1/30/96
VOLATILES (ug/L)				
CHLOROMETHANE	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U

SITE 12 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SEMIVOLATILES (ug/L)				
PHENOL	9 U	9 U	9 U	9 U
BIS(2-CHLOROETHYL)ETHER	9 U	9 U	9 U	9 U
2-CHLOROPHENOL	9 U	9 U	9 U	9 U
1,3-DICHLOROBENZENE	9 U	9 U	9 U	9 U
1,4-DICHLOROBENZENE	9 U	9 U	9 U	9 U
1,2-DICHLOROBENZENE	9 U	9 U	9 U	9 U
2-METHYLPHENOL	9 U	9 U	9 U	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U	9 U	9 U	9 U
4-METHYLPHENOL	9 U	9 U	9 U	9 U
N-NITROSO-DI-N-PROPYLAMINE	9 U	9 U	9 U	9 U
HEXACHLOROETHANE	9 U	9 U	9 U	9 U
NITROBENZENE	9 U	9 U	9 U	9 U
ISOPHORONE	9 U	9 U	9 U	9 U
2-NITROPHENOL	9 U	9 U	9 U	9 U
2,4-DIMETHYLPHENOL	9 U	9 U	9 U	9 U
BIS(2-CHLOROETHOXY)METHANE	9 U	9 U	9 U	9 U
2,4-DICHLOROPHENOL	9 U	9 U	9 U	9 U
1,2,4-TRICHLOROBENZENE	9 U	9 U	9 U	9 U
NAPHTHALENE	9 U	9 U	9 U	9 U
4-CHLOROANILINE	9 U	9 U	9 U	9 U
HEXACHLOROBUTADIENE	9 U	9 U	9 U	9 U
4-CHLORO-3-METHYLPHENOL	9 U	9 U	9 U	9 U
2-METHYLNAPHTHALENE	9 U	9 U	9 U	9 U
HEXACHLOROCYCLOPENTADIENE	9 U	9 U	9 U	9 U
2,4,6-TRICHLOROPHENOL	9 U	9 U	9 U	9 U
2,4,5-TRICHLOROPHENOL	23 U	23 U	23 U	23 U
2-CHLORONAPHTHALENE	9 U	9 U	9 U	9 U
2-NITROANILINE	23 U	23 U	23 U	23 U
DIMETHYLPHTHALATE	9 U	9 U	9 U	9 U
ACENAPHTHYLENE	9 U	9 U	9 U	9 U
2,6-DINITROTOLUENE	9 U	9 U	9 U	9 U
3-NITROANILINE	23 U	23 U	23 U	23 U
ACENAPHTHENE	9 U	9 U	9 U	9 U
2,4-DINITROPHENOL	23 U	23 U	23 U	23 U
4-NITROPHENOL	23 UJ	23 UJ	23 UJ	23 UJ
DIBENZOFURAN	9 U	9 U	9 U	9 U
2,4-DINITROTOLUENE	9 U	9 U	9 U	9 U

SITE 12 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SEMIVOLATILES (ug/L) cont.				
DIETHYLPHTHALATE	9 U	9 U	9 U	9 U
4-CHLOROPHENYL-PHENYLETHER	9 U	9 U	9 U	9 U
FLUORENE	9 U	9 U	9 U	9 U
4-NITROANILINE	23 U	23 U	23 U	23 U
4,6-DINITRO-2-METHYLPHENOL	23 U	23 U	23 U	23 U
N-NITROSODIPHENYLAMINE (1)	9 U	9 U	9 U	9 U
4-BROMOPHENYL-PHENYLETHER	9 U	9 U	9 U	9 U
HEXACHLOROBENZENE	9 U	9 U	9 U	9 U
PENTACHLOROPHENOL	23 U	23 U	23 U	23 U
PHENANTHRENE	9 U	9 U	9 U	9 U
ANTHRACENE	9 U	9 U	9 U	9 U
CARBAZOLE	9 U	9 U	9 U	9 U
DI-N-BUTYLPHTHALATE	9 U	9 U	9 U	9 U
FLUORANTHENE	9 U	9 U	9 U	9 U
PYRENE	9 U	9 U	9 U	9 U
BUTYLBENZYLPHTHALATE	9 U	9 U	9 U	9 U
3,3'-DICHLOROBENZIDINE	9 U	9 U	9 U	9 U
BENZO(A)ANTHRACENE	9 U	9 U	9 U	9 U
CHRYSENE	9 U	9 U	9 U	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	48 U	9 U	29 U	9 U
DI-N-OCTYL PHTHALATE	9 U	9 U	9 U	9 U
BENZO(B)FLUORANTHENE	9 U	9 U	9 U	9 U
BENZO(K)FLUORANTHENE	9 U	9 U	9 U	9 U
BENZO(A)PYRENE	9 U	9 U	9 U	9 U
INDENO(1,2,3-CD)PYRENE	9 U	9 U	9 U	9 U
DIBENZO(A,H)ANTHRACENE	9 U	9 U	9 U	9 U
BENZO(G,H,I)PERYLENE	9 U	9 U	9 U	9 U

SITE 12 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	12-SB01-02	12-SB05-01	12-SB14-01	12-SB17-01	12-SB25-01	12-SB30-01
DATE SAMPLED	1/9/96	1/9/96	1/12/96	1/11/96	1/10/96	1/9/96
DEPTH	2-3	0-3.6	0-3.2	0-3.3	0-3.6	0-3.7
BTEX (ug/kg)						
BENZENE	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U
TOLUENE	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U
ETHYLBENZENE	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U
XYLENE (TOTAL)	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U
TPH						
DIESEL FUEL (mg/kg)	5.2 U	4.4 U	5 U	5 U	4.5 U	4.5 U
OIL & GREASE, GRAV. (mg/kg)	605 U	516 U	588 U	592 U	523 U	531 U
GASOLINE (ug/kg)	37 U	32 U	36 U	36 U	33 U	33 U

SITE 68

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-00	68-GW04-00	68-GW04DW-00	68-GW05DW-00	68-GW06-00	68-GW06DW-00	68-SB01-00	68-SB02-00
DATE SAMPLED	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/15/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
VOLATILES (ug/kg)								
CHLOROMETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
BROMOMETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
VINYL CHLORIDE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
CHLOROETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
METHYLENE CHLORIDE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
ACETONE	11 U	11 U	12 U	18	16 U	12	13 U	12 U
CARBON DISULFIDE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,1-DICHLOROETHENE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,1-DICHLOROETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
CHLOROFORM	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,2-DICHLOROETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
2-BUTANONE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,1,1-TRICHLOROETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
CARBON TETRACHLORIDE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
BROMODICHLOROMETHANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
1,2-DICHLOROPROPANE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
TRICHLOROETHENE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	11 U	11 U	12 UJ	12 U	11 U	12 U	12 U	12 U
BENZENE	11 U	11 U	12 U	12 U	11 U	12 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	12 UJ	12 U	11 U	12 U	12 U	12 U
BROMOFORM	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
4-METHYL-2-PENTANONE	11 U	11 U	12 UJ	12 U	11 U	12 U	12 U	12 U
2-HEXANONE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
TETRACHLOROETHENE	11 U	11 U	12 UJ	12 U	11 U	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
TOLUENE	11 U	11 U	12 UJ	12 U	11 U	12 U	12 U	12 U
CHLOROBENZENE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
ETHYLBENZENE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
STYRENE	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U
XYLENE (TOTAL)	11 U	11 U	12 UJ	12 UJ	11 U	12 U	12 U	12 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-00	68-GW04-00	68-GW04DW-00	68-GW05DW-00	68-GW06-00	68-GW06DW-00	68-SB01-00	68-SB02-00
DATE SAMPLED	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/15/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg)								
PHENOL	360 U	360 U	78 J	410 U	380 U	380 U	390 U	410 U
BIS(2-CHLOROETHYL)ETHER	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2-CHLOROPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
1,3-DICHLOROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
1,4-DICHLOROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
1,2-DICHLOROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2-METHYLPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,2'-OXYBIS(1-CHLOROPROPANE)	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
4-METHYLPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
N-NITROSO-DI-N-PROPYLAMINE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
HEXACHLOROETHANE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
NITROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
ISOPHORONE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2-NITROPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,4-DIMETHYLPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
BIS(2-CHLOROETHOXY)METHAN	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,4-DICHLOROPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
1,2,4-TRICHLOROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
NAPHTHALENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
4-CHLOROANILINE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
HEXACHLOROBUTADIENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
4-CHLORO-3-METHYLPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2-METHYLNAPHTHALENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
HEXACHLOROCYCLOPENTADIE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,4,6-TRICHLOROPHENOL	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,4,5-TRICHLOROPHENOL	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
2-CHLORONAPHTHALENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2-NITROANILINE	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
DIMETHYLPHTHALATE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
ACENAPHTHYLENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,6-DINITROTOLUENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
3-NITROANILINE	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 UJ
ACENAPHTHENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-00	68-GW04-00	68-GW04DW-00	68-GW05DW-00	68-GW06-00	68-GW06DW-00	68-SB01-00	68-SB02-00
DATE SAMPLED	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/15/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	890 U	890 R	1000 R	1000 U	950 U	960 U	980 U	1000 U
4-NITROPHENOL	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
DIBENZOFURAN	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
2,4-DINITROTOLUENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
DIETHYLPHTHALATE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
4-CHLOROPHENYL-PHENYLETH	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
FLUORENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
4-NITROANILINE	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
N-NITROSODIPHENYLAMINE (1)	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
4-BROMOPHENYL-PHENYLETHE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
HEXACHLOROBENZENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
PENTACHLOROPHENOL	890 U	890 U	1000 U	1000 U	950 U	960 U	980 U	1000 U
PHENANTHRENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
ANTHRACENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
CARBAZOLE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
DI-N-BUTYLPHTHALATE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
FLUORANTHENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
PYRENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
BUTYLBENZYLPHTHALATE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
3,3'-DICHLOROBENZIDINE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
BENZO(A)ANTHRACENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
CHRYSENE	360 U	360 U	410 U	410 U	380 U	380 U	390 U	410 U
BIS(2-ETHYLHEXYL)PHTHALAT	92 J	360 U	54 J	410 U	380 U	380 U	390 U	410 U
DI-N-OCTYL PHTHALATE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
BENZO(B)FLUORANTHENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
BENZO(K)FLUORANTHENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
BENZO(A)PYRENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
INDENO(1,2,3-CD)PYRENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
DIBENZO(A,H)ANTHRACENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U
BENZO(G,H,I)PERYLENE	360 U	360 UJ	410 UJ	410 U	380 U	380 U	390 U	410 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-00	68-GW04-00	68-GW04DW-00	68-GW05DW-00	68-GW06-00	68-GW06DW-00	68-SB01-00	68-SB02-00
DATE SAMPLED	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/15/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 UJ
BETA-BHC	1.4 J	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
DELTA-BHC	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
GAMMA-BHC (LINDANE)	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
HEPTACHLOR	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
ALDRIN	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
HEPTACHLOR EPOXIDE	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
ENDOSULFAN I	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
DIELDRIN	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 UJ	4.2 U
4,4'-DDE	16	3.6 U	14	4.1 U	3.8 U	49	5.8	2.9 UJ
ENDRIN	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 UJ	4.2 U
ENDOSULFAN II	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U
4,4'-DDD	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U
ENDOSULFAN SULFATE	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U
4,4'-DDT	5	3.6 U	5.2 J	4.1 U	3.8 NJ	17	2.3 J	4.2 U
METHOXYCHLOR	18 U	18 U	20 U	21 U	19 U	19 U	20 U	21 UJ
ENDRIN KETONE	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U
ENDRIN ALDEHYDE	3.6 U	3.6 U	4 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U
ALPHA-CHLORDANE	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
GAMMA-CHLORDANE	1.8 U	1.8 U	2 U	2.1 U	1.9 U	1.9 U	2 U	2.1 U
TOXAPHENE	180 U	180 U	200 U	210 U	190 U	190 U	200 U	210 U
AROCLOR-1016	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U
AROCLOR-1221	71 U	72 U	80 U	82 U	76 U	77 U	78 U	83 U
AROCLOR-1232	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U
AROCLOR-1242	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U
AROCLOR-1248	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U
AROCLOR-1254	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U
AROCLOR-1260	36 U	36 U	40 U	41 U	38 U	39 U	39 U	42 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB03-00	68-SB04-00	68-SB05-00	68-SB06-00	68-SB07-00	68-SB08-00	68-SB09-00	68-SB10-00	68-SB11-00
DATE SAMPLED	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96	1/13/96	1/13/96	1/16/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
VOLATILES (ug/kg)									
CHLOROMETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMOMETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
VINYL CHLORIDE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
METHYLENE CHLORIDE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
ACETONE	12 U	13 U	11 U	12 U	15 U	16 U	14 U	14	11 U
CARBON DISULFIDE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROFORM	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
2-BUTANONE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1,1-TRICHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
CARBON TETRACHLORIDE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,2-DICHLOROPROPANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
TRICHLOROETHENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
BENZENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMOFORM	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
2-HEXANONE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
TETRACHLOROETHENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
TOLUENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROBENZENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
ETHYLBENZENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
STYRENE	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U
XYLENE (TOTAL)	12 U	12 U	11 U	12 U	12 U	11 U	12 U	12 U	11 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB03-00	68-SB04-00	68-SB05-00	68-SB06-00	68-SB07-00	68-SB08-00	68-SB09-00	68-SB10-00	68-SB11-00
DATE SAMPLED	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96	1/13/96	1/13/96	1/16/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg)									
PHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BIS(2-CHLOROETHYL)ETHER	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2-CHLOROPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
1,3-DICHLOROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
1,4-DICHLOROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
1,2-DICHLOROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2-METHYLPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-METHYLPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
HEXACHLOROETHANE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
NITROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
ISOPHORONE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2-NITROPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,4-DIMETHYLPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BIS(2-CHLOROETHOXY)METHAN	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,4-DICHLOROPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
1,2,4-TRICHLOROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
NAPHTHALENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-CHLOROANILINE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
HEXACHLOROBUTADIENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-CHLORO-3-METHYLPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2-METHYLNAPHTHALENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
HEXACHLOROCYCLOPENTADIE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,4,6-TRICHLOROPHENOL	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,4,5-TRICHLOROPHENOL	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
2-CHLORONAPHTHALENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2-NITROANILINE	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
DIMETHYLPHTHALATE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
ACENAPHTHYLENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,6-DINITROTOLUENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
3-NITROANILINE	1000 U	980 UJ	940 U	1000 U	1000 U	930 U	970 U	960 U	910 UJ
ACENAPHTHENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB03-00	68-SB04-00	68-SB05-00	68-SB06-00	68-SB07-00	68-SB08-00	68-SB09-00	68-SB10-00	68-SB11-00
DATE SAMPLED	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96	1/13/96	1/13/96	1/16/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg) cont.									
2,4-DINITROPHENOL	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
4-NITROPHENOL	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
DIBENZOFURAN	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
2,4-DINITROTOLUENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
DIETHYLPHTHALATE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-CHLOROPHENYL-PHENYLETH	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
FLUORENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-NITROANILINE	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
N-NITROSODIPHENYLAMINE (1)	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
4-BROMOPHENYL-PHENYLETHE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
HEXACHLOROBENZENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
PENTACHLOROPHENOL	1000 U	980 U	940 U	1000 U	1000 U	930 U	970 U	960 U	910 U
PHENANTHRENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
ANTHRACENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
CARBAZOLE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
DI-N-BUTYLPHTHALATE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
FLUORANTHENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
PYRENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BUTYLBENZYLPHTHALATE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
3,3'-DICHLOROBENZIDINE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BENZO(A)ANTHRACENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
CHRYSENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BIS(2-ETHYLHEXYL)PHTHALAT	410 U	390 U	370 U	400 U	400 U	370 U	160 J	380 U	360 U
DI-N-OCTYL PHTHALATE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BENZO(B)FLUORANTHENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BENZO(K)FLUORANTHENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BENZO(A)PYRENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
INDENO(1,2,3-CD)PYRENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
DIBENZO(A,H)ANTHRACENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U
BENZO(G,H,I)PERYLENE	410 U	390 U	370 U	400 U	400 U	370 U	390 U	380 U	360 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB03-00	68-SB04-00	68-SB05-00	68-SB06-00	68-SB07-00	68-SB08-00	68-SB09-00	68-SB10-00	68-SB11-00
DATE SAMPLED	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96	1/13/96	1/13/96	1/16/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
PESTICIDE/PCBS (ug/kg)									
ALPHA-BHC	2 U	2 UJ	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 UJ
BETA-BHC	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
DELTA-BHC	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
GAMMA-BHC (LINDANE)	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
HEPTACHLOR	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
ALDRIN	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
HEPTACHLOR EPOXIDE	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
ENDOSULFAN I	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
DIELDRIN	4 UJ	3.9 U	6.3 NJ	4 UJ	4 UJ	3.7 U	3.9 U	3.9 U	3.6 U
4,4'-DDE	4 U	3.9 UJ	12 J	110 J	4 U	3.7 U	13 J	170 J	4.6 J
ENDRIN	4 UJ	3.9 U	3.7 U	4 U	4 UJ	3.7 U	3.9 U	3.9 U	3.6 U
ENDOSULFAN II	4 U	3.9 U	3.7 U	4 U	4 U	3.7 U	3.9 U	3.9 U	3.6 U
4,4'-DDD	4 U	3.9 U	3.7 U	4 U	4 U	3.7 U	3.9 U	3.9 U	3.6 U
ENDOSULFAN SULFATE	4 U	3.9 U	3.7 U	4 U	4 U	3.7 U	3.9 U	3.9 U	3.6 U
4,4'-DDT	4 U	3.9 U	32 J	56 J	4 U	3.7 U	6.2	56	2.5 J
METHOXYCHLOR	20 U	20 UJ	19 UJ	20 U	20 U	18 U	19 U	20 U	18 UJ
ENDRIN KETONE	4 U	3.9 U	3.7 U	4 U	4 U	3.7 U	3.9 U	3.9 U	3.6 U
ENDRIN ALDEHYDE	4 U	3.9 U	3.7 U	4 U	4 U	3.7 U	3.9 U	3.9 U	3.6 U
ALPHA-CHLORDANE	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
GAMMA-CHLORDANE	2 U	2 U	1.9 U	2 U	2 U	1.8 U	1.9 U	2 U	1.8 U
TOXAPHENE	200 U	200 U	190 U	200 U	200 U	180 U	190 U	200 U	180 U
AROCLOR-1016	40 U	39 U	37 U	40 U	40 U	37 U	39 U	39 U	36 U
AROCLOR-1221	81 U	78 U	74 U	79 U	80 U	74 U	78 U	79 U	71 U
AROCLOR-1232	40 U	39 U	37 U	40 U	40 U	37 U	39 U	39 U	36 U
AROCLOR-1242	40 U	39 U	37 U	40 U	40 U	37 U	39 U	39 U	36 U
AROCLOR-1248	40 U	39 U	37 U	40 U	40 U	37 U	39 U	39 U	36 U
AROCLOR-1254	40 U	39 U	37 U	40 U	40 U	37 U	39 U	39 U	36 U
AROCLOR-1260	40 U	39 U	290	40 U	40 U	37 U	39 U	39 U	36 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB12-00	68-SB13-00	68-SB14-00	68-SB15-00	68-SB16-00	68-SB17-00	68-SB18-00
DATE SAMPLED	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
VOLATILES (ug/kg)							
CHLOROMETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
BROMOMETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
VINYL CHLORIDE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
METHYLENE CHLORIDE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
ACETONE	12 U	11 U	11 U	11 U	14 U	11 U	11 U
CARBON DISULFIDE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1-DICHLOROETHENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1-DICHLOROETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROFORM	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
2-BUTANONE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1,1-TRICHLOROETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
CARBON TETRACHLORIDE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
BROMODICHLOROMETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROPROPANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
CIS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
TRICHLOROETHENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
DIBROMOCHLOROMETHANE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
1,1,2-TRICHLOROETHANE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
BENZENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
BROMOFORM	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
4-METHYL-2-PENTANONE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
2-HEXANONE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
TETRACHLOROETHENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
TOLUENE	12 U	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROBENZENE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
ETHYLBENZENE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
STYRENE	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U
XYLENE (TOTAL)	12 U	11 U	11 UJ	11 U	11 U	11 U	11 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB12-00	68-SB13-00	68-SB14-00	68-SB15-00	68-SB16-00	68-SB17-00	68-SB18-00
DATE SAMPLED	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg)							
PHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BIS(2-CHLOROETHYL)ETHER	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2-CHLOROPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
1,3-DICHLOROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
1,4-DICHLOROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
1,2-DICHLOROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2-METHYLPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-METHYLPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
HEXACHLOROETHANE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
NITROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
ISOPHORONE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2-NITROPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,4-DIMETHYLPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BIS(2-CHLOROETHOXY)METHAN	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,4-DICHLOROPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
1,2,4-TRICHLOROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
NAPHTHALENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-CHLOROANILINE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
HEXACHLOROBUTADIENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-CHLORO-3-METHYLPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2-METHYLNAPHTHALENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
HEXACHLOROCYCLOPENTADIE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,4,6-TRICHLOROPHENOL	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,4,5-TRICHLOROPHENOL	990 U	940 U	940 U	910 U	920 U	900 U	910 U
2-CHLORONAPHTHALENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2-NITROANILINE	990 U	940 U	940 U	910 U	920 U	900 U	910 U
DIMETHYLPHTHALATE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
ACENAPHTHYLENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,6-DINITROTOLUENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
3-NITROANILINE	990 UJ	940 U	940 U	910 U	920 U	900 U	910 UJ
ACENAPHTHENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB12-00	68-SB13-00	68-SB14-00	68-SB15-00	68-SB16-00	68-SB17-00	68-SB18-00
DATE SAMPLED	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg) cont.							
2,4-DINITROPHENOL	990 U	940 U	940 U	910 U	920 U	900 U	910 U
4-NITROPHENOL	990 U	940 U	940 U	910 U	920 U	900 U	910 U
DIBENZOFURAN	400 U	370 U	380 U	360 U	370 U	360 U	360 U
2,4-DINITROTOLUENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
DIETHYLPHTHALATE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-CHLOROPHENYL-PHENYLETH	400 U	370 U	380 U	360 U	370 U	360 U	360 U
FLUORENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-NITROANILINE	990 U	940 U	940 U	910 U	920 U	900 U	910 U
4,6-DINITRO-2-METHYLPHENOL	990 U	940 U	940 U	910 U	920 U	900 U	910 U
N-NITROSODIPHENYLAMINE (1)	400 U	370 U	380 U	360 U	370 U	360 U	360 U
4-BROMOPHENYL-PHENYLETHE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
HEXACHLOROBENZENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
PENTACHLOROPHENOL	990 U	940 U	940 U	910 U	920 U	900 U	910 U
PHENANTHRENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
ANTHRACENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
CARBAZOLE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
DI-N-BUTYLPHTHALATE	400 U	370 U	380 U	360 U	44 J	360 U	360 U
FLUORANTHENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
PYRENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BUTYLBENZYLPHTHALATE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
3,3'-DICHLOROBENZIDINE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BENZO(A)ANTHRACENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
CHRYSENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BIS(2-ETHYLHEXYL)PHTHALAT	400 U	370 U	380 U	49 J	370 U	360 U	360 U
DI-N-OCTYL PHTHALATE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BENZO(B)FLUORANTHENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BENZO(K)FLUORANTHENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BENZO(A)PYRENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
INDENO(1,2,3-CD)PYRENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
DIBENZO(A,H)ANTHRACENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U
BENZO(G,H,I)PERYLENE	400 U	370 U	380 U	360 U	370 U	360 U	360 U

SITE 68 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB12-00	68-SB13-00	68-SB14-00	68-SB15-00	68-SB16-00	68-SB17-00	68-SB18-00
DATE SAMPLED	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
PESTICIDE/PCBS (ug/kg)							
ALPHA-BHC	2 UJ	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 UJ
BETA-BHC	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
DELTA-BHC	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
GAMMA-BHC (LINDANE)	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
HEPTACHLOR	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
ALDRIN	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
HEPTACHLOR EPOXIDE	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
ENDOSULFAN I	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
DIELDRIN	4 U	3.8 UJ	3.8 UJ	3.6 U	3.6 UJ	3.7 UJ	3.7 U
4,4'-DDE	4 UJ	3.8 U	4.5 J	74	3.6 U	3.7 U	3.7 UJ
ENDRIN	4 U	3.8 U	3.8 U	3.6 U	3.6 UJ	3.7 U	3.7 U
ENDOSULFAN II	4 U	3.8 U	3.8 U	3.6 U	3.6 U	3.7 U	3.7 U
4,4'-DDD	4 U	3.8 U	3.8 U	3.6 U	3.6 U	3.7 U	3.7 U
ENDOSULFAN SULFATE	4 U	3.8 U	3.8 U	3.6 U	3.6 U	3.7 U	3.7 U
4,4'-DDT	4 U	3.8 U	3.4 J	14	3.6 U	3.7 U	3.7 U
METHOXYCHLOR	20 UJ	19 U	19 U	18 U	18 U	18 J	18 UJ
ENDRIN KETONE	4 U	3.8 U	3.8 U	3.6 U	3.6 U	3.7 U	3.7 U
ENDRIN ALDEHYDE	4 U	3.8 U	3.8 U	3.6 U	3.6 U	3.7 U	3.7 U
ALPHA-CHLORDANE	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
GAMMA-CHLORDANE	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
TOXAPHENE	200 U	190 U	190 U	180 U	180 U	180 U	180 U
AROCLOR-1016	40 U	38 U	38 U	36 U	36 U	37 U	37 U
AROCLOR-1221	79 U	75 U	75 U	73 U	73 U	74 U	74 U
AROCLOR-1232	40 U	38 U	38 U	36 U	36 U	37 U	37 U
AROCLOR-1242	40 U	38 U	38 U	36 U	36 U	37 U	37 U
AROCLOR-1248	40 U	38 U	38 U	36 U	36 U	37 U	37 U
AROCLOR-1254	40 U	38 U	38 U	36 U	36 U	37 U	37 U
AROCLOR-1260	40 U	38 U	38 U	36 U	36 U	37 U	37 U

SITE 68 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-00	68-GW04-00	68-GW04DW-00	68-GW05DW-00	68-GW06-00	68-GW06DW-00	68-SB01-00	68-SB02-00
DATE SAMPLED	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/15/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	1200	2500	1850	6610	6580	7250	5390	4980
ANTIMONY, TOTAL	3.4 UJ	4.5 J	4.1 UJ	4.4 UJ	4.4 UJ	3.6 UJ	3.9 UJ	3.5 UJ
ARSENIC, TOTAL	0.35	0.46 J	0.31	0.44	0.39	0.82	0.27	0.42
BARIUM, TOTAL	3.5	10.7	16.4	26.4 J	20.6 J	24.1 J	17.5	15.6
BERYLLIUM, TOTAL	0.14 U	0.29 U	0.17 U	0.57	0.59	0.45	0.2	0.16
CADMIUM, TOTAL	0.37 U	0.44 U	0.46 U	0.49 U	0.49 U	0.4 U	0.43 U	0.39 U
CALCIUM, TOTAL	43.2 U	119	615	104	196	262	82.4	58.6
CHROMIUM, TOTAL	1.2	1.9	1.7	3.8	3.3	3.9	2.8	4.1
COBALT, TOTAL	0.51 U	0.6 U	0.62 U	0.91	1.3	1	1	0.87
COPPER, TOTAL	0.69	7.2	1.1	0.88	2.1	2	0.92	0.9
IRON, TOTAL	839	730	695	1800	1220	1470	1320	2630
LEAD, TOTAL	5	19.2	14.8	9.7 J	9.1 J	10.5 J	8.4 J	7.7
MAGNESIUM, TOTAL	40	62.1	117	204	136	173	140	187
MANGANESE, TOTAL	8.2	39	56.2	26	125	147	27.3	7.6
MERCURY, TOTAL	0.04 U	0.04 U	0.05	0.06 U	0.05 U	0.05 U	0.047 U	0.05 U
NICKEL, TOTAL	1.9 U	2.2 U	2.3 U	2.5 U	3.4	2.8	2.6	2 U
POTASSIUM, TOTAL	141 U	164 U	172 U	183 U	185 U	150 U	162 U	199
SELENIUM, TOTAL	0.25 U	0.28 U	0.27 U	0.26 U	0.24 U	0.24 U	0.22 U	0.24
SILVER, TOTAL	0.53 U	0.61 U	0.64 U	0.68 U	0.69 U	0.56 U	0.61 U	0.54 U
SODIUM, TOTAL	8.5 U	11.6 U	14.7 U	13.7	12.4	19.4	16.5 U	13.9
THALLIUM, TOTAL	0.17 UJ	0.19 UJ	0.19 UJ	0.33 U	0.31 U	0.31 U	0.29 UJ	0.3 UJ
VANADIUM, TOTAL	2.5	2.6	5.9	5	3.2	4.5	4.1	6.1
ZINC, TOTAL	1.8	21	7.2	5.4	9.4	10	4.8	5.9

SITE 68 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB03-00	68-SB04-00	68-SB05-00	68-SB06-00	68-SB07-00	68-SB08-00	68-SB09-00	68-SB10-00	68-SB11-00
DATE SAMPLED	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96	1/13/96	1/13/96	1/16/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
TOTAL METALS (mg/kg)									
ALUMINUM, TOTAL	7460	4520	2220	2550	5060	5500	1910	1400	2780
ANTIMONY, TOTAL	3.8 UJ	4.1 UJ	3.8 UJ	3.4 UJ	3.8 UJ	4.4 UJ	3.8 UJ	4.6 UJ	3.7 UJ
ARSENIC, TOTAL	0.52	0.87	0.62 J	0.84 J	0.46 J	0.49	0.24	0.62	0.14
BARIUM, TOTAL	28.8	16.4	7.1	12.9	23.4	16.4 J	9.4 J	10.9 J	10.3
BERYLLIUM, TOTAL	0.53	0.16 U	0.15 U	0.14 U	0.52	0.55	0.15 U	0.19 U	0.15 U
CADMIUM, TOTAL	0.44	0.45 U	0.42 U	0.37 U	0.42 U	0.49 U	0.42 U	0.51 U	0.41 U
CALCIUM, TOTAL	78	225	46.8	430	102	90.8	197	1250	45.8
CHROMIUM, TOTAL	3.8	3.9	1.5	4	2.9	2.5	1.7	2.5	1.7
COBALT, TOTAL	1	0.85	0.58 U	0.51 U	0.57 U	1.1	0.58 U	0.7 U	0.56 U
COPPER, TOTAL	0.64	1.8	1.4	1.4	0.45	1.8	0.94	3.5	0.56
IRON, TOTAL	2670	982	722	2990	1940	781	452	856	609
LEAD, TOTAL	8.7 J	12.6 J	8.3	6	9.2 J	9.2 J	5.4 J	10.3 J	4
MAGNESIUM, TOTAL	213	95	51.1	88.5	170	102	57.7	73.6	53.2
MANGANESE, TOTAL	11.6	29.4	25	15.9	12.1	162	78.1	32.8	12.9
MERCURY, TOTAL	0.061 U	0.06 U	0.07 U	0.06 U	0.049 U	0.05 U	0.04 U	0.05 U	0.05 U
NICKEL, TOTAL	3.8	2.3 U	2.2 U	2	2.2 U	3.5	2.2 U	3.1	2.1 U
POTASSIUM, TOTAL	158 U	170 U	159 U	141 U	158 U	183 U	160 U	194 U	153 U
SELENIUM, TOTAL	0.32 U	0.23 U	0.27 U	0.28 U	0.29 U	0.24 U	0.26 U	0.25 U	0.2 U
SILVER, TOTAL	0.59 U	0.64 U	0.6 U	0.53 U	0.59 U	0.69 U	0.6 U	0.73 U	0.57 U
SODIUM, TOTAL	14.6 U	11.2	12.8 U	16.1 U	11.2 U	9.4	8.7	34.2	5.7
THALLIUM, TOTAL	0.42 UJ	0.31 UJ	0.35 U	0.36 U	0.38 UJ	0.31 U	0.34 U	0.33 U	0.27 UJ
VANADIUM, TOTAL	5	5.7	2.6	8.2	4.8	2.2	2.7	5.7	2.3
ZINC, TOTAL	6.6	7.6	4.3	4.1 U	5	8.5	4.3	8.7	7.4

SITE 68 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB12-00	68-SB13-00	68-SB14-00	68-SB15-00	68-SB16-00	68-SB17-00	68-SB18-00
DATE SAMPLED	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96	1/15/96
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
TOTAL METALS (mg/kg)							
ALUMINUM, TOTAL	4920	3800	1230	1670	5580	3140	4690
ANTIMONY, TOTAL	3.2 UJ	3.3 UJ	4.3 UJ	4.2 UJ	3.6 UJ	3 UJ	3 UJ
ARSENIC, TOTAL	0.45	0.17 UJ	0.27 J	0.43	0.8 J	0.17 UJ	0.37
BARIUM, TOTAL	20.3	8.4	3	5.5 J	14.3	13.6	13.2
BERYLLIUM, TOTAL	0.21	0.13 U	0.17 U	0.17 U	0.21	0.12 U	0.35
CADMIUM, TOTAL	0.36 U	0.36 U	0.48 U	0.47 U	0.4 U	0.33 U	0.33 U
CALCIUM, TOTAL	78.3	50.1	70.1	8530	58.7	57.8	125
CHROMIUM, TOTAL	2.9	1.5	0.86	2.6	2.9	1.1	1.9
COBALT, TOTAL	0.6	0.62	0.65 U	0.64 U	1	0.49	0.64
COPPER, TOTAL	0.93	0.33 U	0.44	1.7	1.8	0.66	1.5
IRON, TOTAL	1920	631	612	1030	900	364	829
LEAD, TOTAL	7.8	5.6	122	18.2 J	10.3 J	5.7	6.5
MAGNESIUM, TOTAL	144	52.2	32.4	198	90.6	47.1	82.7
MANGANESE, TOTAL	67.2	49.8	2.1	14.6	76.6	67.2	99.5
MERCURY, TOTAL	0.05 U	0.07 U	0.07 U	0.04 U	0.044 U	0.05 U	0.05 U
NICKEL, TOTAL	2.1	2.9	2.5 U	2.4 U	3	2.5	2
POTASSIUM, TOTAL	135 U	137 U	181 U	176 U	150 U	125 U	125 U
SELENIUM, TOTAL	0.24 U	0.24 U	0.26 U	0.22 U	0.27 U	0.24 U	0.27 U
SILVER, TOTAL	0.51 U	0.51 U	0.68 U	0.66 U	0.56 U	0.47 U	0.47 U
SODIUM, TOTAL	8.7	9.2 U	10.7 U	28.4	12.1 U	8 U	10
THALLIUM, TOTAL	0.32 UJ	0.32 U	0.34 U	0.29 U	0.36 UJ	0.32 U	0.36 UJ
VANADIUM, TOTAL	4.7	2.5	1.8	4	3.8	1.2	2.5
ZINC, TOTAL	4.7	3.8 U	2.8 U	10.1	10.4	2.9 U	6.7

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB01-09	68-SB02-06	68-SB03-07	68-SB04-10	68-SB05-08	68-SB06-08	68-SB07-07	68-SB08-06
DATE SAMPLED	1/15/96	1/15/96	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96
DEPTH	17-19	11-13	13-15	19-21	15-17	15-17	13-15	11-13
VOLATILES (ug/kg)								
CHLOROMETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
BROMOMETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
VINYL CHLORIDE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
CHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
METHYLENE CHLORIDE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
ACETONE	21 U	13 U	13 U	89 U	14 U	13 U	20 U	13 U
CARBON DISULFIDE	13 U	13 U	13 U	16	14 U	13 U	13 U	13 U
1,1-DICHLOROETHENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,1-DICHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,2-DICHLOROETHENE (TOTAL)	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
CHLOROFORM	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,2-DICHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
2-BUTANONE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,1,1-TRICHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
CARBON TETRACHLORIDE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
BROMODICHLOROMETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,2-DICHLOROPROPANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
CIS-1,3-DICHLOROPROPENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
TRICHLOROETHENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
DIBROMOCHLOROMETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,1,2-TRICHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
BENZENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
TRANS-1,3-DICHLOROPROPENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
BROMOFORM	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
4-METHYL-2-PENTANONE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
2-HEXANONE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
TETRACHLOROETHENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
1,1,2,2-TETRACHLOROETHANE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
TOLUENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
CHLOROBENZENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
ETHYLBENZENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
STYRENE	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U
XYLENE (TOTAL)	13 U	13 U	13 U	14 U	14 U	13 U	13 U	13 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB01-09	68-SB02-06	68-SB03-07	68-SB04-10	68-SB05-08	68-SB06-08	68-SB07-07	68-SB08-06
DATE SAMPLED	1/15/96	1/15/96	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96
DEPTH	17-19	11-13	13-15	19-21	15-17	15-17	13-15	11-13
SEMIVOLATILES (ug/kg)								
PHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BIS(2-CHLOROETHYL)ETHER	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2-CHLOROPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
1,3-DICHLOROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
1,4-DICHLOROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
1,2-DICHLOROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2-METHYLPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-METHYLPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
HEXACHLOROETHANE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
NITROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
ISOPHORONE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2-NITROPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,4-DIMETHYLPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BIS(2-CHLOROETHOXY)METHAN	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,4-DICHLOROPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
1,2,4-TRICHLOROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
NAPHTHALENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-CHLOROANILINE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
HEXACHLOROBUTADIENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-CHLORO-3-METHYLPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2-METHYLNAPHTHALENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
HEXACHLOROCYCLOPENTADIE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,4,6-TRICHLOROPHENOL	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,4,5-TRICHLOROPHENOL	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
2-CHLORONAPHTHALENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2-NITROANILINE	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
DIMETHYLPHTHALATE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
ACENAPHTHYLENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,6-DINITROTOLUENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
3-NITROANILINE	1100 U	1100 UJ	1100 UJ	1100 U	1100 U	1100 U	1000 U	1000 U
ACENAPHTHENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB01-09	68-SB02-06	68-SB03-07	68-SB04-10	68-SB05-08	68-SB06-08	68-SB07-07	68-SB08-06
DATE SAMPLED	1/15/96	1/15/96	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96
DEPTH	17-19	11-13	13-15	19-21	15-17	15-17	13-15	11-13
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
4-NITROPHENOL	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
DIBENZOFURAN	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
2,4-DINITROTOLUENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
DIETHYLPHTHALATE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-CHLOROPHENYL-PHENYLETH	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
FLUORENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-NITROANILINE	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
N-NITROSODIPHENYLAMINE (1)	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
4-BROMOPHENYL-PHENYLETHE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
HEXACHLOROBENZENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
PENTACHLOROPHENOL	1100 U	1100 U	1100 U	1100 U	1100 U	1100 U	1000 U	1000 U
PHENANTHRENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
ANTHRACENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
CARBAZOLE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
DI-N-BUTYLPHTHALATE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
FLUORANTHENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
PYRENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BUTYLBENZYLPHTHALATE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
3,3'-DICHLOROBENZIDINE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BENZO(A)ANTHRACENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
CHRYSENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BIS(2-ETHYLHEXYL)PHTHALAT	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
DI-N-OCTYL PHTHALATE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BENZO(B)FLUORANTHENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BENZO(K)FLUORANTHENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BENZO(A)PYRENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
INDENO(1,2,3-CD)PYRENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
DIBENZO(A,H)ANTHRACENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U
BENZO(G,H,I)PERYLENE	430 U	440 U	420 U	450 U	450 U	440 U	420 U	420 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB01-09	68-SB02-06	68-SB03-07	68-SB04-10	68-SB05-08	68-SB06-08	68-SB07-07	68-SB08-06
DATE SAMPLED	1/15/96	1/15/96	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96
DEPTH	17-19	11-13	13-15	19-21	15-17	15-17	13-15	11-13
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2.1 U	2.2 UJ	2.1 UJ	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
BETA-BHC	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
DELTA-BHC	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
GAMMA-BHC (LINDANE)	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
HEPTACHLOR	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
ALDRIN	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
HEPTACHLOR EPOXIDE	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
ENDOSULFAN I	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
DIELDRIN	4.3 UJ	4.3 U	4.2 U	4.4 UJ	4.5 UJ	4.4 UJ	4.3 UJ	4.3 UJ
4,4'-DDE	4.3 U	4.3 UJ	4.2 UJ	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
ENDRIN	4.3 UJ	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 UJ	4.3 U
ENDOSULFAN II	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
4,4'-DDD	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
ENDOSULFAN SULFATE	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
4,4'-DDT	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
METHOXYCHLOR	21 U	22 UJ	21 UJ	22 UJ	22 UJ	22 U	22 U	21 U
ENDRIN KETONE	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
ENDRIN ALDEHYDE	4.3 U	4.3 U	4.2 U	4.4 UJ	4.5 U	4.4 U	4.3 U	4.3 U
ALPHA-CHLORDANE	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
GAMMA-CHLORDANE	2.1 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.1 U
TOXAPHENE	210 U	220 U	210 U	220 UJ	220 U	220 U	220 U	210 U
AROCLOR-1016	43 U	43 U	42 U	44 UJ	45 U	44 U	43 U	43 U
AROCLOR-1221	85 U	86 U	84 U	89 UJ	90 U	89 U	86 U	86 U
AROCLOR-1232	43 U	43 U	42 U	44 UJ	45 U	44 U	43 U	43 U
AROCLOR-1242	43 U	43 U	42 U	44 UJ	45 U	44 U	43 U	43 U
AROCLOR-1248	43 U	43 U	42 U	44 UJ	45 U	44 U	43 U	43 U
AROCLOR-1254	43 U	43 U	42 U	44 UJ	45 U	44 U	43 U	43 U
AROCLOR-1260	43 U	43 U	42 U	44 UJ	15 J	44 U	43 U	43 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB09-04	68-SB10-05	68-SB11-06	68-SB12-08	68-SB13-07	68-SB14-03	68-SB15-03	68-SB16-10	68-SB17-06
DATE SAMPLED	1/13/96	1/13/96	1/16/96	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96
DEPTH	7-9	9-11	11-13	15-17	13-15	5-7	5-7	19-21	11-13
VOLATILES (ug/kg)									
CHLOROMETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
BROMOMETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
VINYL CHLORIDE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
CHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
METHYLENE CHLORIDE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
ACETONE	21	22 U	18 U	13 U	13 U	15	12 U	29 U	17 U
CARBON DISULFIDE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,1-DICHLOROETHENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,1-DICHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,2-DICHLOROETHENE (TOTAL)	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
CHLOROFORM	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,2-DICHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
2-BUTANONE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,1,1-TRICHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
CARBON TETRACHLORIDE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
BROMODICHLOROMETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,2-DICHLOROPROPANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
CIS-1,3-DICHLOROPROPENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
TRICHLOROETHENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
DIBROMOCHLOROMETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,1,2-TRICHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
BENZENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
TRANS-1,3-DICHLOROPROPENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
BROMOFORM	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
4-METHYL-2-PENTANONE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
2-HEXANONE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
TETRACHLOROETHENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
1,1,2,2-TETRACHLOROETHANE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
TOLUENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
CHLOROBENZENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
ETHYLBENZENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
STYRENE	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U
XYLENE (TOTAL)	13 U	14 U	13 U	13 U	13 U	13 U	12 U	13 U	13 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB09-04	68-SB10-05	68-SB11-06	68-SB12-08	68-SB13-07	68-SB14-03	68-SB15-03	68-SB16-10	68-SB17-06
DATE SAMPLED	1/13/96	1/13/96	1/16/96	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96
DEPTH	7-9	9-11	11-13	15-17	13-15	5-7	5-7	19-21	11-13
SEMIVOLATILES (ug/kg)									
PHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BIS(2-CHLOROETHYL)ETHER	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2-CHLOROPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
1,3-DICHLOROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
1,4-DICHLOROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
1,2-DICHLOROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2-METHYLPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-METHYLPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
HEXACHLOROETHANE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
NITROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
ISOPHORONE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2-NITROPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,4-DIMETHYLPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BIS(2-CHLOROETHOXY)METHAN	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,4-DICHLOROPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
1,2,4-TRICHLOROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
NAPHTHALENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-CHLOROANILINE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
HEXACHLOROBUTADIENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-CHLORO-3-METHYLPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2-METHYLNAPHTHALENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
HEXACHLOROCYCLOPENTADIE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,4,6-TRICHLOROPHENOL	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,4,5-TRICHLOROPHENOL	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
2-CHLORONAPHTHALENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2-NITROANILINE	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
DIMETHYLPHTHALATE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
ACENAPHTHYLENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,6-DINITROTOLUENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
3-NITROANILINE	1100 U	1100 U	1000 U	1100 UJ	1100 U	1000 U	1000 U	1100 UJ	1100 U
ACENAPHTHENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB09-04	68-SB10-05	68-SB11-06	68-SB12-08	68-SB13-07	68-SB14-03	68-SB15-03	68-SB16-10	68-SB17-06
DATE SAMPLED	1/13/96	1/13/96	1/16/96	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96
DEPTH	7-9	9-11	11-13	15-17	13-15	5-7	5-7	19-21	11-13
SEMIVOLATILES (ug/kg) cont.									
2,4-DINITROPHENOL	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
4-NITROPHENOL	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
DIBENZOFURAN	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
2,4-DINITROTOLUENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
DIETHYLPHTHALATE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-CHLOROPHENYL-PHENYLETH	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
FLUORENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-NITROANILINE	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
N-NITROSODIPHENYLAMINE (1)	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
4-BROMOPHENYL-PHENYLETHE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
HEXACHLOROBENZENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
PENTACHLOROPHENOL	1100 U	1100 U	1000 U	1100 U	1100 U	1000 U	1000 U	1100 U	1100 U
PHENANTHRENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
ANTHRACENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
CARBAZOLE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
DI-N-BUTYLPHTHALATE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
FLUORANTHENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
PYRENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BUTYLBENZYLPHTHALATE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
3,3'-DICHLOROBENZIDINE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BENZO(A)ANTHRACENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
CHRYSENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BIS(2-ETHYLHEXYL)PHTHALAT	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
DI-N-OCTYL PHTHALATE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BENZO(B)FLUORANTHENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BENZO(K)FLUORANTHENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BENZO(A)PYRENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
INDENO(1,2,3-CD)PYRENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
DIBENZO(A,H)ANTHRACENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U
BENZO(G,H,I)PERYLENE	430 U	440 U	420 U	440 U	450 U	420 U	400 U	440 U	440 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB09-04	68-SB10-05	68-SB11-06	68-SB12-08	68-SB13-07	68-SB14-03	68-SB15-03	68-SB16-10	68-SB17-06
DATE SAMPLED	1/13/96	1/13/96	1/16/96	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96
DEPTH	7-9	9-11	11-13	15-17	13-15	5-7	5-7	19-21	11-13
PESTICIDE/PCBS (ug/kg)									
ALPHA-BHC	2.2 U	2.2 U	2.1 U	2.2 UJ	2.2 U	2.1 U	2 U	2.2 UJ	2.1 U
BETA-BHC	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
DELTA-BHC	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
GAMMA-BHC (LINDANE)	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
HEPTACHLOR	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
ALDRIN	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
HEPTACHLOR EPOXIDE	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
ENDOSULFAN I	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
DIELDRIN	4.4 U	4.4 U	4.2 UJ	4.4 U	4.4 UJ	4.1 U	4 UJ	4.3 U	4.3 U
4,4'-DDE	4.4 U	4.4 U	4.2 U	4.4 UJ	4.4 U	4.1 U	4 U	4.3 UJ	4.3 U
ENDRIN	4.4 U	4.4 U	4.2 UJ	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
ENDOSULFAN II	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
4,4'-DDD	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
ENDOSULFAN SULFATE	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
4,4'-DDT	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	3.4 J
METHOXYCHLOR	22 U	22 U	21 U	22 UJ	22 U	21 U	20 U	22 UJ	21 U
ENDRIN KETONE	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
ENDRIN ALDEHYDE	4.4 U	4.4 U	4.2 U	4.4 U	4.4 U	4.1 U	4 U	4.3 U	4.3 U
ALPHA-CHLORDANE	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
GAMMA-CHLORDANE	2.2 U	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2 U	2.2 U	2.1 U
TOXAPHENE	220 U	220 U	210 U	220 U	220 U	210 U	200 U	220 U	210 U
AROCLOR-1016	44 U	44 U	42 U	44 U	44 U	41 U	40 U	43 U	43 U
AROCLOR-1221	88 U	88 U	85 U	88 U	89 U	82 U	81 U	87 U	86 U
AROCLOR-1232	44 U	44 U	42 U	44 U	44 U	41 U	40 U	43 U	43 U
AROCLOR-1242	44 U	44 U	42 U	44 U	44 U	41 U	40 U	43 U	43 U
AROCLOR-1248	44 U	44 U	42 U	44 U	44 U	41 U	40 U	43 U	43 U
AROCLOR-1254	44 U	44 U	42 U	44 U	44 U	41 U	40 U	43 U	43 U
AROCLOR-1260	44 U	44 U	42 U	44 U	44 U	41 U	12 J	43 U	26 J

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB18-09	68-GW01DW-02	68-GW04-07	68-GW04DW-07	68-GW05DW-08	68-GW06-01	68-GW06DW-02	68-GW01DW-02
DATE SAMPLED	1/15/96	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/9/96
DEPTH	17-19							
VOLATILES (ug/kg)								
CHLOROMETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
BROMOMETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
VINYL CHLORIDE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
CHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
METHYLENE CHLORIDE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
ACETONE	13 U	11 U	61	17	19	17	150	11 U
CARBON DISULFIDE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
CHLOROFORM	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
2-BUTANONE	13 U	11 U	13 U	9 J	13 U	12 U	12 U	11 U
1,1,1-TRICHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
CARBON TETRACHLORIDE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,2-DICHLOROPROPANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
CIS-1,3-DICHLOROPROPENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
TRICHLOROETHENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
BENZENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
BROMOFORM	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
2-HEXANONE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
TETRACHLOROETHENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
TOLUENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
CHLOROBENZENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
ETHYLBENZENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
STYRENE	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U
XYLENE (TOTAL)	13 U	11 U	13 U	13 U	13 U	12 U	12 U	11 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB18-09	68-GW01DW-02	68-GW04-07	68-GW04DW-07	68-GW05DW-08	68-GW06-01	68-GW06DW-02	68-GW01DW-02
DATE SAMPLED	1/15/96	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/9/96
DEPTH	17-19							
SEMIVOLATILES (ug/kg)								
PHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BIS(2-CHLOROETHYL)ETHER	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2-CHLOROPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
1,3-DICHLOROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
1,4-DICHLOROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
1,2-DICHLOROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2-METHYLPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-METHYLPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
HEXACHLOROETHANE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
NITROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
ISOPHORONE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2-NITROPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,4-DIMETHYLPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BIS(2-CHLOROETHOXY)METHAN	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,4-DICHLOROPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
1,2,4-TRICHLOROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
NAPHTHALENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-CHLOROANILINE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
HEXACHLOROBUTADIENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-CHLORO-3-METHYLPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2-METHYLNAPHTHALENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
HEXACHLOROCYCLOPENTADIE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,4,6-TRICHLOROPHENOL	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,4,5-TRICHLOROPHENOL	1000 U	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
2-CHLORONAPHTHALENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2-NITROANILINE	1000 U	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
DIMETHYLPHTHALATE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
ACENAPHTHYLENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,6-DINITROTOLUENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
3-NITROANILINE	1000 UJ	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
ACENAPHTHENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB18-09	68-GW01DW-02	68-GW04-07	68-GW04DW-07	68-GW05DW-08	68-GW06-01	68-GW06DW-02	68-GW01DW-02
DATE SAMPLED	1/15/96	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/9/96
DEPTH	17-19							
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	1000 U	900 U	1100 U	1000 R	1100 U	960 U	980 U	900 U
4-NITROPHENOL	1000 U	900 UJ	1100 U	1000 U	1100 U	960 U	980 U	900 UJ
DIBENZOFURAN	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
2,4-DINITROTOLUENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
DIETHYLPHTHALATE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-CHLOROPHENYL-PHENYLETH	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
FLUORENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-NITROANILINE	1000 U	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
N-NITROSODIPHENYLAMINE (1)	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
4-BROMOPHENYL-PHENYLETHE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
HEXACHLOROBENZENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
PENTACHLOROPHENOL	1000 U	900 U	1100 U	1000 U	1100 U	960 U	980 U	900 U
PHENANTHRENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
ANTHRACENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
CARBAZOLE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
DI-N-BUTYLPHTHALATE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
FLUORANTHENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
PYRENE	420 U	360 U	440 U	420 U	430 U	380 U	48 J	360 U
BUTYLBENZYLPHTHALATE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
3,3'-DICHLOROBENZIDINE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BENZO(A)ANTHRACENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
CHRYSENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BIS(2-ETHYLHEXYL)PHTHALAT	420 U	360 U	110 J	420 U	91 J	39 J	100 J	360 U
DI-N-OCTYL PHTHALATE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BENZO(B)FLUORANTHENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BENZO(K)FLUORANTHENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BENZO(A)PYRENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
INDENO(1,2,3-CD)PYRENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
DIBENZO(A,H)ANTHRACENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U
BENZO(G,H,I)PERYLENE	420 U	360 U	440 U	420 U	430 U	380 U	390 U	360 U

SITE 68 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB18-09	68-GW01DW-02	68-GW04-07	68-GW04DW-07	68-GW05DW-08	68-GW06-01	68-GW06DW-02	68-GW01DW-02
DATE SAMPLED	1/15/96	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/9/96
DEPTH	17-19							
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2.1 UJ	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
BETA-BHC	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
DELTA-BHC	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
GAMMA-BHC (LINDANE)	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
HEPTACHLOR	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
ALDRIN	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
HEPTACHLOR EPOXIDE	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
ENDOSULFAN I	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
DIELDRIN	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
4,4'-DDE	4.2 UJ	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
ENDRIN	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
ENDOSULFAN II	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
4,4'-DDD	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
ENDOSULFAN SULFATE	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
4,4'-DDT	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
METHOXYCHLOR	21 UJ	18 U	22 U	21 U	22 U	19 U	19 U	18 U
ENDRIN KETONE	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
ENDRIN ALDEHYDE	4.2 U	3.6 U	4.4 U	4.2 U	4.3 U	3.9 U	3.9 U	3.6 U
ALPHA-CHLORDANE	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
GAMMA-CHLORDANE	2.1 U	1.8 U	2.2 U	2.1 U	2.2 U	1.9 U	1.9 U	1.8 U
TOXAPHENE	210 U	180 U	220 U	210 U	220 U	190 U	190 U	180 U
AROCLOR-1016	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U
AROCLOR-1221	83 U	72 U	88 U	85 U	87 U	77 U	78 U	72 U
AROCLOR-1232	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U
AROCLOR-1242	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U
AROCLOR-1248	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U
AROCLOR-1254	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U
AROCLOR-1260	42 U	36 U	44 U	42 U	43 U	39 U	39 U	36 U

SITE 68 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB01-09	68-SB02-06	68-SB03-07	68-SB04-10	68-SB05-08	68-SB06-08	68-SB07-07	68-SB08-06
DATE SAMPLED	1/15/96	1/15/96	1/16/96	1/15/96	1/13/96	1/13/96	1/16/96	1/13/96
DEPTH (feet)	17-19	11-13	13-15	19-21	15-17	15-17	13-15	11-13
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	11000	11300	8910	7560	11600	12900	8440	12200
ANTIMONY, TOTAL	4.2 UJ	4.2 UJ	4.6 UJ	4.6 UJ	5.3 UJ	4.6 UJ	4.1 UJ	4.7 UJ
ARSENIC, TOTAL	5.6	2.7	2.9	4.2	2.8	3.7	2.1 J	1.5 J
BARIUM, TOTAL	14.3	15	11.7	27.9	17.6	16.1	11.3	19.5
BERYLLIUM, TOTAL	0.41	0.4	0.38	0.27	0.21 U	0.25	0.2	0.19 U
CADMIUM, TOTAL	0.47 U	0.46 U	0.51 U	0.82	0.59 U	0.51 U	0.45 U	0.53 U
CALCIUM, TOTAL	133	16.2	18.3	164	626	384	70.2	682
CHROMIUM, TOTAL	18.8	16.7	14.9	20	16.7	21.9	15.5	15.1
COBALT, TOTAL	1.3	0.91	0.7 U	10.7	0.82	1.5	0.62 U	0.72 U
COPPER, TOTAL	4.1	3.2	3.3	5.2	3.6	4	2.9	3
IRON, TOTAL	13100	12600	11800	9920	9870	12800	10600	5130
LEAD, TOTAL	9.4 J	6.9	7.6	8.5 J	8.7	8.6	5 J	6.8
MAGNESIUM, TOTAL	775	704	437	974	743	940	461	522
MANGANESE, TOTAL	14.2	15.1	10.6	64.4	15.6	17.6	7.6	8.1
MERCURY, TOTAL	0.062 U	0.05 U	0.05 U	0.045 U	0.06 U	0.05 U	0.052 U	0.06 U
NICKEL, TOTAL	2.8	2.6	6.3	15.7	3.4	5.3	2.3 U	2.7 U
POTASSIUM, TOTAL	988	525	540	1340	720	913	490	649
SELENIUM, TOTAL	0.53	0.34 U	0.31 U	0.34 U	0.34 U	0.29 U	0.29 U	0.27 U
SILVER, TOTAL	0.66 U	0.65 U	0.72 U	0.72 U	0.83 U	0.72 U	0.64 U	0.74 U
SODIUM, TOTAL	37.9	43.1	51.7	68.8	38.6	51.4	61.9	29 U
THALLIUM, TOTAL	0.43 UJ	0.44 UJ	0.41 UJ	0.45 UJ	0.44 UJ	0.37 UJ	0.38 UJ	0.36 UJ
VANADIUM, TOTAL	22.1	15.5	15.1	17.5	14.8	20.3	16.9	13.7
ZINC, TOTAL	19.3	12.9	10.7	75.7	14.1	17.4	8.9	8.3

SITE 68 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB09-04	68-SB10-05	68-SB11-06	68-SB12-08	68-SB13-07	68-SB14-03	68-SB15-03	68-SB16-10	68-SB17-06
DATE SAMPLED	1/13/96	1/13/96	1/16/96	1/15/96	1/13/96	1/13/96	1/13/96	1/15/96	1/14/96
DEPTH (feet)	7-9	9-11	11-13	15-17	13-15	5-7	5-7	19-21	11-13
TOTAL METALS (mg/kg)									
ALUMINUM, TOTAL	12200	11300	10600	8910	9490	8460	645	6300	13200
ANTIMONY, TOTAL	4.8 UJ	5 UJ	4.2 UJ	4.5 UJ	3.8 UJ	4.2 UJ	4.3 UJ	4.2 UJ	4.8 UJ
ARSENIC, TOTAL	4.6	4.6	2.4 J	4	7.6	2	4.4	3.5	3.3
BARIUM, TOTAL	12.1 J	14 J	14.6	14.2	15.4	8.7 J	0.59	23	12.1 J
BERYLLIUM, TOTAL	0.44	0.34	0.52	0.5	0.23	0.17 U	0.17 U	0.87	0.23
CADMIUM, TOTAL	0.53 U	0.55 U	0.46 U	0.61	0.42 U	0.47 U	0.47 U	0.47 U	0.54 U
CALCIUM, TOTAL	432	57.4	508	302	94.8	44.3	48	443	117
CHROMIUM, TOTAL	25.1	19.1	23.3	18.7	21.1	14.4	2.7	15.5	22.6
COBALT, TOTAL	0.72 U	0.75 U	1.2	1.6	1.3	0.64 U	0.64 U	10.6	0.88
COPPER, TOTAL	4.5	4.5	11.5	4.2	4.4	1.5	0.43 U	4.3	5.1
IRON, TOTAL	18600	6820	16200	14300	15500	4860	1940	10600	14500
LEAD, TOTAL	7.9 J	8.2 J	8.3 J	7.4	8.8	7.4 J	1.1	5.9	7.9 J
MAGNESIUM, TOTAL	542	455	804	797	538	312	15.3	1520	578
MANGANESE, TOTAL	12.3	10.4	13	16.7	8.8	4.7	0.74 U	88.7	9.6
MERCURY, TOTAL	0.07 U	0.052 U	0.055 U	0.06 U	0.05 U	0.06 U	0.05 U	0.06 U	0.05 U
NICKEL, TOTAL	5.6	2.8 U	3.1	4.3	2.5	2.4 U	2.5	18.9	2.8 U
POTASSIUM, TOTAL	715	848	823	801	611	465	178 U	1020	760
SELENIUM, TOTAL	0.36	0.28 U	0.51	0.34 U	0.32 U	0.27 U	0.24 U	0.27	0.28 U
SILVER, TOTAL	0.75 U	0.78 U	0.65 U	0.7 U	0.59 U	0.66 U	0.67 U	0.66 U	0.76 U
SODIUM, TOTAL	23.9	40.2	41.9	44.3	68	52.5	8.8 U	44.1	40.4
THALLIUM, TOTAL	0.38 UJ	0.37 UJ	0.42 UJ	0.44 UJ	0.42 UJ	0.36 U	0.31 UJ	0.33 UJ	0.37 UJ
VANADIUM, TOTAL	33.2	15.6	31.5	18.8	20.8	17.8	5.4	14.5	21
ZINC, TOTAL	9.3	10	13.7	18.2	19.7	3.8	0.77 U	92.8	11.6

SITE 68 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SB18-09	68-GW01DW-02	68-GW04-07	68-GW04DW-07	68-GW05DW-08	68-GW06-01	68-GW06DW-02	68-GW01DW-02
DATE SAMPLED	1/15/96	1/9/96	1/11/96	1/10/96	1/14/96	1/13/96	1/12/96	1/9/96
DEPTH (feet)	17-19							
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	8440	1410	12900	12900	11700	6800	11100	1410
ANTIMONY, TOTAL	4.4 UJ	3 UJ	5.1 UJ	4.9 UJ	5 UJ	4.6 UJ	4 UJ	3 UJ
ARSENIC, TOTAL	4.3	0.14 U	3.1	3.7 J	3.1	0.27	0.59	0.14 U
BARIUM, TOTAL	17	2.7	12.9	16.2	16.9 J	23.6 J	80.9 J	2.7
BERYLLIUM, TOTAL	0.23	0.12 U	0.32 U	0.35 U	0.57	0.27	0.6	0.12 U
CADMIUM, TOTAL	0.56	0.34 U	0.57 U	0.54 U	0.55 U	0.51 U	0.45 U	0.34 U
CALCIUM, TOTAL	279	63	134	65.2	252	101	121	63
CHROMIUM, TOTAL	15.5	2	21.8	20.2	22.7	2.8	4.6	2
COBALT, TOTAL	1.9	0.46 U	1.1	0.79	1.5	1.2	2.8	0.46 U
COPPER, TOTAL	3.4	0.31 U	4.3	3.3	4.5	1.1	1.4	0.31 U
IRON, TOTAL	6530	726	10800	7570	16800	1120	2310	726
LEAD, TOTAL	6.5	1.6	8.2	8	7.4 J	8.3 J	11.9 J	1.6
MAGNESIUM, TOTAL	697	57.3	612	658	982	153	236	57.3
MANGANESE, TOTAL	14.5	3.4	11.9	11	15.7	178	38	3.4
MERCURY, TOTAL	0.06 U	0.04 U	0.05 U	0.05 U	0.06 U	0.05 U	0.04 U	0.04 U
NICKEL, TOTAL	10.2	1.7 U	2.9 U	2.8 U	3.4	2.6 U	6.7	1.7 U
POTASSIUM, TOTAL	715	127 U	971	955	1040	192 U	169 U	127 U
SELENIUM, TOTAL	0.32 U	0.2 U	0.29 U	0.31 U	0.29 U	0.24 U	0.26 U	0.2 U
SILVER, TOTAL	0.69 U	0.47 U	0.8 U	0.76 U	0.78 U	0.72 U	0.63 U	0.47 U
SODIUM, TOTAL	45.8	9.7 U	45.6 U	69.2	47.9	12.4	17.1	9.7 U
THALLIUM, TOTAL	0.42 UJ	0.14 UJ	0.2 UJ	0.21 UJ	0.38 UJ	0.31 U	0.34 U	0.14 UJ
VANADIUM, TOTAL	14.5	1.7	21.1	21.3	28.6	3.3	5.8	1.7
ZINC, TOTAL	21.1	0.84	13	12	26	7.9	9.5	0.84

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01-01	68-GW01DW-01	68-GW02-01	68-GW03-01	68-GW04-01	68-GW04DW-01	68-GW05DW-01
DATE SAMPLED	1/24/96	1/27/96	1/24/96	1/25/96	1/25/96	1/25/96	1/26/96
VOLATILES (ug/L)							
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	4 J	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	6 J	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01-01	68-GW01DW-01	68-GW02-01	68-GW03-01	68-GW04-01	68-GW04DW-01	68-GW05DW-01
DATE SAMPLED	1/24/96	1/27/96	1/24/96	1/25/96	1/25/96	1/25/96	1/26/96
SEMIVOLATILES (ug/L)							
PHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BIS(2-CHLOROETHYL)ETHER	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2-CHLOROPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
1,3-DICHLOROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
1,4-DICHLOROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
1,2-DICHLOROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2-METHYLPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-METHYLPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
N-NITROSO-DI-N-PROPYLAMINE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
HEXACHLOROETHANE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
NITROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
ISOPHORONE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2-NITROPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4-DIMETHYLPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BIS(2-CHLOROETHOXY)METHANE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4-DICHLOROPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
1,2,4-TRICHLOROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
NAPHTHALENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-CHLOROANILINE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
HEXACHLOROBUTADIENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-CHLORO-3-METHYLPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2-METHYLNAPHTHALENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
HEXACHLOROCYCLOPENTADIENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4,6-TRICHLOROPHENOL	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4,5-TRICHLOROPHENOL	24 U	24 U	24 U	25 U	24 U	24 U	24 U
2-CHLORONAPHTHALENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2-NITROANILINE	24 U	24 U	24 U	25 U	24 U	24 U	24 U
DIMETHYLPHTHALATE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
ACENAPHTHYLENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,6-DINITROTOLUENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
3-NITROANILINE	24 U	24 U	24 U	25 U	24 U	24 U	24 U
ACENAPHTHENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4-DINITROPHENOL	24 U	24 U	24 U	25 U	24 U	24 U	24 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01-01	68-GW01DW-01	68-GW02-01	68-GW03-01	68-GW04-01	68-GW04DW-01	68-GW05DW-01
DATE SAMPLED	1/24/96	1/27/96	1/24/96	1/25/96	1/25/96	1/25/96	1/26/96
SEMIVOLATILES (ug/L) cont.							
4-NITROPHENOL	24 UJ	24 UJ	24 UJ	25 UJ	24 UJ	24 UJ	24 UJ
DIBENZOFURAN	9 U	10 U	9 U	10 U	9 U	10 U	9 U
2,4-DINITROTOLUENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
DIETHYLPHTHALATE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-CHLOROPHENYL-PHENYLETHER	9 U	10 U	9 U	10 U	9 U	10 U	9 U
FLUORENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-NITROANILINE	24 U	24 U	24 U	25 U	24 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	24 U	25 U	24 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	9 U	10 U	9 U	10 U	9 U	10 U	9 U
4-BROMOPHENYL-PHENYLETHER	9 U	10 U	9 U	10 U	9 U	10 U	9 U
HEXACHLOROBENZENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
PENTACHLOROPHENOL	24 U	24 U	24 U	25 U	24 U	24 U	24 U
PHENANTHRENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
ANTHRACENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
CARBAZOLE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
DI-N-BUTYLPHTHALATE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
FLUORANTHENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
PYRENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BUTYLBENZYLPHTHALATE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
3,3'-DICHLOROBENZIDINE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BENZO(A)ANTHRACENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
CHRYSENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	9 U	10 U	79 U	66 U	27 U	10 U	9 U
DI-N-OCTYL PHTHALATE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BENZO(B)FLUORANTHENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BENZO(K)FLUORANTHENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BENZO(A)PYRENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
INDENO(1,2,3-CD)PYRENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
DIBENZO(A,H)ANTHRACENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U
BENZO(G,H,I)PERYLENE	9 U	10 U	9 U	10 U	9 U	10 U	9 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01-01	68-GW01DW-01	68-GW02-01	68-GW03-01	68-GW04-01	68-GW04DW-01	68-GW05DW-01
DATE SAMPLED	1/24/96	1/27/96	1/24/96	1/25/96	1/25/96	1/25/96	1/26/96
PESTICIDE/PCBS (ug/L)							
ALPHA-BHC	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
BETA-BHC	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
DELTA-BHC	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
GAMMA-BHC (LINDANE)	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
HEPTACHLOR	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
ALDRIN	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
HEPTACHLOR EPOXIDE	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
ENDOSULFAN I	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
DIELDRIN	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
4,4'-DDE	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
ENDRIN	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
ENDOSULFAN II	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
4,4'-DDD	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
ENDOSULFAN SULFATE	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
4,4'-DDT	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
METHOXYCHLOR	0.47 UJ	0.48 UJ	0.47 UJ	0.53 U	0.47 U	0.47 U	0.47 U
ENDRIN KETONE	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
ENDRIN ALDEHYDE	0.094 UJ	0.095 UJ	0.094 UJ	0.11 U	0.094 U	0.094 U	0.094 U
ALPHA-CHLORDANE	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
GAMMA-CHLORDANE	0.047 UJ	0.048 UJ	0.047 UJ	0.053 U	0.047 U	0.047 U	0.047 U
TOXAPHENE	4.7 UJ	4.8 UJ	4.7 UJ	5.3 U	4.7 U	4.7 U	4.7 U
AROCLOR-1016	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U
AROCLOR-1221	1.9 UJ	1.9 UJ	1.9 UJ	2.1 U	1.9 U	1.9 U	1.9 U
AROCLOR-1232	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U
AROCLOR-1242	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U
AROCLOR-1248	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U
AROCLOR-1254	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U
AROCLOR-1260	0.94 UJ	0.95 UJ	0.94 UJ	1.1 U	0.94 U	0.94 U	0.94 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW06-01	68-GW06DW-01
DATE SAMPLED	1/26/96	1/26/96
VOLATILES (ug/L)		
CHLOROMETHANE	10 U	10 U
BROMOMETHANE	10 U	10 U
VINYL CHLORIDE	10 U	10 U
CHLOROETHANE	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U
ACETONE	10 U	10 U
CARBON DISULFIDE	4 J	10 U
1,1-DICHLOROETHENE	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U
CHLOROFORM	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U
2-BUTANONE	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U
TRICHLOROETHENE	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U
BENZENE	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U
BROMOFORM	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U
2-HEXANONE	10 U	10 U
TETRACHLOROETHENE	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U
TOLUENE	10 U	10 U
CHLOROBENZENE	10 U	10 U
ETHYLBENZENE	10 U	10 U
STYRENE	10 U	10 U
XYLENE (TOTAL)	10 U	10 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW06-01	68-GW06DW-01
DATE SAMPLED	1/26/96	1/26/96
SEMIVOLATILES (ug/L)		
PHENOL	10 U	9 U
BIS(2-CHLOROETHYL)ETHER	10 U	9 U
2-CHLOROPHENOL	10 U	9 U
1,3-DICHLOROBENZENE	10 U	9 U
1,4-DICHLOROBENZENE	10 U	9 U
1,2-DICHLOROBENZENE	10 U	9 U
2-METHYLPHENOL	10 U	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	9 U
4-METHYLPHENOL	10 U	9 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	9 U
HEXACHLOROETHANE	10 U	9 U
NITROBENZENE	10 U	9 U
ISOPHORONE	10 U	9 U
2-NITROPHENOL	10 U	9 U
2,4-DIMETHYLPHENOL	10 U	9 U
BIS(2-CHLOROETHOXY)METHANE	10 U	9 U
2,4-DICHLOROPHENOL	10 U	9 U
1,2,4-TRICHLOROBENZENE	10 U	9 U
NAPHTHALENE	10 U	9 U
4-CHLOROANILINE	10 U	9 U
HEXACHLOROBUTADIENE	10 U	9 U
4-CHLORO-3-METHYLPHENOL	10 U	9 U
2-METHYLNAPHTHALENE	10 U	9 U
HEXACHLOROCYCLOPENTADIENE	10 U	9 U
2,4,6-TRICHLOROPHENOL	10 U	9 U
2,4,5-TRICHLOROPHENOL	24 U	24 U
2-CHLORONAPHTHALENE	10 U	9 U
2-NITROANILINE	24 U	24 U
DIMETHYLPHTHALATE	10 U	9 U
ACENAPHTHYLENE	10 U	9 U
2,6-DINITROTOLUENE	10 U	9 U
3-NITROANILINE	24 U	24 U
ACENAPHTHENE	10 U	9 U
2,4-DINITROPHENOL	24 U	24 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW06-01	68-GW06DW-01
DATE SAMPLED	1/26/96	1/26/96
SEMIVOLATILES (ug/L) cont.		
4-NITROPHENOL	24 UJ	24 UJ
DIBENZOFURAN	10 U	9 U
2,4-DINITROTOLUENE	10 U	9 U
DIETHYLPHTHALATE	10 U	9 U
4-CHLOROPHENYL-PHENYLETHER	10 U	9 U
FLUORENE	10 U	9 U
4-NITROANILINE	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	9 U
4-BROMOPHENYL-PHENYLETHER	10 U	9 U
HEXACHLOROBENZENE	10 U	9 U
PENTACHLOROPHENOL	24 U	24 U
PHENANTHRENE	10 U	9 U
ANTHRACENE	10 U	9 U
CARBAZOLE	10 U	9 U
DI-N-BUTYLPHTHALATE	10 U	9 U
FLUORANTHENE	10 U	9 U
PYRENE	10 U	9 U
BUTYLBENZYLPHTHALATE	10 U	9 U
3,3'-DICHLOROBENZIDINE	10 U	9 U
BENZO(A)ANTHRACENE	10 U	9 U
CHRYSENE	10 U	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	9 U
DI-N-OCTYL PHTHALATE	10 U	9 U
BENZO(B)FLUORANTHENE	10 U	9 U
BENZO(K)FLUORANTHENE	10 U	9 U
BENZO(A)PYRENE	10 U	9 U
INDENO(1,2,3-CD)PYRENE	10 U	9 U
DIBENZO(A,H)ANTHRACENE	10 U	9 U
BENZO(G,H,I)PERYLENE	10 U	9 U

SITE 68 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW06-01	68-GW06DW-01
DATE SAMPLED	1/26/96	1/26/96
PESTICIDE/PCBS (ug/L)		
ALPHA-BHC	0.048 UJ	0.047 U
BETA-BHC	0.048 UJ	0.047 U
DELTA-BHC	0.048 UJ	0.047 U
GAMMA-BHC (LINDANE)	0.048 UJ	0.047 U
HEPTACHLOR	0.048 UJ	0.047 U
ALDRIN	0.048 UJ	0.047 U
HEPTACHLOR EPOXIDE	0.048 UJ	0.047 U
ENDOSULFAN I	0.048 UJ	0.047 U
DIELDRIN	0.096 UJ	0.094 U
4,4'-DDE	0.096 UJ	0.094 U
ENDRIN	0.096 UJ	0.094 U
ENDOSULFAN II	0.096 UJ	0.094 U
4,4'-DDD	0.096 UJ	0.094 U
ENDOSULFAN SULFATE	0.096 UJ	0.094 U
4,4'-DDT	0.096 UJ	0.094 U
METHOXYCHLOR	0.48 UJ	0.47 U
ENDRIN KETONE	0.096 UJ	0.094 U
ENDRIN ALDEHYDE	0.096 UJ	0.094 U
ALPHA-CHLORDANE	0.048 UJ	0.047 U
GAMMA-CHLORDANE	0.048 UJ	0.047 U
TOXAPHENE	4.8 UJ	4.7 U
AROCLOR-1016	0.96 UJ	0.94 U
AROCLOR-1221	1.9 UJ	1.9 U
AROCLOR-1232	0.96 UJ	0.94 U
AROCLOR-1242	0.96 UJ	0.94 U
AROCLOR-1248	0.96 UJ	0.94 U
AROCLOR-1254	0.96 UJ	0.94 U
AROCLOR-1260	0.96 UJ	0.94 U

SITE 68 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01-01	68-GW01DW-01	68-GW02-01	68-GW03-01	68-GW04-01	68-GW04DW-01	68-GW05DW-01	68-GW06-01
DATE SAMPLED	01/24/96	01/27/96	01/24/96	01/25/96	01/25/96	01/25/96	01/26/96	01/26/96
TOTAL METALS (ug/l)								
Aluminum	1050	23.3 U	29.6 U	373	75.3 U	27.2 U	77.3 U	1600
Antimony	19.8 UJ	20.3	19.8 U	19.8 U	19.8 U	21	19.8 U	19.8 U
Arsenic	0.9 U	0.96	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ
Barium	3.6	50.9	24.6	35.5	43	37	21.8	17.5
Beryllium	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	1.2 U	1.2 U	0.8 U
Cadmium	2.2 U	2.2 U	2.2 U	4.8	2.2 U	2.2 U	2.2 U	2.2 U
Calcium	5240	65800	4040	1890	14200	109000	99600	24300
Chromium	3.5	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Cobalt	3 U	3 U	3 U	4.8	10.8	3 U	3.1	3 U
Copper	2.3	2 U	2 U	9.1	4.1	2 U	2.3	2.5
Iron	401	158	16.4	294	70.2	9.7 U	128	822
Lead	0.8 U	1.2 UJ	0.8 U	1.4	0.97	0.8 U	0.8 U	0.84
Magnesium	334	4900	2370	1310	2660	3650	8850	1240
Manganese	3.8 U	63.8	3.7 U	32.5	146	73.3	401	82.5
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	11.3 U	11.3 U	11.3 U	14.2	20.4	11.3 U	11.3 U	11.3 U
Potassium	828 U	1900 J	828 U	2180	1530	1500	2640	1160
Selenium	1.3 U	1.3 U	2.1	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Silver	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Sodium	1880	11900	5120	5560	8230	17300	15000	26100
Thallium	0.9 U	1.7 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Vanadium	2.4 U	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.8
Zinc	4	3.7 U	3.6 U	29.7	39.8	5	6.3	12.2

SITE 68 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW06DW-01	IR68-GW01-98B	IR68-GW01DW-98B	IR68-GW02-98B	IR68-GW03-98B	IR68-GW04-98B	IR68-GW04DW-98B
DATE SAMPLED	01/26/96	04/20/98	04/20/98	04/22/98	04/21/98	04/22/98	04/22/98
TOTAL METALS (ug/l)							
Aluminum	80.7 U	3690	38.5 U	1730	383	2700	29.8 U
Antimony	19.8 U	60 U	60 U	60 U	60 U	60 U	60 U
Arsenic	0.9 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Barium	21.5	12.3 J	49.2 J	39.2 J	31.9 J	35.6 J	24.4 J
Beryllium	0.84 U	5 U	5 U	5 U	5 U	4.2 J	5 U
Cadmium	2.2 U	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	46600	5530	54200	4900 J	4430 J	8950	138000
Chromium	2.4 U	10 U	10 U	10 U	10 U	10 U	4.8 J
Cobalt	3 U	50 U	50 U	50 U	50 U	35.8 J	50 U
Copper	2 U	3 J	25 U	4.2 J	4 J	5.8 J	4 J
Iron	53.5	2120	244	4130	295	6170	19.8 J
Lead	0.8 U	2.2 J	3 U	2.9 J	3 U	2.5 J	3 U
Magnesium	2460	681 J	3980 J	2960 J	1480 J	6520	4900 J
Manganese	73.6	6.3 J	45.9	18.6	29	314	3 J
Mercury	0.1 U	0.031 J	0.2 U	0.035 J	0.2 U	0.2 U	0.2 U
Nickel	11.3 U	40 U	40 U	40 U	40 U	65.4	40 U
Potassium	15100	5000 U	1530 J	1040 J	2520 J	2310 J	1690 J
Selenium	1.3 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	3.1 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	46200	3900 J	10100	8500	7110	10400	11500
Thallium	0.9 U	5.2 J	6.6 J	3.7 J	4.6 J	10 U	4.5 J
Vanadium	2.4 U	6.6 J	50 U	7 J	50 U	50 U	23.1 J
Zinc	7	15.6 U	6.8 U	24.5	18.5 U	250	6 U

SITE 68 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR68-GW05DW-98B	IR68-GW06-98B	IR68-GW06DW-98B
DATE SAMPLED	04/22/98	04/22/98	04/22/98
TOTAL METALS (ug/l)			
Aluminum	62.5 U	186 J	48.6 U
Antimony	60 U	60 U	60 U
Arsenic	10 U	10 U	10 U
Barium	8.3 J	22.1 J	54.5 J
Beryllium	5 U	5 U	5 U
Cadmium	5 U	5 U	5 U
Calcium	96100	8380	61500
Chromium	5.9 J	10 U	10 U
Cobalt	50 U	50 U	50 U
Copper	5.6 J	2.9 J	25.6
Iron	72 J	121	1770
Lead	3 U	3 U	3 U
Magnesium	3290 J	3180 J	2480 J
Manganese	2.6 J	13.6 J	1390
Mercury	0.2 U	0.2 U	0.2 U
Nickel	9.2 J	40 U	40 U
Potassium	1220 J	5000 U	2020 J
Selenium	5 U	5 U	5 U
Silver	10 U	10 U	10 U
Sodium	9660	5900	10900
Thallium	3.6 J	10 U	10 U
Vanadium	20.7 J	50 U	15.2 J
Zinc	17.2 U	24.2	9.7 U

SITE 68 - GROUNDWATER
DISSOLVED METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-GW01DW-01	68-GW06-01
DATE SAMPLED	01/27/96	01/26/96
DISSOLVED METALS (ug/L)		
ALUMINUM, SOLUBLE	172	65.4 U
ANTIMONY, SOLUBLE	19.8 U	19.8 U
ARSENIC, SOLUBLE	0.9 U	0.9 UJ
BARIUM, SOLUBLE	54.4	13.2
BERYLLIUM, SOLUBLE	0.98 U	0.8 U
CADMIUM, SOLUBLE	2.2 U	2.2 U
CALCIUM, SOLUBLE	69700	24200
CHROMIUM, SOLUBLE	3.3	2.4 U
COBALT, SOLUBLE	3.2	3 U
COPPER, SOLUBLE	2 U	2 U
IRON, SOLUBLE	579	34.4
LEAD, SOLUBLE	1.2 U	0.8 U
MAGNESIUM, SOLUBLE	4970	1200
MANGANESE, SOLUBLE	66.2	74.4
MERCURY, SOLUBLE	0.1 U	0.1 U
NICKEL, SOLUBLE	11.3 U	11.3 U
POTASSIUM, SOLUBLE	2510 J	991
SELENIUM, SOLUBLE	1.3 U	1.3 U
SILVER, SOLUBLE	3.1 U	3.1 U
SODIUM, SOLUBLE	12600	21100
THALLIUM, SOLUBLE	1.7 U	0.9 U
VANADIUM, SOLUBLE	2.4 UJ	2.4 U
ZINC, SOLUBLE	3.6 U	12.8

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW01-01	68-SW02-01	68-SW03-01	68-SW04-01	68-SW05-01	68-SW06-01	68-SW07-01
DATE SAMPLED	1/15/96	1/14/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
VOLATILES (ug/L)							
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW01-01	68-SW02-01	68-SW03-01	68-SW04-01	68-SW05-01	68-SW06-01	68-SW07-01
DATE SAMPLED	1/15/96	1/14/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
SEMIVOLATILES (ug/L)							
PHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2-NITROPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	24 U	24 U	24 U	23 U	24 U	24 U	24 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2-NITROANILINE	24 U	24 U	24 U	23 U	24 U	24 U	24 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
3-NITROANILINE	24 U	24 U	24 U	23 U	24 U	24 U	24 U
ACENAPHTHENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4-DINITROPHENOL	24 U	24 U	24 U	23 U	24 U	24 U	24 U
4-NITROPHENOL	24 UJ	24 U	24 UJ	23 UJ	24 U	24 U	24 U

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW01-01	68-SW02-01	68-SW03-01	68-SW04-01	68-SW05-01	68-SW06-01	68-SW07-01
DATE SAMPLED	1/15/96	1/14/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
SEMIVOLATILES (ug/L) cont.							
DIBENZOFURAN	10 U	10 U	10 U	9 U	10 U	10 U	10 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	9 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-NITROANILINE	24 U	24 U	24 U	23 U	24 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	24 U	23 U	24 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	9 U	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	9 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
PENTACHLOROPHENOL	24 U	24 U	24 U	23 U	24 U	24 U	24 U
PHENANTHRENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	1 J	10 U	10 U	9 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	9 U	10 U	10 U	10 U

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW01-01	68-SW02-01	68-SW03-01	68-SW04-01	68-SW05-01	68-SW06-01	68-SW07-01
DATE SAMPLED	1/15/96	1/14/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
PESTICIDE/PCBS (ug/L)							
ALPHA-BHC	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
BETA-BHC	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
DELTA-BHC	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
GAMMA-BHC (LINDANE)	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
HEPTACHLOR	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
ALDRIN	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
HEPTACHLOR EPOXIDE	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
ENDOSULFAN I	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
DIELDRIN	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
4,4'-DDE	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
ENDRIN	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
ENDOSULFAN II	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
4,4'-DDD	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
ENDOSULFAN SULFATE	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
4,4'-DDT	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
METHOXYCHLOR	0.5 UJ	0.49 UJ	0.49 UJ	0.48 UJ	0.49 UJ	0.53 UJ	0.49 UJ
ENDRIN KETONE	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
ENDRIN ALDEHYDE	0.1 UJ	0.097 UJ	0.098 UJ	0.096 UJ	0.098 UJ	0.11 UJ	0.097 UJ
ALPHA-CHLORDANE	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
GAMMA-CHLORDANE	0.05 UJ	0.049 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.053 UJ	0.049 UJ
TOXAPHENE	5 UJ	4.9 UJ	4.9 UJ	4.8 UJ	4.9 UJ	5.3 UJ	4.9 UJ
AROCLOR-1016	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ
AROCLOR-1221	2 UJ	1.9 UJ	2 UJ	1.9 UJ	2 UJ	2.1 UJ	1.9 UJ
AROCLOR-1232	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ
AROCLOR-1242	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ
AROCLOR-1248	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ
AROCLOR-1254	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ
AROCLOR-1260	1 UJ	0.97 UJ	0.98 UJ	0.96 UJ	0.98 UJ	1.1 UJ	0.97 UJ

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW08-01	68-SW09-01	68-SW10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
VOLATILES (ug/L)			
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 UJ	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	10 U	10 U
CHLOROFORM	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U
2-BUTANONE	10 UJ	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	10 U	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 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW08-01	68-SW09-01	68-SW10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
SEMIVOLATILES (ug/L)			
PHENOL	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U
2-NITROPHENOL	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	24 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	24 U
DIMETHYLPHTHALATE	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U
3-NITROANILINE	25 U	25 U	24 U
ACENAPHTHENE	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	24 U
4-NITROPHENOL	25 U	25 UJ	24 UJ

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW08-01	68-SW09-01	68-SW10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
SEMIVOLATILES (ug/L) cont.			
DIBENZOFURAN	10 U	10 U	10 U
2,4-DINITROTOLUENE	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	24 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	24 U
PHENANTHRENE	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U

SITE 68 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW08-01	68-SW09-01	68-SW10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
PESTICIDE/PCBS (ug/L)			
ALPHA-BHC	0.05 U	0.05 U	0.048 U
BETA-BHC	0.05 U	0.05 U	0.048 U
DELTA-BHC	0.05 U	0.05 U	0.048 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.048 U
HEPTACHLOR	0.05 U	0.05 U	0.048 U
ALDRIN	0.05 U	0.05 U	0.048 U
HEPTACHLOR EPOXIDE	0.05 U	0.05 U	0.048 U
ENDOSULFAN I	0.05 U	0.05 U	0.048 U
DIELDRIN	0.1 U	0.1 U	0.095 U
4,4'-DDE	0.1 U	0.1 U	0.095 U
ENDRIN	0.1 U	0.1 U	0.095 U
ENDOSULFAN II	0.1 U	0.1 U	0.095 U
4,4'-DDD	0.1 U	0.1 U	0.095 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.095 U
4,4'-DDT	0.1 U	0.1 U	0.095 U
METHOXYCHLOR	0.5 U	0.5 U	0.48 U
ENDRIN KETONE	0.1 U	0.1 U	0.095 U
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.095 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.048 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.048 U
TOXAPHENE	5 U	5 U	4.8 U
AROCLOR-1016	1 U	1 U	0.95 U
AROCLOR-1221	2 U	2 U	1.9 U
AROCLOR-1232	1 U	1 U	0.95 U
AROCLOR-1242	1 U	1 U	0.95 U
AROCLOR-1248	1 U	1 U	0.95 U
AROCLOR-1254	1 U	1 U	0.95 U
AROCLOR-1260	1 U	1 U	0.95 U

SITE 68 - SURFACE WATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW01-01	68-SW02-01	68-SW03-01	68-SW04-01	68-SW05-01	68-SW06-01	68-SW07-01
DATE SAMPLED	1/15/96	1/14/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
TOTAL METALS (ug/L)							
ALUMINUM, TOTAL	401	422	414	410	403	141	176
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U
ARSENIC, TOTAL	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
BARIUM, TOTAL	12.5	12.6	11.5	11.6	11.3	16.8	18.4
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
CADMIUM, TOTAL	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
CALCIUM, TOTAL	6620	6530	6900	15800	15200	26700	27300
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U	3 U
COPPER, TOTAL	2 U	2 U	2 U	2 U	2 U	2 U	2 U
IRON, TOTAL	448	427	411	430	415	410	443
LEAD, TOTAL	0.87	0.92	0.8 U	0.8 U	0.8 U	2.2	2.5
MAGNESIUM, TOTAL	1260	1600	1850	25500	24000	6200	4340
MANGANESE, TOTAL	13.3	13	11.7	15.9	15.1	39.6	39.2
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U
POTASSIUM, TOTAL	828 U	865	1280	7770	8030	2530	1700
SELENIUM, TOTAL	1.3 U	1.3 U	1.3 U	1.7	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	9120	12000	13800	210000	200000	47500	31600
THALLIUM, TOTAL	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
VANADIUM, TOTAL	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
ZINC, TOTAL	3.6 U	3.6 U	3.6 U	4.2	3.6 U	3.6 U	3.6 U

SITE 68 - SURFACE WATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SW08-01	68-SW09-01	68-SW10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
TOTAL METALS (ug/L)			
ALUMINUM, TOTAL	206	253	303
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U
ARSENIC, TOTAL	0.9 U	0.9 U	0.9 U
BARIUM, TOTAL	13.4	12.7	13.1
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U
CADMIUM, TOTAL	2.9	2.2 U	2.2 U
CALCIUM, TOTAL	27100	21600	19600
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	3 U	3 U
COPPER, TOTAL	2 U	2 U	2 U
IRON, TOTAL	594	509	412
LEAD, TOTAL	1.7	0.8 U	2.2
MAGNESIUM, TOTAL	1510	1320	1270
MANGANESE, TOTAL	42.5	31.6	27.4
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	11.3 U	11.3 U
POTASSIUM, TOTAL	828 U	828 U	828 U
SELENIUM, TOTAL	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	11300	7240	6650
THALLIUM, TOTAL	1.7 U	1.7 U	1.7 U
VANADIUM, TOTAL	2.4 U	2.4 U	2.4
ZINC, TOTAL	4.1	3.6 U	3.6 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD01-01	68-SD02-01	68-SD03-01	68-SD04-01	68-SD05-01	68-SD06-01	68-SD07-01
DATE SAMPLED	1/15/96	1/11/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)							
CHLOROMETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
BROMOMETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
VINYL CHLORIDE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
CHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
METHYLENE CHLORIDE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
ACETONE	28 U	13 U	68 U	57 U	220 U	170 U	28 U
CARBON DISULFIDE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,1-DICHLOROETHENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,1-DICHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,2-DICHLOROETHENE (TOTAL)	28 U	13 U	68 U	57 U	84 U	44 U	15 U
CHLOROFORM	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,2-DICHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
2-BUTANONE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,1,1-TRICHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
CARBON TETRACHLORIDE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
BROMODICHLOROMETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,2-DICHLOROPROPANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
CIS-1,3-DICHLOROPROPENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
TRICHLOROETHENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
DIBROMOCHLOROMETHANE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
1,1,2-TRICHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
BENZENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
TRANS-1,3-DICHLOROPROPENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
BROMOFORM	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
4-METHYL-2-PENTANONE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
2-HEXANONE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
TETRACHLOROETHENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
1,1,2,2-TETRACHLOROETHANE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
TOLUENE	28 U	13 U	68 U	57 U	84 U	44 U	15 U
CHLOROBENZENE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
ETHYLBENZENE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
STYRENE	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U
XYLENE (TOTAL)	28 U	13 U	68 U	57 U	84 U	44 UJ	15 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD01-01	68-SD02-01	68-SD03-01	68-SD04-01	68-SD05-01	68-SD06-01	68-SD07-01
DATE SAMPLED	1/15/96	1/11/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)							
PHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
BIS(2-CHLOROETHYL)ETHER	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2-CHLOROPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
1,3-DICHLOROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
1,4-DICHLOROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
1,2-DICHLOROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2-METHYLPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,2'-OXYBIS(1-CHLOROPROPANE)	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-METHYLPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
N-NITROSO-DI-N-PROPYLAMINE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
HEXACHLOROETHANE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
NITROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
ISOPHORONE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2-NITROPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4-DIMETHYLPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
BIS(2-CHLOROETHOXY)METHANE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4-DICHLOROPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
1,2,4-TRICHLOROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
NAPHTHALENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-CHLOROANILINE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
HEXACHLOROBUTADIENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-CHLORO-3-METHYLPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2-METHYLNAPHTHALENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
HEXACHLOROCYCLOPENTADIENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4,6-TRICHLOROPHENOL	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4,5-TRICHLOROPHENOL	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
2-CHLORONAPHTHALENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2-NITROANILINE	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
DIMETHYLPHTHALATE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
ACENAPHTHYLENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,6-DINITROTOLUENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
3-NITROANILINE	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
ACENAPHTHENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4-DINITROPHENOL	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD01-01	68-SD02-01	68-SD03-01	68-SD04-01	68-SD05-01	68-SD06-01	68-SD07-01
DATE SAMPLED	1/15/96	1/11/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.							
4-NITROPHENOL	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
DIBENZOFURAN	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
2,4-DINITROTOLUENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
DIETHYLPHTHALATE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-CHLOROPHENYL-PHENYLETHER	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
FLUORENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-NITROANILINE	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
4,6-DINITRO-2-METHYLPHENOL	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
N-NITROSODIPHENYLAMINE (1)	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
4-BROMOPHENYL-PHENYLETHER	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
HEXACHLOROBENZENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
PENTACHLOROPHENOL	2300 U	1100 U	5500 U	4600 U	6800 U	3600 U	1200 U
PHENANTHRENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	280 J
ANTHRACENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	62 J
CARBAZOLE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
DI-N-BUTYLPHTHALATE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
FLUORANTHENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	420 J
PYRENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	330 J
BUTYLBENZYLPHTHALATE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
3,3'-DICHLOROBENZIDINE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
BENZO(A)ANTHRACENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	190 J
CHRYSENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	210 J
BIS(2-ETHYLHEXYL)PHTHALATE	920 U	430 U	250 J	1800 U	2700 U	1400 U	490 U
DI-N-OCTYL PHTHALATE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
BENZO(B)FLUORANTHENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	250 J
BENZO(K)FLUORANTHENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	97 J
BENZO(A)PYRENE	920 U	430 U	2200 U	1800 U	380 J	350 J	170 J
INDENO(1,2,3-CD)PYRENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	110 J
DIBENZO(A,H)ANTHRACENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	490 U
BENZO(G,H,I)PERYLENE	920 U	430 U	2200 U	1800 U	2700 U	1400 U	98 J

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD01-01	68-SD02-01	68-SD03-01	68-SD04-01	68-SD05-01	68-SD06-01	68-SD07-01
DATE SAMPLED	1/15/96	1/11/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)							
ALPHA-BHC	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
BETA-BHC	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
DELTA-BHC	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
GAMMA-BHC (LINDANE)	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
HEPTACHLOR	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
ALDRIN	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
HEPTACHLOR EPOXIDE	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
ENDOSULFAN I	4.5 U	2.1 U	56 UJ	9.2 U	14 U	7.3 U	25 U
DIELDRIN	9 UJ	4.2 UJ	110 UJ	18 UJ	28 UJ	14 UJ	50 UJ
4,4'-DDE	15	4.2 U	410 J	20 J	61 J	550	48 J
ENDRIN	9 U	4.2 U	110 UJ	18 U	28 UJ	14 UJ	50 UJ
ENDOSULFAN II	9 U	4.2 U	110 UJ	18 U	28 U	14 U	50 U
4,4'-DDD	20	4.2 U	2900	33	120	640	100
ENDOSULFAN SULFATE	9 U	4.2 U	110 UJ	18 U	28 U	14 U	50 U
4,4'-DDT	9 U	4.2 U	140 NJ	18 U	16 J	120	4500
METHOXYCHLOR	45 UJ	21 UJ	560 UJ	92 UJ	140 U	73 U	250 U
ENDRIN KETONE	9 U	4.2 U	110 UJ	18 U	28 U	14 U	50 U
ENDRIN ALDEHYDE	9 U	4.2 U	110 UJ	18 U	28 U	14 U	50 U
ALPHA-CHLORDANE	4.5 U	2.1 U	56 UJ	9.2 U	14 U	13 J	25 U
GAMMA-CHLORDANE	4.5 U	2.1 U	56 UJ	9.2 U	14 U	14 NJ	25 U
TOXAPHENE	450 U	210 U	5600 UJ	920 U	1400 U	730 U	2500 U
AROCLOR-1016	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U
AROCLOR-1221	180 U	85 U	2200 UJ	370 U	550 U	290 U	1000 U
AROCLOR-1232	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U
AROCLOR-1242	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U
AROCLOR-1248	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U
AROCLOR-1254	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U
AROCLOR-1260	90 U	42 U	1100 UJ	180 U	280 U	140 U	500 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD08-01	68-SD09-01	68-SD10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)			
CHLOROMETHANE	13 U	13 U	13 U
BROMOMETHANE	13 U	13 U	13 U
VINYL CHLORIDE	13 U	13 U	13 U
CHLOROETHANE	13 U	13 U	13 U
METHYLENE CHLORIDE	13 U	13 U	13 U
ACETONE	13 U	19 U	15 U
CARBON DISULFIDE	13 U	13 U	13 U
1,1-DICHLOROETHENE	13 U	13 U	13 U
1,1-DICHLOROETHANE	13 U	13 U	13 U
1,2-DICHLOROETHENE (TOTAL)	13 U	13 U	13 U
CHLOROFORM	13 U	13 U	13 U
1,2-DICHLOROETHANE	13 U	13 U	13 U
2-BUTANONE	13 U	13 U	13 U
1,1,1-TRICHLOROETHANE	13 U	13 U	13 U
CARBON TETRACHLORIDE	13 U	13 U	13 U
BROMODICHLOROMETHANE	13 U	13 U	13 U
1,2-DICHLOROPROPANE	13 U	13 U	13 U
CIS-1,3-DICHLOROPROPENE	13 U	13 U	13 U
TRICHLOROETHENE	13 U	13 U	13 U
DIBROMOCHLOROMETHANE	13 U	13 U	13 U
1,1,2-TRICHLOROETHANE	13 U	13 U	13 U
BENZENE	13 U	13 U	13 U
TRANS-1,3-DICHLOROPROPENE	13 U	13 U	13 U
BROMOFORM	13 U	13 U	13 U
4-METHYL-2-PENTANONE	13 U	13 U	13 U
2-HEXANONE	13 U	13 U	13 U
TETRACHLOROETHENE	13 U	13 U	13 U
1,1,2,2-TETRACHLOROETHANE	13 U	13 U	13 U
TOLUENE	13 U	13 U	13 U
CHLOROBENZENE	13 U	13 U	13 U
ETHYLBENZENE	13 U	13 U	13 U
STYRENE	13 U	13 U	13 U
XYLENE (TOTAL)	13 U	13 U	13 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD08-01	68-SD09-01	68-SD10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)			
PHENOL	420 U	420 U	420 U
BIS(2-CHLOROETHYL)ETHER	420 U	420 U	420 U
2-CHLOROPHENOL	420 U	420 U	420 U
1,3-DICHLOROBENZENE	420 U	420 U	420 U
1,4-DICHLOROBENZENE	420 U	420 U	420 U
1,2-DICHLOROBENZENE	420 U	420 U	420 U
2-METHYLPHENOL	420 U	420 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	420 U	420 U	420 U
4-METHYLPHENOL	420 U	420 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	420 U	420 U	420 U
HEXACHLOROETHANE	420 U	420 U	420 U
NITROBENZENE	420 U	420 U	420 U
ISOPHORONE	420 U	420 U	420 U
2-NITROPHENOL	420 U	420 U	420 U
2,4-DIMETHYLPHENOL	420 U	420 U	420 U
BIS(2-CHLOROETHOXY)METHANE	420 U	420 U	420 U
2,4-DICHLOROPHENOL	420 U	420 U	420 U
1,2,4-TRICHLOROBENZENE	420 U	420 U	420 U
NAPHTHALENE	420 U	420 U	420 U
4-CHLOROANILINE	420 U	420 U	420 U
HEXACHLOROBUTADIENE	420 U	420 U	420 U
4-CHLORO-3-METHYLPHENOL	420 U	420 U	420 U
2-METHYLNAPHTHALENE	420 U	420 U	420 U
HEXACHLOROCYCLOPENTADIENE	420 U	420 U	420 U
2,4,6-TRICHLOROPHENOL	420 U	420 U	420 U
2,4,5-TRICHLOROPHENOL	1000 U	1000 U	1000 U
2-CHLORONAPHTHALENE	420 U	420 U	420 U
2-NITROANILINE	1000 U	1000 U	1000 U
DIMETHYLPHTHALATE	420 U	420 U	420 U
ACENAPHTHYLENE	420 U	420 U	420 U
2,6-DINITROTOLUENE	420 U	420 U	420 U
3-NITROANILINE	1000 U	1000 U	1000 U
ACENAPHTHENE	420 U	420 U	420 U
2,4-DINITROPHENOL	1000 U	1000 U	1000 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD08-01	68-SD09-01	68-SD10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.			
4-NITROPHENOL	1000 U	1000 U	1000 U
DIBENZOFURAN	420 U	420 U	420 U
2,4-DINITROTOLUENE	420 U	420 U	420 U
DIETHYLPHTHALATE	420 U	420 U	420 U
4-CHLOROPHENYL-PHENYLETHER	420 U	420 U	420 U
FLUORENE	420 U	420 U	420 U
4-NITROANILINE	1000 U	1000 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	1000 U	1000 U
N-NITROSODIPHENYLAMINE (1)	420 U	420 U	420 U
4-BROMOPHENYL-PHENYLETHER	420 U	420 U	420 U
HEXACHLOROBENZENE	420 U	420 U	420 U
PENTACHLOROPHENOL	1000 U	1000 U	1000 U
PHENANTHRENE	420 U	420 U	420 U
ANTHRACENE	420 U	420 U	420 U
CARBAZOLE	420 U	420 U	420 U
DI-N-BUTYLPHTHALATE	420 U	420 U	420 U
FLUORANTHENE	420 U	420 U	420 U
PYRENE	420 U	420 U	420 U
BUTYLBENZYLPHTHALATE	420 U	420 U	420 U
3,3'-DICHLOROBENZIDINE	420 U	420 U	420 U
BENZO(A)ANTHRACENE	420 U	420 U	420 U
CHRYSENE	420 U	420 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	420 U	420 U	420 U
DI-N-OCTYL PHTHALATE	420 U	420 U	420 U
BENZO(B)FLUORANTHENE	420 U	420 U	420 U
BENZO(K)FLUORANTHENE	420 U	420 U	420 U
BENZO(A)PYRENE	420 U	420 U	420 U
INDENO(1,2,3-CD)PYRENE	420 U	420 U	420 U
DIBENZO(A,H)ANTHRACENE	420 U	420 U	420 U
BENZO(G,H,I)PERYLENE	420 U	420 U	420 U

SITE 68 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD08-01	68-SD09-01	68-SD10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)			
ALPHA-BHC	2.1 U	2.1 U	2.1 U
BETA-BHC	2.1 U	2.1 U	2.1 U
DELTA-BHC	2.1 U	2.1 U	2.1 U
GAMMA-BHC (LINDANE)	2.1 U	2.1 U	2.1 U
HEPTACHLOR	2.1 U	2.1 U	2.1 U
ALDRIN	2.1 U	2.1 U	2.1 U
HEPTACHLOR EPOXIDE	2.1 U	2.1 U	2.1 U
ENDOSULFAN I	2.1 U	2.1 U	2.1 U
DIELDRIN	4.2 UJ	4.2 UJ	4.2 UJ
4,4'-DDE	28	15	6.7
ENDRIN	4.2 UJ	4.2 U	4.2 UJ
ENDOSULFAN II	4.2 U	4.2 U	4.2 U
4,4'-DDD	31	21	2.5 J
ENDOSULFAN SULFATE	4.2 U	4.2 U	4.2 U
4,4'-DDT	20	8	6.3 J
METHOXYCHLOR	21 U	21 U	21 U
ENDRIN KETONE	4.2 U	4.2 U	4.2 U
ENDRIN ALDEHYDE	4.2 U	4.2 U	4.2 U
ALPHA-CHLORDANE	2.1 U	2.1 U	2.1 U
GAMMA-CHLORDANE	2.1 U	2.1 U	2.1 U
TOXAPHENE	210 U	210 U	210 U
AROCLOR-1016	42 U	42 U	42 U
AROCLOR-1221	85 U	84 U	84 U
AROCLOR-1232	42 U	42 U	42 U
AROCLOR-1242	42 U	42 U	42 U
AROCLOR-1248	42 U	42 U	42 U
AROCLOR-1254	42 U	42 U	42 U
AROCLOR-1260	42 U	42 U	42 U

SITE 68 - SEDIMENT
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD01-01	68-SD02-01	68-SD03-01	68-SD04-01	68-SD05-01	68-SD06-01	68-SD07-01
DATE SAMPLED	1/15/96	1/11/96	1/14/96	1/14/96	1/14/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
TOTAL METALS (mg/kg)							
ALUMINUM, TOTAL	6350	1820	11500	9310	11000	8160	646
ANTIMONY, TOTAL	8.3 UJ	3.8 UJ	22.1 UJ	20.8 UJ	27.3 UJ	14.2 UJ	4.7 UJ
ARSENIC, TOTAL	0.64 J	0.17 UJ	3.1	2.9	4.2	1.6 J	0.25 UJ
BARIUM, TOTAL	16.6	2.6	28.1	12	17	25	2.7
BERYLLIUM, TOTAL	0.33 U	0.15 U	0.89 U	0.84 U	1.1 U	0.58 U	0.19 U
CADMIUM, TOTAL	0.92 U	0.42 U	2.5 U	2.3 U	4.7	1.8	0.52 U
CALCIUM, TOTAL	2400	71.3	10300	7140	11900	7290	334
CHROMIUM, TOTAL	6.2	1.7	8.8	5.9	11.9	12.6	1.5
COBALT, TOTAL	2.9	0.58 U	3.4 U	4.1	6.3	3.5	0.72 U
COPPER, TOTAL	0.86	0.39 U	6.4	3.1	8.5	14.9	0.77
IRON, TOTAL	9450	937	9810	8330	8790	16300	684
LEAD, TOTAL	7.9	1.8	23.9	26.7	24.6 J	73 J	11 J
MAGNESIUM, TOTAL	1190	122	4930	5520	8330	1510	85.8
MANGANESE, TOTAL	28.5	2.7	127	18.9	39.8	107	4
MERCURY, TOTAL	0.12 U	0.06 U	0.4	0.27 U	0.34 U	0.16 U	0.059 U
NICKEL, TOTAL	5.3	2.2 U	12.6 U	11.9 U	15.6 U	9.7	2.7 U
POTASSIUM, TOTAL	347 U	160 U	925 U	871 U	1140 U	595 U	198 U
SELENIUM, TOTAL	0.79	0.24 U	1.4 U	1.2 U	1.9 U	1.2	0.37 U
SILVER, TOTAL	1.3 U	0.6 U	3.5 U	3.3 U	4.3 U	2.2 U	0.74 U
SODIUM, TOTAL	1170	112	8440	6870	15400	1780	55.8
THALLIUM, TOTAL	0.71 U	0.32 U	1.8 U	1.6 U	2.5 UJ	1.4 UJ	0.48 UJ
VANADIUM, TOTAL	6.1	3.1	18	12.4	15.1	26.6	1.6
ZINC, TOTAL	8.1	1.3 U	38.8	18.9	30.1	86.5	7.5

SITE 68 - SEDIMENT
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	68-SD08-01	68-SD09-01	68-SD10-01
DATE SAMPLED	1/13/96	1/13/96	1/13/96
DEPTH	0-0.5	0-0.5	0-0.5
TOTAL METALS (mg/kg)			
ALUMINUM, TOTAL	351	466	353
ANTIMONY, TOTAL	4 UJ	4.1 UJ	4.3 UJ
ARSENIC, TOTAL	0.16 UJ	0.15 UJ	0.18 UJ
BARIUM, TOTAL	1.8	1.9	1.5
BERYLLIUM, TOTAL	0.16 U	0.17 U	0.18 U
CADMIUM, TOTAL	0.45 U	0.45 U	0.5
CALCIUM, TOTAL	239	271	312
CHROMIUM, TOTAL	0.84	1.4	0.79
COBALT, TOTAL	0.61 U	0.75	0.66 U
COPPER, TOTAL	0.45	0.57	0.44 U
IRON, TOTAL	323	428	296
LEAD, TOTAL	2.7 J	2.9 J	1.8 J
MAGNESIUM, TOTAL	23.8	33.9	23.5
MANGANESE, TOTAL	5.1	3.5	2.7
MERCURY, TOTAL	0.05 U	0.045 U	0.056 U
NICKEL, TOTAL	2.3	2.3 U	2.5 U
POTASSIUM, TOTAL	169 U	171 U	181 U
SELENIUM, TOTAL	0.23 U	0.22 U	0.25 U
SILVER, TOTAL	0.63 U	0.64 U	0.68 U
SODIUM, TOTAL	25 U	9.5 U	14.4 U
THALLIUM, TOTAL	0.3 UJ	0.29 UJ	0.33 UJ
VANADIUM, TOTAL	1.4	1	0.7
ZINC, TOTAL	4.9	4.3	3.8

SITE 75

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW05-00	75-GW04-00	75-SB02-00	75-SB05-00	75-SB07-00	75-SB08-00	75-SB09-00	75-SB10-00
DATE SAMPLED	2/22/96	2/21/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96
DEPTH	0-1'	0-0.05	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)								
CHLOROMETHANE	12 UJ	12 U	13 UJ	12 U	13 U	12 U	11 U	12 U
BROMOMETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
VINYL CHLORIDE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
METHYLENE CHLORIDE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
ACETONE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CARBON DISULFIDE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,1-DICHLOROETHENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,1-DICHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CHLOROFORM	12 U	12 U	13 U	12 U	13 U	13 U	11 U	12 U
1,2-DICHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
2-BUTANONE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,1,1-TRICHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CARBON TETRACHLORIDE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
BROMODICHLOROMETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,2-DICHLOROPROPANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
TRICHLOROETHENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
BENZENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
BROMOFORM	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
4-METHYL-2-PENTANONE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
2-HEXANONE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
TETRACHLOROETHENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
TOLUENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
CHLOROBENZENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
ETHYLBENZENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
STYRENE	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U
XYLENE (TOTAL)	12 U	12 U	13 U	12 U	13 U	12 U	11 U	12 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW05-00	75-GW04-00	75-SB02-00	75-SB05-00	75-SB07-00	75-SB08-00	75-SB09-00	75-SB10-00
DATE SAMPLED	2/22/96	2/21/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96
DEPTH	0-1'	0-0.05	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)								
PHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BIS(2-CHLOROETHYL)ETHER	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2-CHLOROPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
1,3-DICHLOROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
1,4-DICHLOROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
1,2-DICHLOROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2-METHYLPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-METHYLPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
N-NITROSO-DI-N-PROPYLAMINE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
HEXACHLOROETHANE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
NITROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
ISOPHORONE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2-NITROPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,4-DIMETHYLPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BIS(2-CHLOROETHOXY)METHAN	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,4-DICHLOROPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
1,2,4-TRICHLOROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
NAPHTHALENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-CHLOROANILINE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
HEXACHLOROBUTADIENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-CHLORO-3-METHYLPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2-METHYLNAPHTHALENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
HEXACHLOROCYCLOPENTADIE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,4,6-TRICHLOROPHENOL	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,4,5-TRICHLOROPHENOL	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
2-CHLORONAPHTHALENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2-NITROANILINE	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
DIMETHYLPHTHALATE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
ACENAPHTHYLENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,6-DINITROTOLUENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
3-NITROANILINE	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
ACENAPHTHENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW05-00	75-GW04-00	75-SB02-00	75-SB05-00	75-SB07-00	75-SB08-00	75-SB09-00	75-SB10-00
DATE SAMPLED	2/22/96	2/21/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96
DEPTH	0-1'	0-0.05	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
4-NITROPHENOL	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
DIBENZOFURAN	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
2,4-DINITROTOLUENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
DIETHYLPHTHALATE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-CHLOROPHENYL-PHENYLETH	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
FLUORENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-NITROANILINE	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
N-NITROSODIPHENYLAMINE (1)	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
4-BROMOPHENYL-PHENYLETHE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
HEXACHLOROBENZENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
PENTACHLOROPHENOL	1000 U	970 U	1100 U	1000 U	1000 U	940 U	940 U	1000 U
PHENANTHRENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
ANTHRACENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
CARBAZOLE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
DI-N-BUTYLPHTHALATE	310 J	390 U	430 U	410 U	420 U	460	380 U	400 U
FLUORANTHENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
PYRENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BUTYLBENZYLPHTHALATE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
3,3'-DICHLOROBENZIDINE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BENZO(A)ANTHRACENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
CHRYSENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BIS(2-ETHYLHEXYL)PHTHALAT	110 J	390 U	70 J	410 U	87 J	380 U	380 U	400 U
DI-N-OCTYL PHTHALATE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BENZO(B)FLUORANTHENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BENZO(K)FLUORANTHENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BENZO(A)PYRENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
INDENO(1,2,3-CD)PYRENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
DIBENZO(A,H)ANTHRACENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U
BENZO(G,H,I)PERYLENE	400 U	390 U	430 U	410 U	420 U	380 U	380 U	400 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW05-00	75-GW04-00	75-SB02-00	75-SB05-00	75-SB07-00	75-SB08-00	75-SB09-00	75-SB10-00
DATE SAMPLED	2/22/96	2/21/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96
DEPTH	0-1'	0-0.05	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2 UJ	2 UJ	2.1 UJ	2 UJ	2.1 UJ	1.9 UJ	1.8 UJ	2 UJ
BETA-BHC	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
DELTA-BHC	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
GAMMA-BHC (LINDANE)	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
HEPTACHLOR	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
ALDRIN	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
HEPTACHLOR EPOXIDE	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
ENDOSULFAN I	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
DIELDRIN	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	1.9 J	3.7 U	4 U
4,4'-DDE	11 J	37 J	4.2 UJ	7 J	7.1 J	3.8 UJ	3.7 UJ	2.4 J
ENDRIN	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	3.8 U	3.7 U	4 U
ENDOSULFAN II	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	3.8 U	3.7 U	4 U
4,4'-DDD	4.1 U	3.6 J	4.2 U	4.1 U	2.9 J	3.8 U	3.7 U	4 U
ENDOSULFAN SULFATE	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	3.8 U	3.7 U	4 U
4,4'-DDT	8.2	16	4.2 U	12	12	1.5 J	2.2 J	4
METHOXYCHLOR	20 U	20 U	21 U	20 U	21 U	19 U	18 U	20 U
ENDRIN KETONE	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	3.8 U	3.7 U	4 U
ENDRIN ALDEHYDE	4.1 U	3.9 U	4.2 U	4.1 U	4.2 U	3.8 U	3.7 U	4 U
ALPHA-CHLORDANE	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
GAMMA-CHLORDANE	2 U	2 U	2.1 U	2 U	2.1 U	1.9 U	1.8 U	2 U
TOXAPHENE	200 U	200 U	210 U	200 U	210 U	190 U	180 U	200 U
AROCLOR-1016	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U
AROCLOR-1221	82 U	79 U	84 U	82 U	84 U	75 U	74 U	80 U
AROCLOR-1232	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U
AROCLOR-1242	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U
AROCLOR-1248	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U
AROCLOR-1254	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U
AROCLOR-1260	41 U	39 U	42 U	41 U	42 U	38 U	37 U	40 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB11-00	75-SB12-00	75-SB13-00	75-SB14-00	75-SB01-00	75-SB04-00	75-SB06-00
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/21/96	2/21/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)							
CHLOROMETHANE	13 U	11 U	13 U	13 UJ	12 U	12 U	12 U
BROMOMETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
VINYL CHLORIDE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
METHYLENE CHLORIDE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
ACETONE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CARBON DISULFIDE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,1-DICHLOROETHENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,1-DICHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CHLOROFORM	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,2-DICHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
2-BUTANONE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,1,1-TRICHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CARBON TETRACHLORIDE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
BROMODICHLOROMETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,2-DICHLOROPROPANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
TRICHLOROETHENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
BENZENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
BROMOFORM	13 U	11 U	13 U	13 U	12 U	12 U	12 U
4-METHYL-2-PENTANONE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
2-HEXANONE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
TETRACHLOROETHENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
TOLUENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
CHLOROBENZENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
ETHYLBENZENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
STYRENE	13 U	11 U	13 U	13 U	12 U	12 U	12 U
XYLENE (TOTAL)	13 U	11 U	13 U	13 U	12 U	12 U	12 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB11-00	75-SB12-00	75-SB13-00	75-SB14-00	75-SB01-00	75-SB04-00	75-SB06-00
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/21/96	2/21/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)							
PHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BIS(2-CHLOROETHYL)ETHER	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2-CHLOROPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
1,3-DICHLOROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
1,4-DICHLOROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
1,2-DICHLOROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2-METHYLPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-METHYLPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
HEXACHLOROETHANE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
NITROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
ISOPHORONE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2-NITROPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,4-DIMETHYLPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BIS(2-CHLOROETHOXY)METHAN	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,4-DICHLOROPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
1,2,4-TRICHLOROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
NAPHTHALENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-CHLOROANILINE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
HEXACHLOROBUTADIENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-CHLORO-3-METHYLPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2-METHYLNAPHTHALENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
HEXACHLOROCYCLOPENTADIE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,4,6-TRICHLOROPHENOL	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,4,5-TRICHLOROPHENOL	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
2-CHLORONAPHTHALENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2-NITROANILINE	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
DIMETHYLPHTHALATE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
ACENAPHTHYLENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,6-DINITROTOLUENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
3-NITROANILINE	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
ACENAPHTHENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB11-00	75-SB12-00	75-SB13-00	75-SB14-00	75-SB01-00	75-SB04-00	75-SB06-00
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/21/96	2/21/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.							
2,4-DINITROPHENOL	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
4-NITROPHENOL	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
DIBENZOFURAN	430 U	380 U	420 U	430 U	380 U	410 U	380 U
2,4-DINITROTOLUENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
DIETHYLPHTHALATE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-CHLOROPHENYL-PHENYLETH	430 U	380 U	420 U	430 U	380 U	410 U	380 U
FLUORENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-NITROANILINE	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
N-NITROSODIPHENYLAMINE (1)	430 U	380 U	420 U	430 U	380 U	410 U	380 U
4-BROMOPHENYL-PHENYLETHE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
HEXACHLOROBENZENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
PENTACHLOROPHENOL	1100 U	950 U	1000 U	1100 U	960 U	1000 U	960 U
PHENANTHRENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
ANTHRACENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
CARBAZOLE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
DI-N-BUTYLPHTHALATE	280 J	380 U	420 U	430 U	380 U	410 U	380 U
FLUORANTHENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
PYRENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BUTYLBENZYLPHTHALATE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
3,3'-DICHLOROBENZIDINE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BENZO(A)ANTHRACENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
CHRYSENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BIS(2-ETHYLHEXYL)PHTHALAT	69 J	380 U	420 U	430 U	40 J	87 J	58 J
DI-N-OCTYL PHTHALATE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BENZO(B)FLUORANTHENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BENZO(K)FLUORANTHENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BENZO(A)PYRENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
INDENO(1,2,3-CD)PYRENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
DIBENZO(A,H)ANTHRACENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U
BENZO(G,H,I)PERYLENE	430 U	380 U	420 U	430 U	380 U	410 U	380 U

SITE 75 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB11-00	75-SB12-00	75-SB13-00	75-SB14-00	75-SB01-00	75-SB04-00	75-SB06-00
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/21/96	2/21/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)							
ALPHA-BHC	2.1 UJ	1.9 UJ	2.1 UJ	2.1 UJ	1.9 UJ	2 UJ	1.9 UJ
BETA-BHC	2.1 U	1.9 UJ	2.1 U	2.1 U	1.9 U	2 U	1.9 U
DELTA-BHC	2.1 U	1.9 UJ	2.1 U	2.1 U	1.9 U	2 U	1.9 U
GAMMA-BHC (LINDANE)	2.1 U	1.9 UJ	2.1 U	2.1 U	1.9 U	2 U	1.9 U
HEPTACHLOR	2.1 U	3 J	2.1 U	2.1 U	1.9 U	2 U	1.9 U
ALDRIN	2.1 U	1.9 UJ	2.1 U	2.1 U	1.9 U	2 U	1.9 U
HEPTACHLOR EPOXIDE	2.1 U	37 J	2.1 U	2.1 U	1.9 U	2 U	1.9 U
ENDOSULFAN I	2.1 U	1.9 UJ	2.1 U	2.1 U	1.9 U	2 U	1.9 U
DIELDRIN	4.2 U	3.8 UJ	4.1 U	4.3 U	3.4 J	4 U	3.8 U
4,4'-DDE	2.5 J	38 J	12 J	8.1 J	3.8 UJ	8.1 J	3.8 UJ
ENDRIN	4.2 U	11 J	4.1 U	4.3 U	3.8 U	4 U	3.8 U
ENDOSULFAN II	4.2 U	3.8 UJ	4.1 U	4.3 U	3.8 U	4 U	3.8 U
4,4'-DDD	4.2 U	47 NJ	4.1 U	4.3 U	3.8 U	1.6 NJ	3.8 U
ENDOSULFAN SULFATE	4.2 U	3.8 UJ	4.1 U	4.3 U	3.8 U	4 U	3.8 U
4,4'-DDT	4.2	3.8 UJ	7.9 J	10	2.3 J	6.5	2.3 J
METHOXYCHLOR	21 U	19 UJ	21 U	21 U	19 U	20 U	19 U
ENDRIN KETONE	4.2 U	3.8 UJ	4.1 U	4.3 U	3.8 U	4 U	3.8 U
ENDRIN ALDEHYDE	4.2 U	3.8 UJ	4.1 U	4.3 U	3.8 U	4 U	3.8 U
ALPHA-CHLORDANE	2.1 U	440	2.1 U	2.1 U	1.1 NJ	3.2 UJ	1.9 U
GAMMA-CHLORDANE	2.1 U	470	2.1 U	2.1 U	1.1 J	2	1.9 U
TOXAPHENE	210 U	190 UJ	210 U	210 U	190 U	200 U	190 U
AROCLOR-1016	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U
AROCLOR-1221	85 U	76 UJ	83 U	86 U	76 U	81 U	76 U
AROCLOR-1232	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U
AROCLOR-1242	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U
AROCLOR-1248	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U
AROCLOR-1254	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U
AROCLOR-1260	42 U	38 UJ	41 U	43 U	38 U	40 U	38 U

SITE 75 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW04-00	75-GW05-00	75-SB01-00	75-SB02-00	75-SB04-00	75-SB05-00	75-SB06-00	75-SB07-00
DATE SAMPLED	02/21/96	02/22/96	02/21/96	02/22/96	02/21/96	02/22/96	02/21/96	02/22/96
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	6860	5720	6630	5610	6000	6300	7110	6930
ANTIMONY, TOTAL	3.7 UJ	3.9 UJ	4.2 UJ	4 UJ	4.6 UJ	3.7 UJ	4.4 UJ	4.3 UJ
ARSENIC, TOTAL	1.7 J	0.65 J	0.86 J	1.1 J	0.82 J	1	0.69 J	0.67 J
BARIUM, TOTAL	16.9	14.7	43.1	16	17.2	26.9	21.4	12.6
BERYLLIUM, TOTAL	0.15 U	0.16 U	0.17 U	0.16 U	0.19 U	0.15 U	0.18 U	0.17 U
CADMIUM, TOTAL	0.42 U	0.44 U	0.47 U	0.45 U	0.51 U	0.42 U	0.49 U	0.48 U
CALCIUM, TOTAL	936	1490	4830	1610	1170	1060	8090	1500
CHROMIUM, TOTAL	8	5.6	8.1	6	5.9	6.3	8.3	6.4
COBALT, TOTAL	0.61	0.61	0.64 U	0.79	0.82	0.57 U	0.8	0.65 U
COPPER, TOTAL	4.2	2	1.6	2.6	5.1	2.8	1.5	3.8
IRON, TOTAL	3900	2570 J	3340	2920 J	2780	3120	3060	2830
LEAD, TOTAL	58.4 J	15.6 J	10.3 J	16.7 J	17.2 J	45.2	9.7 J	16.9 J
MAGNESIUM, TOTAL	314	233	338	184	184	203	403	189
MANGANESE, TOTAL	11.9	13.1	8.2	11.2	14.5	6.1	11	8.9
MERCURY, TOTAL	0.04 U	0.05 U	0.05 U	0.06 U	0.06 U	0.05 U	0.05 U	0.12
NICKEL, TOTAL	2.5	3.7	2.4 U	2.3 U	2.6 U	2.1 U	2.5 U	2.5 U
POTASSIUM, TOTAL	177	199	300	168 U	209	156 U	211	180 U
SELENIUM, TOTAL	0.3 J	0.25 UJ	0.26 J	0.25 UJ	0.26 UJ	0.23 U	0.35 J	0.3 UJ
SILVER, TOTAL	0.59 U	0.62 U	0.66 U	0.63 U	0.72 U	0.59 U	0.69 U	0.68 U
SODIUM, TOTAL	13.7	36.6 J	22.8	28.6 J	25.7	25.7 J	24.8	9.8
THALLIUM, TOTAL	0.15 U	0.33 U	0.18 U	0.33 U	0.18 U	0.16 U	0.15 U	0.21 U
VANADIUM, TOTAL	13.3	9.6	11.2	10.2	9.4	11.1	11.6	9.6
ZINC, TOTAL	30.8	8.7	7.1	15.3	64	30	21.6	21.7

SITE 75 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB08-00	75-SB09-00	75-SB10-00	75-SB11-00	75-SB12-00	75-SB13-00	75-SB14-00
DATE SAMPLED	02/22/96	02/22/96	02/22/96	02/22/96	02/22/96	02/22/96	02/22/96
TOTAL METALS (mg/kg)							
ALUMINUM, TOTAL	8310	5520	4150	5810	5120	3070	4480
ANTIMONY, TOTAL	3.6 UJ	3.2 UJ	3.4 UJ	5 UJ	4.2 UJ	4.5 UJ	4.3 UJ
ARSENIC, TOTAL	0.44 J	0.69 J	1.1 J	0.68 J	0.85 J	0.74 J	0.61 J
BARIUM, TOTAL	15.8	12.9	10.7	8.9	9.8	13.3	12.5
BERYLLIUM, TOTAL	0.15 U	0.13 U	0.14 U	0.2 U	0.17 U	0.18 U	0.17 U
CADMIUM, TOTAL	0.41 U	0.36 U	0.38 U	0.55 U	0.47 U	0.5 U	0.48 U
CALCIUM, TOTAL	1120	15500	1170	2250	44700	1960	2000
CHROMIUM, TOTAL	8	6.2	4.6	5.5	6.9	4	5
COBALT, TOTAL	0.62	0.49 U	0.52 U	0.81	0.64 U	0.68 U	0.65 U
COPPER, TOTAL	1.1	1.2	1.4	1.5	2.6	5	2.4
IRON, TOTAL	3500 J	3450	1730 J	2300 J	3600 J	1600 J	1990 J
LEAD, TOTAL	10.5 J	12 J	20.6 J	18.2 J	27.3 J	21 J	32.3 J
MAGNESIUM, TOTAL	274	426	279	221	734	97	175
MANGANESE, TOTAL	9.9	7.7	16.7	8.6	12.2	11.9	12.1
MERCURY, TOTAL	0.05 U	0.05 U	0.06 U	0.06 U	0.1	0.08	0.06 U
NICKEL, TOTAL	2.1 U	1.9 U	1.9 U	2.8 U	2.4 U	2.6 U	2.4 U
POTASSIUM, TOTAL	153 U	196	143 U	208 U	182	188 U	179 U
SELENIUM, TOTAL	0.27 J	0.27 UJ	0.26 UJ	0.32 J	0.24 UJ	0.27 J	0.24 UJ
SILVER, TOTAL	0.57 U	0.51 U	0.53 U	0.78 U	0.66 U	0.7 U	0.67 U
SODIUM, TOTAL	72.6	31.5	16.6 J	38.5 J	138	16.9 J	19.6 J
THALLIUM, TOTAL	0.31 U	0.19 U	0.34 U	0.33 U	0.31 U	0.35 U	0.31 U
VANADIUM, TOTAL	13.1	9.8	8	11.9	10.3	6	8.8
ZINC, TOTAL	9.2	5.5	27.1	13	16.6	22	19.5

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB01-01	75-SB02-02	75-SBO3-01	75-SBO3-02	75-SBO4-01	75-SB05-02	75-SBO6-01	75-SB07-01	75-SB08-01
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/21/96	2/21/96	2/22/96	2/21/96	2/22/96	2/22/96
DEPTH	1-3'	3-5'	1-3'	3-5'	1-3'	3-5'	1-3'	1-3'	1-3'
VOLATILES (ug/kg)									
CHLOROMETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 UJ
BROMOMETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
VINYL CHLORIDE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
METHYLENE CHLORIDE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
ACETONE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CARBON DISULFIDE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CHLOROFORM	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
2-BUTANONE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,1,1-TRICHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CARBON TETRACHLORIDE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
BROMODICHLOROMETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,2-DICHLOROPROPANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
TRICHLOROETHENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
BENZENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
BROMOFORM	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
4-METHYL-2-PENTANONE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
2-HEXANONE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
TETRACHLOROETHENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
TOLUENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
CHLOROBENZENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
ETHYLBENZENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
STYRENE	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U
XYLENE (TOTAL)	11 U	12 U	11 U	12 U	14 U	12 U	12 U	12 U	12 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB01-01	75-SB02-02	75-SBO3-01	75-SBO3-02	75-SBO4-01	75-SB05-02	75-SBO6-01	75-SB07-01	75-SB08-01
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/21/96	2/21/96	2/22/96	2/21/96	2/22/96	2/22/96
DEPTH	1-3'	3-5'	1-3'	3-5'	1-3'	3-5'	1-3'	1-3'	1-3'
SEMIVOLATILES (ug/kg)									
PHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BIS(2-CHLOROETHYL)ETHER	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2-CHLOROPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
1,3-DICHLOROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
1,4-DICHLOROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
1,2-DICHLOROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2-METHYLPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-METHYLPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
N-NITROSO-DI-N-PROPYLAMINE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
HEXACHLOROETHANE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
NITROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
ISOPHORONE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2-NITROPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,4-DIMETHYLPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BIS(2-CHLOROETHOXY)METHANE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,4-DICHLOROPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
1,2,4-TRICHLOROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
NAPHTHALENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-CHLOROANILINE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
HEXACHLOROBUTADIENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-CHLORO-3-METHYLPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2-METHYLNAPHTHALENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
HEXACHLOROCYCLOPENTADIENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,4,6-TRICHLOROPHENOL	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,4,5-TRICHLOROPHENOL	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
2-CHLORONAPHTHALENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2-NITROANILINE	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
DIMETHYLPHTHALATE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
ACENAPHTHYLENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,6-DINITROTOLUENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
3-NITROANILINE	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
ACENAPHTHENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB01-01	75-SB02-02	75-SBO3-01	75-SBO3-02	75-SBO4-01	75-SB05-02	75-SBO6-01	75-SB07-01	75-SB08-01
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/21/96	2/21/96	2/22/96	2/21/96	2/22/96	2/22/96
DEPTH	1-3'	3-5'	1-3'	3-5'	1-3'	3-5'	1-3'	1-3'	1-3'
SEMIVOLATILES (ug/kg) cont.									
2,4-DINITROPHENOL	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
4-NITROPHENOL	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
DIBENZOFURAN	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
2,4-DINITROTOLUENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
DIETHYLPHTHALATE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-CHLOROPHENYL-PHENYLETHER	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
FLUORENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-NITROANILINE	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
N-NITROSODIPHENYLAMINE (1)	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
4-BROMOPHENYL-PHENYLETHER	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
HEXACHLOROBENZENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
PENTACHLOROPHENOL	930 U	1000 U	940 U	950 U	1100 U	1000 U	960 U	1000 U	1000 U
PHENANTHRENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
ANTHRACENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
CARBAZOLE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
DI-N-BUTYLPHTHALATE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	64 J
FLUORANTHENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
PYRENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BUTYLBENZYLPHTHALATE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
3,3'-DICHLOROBENZIDINE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BENZO(A)ANTHRACENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
CHRYSENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 U	400 U	66 J	40 J	440 U	400 U	64 J	400 U	400 U
DI-N-OCTYL PHTHALATE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BENZO(B)FLUORANTHENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BENZO(K)FLUORANTHENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BENZO(A)PYRENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
INDENO(1,2,3-CD)PYRENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
DIBENZO(A,H)ANTHRACENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U
BENZO(G,H,I)PERYLENE	370 U	400 U	370 U	380 U	440 U	400 U	380 U	400 U	400 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB01-01	75-SB02-02	75-SBO3-01	75-SBO3-02	75-SBO4-01	75-SB05-02	75-SBO6-01	75-SB07-01	75-SB08-01
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/21/96	2/21/96	2/22/96	2/21/96	2/22/96	2/22/96
DEPTH	1-3'	3-5'	1-3'	3-5'	1-3'	3-5'	1-3'	1-3'	1-3'
PESTICIDE/PCBS (ug/kg)									
ALPHA-BHC	1.8 UJ	2 UJ	1.9 UJ	2 UJ	2.2 U	2 UJ	1.9 UJ	2 UJ	2 UJ
BETA-BHC	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
DELTA-BHC	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
GAMMA-BHC (LINDANE)	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
HEPTACHLOR	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
ALDRIN	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
HEPTACHLOR EPOXIDE	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
ENDOSULFAN I	1.8 U	2 U	1.9 U	2 U	2.2 U	2 U	1.9 U	2 U	2 UJ
DIELDRIN	3.7 U	4.1 U	1.5 J	6.6 J	4.5 U	3.9 U	3.8 U	4 U	4 UJ
4,4'-DDE	6.7 J	4.1 UJ	39 J	20 J	4.5 UJ	3.9 UJ	3.8 UJ	4 UJ	4 UJ
ENDRIN	3.7 U	4.1 U	3.8 U	3.9 U	4.5 U	3.9 U	3.8 U	4 U	4 UJ
ENDOSULFAN II	3.7 U	4.1 U	3.8 U	3.9 U	4.5 U	3.9 U	3.8 U	4 U	4 UJ
4,4'-DDD	3.7 U	4.1 U	40	41	4.5 U	3.9 U	3.8 U	4 U	4 UJ
ENDOSULFAN SULFATE	3.7 U	4.1 U	3.8 U	3.9 U	4.5 U	3.9 U	3.8 U	4 U	4 UJ
4,4'-DDT	3.7	4.1 U	10 J	4.7	4.5 U	3.9 U	3.8 U	4 U	4 UJ
METHOXYCHLOR	18 U	20 U	19 U	20 U	22 U	20 U	19 U	20 U	20 UJ
ENDRIN KETONE	3.7 U	4.1 U	3.8 U	3.9 U	4.5 U	3.9 U	3.8 U	4 U	4 UJ
ENDRIN ALDEHYDE	3.7 U	4.1 U	3.8 U	3.9 U	4.5 U	3.9 U	3.8 U	4 U	4 UJ
ALPHA-CHLORDANE	1.8 U	2 U	1.9 J	2.7 J	2.2 U	2 U	1.9 U	2 U	2 UJ
GAMMA-CHLORDANE	1.8 U	2 U	1.1 J	2	2.2 U	2 U	1.9 U	2 U	2 UJ
TOXAPHENE	180 U	200 U	190 U	200 U	220 U	200 U	190 U	200 U	200 UJ
AROCLOR-1016	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ
AROCLOR-1221	74 U	82 U	75 U	78 U	90 U	79 U	76 U	80 U	79 UJ
AROCLOR-1232	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ
AROCLOR-1242	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ
AROCLOR-1248	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ
AROCLOR-1254	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ
AROCLOR-1260	37 U	41 U	38 U	39 U	45 U	39 U	38 U	40 U	40 UJ

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB09-02	75-SB10-01	75-SB11-01	75-SB12-01	75-SB13-01	75-SB14-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/22/96
DEPTH	3-5'	1-3'	1-3'	1-3'	1-3'	1-3'		
VOLATILES (ug/kg)								
CHLOROMETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 UJ
BROMOMETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
VINYL CHLORIDE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
METHYLENE CHLORIDE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
ACETONE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CARBON DISULFIDE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CHLOROFORM	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
2-BUTANONE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,1,1-TRICHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CARBON TETRACHLORIDE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
BROMODICHLOROMETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,2-DICHLOROPROPANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
TRICHLOROETHENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
BENZENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
BROMOFORM	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
4-METHYL-2-PENTANONE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
2-HEXANONE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
TETRACHLOROETHENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
TOLUENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
CHLOROBENZENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
ETHYLBENZENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
STYRENE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U
XYLENE (TOTAL)	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB09-02	75-SB10-01	75-SB11-01	75-SB12-01	75-SB13-01	75-SB14-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/22/96
DEPTH	3-5'	1-3'	1-3'	1-3'	1-3'	1-3'		
SEMIVOLATILES (ug/kg)								
PHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BIS(2-CHLOROETHYL)ETHER	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2-CHLOROPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
1,3-DICHLOROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
1,4-DICHLOROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
1,2-DICHLOROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2-METHYLPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-METHYLPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
N-NITROSO-DI-N-PROPYLAMINE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
HEXACHLOROETHANE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
NITROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
ISOPHORONE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2-NITROPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,4-DIMETHYLPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BIS(2-CHLOROETHOXY)METHANE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,4-DICHLOROPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
1,2,4-TRICHLOROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
NAPHTHALENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-CHLOROANILINE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
HEXACHLOROBUTADIENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-CHLORO-3-METHYLPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2-METHYLNAPHTHALENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
HEXACHLOROCYCLOPENTADIENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,4,6-TRICHLOROPHENOL	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,4,5-TRICHLOROPHENOL	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
2-CHLORONAPHTHALENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2-NITROANILINE	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
DIMETHYLPHTHALATE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
ACENAPHTHYLENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,6-DINITROTOLUENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
3-NITROANILINE	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
ACENAPHTHENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB09-02	75-SB10-01	75-SB11-01	75-SB12-01	75-SB13-01	75-SB14-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/22/96
DEPTH	3-5'	1-3'	1-3'	1-3'	1-3'	1-3'		
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
4-NITROPHENOL	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
DIBENZOFURAN	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
2,4-DINITROTOLUENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
DIETHYLPHTHALATE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-CHLOROPHENYL-PHENYLETHER	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
FLUORENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-NITROANILINE	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
4,6-DINITRO-2-METHYLPHENOL	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
N-NITROSODIPHENYLAMINE (1)	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
4-BROMOPHENYL-PHENYLETHER	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
HEXACHLOROBENZENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
PENTACHLOROPHENOL	970 U	980 U	1000 U	960 U	1000 U	1000 U	1000 U	970 U
PHENANTHRENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
ANTHRACENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
CARBAZOLE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
DI-N-BUTYLPHTHALATE	390 U	390 U	400 U	380 U	400 U	100 J	410 U	200 J
FLUORANTHENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
PYRENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BUTYLBENZYLPHTHALATE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
3,3'-DICHLOROBENZIDINE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BENZO(A)ANTHRACENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
CHRYSENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
DI-N-OCTYL PHTHALATE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BENZO(B)FLUORANTHENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BENZO(K)FLUORANTHENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BENZO(A)PYRENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
INDENO(1,2,3-CD)PYRENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
DIBENZO(A,H)ANTHRACENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U
BENZO(G,H,I)PERYLENE	390 U	390 U	400 U	380 U	400 U	400 U	410 U	390 U

SITE 75 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB09-02	75-SB10-01	75-SB11-01	75-SB12-01	75-SB13-01	75-SB14-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/22/96
DEPTH	3-5'	1-3'	1-3'	1-3'	1-3'	1-3'		
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2 UJ	2 UJ	2 UJ	1.9 UJ	2 UJ	2 UJ	2 UJ	2 UJ
BETA-BHC	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
DELTA-BHC	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
GAMMA-BHC (LINDANE)	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
HEPTACHLOR	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
ALDRIN	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
HEPTACHLOR EPOXIDE	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
ENDOSULFAN I	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
DIELDRIN	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
4,4'-DDE	3.9 UJ	4 UJ	4 UJ	3.9 UJ	4 UJ	3.9 UJ	4.1 UJ	3.9 UJ
ENDRIN	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
ENDOSULFAN II	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
4,4'-DDD	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
ENDOSULFAN SULFATE	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
4,4'-DDT	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
METHOXYCHLOR	20 U	20 U	20 UJ	19 UJ	20 U	20 UJ	20 U	20 U
ENDRIN KETONE	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
ENDRIN ALDEHYDE	3.9 U	4 U	4 UJ	3.9 UJ	4 U	3.9 UJ	4.1 U	3.9 U
ALPHA-CHLORDANE	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
GAMMA-CHLORDANE	2 U	2 U	2 UJ	1.9 UJ	2 U	2 UJ	2 U	2 U
TOXAPHENE	200 U	200 U	200 UJ	190 UJ	200 U	200 UJ	200 U	200 U
AROCLOR-1016	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U
AROCLOR-1221	78 U	80 U	80 UJ	77 UJ	80 U	79 UJ	82 U	78 U
AROCLOR-1232	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U
AROCLOR-1242	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U
AROCLOR-1248	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U
AROCLOR-1254	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U
AROCLOR-1260	39 U	40 U	40 UJ	39 UJ	40 U	39 UJ	41 U	39 U

SITE 75 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB01-01	75-SB02-02	75-SB03-01	75-SB03-02	75-SB04-01	75-SB05-02	75-SB06-01	75-SB07-01	75-SB08-01
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/21/96	2/21/96	2/22/96	2/21/96	2/22/96	2/22/96
DEPTH	1-3'	3-5'	1-3'	3-5'	1-3'	3-5'	1-3'	1-3'	1-3'
TOTAL METALS (mg/kg)									
ALUMINUM, TOTAL	6340	3490	9080	6120	9730	7780	8170	9640	8020
ANTIMONY, TOTAL	4.2 UJ	3.5 UJ	4.5 J	3.2 UJ	4.8 UJ	3.8 UJ	3.8 UJ	3.4 UJ	3.7 UJ
ARSENIC, TOTAL	1.1 J	0.43 J	0.92 J	0.54 J	0.96 J	0.47	0.16 UJ	0.15 UJ	0.22 J
BARIUM, TOTAL	20.5	31.7	41.4	36.5	20.5	11.2	9.5	12.5	10
BERYLLIUM, TOTAL	0.17 U	0.14 U	0.17 U	0.13 U	0.2 U	0.15 U	0.15 U	0.14 U	0.15 U
CADMIUM, TOTAL	0.47 U	0.39 U	0.46 U	0.35 U	0.54 U	0.42 U	0.42 U	0.38 U	0.41 U
CALCIUM, TOTAL	12600	355	1740	2820	253	126	948	631	74.6 U
CHROMIUM, TOTAL	8.1	3.4	12.6	10.4	9.4	8.1	7.3	8.5	7
COBALT, TOTAL	1.2	0.66	0.63 U	0.51	0.91	0.58	0.58 U	0.65	0.55 U
COPPER, TOTAL	1.5	0.76	1.4	0.83	1.5	0.76	0.77	0.45	0.37 U
IRON, TOTAL	3010	1320 J	2360	1990	2770	2600	1500	3370	1490 J
LEAD, TOTAL	11.7 J	5.2 J	8 J	6 J	8.3 J	5.2	4.6 J	6.5 J	4.7 J
MAGNESIUM, TOTAL	409	79.5	453	310	217	273	327	344	261
MANGANESE, TOTAL	7.7	5.1	7.4	7	4.4	4.8	5.7	5.4	5
MERCURY, TOTAL	0.05 U	0.06 U	0.05 U	0.05 U	0.06 U	0.05 U	0.04 U	0.05 U	0.06 U
NICKEL, TOTAL	2.4 U	2 U	2.4 U	16.7	2.8 U	2.1 U	2.2 U	2 U	2.5
POTASSIUM, TOTAL	177	146 U	359	240	202 U	283	221	187	153 U
SELENIUM, TOTAL	0.29 UJ	0.27 UJ	0.2 UJ	0.21 UJ	0.55 J	0.23 U	0.28 J	0.21 UJ	0.25 UJ
SILVER, TOTAL	0.66 U	0.55 U	0.65 U	0.49 U	0.76 U	0.59 U	0.6 U	0.54 U	0.57 U
SODIUM, TOTAL	22	26.9 J	10.9	21.5	21.6	18.7 J	19.3	10.9	46.5 J
THALLIUM, TOTAL	0.2 U	0.35 U	0.14 U	0.15 U	0.2 U	0.16 U	0.16 U	0.15 U	0.32 U
VANADIUM, TOTAL	10.3	4	10.3	7.8	9.8	10.4	8.3	13.8	8.7
ZINC, TOTAL	7.5	1.8 U	4.4	3.4	3.3	4	39.2	2.3	5.3

SITE 75 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-SB09-02	75-SB10-01	75-SB11-01	75-SB12-01	75-SB13-01	75-SB14-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/22/96	2/21/96	2/22/96
DEPTH	3-5'	1-3'	1-3'	1-3'	1-3'	1-3'		
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	1590	9980	12200	5720	8070	10500	18500	12800
ANTIMONY, TOTAL	3.3 UJ	4.2 UJ	4 UJ	4.3 UJ	4.1 UJ	4.1 UJ	4 UJ	4.1 UJ
ARSENIC, TOTAL	0.2 UJ	44.6 J	0.47	0.66 J	0.48 J	0.45 J	1.3 J	0.31 J
BARIUM, TOTAL	2.6	15.7	12.6	5.8	8.3	11.9	21.8	14.7
BERYLLIUM, TOTAL	0.13 U	0.17 U	0.17	0.17 U	0.16 U	0.16 U	0.16 U	0.17 U
CADMIUM, TOTAL	0.37 U	0.47 U	0.44 U	0.48 U	0.45 U	0.45 U	0.44 U	0.46 U
CALCIUM, TOTAL	277	2500	886	542	93.7	134	200 U	206
CHROMIUM, TOTAL	2.4	9.1	10.1	6.4	7.6	8.9	19.7	10.9
COBALT, TOTAL	0.5 U	0.91	0.75	0.65 U	0.62 U	0.61 U	1.2	0.62 U
COPPER, TOTAL	0.37	0.98	0.42	0.43 U	0.41 U	0.41 U	1.2	0.63
IRON, TOTAL	449	6580 J	3530	7450 J	7290 J	4210 J	6550	6660 J
LEAD, TOTAL	2.4 J	17.1 J	4.9 J	5 J	6 J	5 J	9.8 J	5.2 J
MAGNESIUM, TOTAL	47	1300	424	192	250	318	643	409
MANGANESE, TOTAL	1.8	22.3	6.4	4	3.8	4.8	8.1	6.6
MERCURY, TOTAL	0.04 U	0.05 U	0.05 U	0.06 U	0.06 U	0.04 U	0.06 U	0.05 U
NICKEL, TOTAL	1.9 U	2.7	2.3 U	2.4 U	2.3 U	2.3 U	2.3 U	3.1
POTASSIUM, TOTAL	139 U	177 U	212	220	170 U	170 U	452	192
SELENIUM, TOTAL	0.29 UJ	0.23 UJ	0.27 U	0.28 J	0.24 UJ	0.26 J	0.34 J	0.24 UJ
SILVER, TOTAL	0.52 U	0.66 U	0.62 U	0.67 U	0.64 U	0.63 U	0.62 U	0.64 U
SODIUM, TOTAL	3.6 U	24.5 J	62.1 J	21.3 J	8 J	17.7 J	23	58.6 J
THALLIUM, TOTAL	0.2 U	0.3 U	0.18 U	0.31 U	0.32 U	0.31 U	0.2 U	0.31 U
VANADIUM, TOTAL	2.6	14.1	14.5	10.8	12.7	13.6	24.6	16.6
ZINC, TOTAL	0.6 U	26.7	3.7	2 U	2.3 U	6.7	5.8	4.2

SITE 75 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW01-01	75-GW02-01	75-GW03-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/24/96	2/25/96	2/24/96	2/25/96	2/25/96
VOLATILES (ug/L)					
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 U	10 U
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)	10 U	10 U	10 U	10 U	10 U
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	10 U	10 U	10 U	10 U
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	10 U	10 U	10 U	10 U
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	10 U	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 75 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW01-01	75-GW02-01	75-GW03-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/24/96	2/25/96	2/24/96	2/25/96	2/25/96
SEMIVOLATILES (ug/L)					
PHENOL	10 U	10 U	10 U	10 U	11 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	11 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	11 U
1,3-DICHLOROBENZENE	10 U	10 U	10 U	10 U	11 U
1,4-DICHLOROBENZENE	10 U	10 U	10 U	10 U	11 U
1,2-DICHLOROBENZENE	10 U	10 U	10 U	10 U	11 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	11 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	11 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	11 U
NITROBENZENE	10 U	10 U	10 U	10 U	11 U
ISOPHORONE	10 U	10 U	10 U	10 U	11 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	11 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	11 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	11 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	11 U
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	11 U
NAPHTHALENE	10 U	10 U	10 U	10 U	11 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	11 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	11 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	11 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	11 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	11 U
2,4,5-TRICHLOROPHENOL	24 U	25 U	24 U	25 U	27 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	11 U
2-NITROANILINE	24 U	25 U	24 U	25 U	27 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	11 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	11 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	11 U
3-NITROANILINE	24 U	25 U	24 U	25 U	27 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	11 U
2,4-DINITROPHENOL	24 U	25 U	24 U	25 U	27 U

SITE 75 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW01-01	75-GW02-01	75-GW03-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/24/96	2/25/96	2/24/96	2/25/96	2/25/96
SEMIVOLATILES (ug/L) cont.					
4-NITROPHENOL	24 U	25 U	24 U	25 U	27 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	11 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	11 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	11 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	11 U
FLUORENE	10 U	10 U	10 U	10 U	11 U
4-NITROANILINE	24 U	25 U	24 U	25 U	27 U
4,6-DINITRO-2-METHYLPHENOL	24 U	25 U	24 U	25 U	27 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	11 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	11 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	11 U
PENTACHLOROPHENOL	24 U	25 U	24 U	25 U	27 U
PHENANTHRENE	10 U	10 U	10 U	10 U	11 U
ANTHRACENE	10 U	10 U	10 U	10 U	11 U
CARBAZOLE	10 U	10 U	10 U	10 U	11 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	11 U
FLUORANTHENE	10 U	10 U	10 U	10 U	11 U
PYRENE	10 U	10 U	10 U	10 U	11 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	11 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	11 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	11 U
CHRYSENE	10 U	10 U	10 U	10 U	11 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	10 U	11 U
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	10 U	11 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	11 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	11 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	11 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	11 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	11 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	11 U

SITE 75 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW01-01	75-GW02-01	75-GW03-01	75-GW04-01	75-GW05-01
DATE SAMPLED	2/24/96	2/25/96	2/24/96	2/25/96	2/25/96
PESTICIDE/PCBS (ug/L)					
ALPHA-BHC	0.047 UJ	0.05 UJ	0.048 UJ	0.05 UJ	0.047 UJ
BETA-BHC	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
DELTA-BHC	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
GAMMA-BHC (LINDANE)	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
HEPTACHLOR	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
ALDRIN	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
HEPTACHLOR EPOXIDE	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
ENDOSULFAN I	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
DIELDRIN	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
4,4'-DDE	0.094 UJ	0.1 UJ	0.095 UJ	0.1 UJ	0.094 UJ
ENDRIN	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
ENDOSULFAN II	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
4,4'-DDD	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
ENDOSULFAN SULFATE	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
4,4'-DDT	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
METHOXYCHLOR	0.47 UJ	0.5 U	0.48 U	0.5 U	0.47 UJ
ENDRIN KETONE	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
ENDRIN ALDEHYDE	0.094 UJ	0.1 U	0.095 U	0.1 U	0.094 UJ
ALPHA-CHLORDANE	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
GAMMA-CHLORDANE	0.047 UJ	0.05 U	0.048 U	0.05 U	0.047 UJ
TOXAPHENE	4.7 UJ	5 U	4.8 U	5 U	4.7 UJ
AROCLOR-1016	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ
AROCLOR-1221	1.9 UJ	2 U	1.9 U	2 U	1.9 UJ
AROCLOR-1232	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ
AROCLOR-1242	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ
AROCLOR-1248	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ
AROCLOR-1254	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ
AROCLOR-1260	0.94 UJ	1 U	0.95 U	1 U	0.94 UJ

SITE 75 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW01-01	75-GW02-01	75-GW03-01	75-GW04-01	75-GW05-01
DATE SAMPLED	02/24/96	02/25/96	02/24/96	02/25/96	02/25/96
TOTAL METALS (ug/L)					
ALUMINUM, TOTAL	150 U	211 U	785	265 U	142 U
ANTIMONY, TOTAL	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U
ARSENIC, TOTAL	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
BARIUM, TOTAL	19.8	5.1 U	45.9	29.8	35.7
BERYLLIUM, TOTAL	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
CADMIUM, TOTAL	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
CALCIUM, TOTAL	8950	33600	5270	8660	4450
CHROMIUM, TOTAL	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
COBALT, TOTAL	3 U	3 U	3 U	3.2	3.6
COPPER, TOTAL	2 U	2.6	2 U	2.6	2 U
IRON, TOTAL	53.4 U	93.7 U	439	221 U	181 U
LEAD, TOTAL	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
MAGNESIUM, TOTAL	913	339	863	2720	875
MANGANESE, TOTAL	3.2	1.6 U	7.1	68.3	41.6
MERCURY, TOTAL	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U
POTASSIUM, TOTAL	828 U	828 U	828 U	1070	828 U
SELENIUM, TOTAL	1.3 U	2.1 J	1.3 U	1.3 U	1.3 U
SILVER, TOTAL	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
SODIUM, TOTAL	3310	1810	2710	6780	24300
THALLIUM, TOTAL	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
VANADIUM, TOTAL	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
ZINC, TOTAL	76.7	3.6 U	3.8	13.5	13.5

SITE 75 - GROUNDWATER
DISSOLVED METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	75-GW02D-01	75-GW04D-01
DATE_SAMP	02/25/96	02/25/96
DISSOLVED METALS (ug/L)		
ALUMINUM, SOLUBLE	28.8 U	137 U
ANTIMONY, SOLUBLE	25.4	19.8 U
ARSENIC, SOLUBLE	0.9 U	0.9 U
BARIUM, SOLUBLE	3.9 U	29.3
BERYLLIUM, SOLUBLE	0.8 U	0.8 U
CADMIUM, SOLUBLE	2.2 U	2.2 U
CALCIUM, SOLUBLE	32900	9150
CHROMIUM, SOLUBLE	2.4 U	2.4 U
COBALT, SOLUBLE	3 U	3 U
COPPER, SOLUBLE	2.4	3.2
IRON, SOLUBLE	28.9 U	138 U
LEAD, SOLUBLE	0.8 U	0.8 U
MAGNESIUM, SOLUBLE	320	3140
MANGANESE, SOLUBLE	1.6 U	66.1
MERCURY, SOLUBLE	0.1 U	0.1 U
NICKEL, SOLUBLE	11.3 U	11.3 U
POTASSIUM, SOLUBLE	828 U	1230
SELENIUM, SOLUBLE	1.3 U	1.3 U
SILVER, SOLUBLE	3.1 U	3.1 U
SODIUM, SOLUBLE	1830	6930
THALLIUM, SOLUBLE	1.7 U	1.7 U
VANADIUM, SOLUBLE	2.4 U	2.4 U
ZINC, SOLUBLE	10	15

SITE 76

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GWO3-00	76-GW04-00	76-GWO5-00	76-SB01-00	76-SB02-00	76-SB03-00	76-SB04-00	76-SB05-00
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)								
CHLOROMETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
BROMOMETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
VINYL CHLORIDE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
CHLOROETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
METHYLENE CHLORIDE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
ACETONE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
CARBON DISULFIDE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,1-DICHLOROETHENE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,1-DICHLOROETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,2-DICHLOROETHENE (TOTAL)	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
CHLOROFORM	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,2-DICHLOROETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
2-BUTANONE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,1,1-TRICHLOROETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
CARBON TETRACHLORIDE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
BROMODICHLOROMETHANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
1,2-DICHLOROPROPANE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
CIS-1,3-DICHLOROPROPENE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
TRICHLOROETHENE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
DIBROMOCHLOROMETHANE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
1,1,2-TRICHLOROETHANE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
BENZENE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
TRANS-1,3-DICHLOROPROPENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
BROMOFORM	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
4-METHYL-2-PENTANONE	13 U	11 U	12 U	12 U	12 U	11 U	13 U	14 U
2-HEXANONE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
TETRACHLOROETHENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
1,1,2,2-TETRACHLOROETHANE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
TOLUENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
CHLOROBENZENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
ETHYLBENZENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
STYRENE	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U
XYLENE (TOTAL)	13 U	11 U	12 U	12 U	12 UJ	11 U	13 U	14 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GWO3-00	76-GW04-00	76-GWO5-00	76-SB01-00	76-SB02-00	76-SB03-00	76-SB04-00	76-SB05-00
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)								
PHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BIS(2-CHLOROETHYL)ETHER	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2-CHLOROPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
1,3-DICHLOROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
1,4-DICHLOROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
1,2-DICHLOROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2-METHYLPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,2'-OXYBIS(1-CHLOROPROPANE)	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-METHYLPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
N-NITROSO-DI-N-PROPYLAMINE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
HEXACHLOROETHANE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
NITROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
ISOPHORONE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2-NITROPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,4-DIMETHYLPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BIS(2-CHLOROETHOXY)METHAN	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,4-DICHLOROPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
1,2,4-TRICHLOROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
NAPHTHALENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-CHLOROANILINE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
HEXACHLOROBUTADIENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-CHLORO-3-METHYLPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2-METHYLNAPHTHALENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
HEXACHLOROCYCLOPENTADIE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,4,6-TRICHLOROPHENOL	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,4,5-TRICHLOROPHENOL	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
2-CHLORONAPHTHALENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2-NITROANILINE	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
DIMETHYLPHTHALATE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
ACENAPHTHYLENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,6-DINITROTOLUENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
3-NITROANILINE	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
ACENAPHTHENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GWO3-00	76-GW04-00	76-GWO5-00	76-SB01-00	76-SB02-00	76-SB03-00	76-SB04-00	76-SB05-00
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
4-NITROPHENOL	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
DIBENZOFURAN	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
2,4-DINITROTOLUENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
DIETHYLPHTHALATE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-CHLOROPHENYL-PHENYLETH	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
FLUORENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-NITROANILINE	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
N-NITROSODIPHENYLAMINE (1)	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
4-BROMOPHENYL-PHENYLETHE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
HEXACHLOROBENZENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
PENTACHLOROPHENOL	1100 U	950 U	970 U	1000 U	1000 U	940 U	1000 U	1200 U
PHENANTHRENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	61 J
ANTHRACENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
CARBAZOLE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
DI-N-BUTYLPHTHALATE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
FLUORANTHENE	440 U	41 J	390 U	400 U	400 U	370 U	420 U	100 J
PYRENE	440 U	40 J	390 U	400 U	400 U	370 U	420 U	93 J
BUTYLBENZYLPHTHALATE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
3,3'-DICHLOROBENZIDINE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BENZO(A)ANTHRACENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
CHRYSENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	71 J
BIS(2-ETHYLHEXYL)PHTHALAT	100 J	380 U	46 J	400 U	110 J	370 U	96 J	100 J
DI-N-OCTYL PHTHALATE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BENZO(B)FLUORANTHENE	46 J	380 U	390 U	400 U	400 U	370 U	420 U	86 J
BENZO(K)FLUORANTHENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BENZO(A)PYRENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	50 J
INDENO(1,2,3-CD)PYRENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
DIBENZO(A,H)ANTHRACENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U
BENZO(G,H,I)PERYLENE	440 U	380 U	390 U	400 U	400 U	370 U	420 U	460 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GWO3-00	76-GW04-00	76-GWO5-00	76-SB01-00	76-SB02-00	76-SB03-00	76-SB04-00	76-SB05-00
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2.2 UJ	1.9 UJ	1.9 UJ	2 UJ	2 UJ	1.9 UJ	2.1 UJ	2.3 UJ
BETA-BHC	2.2 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2.1 U	2.3 U
DELTA-BHC	2.2 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2.1 U	2.3 U
GAMMA-BHC (LINDANE)	2.2 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2.1 U	2.3 U
HEPTACHLOR	2.2 U	1.9 U	1.9 U	2 U	1.2 J	1.9 U	2.1 U	2.3 U
ALDRIN	2.2 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2.1 U	2.3 U
HEPTACHLOR EPOXIDE	2.2 U	1.9 U	1.9 U	2 U	2.4 NJ	1.9 U	2.1 U	2.3 U
ENDOSULFAN I	2.2 U	1.9 U	1.9 U	2 U	2 U	1.9 U	2.1 U	2.3 U
DIELDRIN	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
4,4'-DDE	69	61 J	3.9 UJ	510 J	17 J	65 J	13 J	87 J
ENDRIN	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
ENDOSULFAN II	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
4,4'-DDD	3.5 J	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
ENDOSULFAN SULFATE	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
4,4'-DDT	21	53 J	1.9 J	120	16 J	57	12 J	63 J
METHOXYCHLOR	22 U	19 U	19 U	20 U	20 U	19 U	21 U	23 U
ENDRIN KETONE	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
ENDRIN ALDEHYDE	4.3 U	3.8 U	3.9 U	4 U	4 U	3.8 U	4.2 U	4.6 U
ALPHA-CHLORDANE	2.2 U	1.9 U	1.9 U	2 U	20 J	1.9 U	2.1 U	2.3 U
GAMMA-CHLORDANE	2.2 U	1.9 U	1.9 U	2 U	9.9 J	1.9 U	2.1 U	2.3 U
TOXAPHENE	220 U	190 U	190 U	200 U	200 U	190 U	210 U	230 U
AROCLOR-1016	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U
AROCLOR-1221	87 U	76 U	77 U	80 U	79 U	76 U	83 U	93 U
AROCLOR-1232	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U
AROCLOR-1242	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U
AROCLOR-1248	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U
AROCLOR-1254	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U
AROCLOR-1260	43 U	38 U	39 U	40 U	40 U	38 U	42 U	46 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB06-00	76-SB07-00	76-SB08-00	76-SB09-00	76-SB10-00	76-SB11-00	76-SB12-00	76-SB13-00
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
VOLATILES (ug/kg)								
CHLOROMETHANE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
BROMOMETHANE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
VINYL CHLORIDE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
CHLOROETHANE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
METHYLENE CHLORIDE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
ACETONE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
CARBON DISULFIDE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHENE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
1,1-DICHLOROETHANE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
CHLOROFORM	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
1,2-DICHLOROETHANE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
2-BUTANONE	13 U	12 U	12 U	13 U	12 U	12 U	12 U	12 U
1,1,1-TRICHLOROETHANE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
CARBON TETRACHLORIDE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
BROMODICHLOROMETHANE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
1,2-DICHLOROPROPANE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
TRICHLOROETHENE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
BENZENE	13 U	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
BROMOFORM	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
4-METHYL-2-PENTANONE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
2-HEXANONE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
TETRACHLOROETHENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
TOLUENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
CHLOROBENZENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
ETHYLBENZENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
STYRENE	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U
XYLENE (TOTAL)	13 UJ	12 U	12 U	13 UJ	12 U	12 U	12 U	12 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB06-00	76-SB07-00	76-SB08-00	76-SB09-00	76-SB10-00	76-SB11-00	76-SB12-00	76-SB13-00
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)								
PHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BIS(2-CHLOROETHYL)ETHER	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2-CHLOROPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
1,3-DICHLOROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
1,4-DICHLOROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
1,2-DICHLOROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2-METHYLPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-METHYLPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
HEXACHLOROETHANE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
NITROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
ISOPHORONE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2-NITROPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,4-DIMETHYLPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BIS(2-CHLOROETHOXY)METHAN	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,4-DICHLOROPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
1,2,4-TRICHLOROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
NAPHTHALENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-CHLOROANILINE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
HEXACHLOROBUTADIENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-CHLORO-3-METHYLPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2-METHYLNAPHTHALENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
HEXACHLOROCYCLOPENTADIE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,4,6-TRICHLOROPHENOL	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,4,5-TRICHLOROPHENOL	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
2-CHLORONAPHTHALENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2-NITROANILINE	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
DIMETHYLPHTHALATE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
ACENAPHTHYLENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,6-DINITROTOLUENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
3-NITROANILINE	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
ACENAPHTHENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB06-00	76-SB07-00	76-SB08-00	76-SB09-00	76-SB10-00	76-SB11-00	76-SB12-00	76-SB13-00
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.								
2,4-DINITROPHENOL	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
4-NITROPHENOL	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
DIBENZOFURAN	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
2,4-DINITROTOLUENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
DIETHYLPHTHALATE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-CHLOROPHENYL-PHENYLETH	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
FLUORENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-NITROANILINE	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
N-NITROSODIPHENYLAMINE (1)	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
4-BROMOPHENYL-PHENYLETHE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
HEXACHLOROBENZENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
PENTACHLOROPHENOL	1100 U	980 U	1000 U	1100 U	970 U	1000 U	940 U	1000 U
PHENANTHRENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
ANTHRACENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
CARBAZOLE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
DI-N-BUTYLPHTHALATE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
FLUORANTHENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
PYRENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BUTYLBENZYLPHTHALATE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
3,3'-DICHLOROBENZIDINE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BENZO(A)ANTHRACENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
CHRYSENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BIS(2-ETHYLHEXYL)PHTHALAT	130 J	180 J	400 U	440 U	390 U	400 U	90 J	490
DI-N-OCTYL PHTHALATE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BENZO(B)FLUORANTHENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BENZO(K)FLUORANTHENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BENZO(A)PYRENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
INDENO(1,2,3-CD)PYRENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
DIBENZO(A,H)ANTHRACENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U
BENZO(G,H,I)PERYLENE	430 U	390 U	400 U	440 U	390 U	400 U	380 U	400 U

SITE 76 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB06-00	76-SB07-00	76-SB08-00	76-SB09-00	76-SB10-00	76-SB11-00	76-SB12-00	76-SB13-00
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)								
ALPHA-BHC	2.1 UJ	2 UJ	2 UJ	2.2 UJ	1.9 UJ	2.1 UJ	1.9 UJ	2 UJ
BETA-BHC	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
DELTA-BHC	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
GAMMA-BHC (LINDANE)	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
HEPTACHLOR	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
ALDRIN	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
HEPTACHLOR EPOXIDE	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
ENDOSULFAN I	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
DIELDRIN	4.3 U	4 U	4 U	4.4 U	3.9 U	4.1 U	3.8 U	1.6 J
4,4'-DDE	4.3 UJ	4.4 J	5.2 J	6.1 J	63 J	3.7 J	310 J	19 J
ENDRIN	4.3 U	4 U	4 U	4.4 UJ	3.9 UJ	4.1 U	3.8 UJ	4.1 UJ
ENDOSULFAN II	4.3 U	4 U	4 U	4.4 U	3.9 U	4.1 U	3.8 U	4.1 U
4,4'-DDD	4.3 U	4 U	4 U	1.8 J	3.9 U	4.1 U	8.8	4.1 U
ENDOSULFAN SULFATE	4.3 U	4 U	4 U	4.4 U	3.9 U	4.1 U	3.8 U	4.1 U
4,4'-DDT	3 J	4.8 J	13	6.6	18	5.8	92	23
METHOXYCHLOR	21 U	20 U	20 U	22 U	19 U	21 U	19 U	20 U
ENDRIN KETONE	4.3 U	4 U	4 U	4.4 U	3.9 U	4.1 U	3.8 U	4.1 U
ENDRIN ALDEHYDE	4.3 U	4 U	4 U	4.4 U	3.9 U	4.1 U	3.8 U	4.1 U
ALPHA-CHLORDANE	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
GAMMA-CHLORDANE	2.1 U	2 U	2 U	2.2 U	1.9 U	2.1 U	1.9 U	2 U
TOXAPHENE	210 U	200 U	200 U	220 U	190 U	210 U	190 U	200 U
AROCLOR-1016	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U
AROCLOR-1221	86 U	80 U	80 U	88 U	78 U	82 U	76 U	81 U
AROCLOR-1232	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U
AROCLOR-1242	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U
AROCLOR-1248	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U
AROCLOR-1254	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U
AROCLOR-1260	43 U	40 U	40 U	44 U	39 U	41 U	38 U	41 U

SITE 76 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GWO3-00	76-GW04-00	76-GWO5-00	76-SB01-00	76-SB02-00	76-SB03-00	76-SB04-00	76-SB05-00
DATE SAMPLED	2/21/96	2/22/96	2/21/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	6210	6400	4780	4350	3380	4360	4160	6910
ANTIMONY, TOTAL	4.4 UJ	3.9 UJ	4 UJ	4.1 UJ	3.7 UJ	3.8 UJ	4 UJ	4.2 UJ
ARSENIC, TOTAL	0.66 J	0.88	0.88 J	0.54	0.47	0.47	0.73	1.1
BARIUM, TOTAL	12.7	18.3	9.2	12.8	9.2	7.8	11.3	18
BERYLLIUM, TOTAL	0.18 U	0.16 U	0.16 U	0.16 U	0.15 U	0.15 U	0.16 U	0.32
CADMIUM, TOTAL	0.49 U	0.44 U	0.45 U	0.45 U	0.42 U	0.42 U	0.44 U	0.47 U
CALCIUM, TOTAL	1760	826	986	1680	1860	1040	2860	2130
CHROMIUM, TOTAL	7.6	6.4	5.4	4.5	4.3	4.1	4.9	8
COBALT, TOTAL	0.67 U	0.59 U	0.67	0.61 U	0.57 U	0.57 U	0.6 U	0.7
COPPER, TOTAL	2.7	2	1.2	2.2	2.9	1.3	1.9	4.3
IRON, TOTAL	3960	4680	2970	1440	1790	1790	2160	3810
LEAD, TOTAL	46.6 J	13.3	12 J	24.5	21.9	19	19	39.3 J
MAGNESIUM, TOTAL	300	244	147	159	207	164	236	413
MANGANESE, TOTAL	6.6	12.1	10.4	5.3	10.8	5.6	15.7	17.1
MERCURY, TOTAL	0.06 U	0.05 U	0.05 U	0.06 U	0.18	0.05 U	0.06 U	0.06 U
NICKEL, TOTAL	2.5 U	2.2 U	2.3 U	2.3 U	2.1 U	2.1 U	2.3 U	4
POTASSIUM, TOTAL	302	165	187	170 U	156 U	157 U	167 U	175 U
SELENIUM, TOTAL	0.32 UJ	0.2 U	0.26 UJ	0.22 U	0.33 J	0.28 U	0.25 U	0.3 U
SILVER, TOTAL	0.69 U	0.61 U	0.63 U	0.63 U	0.59 U	0.59 U	0.62 U	0.66 U
SODIUM, TOTAL	43.6	28.3 J	6.5	16.1 J	19.6 U	12.2 J	22.2 U	47.4 J
THALLIUM, TOTAL	0.22 U	0.14 U	0.18 U	0.15 U	0.17 U	0.2 U	0.18 U	0.21 U
VANADIUM, TOTAL	22	12.1	9.6	7.3	9.3	7.9	10.7	24.6
ZINC, TOTAL	24.9	23.9	19.3	13.3	16.7	8	12.6	24

SITE 76 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB06-00	76-SB07-00	76-SB08-00	76-SB09-00	76-SB10-00	76-SB11-00	76-SB12-00	76-SB13-00
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	6560	3420	7350	5340	1580	4370	4210	4210
ANTIMONY, TOTAL	4.3 UJ	3.8 UJ	3.7 UJ	4 UJ	3.6 UJ	3.9 UJ	3.7 UJ	3.8 UJ
ARSENIC, TOTAL	0.87	0.69	0.44	0.62	0.59	0.61	0.91	0.8
BARIUM, TOTAL	13.1	9.2	13	31.2	6.7	14.4	12.6	13.9
BERYLLIUM, TOTAL	0.17 U	0.16 U	0.15 U	0.3	0.15 U	0.16 U	0.15 U	0.15 U
CADMIUM, TOTAL	0.48 U	0.43 U	0.41 U	0.44 U	0.4 U	0.43 U	0.41 U	0.42 U
CALCIUM, TOTAL	1280	1130	533	2660	540	1970	781	2380
CHROMIUM, TOTAL	7.5	3.9	7.2	5.3	2.4	5	5.7	5.6
COBALT, TOTAL	0.65 U	0.58 U	0.56 U	0.6 U	0.55 U	0.59 U	0.56 U	0.58 U
COPPER, TOTAL	4.6	4.7	1.5	5.3	1	3.9	2.3	6.7
IRON, TOTAL	3980	2010	3770	2350	1190	2830	3260	3090
LEAD, TOTAL	14.9	16.4	9.6	15.2	18.4	12.7	21.2	23.8
MAGNESIUM, TOTAL	284	176	302	169	95.5	169	161	159
MANGANESE, TOTAL	6.5	17.1	5.2	22.9	6.2	14.1	6.2	17.1
MERCURY, TOTAL	0.05 U	0.06 U	0.04 U	0.06 U	0.06 U	0.04 U	0.06	0.09
NICKEL, TOTAL	2.5 U	2.2 U	2.1 U	2.3 U	2.1 U	2.2 U	2.5	2.2 U
POTASSIUM, TOTAL	220	161 U	154 U	165 U	152 U	162 U	155 U	159 U
SELENIUM, TOTAL	0.37 J	0.23 U	0.31 U	0.27 U	0.23 U	0.23 U	0.25 U	0.28
SILVER, TOTAL	0.68 U	0.6 U	0.58 U	0.62 U	0.57 U	0.61 U	0.58 U	0.6 U
SODIUM, TOTAL	26.5 U	16.5 U	18 J	44.5	15.7 U	17.1 J	28.9 U	25.5 U
THALLIUM, TOTAL	0.2 U	0.16 U	0.21 U	0.19 U	0.16 U	0.16 U	0.17 U	0.18 U
VANADIUM, TOTAL	14.1	8.1	14	9.6	10.9	10.6	16.2	15.5
ZINC, TOTAL	10.3	30.7	5.8	20.3	5.5	10.8	18.9	20.3

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB01-01	76-SB02-01	76-SB03-01	76-SB04-01	76-SB05-01	76-SB06-01	76-SB07-01	76-SB08-02	76-SB09-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	3-5"	1-3'
VOLATILES (ug/kg)									
CHLOROMETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
BROMOMETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
VINYL CHLORIDE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
METHYLENE CHLORIDE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
ACETONE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CARBON DISULFIDE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,1-DICHLOROETHENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,1-DICHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CHLOROFORM	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,2-DICHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
2-BUTANONE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,1,1-TRICHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CARBON TETRACHLORIDE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
BROMODICHLOROMETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,2-DICHLOROPROPANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
TRICHLOROETHENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
DIBROMOCHLOROMETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,1,2-TRICHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
BENZENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
BROMOFORM	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
4-METHYL-2-PENTANONE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
2-HEXANONE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
TETRACHLOROETHENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
TOLUENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
CHLOROBENZENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
ETHYLBENZENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
STYRENE	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U
XYLENE (TOTAL)	12 U	12 U	12 U	11 U	13 U	12 U	11 U	13 U	13 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB01-01	76-SB02-01	76-SB03-01	76-SB04-01	76-SB05-01	76-SB06-01	76-SB07-01	76-SB08-02	76-SB09-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	3-5"	1-3'
SEMIVOLATILES (ug/kg)									
PHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BIS(2-CHLOROETHYL)ETHER	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2-CHLOROPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
1,3-DICHLOROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
1,4-DICHLOROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
1,2-DICHLOROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2-METHYLPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-METHYLPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
HEXACHLOROETHANE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
NITROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
ISOPHORONE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2-NITROPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,4-DIMETHYLPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BIS(2-CHLOROETHOXY)METHANE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,4-DICHLOROPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
1,2,4-TRICHLOROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
NAPHTHALENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-CHLOROANILINE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
HEXACHLOROBUTADIENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-CHLORO-3-METHYLPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2-METHYLNAPHTHALENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
HEXACHLOROCYCLOPENTADIENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,4,6-TRICHLOROPHENOL	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,4,5-TRICHLOROPHENOL	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
2-CHLORONAPHTHALENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2-NITROANILINE	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
DIMETHYLPHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
ACENAPHTHYLENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,6-DINITROTOLUENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
3-NITROANILINE	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
ACENAPHTHENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB01-01	76-SB02-01	76-SB03-01	76-SB04-01	76-SB05-01	76-SB06-01	76-SB07-01	76-SB08-02	76-SB09-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	3-5"	1-3'
SEMIVOLATILES (ug/kg) cont.									
2,4-DINITROPHENOL	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
4-NITROPHENOL	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
DIBENZOFURAN	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
2,4-DINITROTOLUENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
DIETHYLPHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-CHLOROPHENYL-PHENYLETHER	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
FLUORENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-NITROANILINE	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
N-NITROSODIPHENYLAMINE (1)	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
4-BROMOPHENYL-PHENYLETHER	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
HEXACHLOROBENZENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
PENTACHLOROPHENOL	990 U	970 U	990 U	920 U	1100 U	990 U	940 U	1000 U	1000 U
PHENANTHRENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
ANTHRACENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
CARBAZOLE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
DI-N-BUTYLPHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
FLUORANTHENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
PYRENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BUTYLBENZYLPHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
3,3'-DICHLOROBENZIDINE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BENZO(A)ANTHRACENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
CHRYSENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
DI-N-OCTYL PHTHALATE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BENZO(B)FLUORANTHENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BENZO(K)FLUORANTHENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BENZO(A)PYRENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
INDENO(1,2,3-CD)PYRENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
DIBENZO(A,H)ANTHRACENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U
BENZO(G,H,I)PERYLENE	390 U	390 U	390 U	370 U	430 U	390 U	380 U	420 U	420 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB01-01	76-SB02-01	76-SB03-01	76-SB04-01	76-SB05-01	76-SB06-01	76-SB07-01	76-SB08-02	76-SB09-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96	2/23/96
DEPTH	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	3-5"	1-3'
PESTICIDE/PCBS (ug/kg)									
ALPHA-BHC	2 UJ	1.9 UJ	2 UJ	1.9 UJ	2.2 UJ	2 UJ	1.9 UJ	2.1 UJ	2.1 UJ
BETA-BHC	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
DELTA-BHC	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
GAMMA-BHC (LINDANE)	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
HEPTACHLOR	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
ALDRIN	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
HEPTACHLOR EPOXIDE	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
ENDOSULFAN I	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
DIELDRIN	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
4,4'-DDE	3.9 UJ	3.9 UJ	4 UJ	3.8 UJ	4.4 UJ	4 UJ	3.8 UJ	4.2 UJ	3.4 J
ENDRIN	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
ENDOSULFAN II	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
4,4'-DDD	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
ENDOSULFAN SULFATE	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
4,4'-DDT	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	1.7 J
METHOXYCHLOR	20 U	19 U	20 U	19 U	22 U	20 U	19 U	21 U	21 U
ENDRIN KETONE	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
ENDRIN ALDEHYDE	3.9 U	3.9 U	4 U	3.8 U	4.4 U	4 U	3.8 U	4.2 U	4.2 U
ALPHA-CHLORDANE	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
GAMMA-CHLORDANE	2 U	1.9 U	2 U	1.9 U	2.2 U	2 U	1.9 U	2.1 U	2.1 U
TOXAPHENE	200 U	190 U	200 U	190 U	220 U	200 U	190 U	210 U	210 U
AROCLOR-1016	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U
AROCLOR-1221	78 U	78 U	80 U	75 U	87 U	80 U	75 U	84 U	84 U
AROCLOR-1232	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U
AROCLOR-1242	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U
AROCLOR-1248	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U
AROCLOR-1254	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U
AROCLOR-1260	39 U	39 U	40 U	38 U	44 U	40 U	38 U	42 U	42 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB10-02	76-SB11-01	76-SB12-02	76-SB13-01	76-GW03-02	76-GW04-02	76-GW05-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/21/96	2/22/96	2/21/96
DEPTH	3-5"	1-3'	3-5"	1-3'	3-5'	3-5'	1-3'
VOLATILES (ug/kg)							
CHLOROMETHANE	13 U	14 U	12 U	12 U	13 U	12 UJ	12 U
BROMOMETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
VINYL CHLORIDE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
CHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
METHYLENE CHLORIDE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
ACETONE	13 U	24	12 U	12 U	13 U	12 U	12 U
CARBON DISULFIDE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,1-DICHLOROETHENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,1-DICHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	13 U	14 U	12 U	12 U	13 U	12 U	12 U
CHLOROFORM	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,2-DICHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
2-BUTANONE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,1,1-TRICHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
CARBON TETRACHLORIDE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
BROMODICHLOROMETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,2-DICHLOROPROPANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
TRICHLOROETHENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
DIBROMOCHLOROMETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,1,2-TRICHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
BENZENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
BROMOFORM	13 U	14 U	12 U	12 U	13 U	12 U	12 U
4-METHYL-2-PENTANONE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
2-HEXANONE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
TETRACHLOROETHENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
TOLUENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
CHLOROBENZENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
ETHYLBENZENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
STYRENE	13 U	14 U	12 U	12 U	13 U	12 U	12 U
XYLENE (TOTAL)	13 U	14 U	12 U	12 U	13 U	12 U	12 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB10-02	76-SB11-01	76-SB12-02	76-SB13-01	76-GW03-02	76-GW04-02	76-GW05-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/21/96	2/22/96	2/21/96
DEPTH	3-5"	1-3'	3-5"	1-3'	3-5'	3-5'	1-3'
SEMIVOLATILES (ug/kg)							
PHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BIS(2-CHLOROETHYL)ETHER	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2-CHLOROPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
1,3-DICHLOROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
1,4-DICHLOROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
1,2-DICHLOROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2-METHYLPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-METHYLPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
N-NITROSO-DI-N-PROPYLAMINE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
HEXACHLOROETHANE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
NITROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
ISOPHORONE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2-NITROPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,4-DIMETHYLPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BIS(2-CHLOROETHOXY)METHANE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,4-DICHLOROPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
1,2,4-TRICHLOROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
NAPHTHALENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-CHLOROANILINE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
HEXACHLOROBUTADIENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-CHLORO-3-METHYLPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2-METHYLNAPHTHALENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
HEXACHLOROCYCLOPENTADIENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,4,6-TRICHLOROPHENOL	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,4,5-TRICHLOROPHENOL	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
2-CHLORONAPHTHALENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2-NITROANILINE	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
DIMETHYLPHTHALATE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
ACENAPHTHYLENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,6-DINITROTOLUENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
3-NITROANILINE	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
ACENAPHTHENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB10-02	76-SB11-01	76-SB12-02	76-SB13-01	76-GW03-02	76-GW04-02	76-GW05-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/21/96	2/22/96	2/21/96
DEPTH	3-5"	1-3'	3-5"	1-3'	3-5'	3-5'	1-3'
SEMIVOLATILES (ug/kg) cont.							
2,4-DINITROPHENOL	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
4-NITROPHENOL	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
DIBENZOFURAN	440 U	440 U	400 U	390 U	420 U	380 U	380 U
2,4-DINITROTOLUENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
DIETHYLPHTHALATE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-CHLOROPHENYL-PHENYLETHER	440 U	440 U	400 U	390 U	420 U	380 U	380 U
FLUORENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-NITROANILINE	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
N-NITROSODIPHENYLAMINE (1)	440 U	440 U	400 U	390 U	420 U	380 U	380 U
4-BROMOPHENYL-PHENYLETHER	440 U	440 U	400 U	390 U	420 U	380 U	380 U
HEXACHLOROBENZENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
PENTACHLOROPHENOL	1100 U	1100 U	1000 U	970 U	1000 U	960 U	950 U
PHENANTHRENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
ANTHRACENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
CARBAZOLE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
DI-N-BUTYLPHTHALATE	440 U	440 U	400 U	390 U	420 U	680	380 U
FLUORANTHENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
PYRENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BUTYLBENZYLPHTHALATE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
3,3'-DICHLOROBENZIDINE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BENZO(A)ANTHRACENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
CHRYSENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BIS(2-ETHYLHEXYL)PHTHALATE	440 U	440 U	400 U	390 U	49 J	380 U	380 U
DI-N-OCTYL PHTHALATE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BENZO(B)FLUORANTHENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BENZO(K)FLUORANTHENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BENZO(A)PYRENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
INDENO(1,2,3-CD)PYRENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
DIBENZO(A,H)ANTHRACENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U
BENZO(G,H,I)PERYLENE	440 U	440 U	400 U	390 U	420 U	380 U	380 U

SITE 76 - SUBSURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB10-02	76-SB11-01	76-SB12-02	76-SB13-01	76-GW03-02	76-GW04-02	76-GW05-01
DATE SAMPLED	2/23/96	2/23/96	2/23/96	2/23/96	2/21/96	2/22/96	2/21/96
DEPTH	3-5"	1-3'	3-5"	1-3'	3-5'	3-5'	1-3'
PESTICIDE/PCBS (ug/kg)							
ALPHA-BHC	2.2 UJ	2.2 UJ	2 UJ	2 UJ	2.1 UJ	1.9 UJ	1.9 UJ
BETA-BHC	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
DELTA-BHC	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
GAMMA-BHC (LINDANE)	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
HEPTACHLOR	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
ALDRIN	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
HEPTACHLOR EPOXIDE	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
ENDOSULFAN I	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
DIELDRIN	4.4 U	4.5 UJ	4 U	3.9 U	4.2 U	3.8 U	3.8 U
4,4'-DDE	4.4 UJ	40 J	4 UJ	3.9 UJ	4.2 UJ	3.8 UJ	3.8 UJ
ENDRIN	4.4 UJ	4.5 UJ	4 UJ	3.9 U	4.2 U	3.8 U	3.8 U
ENDOSULFAN II	4.4 U	4.5 UJ	4 U	3.9 U	4.2 U	3.8 U	3.8 U
4,4'-DDD	4.4 U	480	4 U	3.9 U	4.2 U	3.8 U	3.8 U
ENDOSULFAN SULFATE	4.4 U	4.5 UJ	4 U	3.9 U	4.2 U	3.8 U	3.8 U
4,4'-DDT	4.4 U	5.9 J	4 U	3.9 U	4.2 U	3.8 U	3.8 U
METHOXYCHLOR	22 U	22 UJ	20 U	20 U	21 U	19 U	19 U
ENDRIN KETONE	4.4 U	4.5 UJ	4 U	3.9 U	4.2 U	3.8 U	3.8 U
ENDRIN ALDEHYDE	4.4 U	4.5 UJ	4 U	3.9 U	4.2 U	3.8 U	3.8 U
ALPHA-CHLORDANE	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
GAMMA-CHLORDANE	2.2 U	2.2 UJ	2 U	2 U	2.1 U	1.9 U	1.9 U
TOXAPHENE	220 U	220 UJ	200 U	200 U	210 U	190 U	190 U
AROCLOR-1016	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U
AROCLOR-1221	88 U	90 UJ	80 U	78 U	84 U	77 U	77 U
AROCLOR-1232	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U
AROCLOR-1242	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U
AROCLOR-1248	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U
AROCLOR-1254	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U
AROCLOR-1260	44 U	45 UJ	40 U	39 U	42 U	38 U	38 U

SITE 76 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB01-01	76-SB02-01	76-SB03-01	76-SB04-01	76-SB05-01	76-SB06-01	76-SB07-01	76-SB08-02	76-SB09-01
DATE SAMPLED	02/23/96	02/23/96	02/23/96	02/23/96	02/23/96	02/23/96	02/23/96	02/23/96	02/23/96
DEPTH	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	1-3'	3-5	1-3'
TOTAL METALS (mg/kg)									
ALUMINUM, TOTAL	10700	11200	9400	8040	11300	10100	6220	11800	6510
ANTIMONY, TOTAL	4 UJ	3.7 UJ	3.7 UJ	3.5 UJ	4.2 UJ	3.7 UJ	3.6 UJ	4.2 UJ	4.1 UJ
ARSENIC, TOTAL	0.24	0.69	0.35	0.18	0.99	0.76	0.45	1.2	0.91
BARIUM, TOTAL	9.2	10.5	9.2	8.6	13.4	13.6	9.3	20.1	38.9
BERYLLIUM, TOTAL	0.17	0.15 U	0.15 U	0.14 U	0.17 U	0.15 U	0.14 U	0.17 U	0.36
CADMIUM, TOTAL	0.44 U	0.41 U	0.41 U	0.39 U	0.46 U	0.41 U	0.4 U	0.47 U	0.46 U
CALCIUM, TOTAL	63.2	106	93.8	487	272	79.9	169	85.4	951
CHROMIUM, TOTAL	10.4	10.1	8.3	6.6	12.4	10.7	6.3	21.1	5.4
COBALT, TOTAL	0.65	0.57 U	0.56 U	0.53 U	0.63 U	0.56 U	0.54 U	0.64 U	0.63 U
COPPER, TOTAL	0.4 U	0.38 U	0.54	0.35 U	0.73	0.41	0.36 U	2.3	0.73
IRON, TOTAL	5790	3680	5730	1430	6410	4160	3160	4190	2470
LEAD, TOTAL	4.7	5.7	6	5	8.2	10.1	3.7	12.5	8
MAGNESIUM, TOTAL	332	393	288	247	373	279	216	445	150
MANGANESE, TOTAL	4.3	5.7	4.1	3.9	5.9	5	4.1	8.9	4.4
MERCURY, TOTAL	0.04 U	0.04 U	0.04 U	0.04 U	0.05 U	0.05 U	0.05 U	0.04 U	0.07
NICKEL, TOTAL	2.3 U	2.1 U	2.1 U	2 U	2.4 U	2.1 U	2 U	2.4 U	2.4 U
POTASSIUM, TOTAL	165 U	213	291	145 U	340	264	211	582	173 U
SELENIUM, TOTAL	0.27 U	0.32	0.29 U	0.24 U	0.26 U	0.26 U	0.23 U	0.3 U	0.3 U
SILVER, TOTAL	0.62 U	0.58 U	0.57 U	0.54 U	0.65 U	0.58 U	0.56 U	0.67 U	0.65 U
SODIUM, TOTAL	16.9 J	48.3	17.9 J	32.3 U	36.3 J	62.7	20.9 U	36.3 J	32.4 J
THALLIUM, TOTAL	0.19 U	0.17 U	0.2 U	0.17 U	0.18 U	0.18 U	0.16 U	0.21 U	0.21 U
VANADIUM, TOTAL	13.7	13.4	12.2	9	17	15.9	10	15.2	8.2
ZINC, TOTAL	3.1	2.9	2	2	3.9	2.9	2.3	4.5	4.4

SITE 76 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-SB10-02	76-SB11-01	76-SB12-02	76-SB13-01	76-GW03-02	76-GW04-02	76-GW05-01	75-GW05-01
DATE SAMPLED	02/23/96	02/23/96	02/23/96	02/23/96	02/21/96	02/22/96	02/21/96	2/22/96
DEPTH	3-5	1-3'	3-5	1-3'				
TOTAL METALS (mg/kg)								
ALUMINUM, TOTAL	17800	6450	3950	11900	8010	8690	6500	12800
ANTIMONY, TOTAL	4.4 UJ	4.1 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.4 UJ	4.1 UJ	4.1 UJ
ARSENIC, TOTAL	13.7 J	0.76	0.54	0.54	0.54 J	0.45 J	0.77 J	0.31 J
BARIUM, TOTAL	25.1	24.8	5.5	13.7	10.1	11.2	6.6	14.7
BERYLLIUM, TOTAL	0.27	0.28	0.14 U	0.14 U	0.15 U	0.14 U	0.16 U	0.17 U
CADMIUM, TOTAL	0.49 U	0.45 U	0.4 U	0.4 U	0.4 U	0.38 U	0.45 U	0.46 U
CALCIUM, TOTAL	177	2410	68.7	87.6	122 U	66.9 U	393	206
CHROMIUM, TOTAL	26.8	6.1	4.3	8.2	10	9	6.9	10.9
COBALT, TOTAL	0.67 U	0.62 U	0.54 U	0.54 U	0.55 U	0.62	0.74	0.62 U
COPPER, TOTAL	3	1.4	0.36 U	0.36 U	0.76	0.5	0.81	0.63
IRON, TOTAL	12700	4250	2460	2620	10600	2840 J	4670	6660 J
LEAD, TOTAL	11.6	10.1	3.5	7.9	8.7 J	4.2 J	4.7 J	5.2 J
MAGNESIUM, TOTAL	738	220	107	369	189	276	157	409
MANGANESE, TOTAL	7	12.2	2.1 U	5.7	3.7	5.9	4.2	6.6
MERCURY, TOTAL	0.05 U	0.07 U	0.06 U	0.04 U	0.05 U	0.04 U	0.05 U	0.05 U
NICKEL, TOTAL	2.5 U	2.3 U	2 U	2 U	2.5	2.1	2.3 U	3.1
POTASSIUM, TOTAL	956	170 U	149 U	184	210	343	185	192
SELENIUM, TOTAL	0.83	0.27 U	0.24 U	0.24 U	0.33 UJ	0.26 UJ	0.29 J	0.24 UJ
SILVER, TOTAL	0.69 U	0.64 U	0.56 U	0.56 U	0.57 U	0.53 U	0.64 U	0.64 U
SODIUM, TOTAL	143	33.9 J	23 U	35.2 U	49.8	41.5 J	5.6	58.6 J
THALLIUM, TOTAL	0.2 U	0.19 U	0.17 U	0.17 U	0.23 U	0.34 U	0.17 U	0.31 U
VANADIUM, TOTAL	34	12	8.1	16	17.2	12.9	11.4	16.6
ZINC, TOTAL	6.6	6.7	1.9	3.2	1.7	3.5 U	2.4	4.2

SITE 76 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW01-01	76-GW02-01	76-GW03-01	76-GW04-01	76-GW05-01
DATE SAMPLED	02/25/96	02/25/96	02/25/96	02/25/96	02/25/96
VOLATILES (ug/L)					
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 U	10 U
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)	10 U	10 U	10 U	10 U	10 U
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	10 U	10 U	10 U	10 U
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	10 U	10 U	10 U	10 U
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	10 U	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 76 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW01-01	76-GW02-01	76-GW03-01	76-GW04-01	76-GW05-01
DATE SAMPLED	02/25/96	02/25/96	02/25/96	02/25/96	02/25/96
SEMIVOLATILES (ug/L)					
PHENOL	10 U	10 U	10 U	9 U	9 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	9 U	9 U
2-CHLOROPHENOL	10 U	10 U	10 U	9 U	9 U
1,3-DICHLOROBENZENE	10 U	10 U	10 U	9 U	9 U
1,4-DICHLOROBENZENE	10 U	10 U	10 U	9 U	9 U
1,2-DICHLOROBENZENE	10 U	10 U	10 U	9 U	9 U
2-METHYLPHENOL	10 U	10 U	10 U	9 U	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	9 U	9 U
4-METHYLPHENOL	10 U	10 U	10 U	9 U	9 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	9 U	9 U
HEXACHLOROETHANE	10 U	10 U	10 U	9 U	9 U
NITROBENZENE	10 U	10 U	10 U	9 U	9 U
ISOPHORONE	10 U	10 U	10 U	9 U	9 U
2-NITROPHENOL	10 U	10 U	10 U	9 U	9 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	9 U	9 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	9 U	9 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	9 U	9 U
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	9 U	9 U
NAPHTHALENE	10 U	10 U	10 U	9 U	9 U
4-CHLOROANILINE	10 U	10 U	10 U	9 U	9 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	9 U	9 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	9 U	9 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	9 U	9 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	9 U	9 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	9 U	9 U
2,4,5-TRICHLOROPHENOL	24 U	25 U	24 U	23 U	24 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	9 U	9 U
2-NITROANILINE	24 U	25 U	24 U	23 U	24 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	9 U	9 U
ACENAPHTHYLENE	10 U	10 U	10 U	9 U	9 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	9 U	9 U
3-NITROANILINE	24 U	25 U	24 U	23 U	24 U
ACENAPHTHENE	10 U	10 U	10 U	9 U	9 U
2,4-DINITROPHENOL	24 U	25 U	24 U	23 U	24 U

SITE 76 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW01-01	76-GW02-01	76-GW03-01	76-GW04-01	76-GW05-01
DATE SAMPLED	02/25/96	02/25/96	02/25/96	02/25/96	02/25/96
SEMIVOLATILES cont. (ug/L)					
4-NITROPHENOL	24 U	25 U	24 U	23 U	24 U
DIBENZOFURAN	10 U	10 U	10 U	9 U	9 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	9 U	9 U
DIETHYLPHTHALATE	10 U	10 U	10 U	9 U	9 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	9 U	9 U
FLUORENE	10 U	10 U	10 U	9 U	9 U
4-NITROANILINE	24 U	25 U	24 U	23 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	25 U	24 U	23 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	9 U	9 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	9 U	9 U
HEXACHLOROBENZENE	10 U	10 U	10 U	9 U	9 U
PENTACHLOROPHENOL	24 U	25 U	24 U	23 U	24 U
PHENANTHRENE	10 U	10 U	10 U	9 U	9 U
ANTHRACENE	10 U	10 U	10 U	9 U	9 U
CARBAZOLE	10 U	10 U	10 U	9 U	9 U
DI-N-BUTYLPHTHALATE	10 U	3 J	10 U	9 U	9 U
FLUORANTHENE	10 U	10 U	10 U	9 U	9 U
PYRENE	10 U	10 U	10 U	9 U	9 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	9 U	9 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	9 U	9 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	9 U	9 U
CHRYSENE	10 U	10 U	10 U	9 U	9 U
BIS(2-ETHYLHEXYL)PHTHALATE	11 U	10 U	10 U	9 U	9 U
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	9 U	9 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	9 U	9 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	9 U	9 U
BENZO(A)PYRENE	10 U	10 U	10 U	9 U	9 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	9 U	9 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	9 U	9 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	9 U	9 U

SITE 76 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW01-01	76-GW02-01	76-GW03-01	76-GW04-01	76-GW05-01
DATE SAMPLED	02/25/96	02/25/96	02/25/96	02/25/96	02/25/96
PESTICIDE/PCBS (ug/L)					
ALPHA-BHC	0.047 UJ	0.05 UJ	0.048 UJ	0.047 UJ	0.047 UJ
BETA-BHC	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
DELTA-BHC	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
GAMMA-BHC (LINDANE)	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
HEPTACHLOR	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
ALDRIN	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
HEPTACHLOR EPOXIDE	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
ENDOSULFAN I	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
DIELDRIN	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
4,4'-DDE	0.094 UJ	0.1 UJ	0.097 UJ	0.094 UJ	0.094 UJ
ENDRIN	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
ENDOSULFAN II	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
4,4'-DDD	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
ENDOSULFAN SULFATE	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
4,4'-DDT	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
METHOXYCHLOR	0.47 U	0.5 U	0.48 U	0.47 U	0.47 U
ENDRIN KETONE	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
ENDRIN ALDEHYDE	0.094 U	0.1 U	0.097 U	0.094 U	0.094 U
ALPHA-CHLORDANE	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
GAMMA-CHLORDANE	0.047 U	0.05 U	0.048 U	0.047 U	0.047 U
TOXAPHENE	4.7 U	5 U	4.8 U	4.7 U	4.7 U
AROCLOR-1016	0.94 U	1 U	0.97 U	0.94 U	0.94 U
AROCLOR-1221	1.9 U	2 U	1.9 U	1.9 U	1.9 U
AROCLOR-1232	0.94 U	1 U	0.97 U	0.94 U	0.94 U
AROCLOR-1242	0.94 U	1 U	0.97 U	0.94 U	0.94 U
AROCLOR-1248	0.94 U	1 U	0.97 U	0.94 U	0.94 U
AROCLOR-1254	0.94 U	1 U	0.97 U	0.94 U	0.94 U
AROCLOR-1260	0.94 U	1 U	0.97 U	0.94 U	0.94 U

SITE 76 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW01-01	76-GW02-01	76-GW03-01	76-GW04-01	76-GW05-01	IR76-GW01-98B	IR76-GW02-98B	IR76-GW03-98B
DATE SAMPLED	02/25/96	02/25/96	02/25/96	02/25/96	02/25/96	04/22/98	04/22/98	04/22/98
TOTAL METALS (ug/L)								
Aluminum	2450	32.8 U	2190	79.7 U	56.1 U	3190	50.8 U	3140
Antimony	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U	60 U	60 U	60 U
Arsenic	7.8	0.9 U	0.9 U	0.9 U	0.9 U	151	3.6 J	10 U
Barium	41.5	4.4 U	120	20.3	11.9 U	39.6 J	5.1 J	168 J
Beryllium	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	5 U	5 U	5 U
Cadmium	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	5 U	5 U	5 U
Calcium	30600	71000	8420	45900	23000	27900	90400	10100
Chromium	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	5.4 J	10 U	10 U
Cobalt	3 U	3 U	3 U	3 U	3 U	6.4 J	50 U	50 U
Copper	2 U	2 U	2 U	2.4	2 U	2.1 J	3.5 J	1.4 J
Iron	1790	1860	592	104 U	54.8 U	33100	4600	3890
Lead	1.2	0.8 U	2.1	0.8 U	0.8 U	4.5	4.4	4
Magnesium	2230	1660	3490	2920	1460	1800 J	2030 J	4960 J
Manganese	17.2	29.7	8.9	1.6 U	1.6 U	18.1	40.3	15.2
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.032 J	0.2 U	0.035 J
Nickel	11.3 U	11.3 U	11.3 U	11.3 U	11.3 U	40 U	40 U	40 U
Potassium	828 U	828 U	1680	828 U	828 U	5000 U	1390 J	2980 J
Selenium	1.3 U	1.3 U	1.3 U	1.3 U	1.6	5 U	4.6 J	5 U
Silver	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	10 U	10 U	10 U
Sodium	16900	6600	36500	19600	7700	15800	8640	39400
Thallium	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	3.5 J	12.8	10 U
Vanadium	6.2 U	2.4 U	2.4 U	2.4 U	2.4 U	105	19.5 J	13.6 J
Zinc	7.5	3.6 U	26.5	4.1	5.4	8.5 U	6.9 U	40.6

SITE 76 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR76-GW04-98B	IR76-GW05-98B
DATE SAMPLED	04/23/98	04/23/98
TOTAL METALS (ug/L)		
Aluminum	322	105 U
Antimony	60 U	60 U
Arsenic	10 U	10 U
Barium	40.2 J	12.1 J
Beryllium	5 U	5 U
Cadmium	5 U	5 U
Calcium	101000	47800
Chromium	10 U	10 U
Cobalt	50 U	50 U
Copper	25 U	25 U
Iron	550	48.8 J
Lead	3 U	3 U
Magnesium	5440	1840 J
Manganese	6.2 J	2 J
Mercury	0.2 U	0.2 U
Nickel	40 U	40 U
Potassium	909 J	824 J
Selenium	5 U	5 U
Silver	10 U	10 U
Sodium	26200	15100
Thallium	10 U	10 U
Vanadium	19.9 J	20.6 J
Zinc	3.5 U	3.6 U

SITE 76 - GROUNDWATER
DISSOLVED METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	76-GW02D-01	76-GW04D-01
DATE SAMPLED	02/25/96	02/25/96
DISSOLVED METALS (ug/L)		
ALUMINUM, SOLUBLE	23.3 U	23.3 U
ANTIMONY, SOLUBLE	19.8 U	19.8 U
ARSENIC, SOLUBLE	0.9 U	0.9 U
BARIUM, SOLUBLE	4.3 U	17.1
BERYLLIUM, SOLUBLE	0.8 U	0.8 U
CADMIUM, SOLUBLE	2.2 U	2.2 U
CALCIUM, SOLUBLE	70500	44200
CHROMIUM, SOLUBLE	2.4 U	2.4 U
COBALT, SOLUBLE	3 U	3 U
COPPER, SOLUBLE	2 U	2 U
IRON, SOLUBLE	1350	38.5 U
LEAD, SOLUBLE	0.8 U	0.8 U
MAGNESIUM, SOLUBLE	1670	2800
MANGANESE, SOLUBLE	30.7	1.6 U
MERCURY, SOLUBLE	0.1 U	0.1 U
NICKEL, SOLUBLE	11.3 U	11.3 U
POTASSIUM, SOLUBLE	828 U	828 U
SELENIUM, SOLUBLE	1.3 U	1.3 U
SILVER, SOLUBLE	3.1 U	3.1 U
SODIUM, SOLUBLE	6590	18800
THALLIUM, SOLUBLE	1.7 U	1.7 U
VANADIUM, SOLUBLE	2.4 U	2.4 U
ZINC, SOLUBLE	5.8	3.9

SITE 84

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-SB01A	84-SB01B	84-SB02A	84-SB02B	84-SB03A	84-SB03B	84-SB04A	84-SB04B	84-SB05A
DATE SAMPLED	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95
	0-6"	6-12"	0-6"	6-12"	0-6"	6-12"	0-6"	6-12"	0-6"
PCB's (ug/kg)									
Aroclor 1016	1900 U	370 U	380 U	1900 U	730 U	720 U	1800 U	180 U	400 U
Aroclor 1221	3800 U	750 U	750 U	3700 U	1500 U	1400 U	3700 U	370 U	800 U
Aroclor 1232	1900 U	370 U	380 U	1900 U	730 U	720 U	1800 U	180 U	400 U
Aroclor 1242	1900 U	370 U	380 U	1900 U	730 U	720 U	1800 U	180 U	400 U
Aroclor 1248	1900 U	370 U	380 U	1900 U	730 U	720 U	1800 U	180 U	400 U
Aroclor 1254	1900 U	370 U	380 U	1900 U	730 U	720 U	1800 U	180 U	400 U
Aroclor 1260	12000	1700	4400	12000	5300	5700	6200	2300	5000

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-SB05B	84-SB06A	84-SB06B	84-SB07A	84-SB07B	84-SB08A	84-SB08B	84-SB09A	84-SB09B
DATE SAMPLED	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95
	6-12"	0-6"	6-12"	0-6"	6-12"	0-6"	6-12"	0-6"	6-12"
PCB's (ug/kg)									
Aroclor 1016	370 U	170 U	810 U	150 U	190 U	390 U	1800 U	1900 U	1800 U
Aroclor 1221	750 U	330 U	1600 U	300 U	380 U	790 U	3600 U	3700 U	3600 U
Aroclor 1232	370 U	170 U	810 U	150 U	190 U	390 U	1800 U	1900 U	1800 U
Aroclor 1242	370 U	170 U	810 U	150 U	190 U	390 U	1800 U	1900 U	1800 U
Aroclor 1248	370 U	170 U	810 U	150 U	190 U	390 U	1800 U	1900 U	1800 U
Aroclor 1254	370 U	170 U	810 U	150 U	190 U	390 U	1800 U	1900 U	1800 U
Aroclor 1260	4300 J	1300 J	2800	360	880	2500	6100	12000	10000

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-SB10A	84-SB10B	IR84-SB02-00	IR84-SB02-01	IR84-SB04-00	IR84-SB04-01	IR84-SB08-00	IR84-SB08-01	IR84-SB10-00
DATE SAMPLED	10/26/95	10/26/95	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98
	0-6"	6-12"							
PCB's (ug/kg)									
Aroclor 1016	140 U	730 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1221	280 U	1500 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1232	140 U	730 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1242	140 U	730 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1248	140 U	730 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1254	140 U	730 U	74 U	41 U	390 U	39 U	350 U	36 U	710 U
Aroclor 1260	1100	7500	1000	110	3900	140	4300	120	8100

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR84-SB10-01	IR84-SB15-00	IR84-SB15-01	IR84-SB21-00	IR84-SB21-01	IR84-SB23-00	IR84-SB23-01	IR84-SB25-00	IR84-SB25-01
DATE SAMPLED	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98	04/16/98
PCB's (ug/kg)									
Aroclor 1016	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1221	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1232	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1242	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1248	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1254	360 U	390 U	39 U	36 U	36 U	42 U	36 U	44 U	40 U
Aroclor 1260	2900	6800	530 J	36 U	62 J	42 U	36 U	110 J	40 U

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR84-SB26-00	IR84-SB26-01	IR84-SB27-00	IR84-SB27-01	IR84-SB28-00	IR84-SB28-01	IR84-SB29-00	IR84-SB29-01	IR84-SB30-00	IR84-SB30-01
DATE SAMPLED	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98	04/23/98
PCB's (ug/kg)										
Aroclor 1016	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1221	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1232	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1242	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1248	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1254	130 U	40 U	1800 U	18000 U	35 U	35 U	460 U	40 U	55 U	44 U
Aroclor 1260	1500 J	40 U	26000	200000	35 U	35 U	5800	520	55 U	44 U

SITE 84 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR84-SB31-00	IR84-SB31-01
DATE SAMPLED	04/23/98	04/23/98
PCB's (ug/kg)		
Aroclor 1016	37 U	36 U
Aroclor 1221	37 U	36 U
Aroclor 1232	37 U	36 U
Aroclor 1242	37 U	36 U
Aroclor 1248	37 U	36 U
Aroclor 1254	37 U	36 U
Aroclor 1260	37 U	36 U

SITE 84 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH

LOCATION	AST781-GW03-98B	AST781-GW04-98B	AST781-GW07-98B	AST781-GW08-98B	AST781-GW11-98B	AST781-GW12-98B
DATE SAMPLED	04/23/98	04/23/98	04/22/98	04/22/98	04/23/98	04/23/98
VOLATILES (ug/L)						
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	16	16
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	3.4 J	1.5 J	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	3.6 J	6.7 J	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes (total)	10 U	10 U	10 U	10 U	10 U	10 U

SITE 84 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-GW01-01	84-GW07-01	84-GW13-01
DATE SAMPLED	11/07/95	10/26/95	10/26/95
PCBS (ug/L)			
AROCLOR-1016	1.1 U	1.2 UJ	1.2 UJ
AROCLOR-1221	2.2 U	2.3 UJ	2.4 UJ
AROCLOR-1232	1.1 U	1.2 UJ	1.2 UJ
AROCLOR-1242	1.1 U	1.2 UJ	1.2 UJ
AROCLOR-1248	1.1 U	1.2 UJ	1.2 UJ
AROCLOR-1254	1.1 U	1.2 UJ	1.2 UJ
AROCLOR-1260	1.1 U	1.2 UJ	1.2 UJ

TABLE 4-8
POSITIVE DETECTION SUMMARY - SURFACE WATER
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SW07-98B
DATE SAMPLED	04/23/98
VOLTILES (ug/L)	
Chloromethane	10 U
Bromomethane	10 U
Vinyl chloride	10 U
Chloroethane	10 U
Methylene chloride	10 U
Acetone	5.6 J
Carbon disulfide	10 U
1,1-Dichloroethene	10 U
1,1-Dichloroethane	10 U
1,2-Dichloroethene (total)	10 U
Chloroform	10 U
1,2-Dichloroethane	10 U
2-Butanone	10 U
1,1,1-Trichloroethane	10 U
Carbon tetrachloride	10 U
Bromodichloromethane	10 U
1,2-Dichloropropane	10 U
cis-1,3-Dichloropropene	10 U
Trichloroethene	10 U
Dibromochloromethane	10 U
1,1,2-Trichloroethane	10 U
Benzene	1.2 J
trans-1,3-Dichloropropene	10 U
Bromoform	10 U
4-Methyl-2-pentanone	10 U
2-Hexanone	10 U
Tetrachloroethene	10 U
1,1,2,2-Tetrachloroethane	10 U
Toluene	2.7 J
Chlorobenzene	10 U
Ethylbenzene	10 U
Styrene	10 U
Xylenes (total)	3.5 J

TABLE 4-8
POSITIVE DETECTION SUMMARY - SURFACE WATER
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SW07-98B
DATE SAMPLED	04/23/98
SEMIVOLATILES (ug/L)	
Phenol	10 U
bis(2-Chloroethyl) ether	10 U
2-Chlorophenol	10 U
1,3-Dichlorobenzene	10 U
1,4-Dichlorobenzene	10 U
1,2-Dichlorobenzene	10 U
2-Methylphenol	10 U
2,2'-Oxybis(1-Chloropropane)	10 U
4-Methylphenol	10 U
N-Nitrosodi-n-propylamine	10 U
Hexachloroethane	10 U
Nitrobenzene	10 U
Isophorone	10 U
2-Nitrophenol	10 U
2,4-Dimethylphenol	10 U
bis(2-Chloroethoxy)methane	10 U
2,4-Dichlorophenol	10 U
1,2,4-Trichlorobenzene	10 U
Naphthalene	10 U
4-Chloroaniline	10 U
Hexachlorobutadiene	10 U
4-Chloro-3-methylphenol	10 U
2-Methylnaphthalene	10 U
Hexachlorocyclopentadiene	10 U
2,4,6-Trichlorophenol	10 U
2,4,5-Trichlorophenol	25 U
2-Chloronaphthalene	10 U
2-Nitroaniline	25 U
Dimethyl phthalate	10 U
Acenaphthylene	10 U
2,6-Dinitrotoluene	10 U
3-Nitroaniline	25 U
Acenaphthene	10 U
2,4-Dinitrophenol	25 U
4-Nitrophenol	25 U

TABLE 4-8
POSITIVE DETECTION SUMMARY - SURFACE WATER
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR84-SW07-98B
DATE SAMPLED	04/23/98
SEMIVOLATILES (ug/L) (cont)	
Dibenzofuran	10 U
2,4-Dinitrotoluene	10 U
Diethyl phthalate	10 U
4-Chlorophenyl phenyl ether	10 U
Fluorene	10 U
4-Nitroaniline	25 U
4,6-Dinitro-2-methylphenol	25 U
N-Nitrosodiphenylamine	10 U
4-Bromophenyl phenyl ether	10 U
Hexachlorobenzene	10 U
Pentachlorophenol	25 U
Phenanthrene	10 U
Anthracene	10 U
Carbazole	10 U
Di-n-butyl phthalate	10 U
Fluoranthene	10 U
Pyrene	10 U
Butyl benzyl phthalate	10 U
3,3'-Dichlorobenzidine	10 U
Benzo(a)anthracene	10 U
Chrysene	10 U
bis(2-Ethylhexyl) phthalate	10 U
Di-n-octyl phthalate	10 U
Benzo(b)fluoranthene	10 U
Benzo(k)fluoranthene	10 U
Benzo(a)pyrene	10 U
Indeno(1,2,3-cd)pyrene	10 U
Dibenz(a,h)anthracene	10 U
Benzo(ghi)perylene	10 U

SITE 84 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-SW01-01	84-SW02-01	84-SW04-01	84-SW05-01	84-SW06-01	84-SW07-01	84-SW08-01	IR84-SW01-98B	IR84-SW02-98B
DATE SAMPLED	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	04/19/98	04/19/98
PCB's (ug/L)									
Aroclor 1016	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Aroclor 1221	2.3 UJ	2.3 UJ	2.3 UJ	2.2 UJ	2.2 UJ	2.3 UJ	2.3 UJ	2 UJ	2 UJ
Aroclor 1232	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Aroclor 1242	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Aroclor 1248	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Aroclor 1254	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Aroclor 1260	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ

SITE 84 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR84-SW03-98B	IR84-SW04-98B	IR84-SW05-98B	IR84-SW06-98B
DATE SAMPLED	04/19/98	04/19/98	04/19/98	04/19/98
PCB's (ug/L)				
Aroclor 1016	1 UJ	1 UJ	1 UJ	1 R
Aroclor 1221	2 UJ	2 UJ	2 UJ	2 R
Aroclor 1232	1 UJ	1 UJ	1 UJ	1 R
Aroclor 1242	1 UJ	1 UJ	1 UJ	1 R
Aroclor 1248	1 UJ	1 UJ	1 UJ	1 R
Aroclor 1254	1 UJ	1 UJ	1 UJ	1 R
Aroclor 1260	1 UJ	1 UJ	1 UJ	1 R

SITE 84 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	IR84-SD07-98B
DATE_SAMP	04/23/98
DEPTH	
VOLATILES (ug/kg)	
Chloromethane	2200 U
Bromomethane	2200 U
Vinyl chloride	2200 U
Chloroethane	2200 U
Methylene chloride	2200 U
Acetone	2200 U
Carbon disulfide	2200 U
1,1-Dichloroethene	2200 U
1,1-Dichloroethane	2200 U
1,2-Dichloroethene (total)	2200 U
Chloroform	2200 U
1,2-Dichloroethane	2200 U
2-Butanone	2200 U
1,1,1-Trichloroethane	2200 U
Carbon tetrachloride	2200 U
Bromodichloromethane	2200 U
1,2-Dichloropropane	2200 U
cis-1,3-Dichloropropene	2200 U
Trichloroethene	2200 U
Dibromochloromethane	2200 U
1,1,2-Trichloroethane	2200 U
Benzene	2200 U
trans-1,3-Dichloropropene	2200 U
Bromoform	2200 U
4-Methyl-2-pentanone	2200 U
2-Hexanone	2200 U
Tetrachloroethene	2200 U
1,1,2,2-Tetrachloroethane	2200 U
Toluene	2200 U
Chlorobenzene	2200 U
Ethylbenzene	2200 U
Styrene	2200 U
Xylenes (total)	910 J
SEMIVOLATILES (ug/kg)	
Phenol	590 U
bis(2-Chloroethyl) ether	590 U

SITE 84 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	IR84-SD07-98B
DATE_SAMP	04/23/98
DEPTH	
2-Chlorophenol	590 U
1,3-Dichlorobenzene	590 U
1,4-Dichlorobenzene	590 U
1,2-Dichlorobenzene	590 U
2-Methylphenol	590 U
2,2'-Oxybis(1-Chloropropane)	590 U
4-Methylphenol	590 U
N-Nitrosodi-n-propylamine	590 U
Hexachloroethane	590 U
Nitrobenzene	590 U
Isophorone	590 U
2-Nitrophenol	590 U
2,4-Dimethylphenol	590 U
bis(2-Chloroethoxy)methane	590 U
2,4-Dichlorophenol	590 U
1,2,4-Trichlorobenzene	590 U
Naphthalene	2000
4-Chloroaniline	590 U
Hexachlorobutadiene	590 U
4-Chloro-3-methylphenol	590 U
Hexachlorocyclopentadiene	590 U
2,4,6-Trichlorophenol	590 U
2,4,5-Trichlorophenol	1500 U
2-Chloronaphthalene	590 U
2-Nitroaniline	1500 U
Dimethyl phthalate	590 U
Acenaphthylene	590 U
2,6-Dinitrotoluene	590 U
3-Nitroaniline	1500 U
Acenaphthene	590 U
2,4-Dinitrophenol	1500 U
SEMIVOLATILES (ug/kg) (cont)	
4-Nitrophenol	1500 U
Dibenzofuran	590 U
2,4-Dinitrotoluene	590 U
Diethyl phthalate	590 U
4-Chlorophenyl phenyl ether	590 U

SITE 84 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE_ID	IR84-SD07-98B
DATE_SAMP	04/23/98
DEPTH	
Fluorene	590 U
4-Nitroaniline	1500 U
4,6-Dinitro-2-methylphenol	1500 U
N-Nitrosodiphenylamine	590 U
4-Bromophenyl phenyl ether	590 U
Hexachlorobenzene	590 U
Pentachlorophenol	1500 U
Phenanthrene	2500
Anthracene	590 U
Carbazole	590 U
Di-n-butyl phthalate	590 U
Fluoranthene	590 U
Pyrene	590 UJ
Butyl benzyl phthalate	590 UJ
3,3'-Dichlorobenzidine	590 UJ
Benzo(a)anthracene	590 UJ
Chrysene	590 UJ
bis(2-Ethylhexyl) phthalate	2400 J
Di-n-octyl phthalate	590 UJ
Benzo(b)fluoranthene	590 UJ
Benzo(k)fluoranthene	590 UJ
Benzo(a)pyrene	590 UJ
Indeno(1,2,3-cd)pyrene	590 UJ
Dibenz(a,h)anthracene	590 UJ
Benzo(ghi)perylene	590 UJ
2-Methylnaphthalene	10000

SITE 84 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	84-SD01-01	84-SD02-01	84-SD04-01	84-SD05-01	84-SD06-01	84-SD07-01	84-SD08-01	IR84-SD01-98B	IR84-SD05-98B	IR84-SD06-98B
DATE SAMPLED	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	10/26/95	04/19/98	04/19/98	04/19/98
PCB's (ug/kg)										
Aroclor 1016	42 U	59 U	58 U	680 U	3300 U	4700 U	450 U	810 U	180 U	160 U
Aroclor 1221	84 U	120 U	120 U	1400 U	6500 U	9500 U	890 U	1600 U	370 U	330 U
Aroclor 1232	42 U	59 U	58 U	680 U	3300 U	4700 U	450 U	810 U	180 U	160 U
Aroclor 1242	42 U	59 U	58 U	680 U	3300 U	4700 U	450 U	810 U	180 U	160 U
Aroclor 1248	42 U	59 U	58 U	2800	3300 U	4700 U	450 U	810 U	180 U	160 U
Aroclor 1254	42 U	59 U	58 U	680 U	3300 U	4700 U	450 U	810 U	180 U	160 U
Aroclor 1260	42 U	59 U	58 U	20000	8100	17000	3700	40000	5900	4300

SITE 84 - SEDIMENT
ENGINEERING PARAMETERS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	IR84-SD01-98B	IR84-SD01-98BD	IR84-SD05-98B	IR84-SD06-98B	IR84-SD07-98B
DATE SAMPLED	04/19/98	04/19/98	04/19/98	04/19/98	04/23/98
Diesel Range Organics (mg/kg)	9200	14000	4300	3500	NA
pH (solid)	6.6	6.6	6.9	6.3	6.6
Percent Moisture (%)	59.2	56.3	28	19.6	43.9

SITE 85

SITE 85 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	85-SB01-00	85-SB02-00	85-SB03-00	85-SB04-00	85-SB05-00
DATE SAMPLED	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95
DEPTH	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
TOTAL METALS (mg/kg)					
ALUMINUM, TOTAL	3080	1140	2910	3190	1870
ANTIMONY, TOTAL	3.7 U	139 U	3.1 U	3.9 U	4.1 U
ARSENIC, TOTAL	1.5	76.8	0.63	0.55	0.55
BARIUM, TOTAL	19.2	134	9.5	9.4	6.9
BERYLLIUM, TOTAL	0.31 U	0.42 U	0.26 U	0.32 U	0.34 U
CADMIUM, TOTAL	2.1	47.1	0.49 U	0.61 U	0.63 U
CALCIUM, TOTAL	580	823	91	196	91.9
CHROMIUM, TOTAL	2.3	147	2.8	3.2	3.3
COBALT, TOTAL	0.45 U	17.3	0.38 U	0.48 U	0.5 U
COPPER, TOTAL	89.2	1870	2	8.1	0.88
IRON, TOTAL	4590	339000	1570	1990	1480
LEAD, TOTAL	143	3030	20.5	4.9	10.8
MAGNESIUM, TOTAL	118	108	89.6	104	62.2
MANGANESE, TOTAL	739	19700	19.2	218	3.8
MERCURY, TOTAL	2.1	70.7	0.35	0.12 U	0.12 U
NICKEL, TOTAL	2.4 U	117	2 U	2.5 U	3.5
POTASSIUM, TOTAL	214	456	159	158	238
SELENIUM, TOTAL	0.39 U	0.52 U	0.31 U	0.31 U	0.34 U
SILVER, TOTAL	0.53 U	73 U	0.45 U	0.56 U	0.59 U
SODIUM, TOTAL	12.9	69	9.7	12.5	10.5
THALLIUM, TOTAL	0.39 U	16 U	0.31 U	0.31 U	0.34 U
VANADIUM, TOTAL	4.8	13.9	4.1	5.1	5.9
ZINC, TOTAL	1330	63900	101	359	5.2
CYANIDE	0.9	2.1	0.51 U	0.56 U	0.57 U

SITE 85 - SUBSURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID.	85-SB01-02	85-SB01-04	85-SB02-02	85-SB02-04	85-SB03-02	85-SB03-03	85-SB04-02	85-SB04-03	85-SB05-02	85-SB05-03
DATE SAMPLED	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95	9/27/95
DEPTH	3-5'	7-9'	3-5'	7-9'	3-5'	5-7'	3-5'	5-7'	3-5'	5-7'
TOTAL METALS (mg/kg)										
ALUMINUM, TOTAL	4800	702	10200	348	3840	592	3460	475	5220	1540
ANTIMONY, TOTAL	3.7 U	2.9 U	3.7 U	2.9 U	3.3 U	2.9 U	3.3 U	3.1 U	3.8 U	3.6 U
ARSENIC, TOTAL	0.96	0.37	3	0.37 U	1.1	0.32	1.1	0.98	1.6	0.38
BARIUM, TOTAL	3.8	0.81	13.3	0.87	5.2	0.81	4.8	0.78	7.5	2.2
BERYLLIUM, TOTAL	0.31 U	0.24 U	0.31 U	0.24 U	0.28 U	0.24 U	0.28 U	0.26 U	0.32 U	0.3 U
CADMIUM, TOTAL	0.58 U	0.45 U	0.66	0.45 U	0.52 U	0.45 U	0.52 U	0.48 U	0.6 U	0.56 U
CALCIUM, TOTAL	29.9	127	82.1	10.5	93.2	9.5	19.7	7.8	18.8	13.3
CHROMIUM, TOTAL	5.5	1.2	11.3	0.96	4.4	0.96	5.3	2.2	6.1	2.3
COBALT, TOTAL	0.46 U	0.36 U	0.45 U	0.36 U	0.41 U	0.36 U	0.41 U	0.38 U	0.47 U	0.44 U
COPPER, TOTAL	1.7	0.5	8.8	0.39	0.65	0.35	0.43	0.35	1	0.38 U
IRON, TOTAL	2750	398	9480	385	2520	980	2590	1420	3790	935
LEAD, TOTAL	3.9	2.7	40.6	1.2	4.5	1.2	2.7	2.2	4.8	1.7
MAGNESIUM, TOTAL	110	33	232	10.6	82.5	14.3	87.6	11.1	148	52.9
MANGANESE, TOTAL	2.1	0.95	47.5	0.92	1.7	0.65	5.2	0.26	1.9	1.5
MERCURY, TOTAL	0.092 U	0.11 U	0.61	0.1 U	0.096 U	0.11 U	0.11 U	0.15	0.1 U	0.088 U
NICKEL, TOTAL	2.6	1.9 U	3	1.9 U	2.1 U	1.9 U	4.4	2 U	2.5 U	2.3 U
POTASSIUM, TOTAL	214	105	238	214	113	116	98.7 U	92.4 U	242	107 U
SELENIUM, TOTAL	0.26 U	0.28 U	0.35 U	0.33 U	0.26 U	0.23 U	0.27 U	0.31 U	0.32 U	0.32 U
SILVER, TOTAL	0.54 U	0.42 U	0.53 U	0.42 U	0.48 U	0.42 U	0.48 U	0.45 U	0.56 U	0.52 U
SODIUM, TOTAL	12.1	11.6	17	8.6	10.4	4.7	10.2	8	11.2	8.4
THALLIUM, TOTAL	0.26 U	0.28 U	0.35 U	0.33 U	0.26 U	0.23 U	0.27 U	0.31 U	0.32 U	0.32 U
VANADIUM, TOTAL	8	1.9	20	1.2	6.4	2	7.3	2.8	10.4	3.5
ZINC, TOTAL	8.3	6.3	187	4.4	7.3	1.1	6.1	1.8	1.5	1.5
CYANIDE	0.53 U	0.46 U	0.56 U	0.54 U	0.4 U	0.51 U	0.51 U	0.51 U	0.51 U	0.43 U

SITE 85 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	85-TW01	85-TW02	85-TW03
DATE SAMPLED	34969	34969	34969
TOTAL METALS (ug/L)			
ALUMINUM, TOTAL	159000	429000	223000
ANTIMONY, TOTAL	18 U	18 U	18 U
ARSENIC, TOTAL	10.9	16.7	20.2
BARIUM, TOTAL	242	548	377
BERYLLIUM, TOTAL	1.5 U	3.3	2.8
CADMIUM, TOTAL	6.7	24.6	4.9
CALCIUM, TOTAL	2420	6180	2070
CHROMIUM, TOTAL	436	821	383
COBALT, TOTAL	8.6	20.3	7.1
COPPER, TOTAL	138	173	55.4
IRON, TOTAL	119000	498000	180000
LEAD, TOTAL	207	512	380
MAGNESIUM, TOTAL	5530	13700	11500
MANGANESE, TOTAL	395	1270	228
MERCURY, TOTAL	0.28	2.4	0.29
NICKEL, TOTAL	4550	206	53.3
POTASSIUM, TOTAL	5480	16000	8300
SELENIUM, TOTAL	1.6 U	1.6 U	1.6 U
SILVER, TOTAL	2.6 U	2.6 U	2.6 U
SODIUM, TOTAL	1850	2660	5580
THALLIUM, TOTAL	0.8 U	4 U	0.8 U
VANADIUM, TOTAL	322	908	436
ZINC, TOTAL	485	3970	93.1
CYANIDE, TOTAL	10 U	10 U	10 U

SITE 85 - GROUNDWATER
DISSOLVED METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID.	85-TW01D	85-TW02D	85-TW03D
DATE SAMPLED	GW-DIS	GW-DIS	GW-DIS
TOTAL METALS (ug/L)			
ALUMINUM, DISSOLVED	79.9	175	105
ANTIMONY, DISSOLVED	18 U	18 U	18 U
ARSENIC, DISSOLVED	1.8 U	1.8 U	1.8 U
BARIUM, DISSOLVED	13.8	8.3	15.4
BERYLLIUM, DISSOLVED	1.5 U	1.5 U	1.5 U
CADMIUM, DISSOLVED	2.8 U	3.4	2.8 U
CALCIUM, DISSOLVED	766	1940	633
CHROMIUM, DISSOLVED	2.4 U	2.4 U	2.4 U
COBALT, DISSOLVED	2.2 U	2.2 U	2.2 U
COPPER, DISSOLVED	2.2	1.9 U	1.9 U
IRON, DISSOLVED	4770	10500	2600
LEAD, DISSOLVED	1.4 U	1.4 U	2.2
MAGNESIUM, DISSOLVED	866	477	1790
MANGANESE, DISSOLVED	55.1	224	32.6
MERCURY, DISSOLVED	0.2 U	0.2 U	0.2 U
NICKEL, DISSOLVED	206	11.6 U	11.6 U
POTASSIUM, DISSOLVED	686	1400	775
SELENIUM, DISSOLVED	1.6 U	1.6 U	1.6 U
SILVER, DISSOLVED	2.6 U	2.6 U	2.6 U
SODIUM, DISSOLVED	1640	1970	4520
THALLIUM, DISSOLVED	0.8 U	0.8 U	0.8 U
VANADIUM, DISSOLVED	2.6 U	2.6 U	2.6 U
ZINC, DISSOLVED	58.8	473	4.6

SITE 87

SITE 87 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SB01-01	87-SB02-01	87-SB03-01	87-SB04-01	87-SB05-01	87-SB06-01
DATE SAMPLED	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
VOLATILES (ug/kg)						
CHLOROMETHANE	12 U	12 U	12 U	11 U	12 U	12 U
BROMOMETHANE	12 U	12 U	12 U	11 U	12 U	12 U
VINYL CHLORIDE	12 U	12 U	12 U	11 U	12 U	12 U
CHLOROETHANE	12 U	12 U	12 U	11 U	12 U	12 U
METHYLENE CHLORIDE	12 U	12 U	12 U	11 U	12 U	12 U
ACETONE	12 U	19 U	12 U	11 U	12 U	32 U
CARBON DISULFIDE	12 U	12 U	12 U	11 U	12 U	12 U
1,1-DICHLOROETHENE	12 U	12 U	12 U	11 U	12 U	12 U
1,1-DICHLOROETHANE	12 U	12 U	12 U	11 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	12 U	11 U	12 U	12 U
CHLOROFORM	12 U	12 U	12 U	11 U	12 U	12 U
1,2-DICHLOROETHANE	12 U	12 U	12 U	11 U	12 U	12 U
2-BUTANONE	12 U	12 U	12 U	11 U	12 U	12 U
1,1,1-TRICHLOROETHANE	12 U	12 UJ	12 U	11 U	12 U	12 U
CARBON TETRACHLORIDE	12 U	12 UJ	12 U	11 U	12 U	12 U
BROMODICHLOROMETHANE	12 U	12 UJ	12 U	11 U	12 U	12 U
1,2-DICHLOROPROPANE	12 U	12 UJ	12 U	11 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	12 UJ	12 U	11 U	12 U	12 U
TRICHLOROETHENE	12 U	12 UJ	12 U	11 U	12 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 UJ	12 U	11 U	12 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 UJ	12 U	11 U	12 U	12 U
BENZENE	12 U	12 UJ	12 U	11 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 UJ	12 U	11 U	12 U	12 U
BROMOFORM	12 U	12 UJ	12 U	11 U	12 U	12 U
4-METHYL-2-PENTANONE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
2-HEXANONE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
TETRACHLOROETHENE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
1,1,2,2-TETRACHLOROETHANE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
TOLUENE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
CHLOROBENZENE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
ETHYLBENZENE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
STYRENE	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ
XYLENE (TOTAL)	12 UJ	12 UJ	12 UJ	11 U	12 UJ	12 UJ

SITE 87 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SB01-01	87-SB02-01	87-SB03-01	87-SB04-01	87-SB05-01	87-SB06-01
DATE SAMPLED	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg)						
PHENOL	390 U	390 U	390 U	370 U	410 U	380 U
BIS(2-CHLOROETHYL)ETHER	390 U	390 U	390 U	370 U	410 U	380 U
2-CHLOROPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
1,3-DICHLOROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
1,4-DICHLOROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
1,2-DICHLOROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
2-METHYLPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	390 U	390 U	370 U	410 U	380 U
4-METHYLPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
N-NITROSO-DI-N-PROPYLAMINE	390 U	390 U	390 U	370 U	410 U	380 U
HEXACHLOROETHANE	390 U	390 U	390 U	370 U	410 U	380 U
NITROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
ISOPHORONE	390 U	390 U	390 U	370 U	410 U	380 U
2-NITROPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
2,4-DIMETHYLPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
BIS(2-CHLOROETHOXY)METHAN	390 U	390 U	390 U	370 U	410 U	380 U
2,4-DICHLOROPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
1,2,4-TRICHLOROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
NAPHTHALENE	390 U	390 U	390 U	370 U	410 U	380 U
4-CHLOROANILINE	390 U	390 U	390 U	370 U	410 U	380 U
HEXACHLOROBUTADIENE	390 U	390 U	390 U	370 U	410 U	380 U
4-CHLORO-3-METHYLPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
2-METHYLNAPHTHALENE	390 U	390 U	390 U	370 U	410 U	380 U
HEXACHLOROCYCLOPENTADIE	390 U	390 U	390 U	370 U	410 U	380 U
2,4,6-TRICHLOROPHENOL	390 U	390 U	390 U	370 U	410 U	380 U
2,4,5-TRICHLOROPHENOL	970 U	980 U	980 U	930 U	1000 U	960 U
2-CHLORONAPHTHALENE	390 U	390 U	390 U	370 U	410 U	380 U
2-NITROANILINE	970 U	980 U	980 U	930 U	1000 U	960 U
DIMETHYLPHTHALATE	390 U	390 U	390 U	370 U	410 U	380 U
ACENAPHTHYLENE	390 U	390 U	390 U	370 U	410 U	380 U
2,6-DINITROTOLUENE	390 U	390 U	390 U	370 U	410 U	380 U
3-NITROANILINE	970 U	980 U	980 U	930 U	1000 U	960 U
ACENAPHTHENE	390 U	390 U	390 U	37 J	410 U	380 U

SITE 87 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SB01-01	87-SB02-01	87-SB03-01	87-SB04-01	87-SB05-01	87-SB06-01
DATE SAMPLED	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SEMIVOLATILES (ug/kg) cont.						
2,4-DINITROPHENOL	970 U	980 U	980 U	930 U	1000 U	960 U
4-NITROPHENOL	970 U	980 U	980 U	930 U	1000 U	960 U
DIBENZOFURAN	390 U	390 U	390 U	370 U	410 U	380 U
2,4-DINITROTOLUENE	390 U	390 U	390 U	370 U	410 U	380 U
DIETHYLPHTHALATE	390 U	390 U	390 U	370 U	410 U	380 U
4-CHLOROPHENYL-PHENYLETH	390 U	390 U	390 U	370 U	410 U	380 U
FLUORENE	390 U	390 U	26 J	27 J	42 J	380 U
4-NITROANILINE	970 U	980 U	980 U	930 U	1000 U	960 U
4,6-DINITRO-2-METHYLPHENOL	970 U	980 U	980 U	930 U	1000 U	960 U
N-NITROSODIPHENYLAMINE (1)	390 U	390 U	390 U	370 U	410 U	380 U
4-BROMOPHENYL-PHENYLETHE	390 U	390 U	390 U	370 U	410 U	380 U
HEXACHLOROBENZENE	390 U	390 U	390 U	370 U	410 U	380 U
PENTACHLOROPHENOL	970 U	980 U	980 U	930 U	1000 U	960 U
PHENANTHRENE	390 U	390 U	240 J	320 J	500	380 U
ANTHRACENE	390 U	390 U	52 J	95 J	110 J	380 U
CARBAZOLE	390 U	390 U	42 J	25 J	21 J	380 U
DI-N-BUTYLPHTHALATE	390 U	390 U	390 U	370 J	410 U	380 U
FLUORANTHENE	390 U	390 U	400	620	840	380 U
PYRENE	390 U	390 U	330 J	560	660	380 U
BUTYLBENZYLPHTHALATE	390 U	390 U	54 J	290 J	46 J	380 U
3,3'-DICHLOROBENZIDINE	390 U	390 U	390 U	370 U	410 U	380 U
BENZO(A)ANTHRACENE	390 U	390 U	230 J	350 J	380 J	380 U
CHRYSENE	390 U	390 U	290 J	390	400 J	380 U
BIS(2-ETHYLHEXYL)PHTHALAT	39 J	390 U	84 J	380	100 J	17 J
DI-N-OCTYL PHTHALATE	390 U	390 U	390 U	370 U	410 U	380 U
BENZO(B)FLUORANTHENE	390 U	390 U	380 J	350 J	320 J	380 U
BENZO(K)FLUORANTHENE	390 U	390 U	380 J	320 J	300 J	380 U
BENZO(A)PYRENE	390 U	390 U	340 J	380	310 J	380 U
INDENO(1,2,3-CD)PYRENE	390 U	390 U	250 J	270 J	170 J	380 U
DIBENZO(A,H)ANTHRACENE	390 U	390 U	66 J	100 J	46 J	380 U
BENZO(G,H,I)PERYLENE	390 U	390 U	240 J	320 J	170 J	380 U

SITE 87 - SURFACE SOIL
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SB01-01	87-SB02-01	87-SB03-01	87-SB04-01	87-SB05-01	87-SB06-01
DATE SAMPLED	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
PESTICIDE/PCBS (ug/kg)						
ALPHA-BHC	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
BETA-BHC	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
DELTA-BHC	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
GAMMA-BHC (LINDANE)	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
HEPTACHLOR	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
ALDRIN	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
HEPTACHLOR EPOXIDE	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
ENDOSULFAN I	9.7 U	2 U	7.8 U	3.7 U	8.2 U	1.9 U
DIELDRIN	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
4,4'-DDE	67	16	97	51	35	62
ENDRIN	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
ENDOSULFAN II	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
4,4'-DDD	41	3.9 U	39	470	110	16 J
ENDOSULFAN SULFATE	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
4,4'-DDT	230	15	190	310	40	270
METHOXYCHLOR	97 U	20 U	78 U	37 U	82 U	19 U
ENDRIN KETONE	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
ENDRIN ALDEHYDE	19 U	3.9 U	16 U	7.5 U	16 U	3.8 U
ALPHA-CHLORDANE	9.7 U	2 U	7.8 U	21 J	12 J	1.9 U
GAMMA-CHLORDANE	9.7 U	2 U	7.8 U	26	10 J	1.9 U
TOXAPHENE	970 U	200 U	780 U	370 U	820 U	190 U
AROCLOR-1016	190 U	39 U	160 U	75 U	160 U	38 U
AROCLOR-1221	390 U	78 U	310 U	150 U	330 U	77 U
AROCLOR-1232	190 U	39 U	160 U	75 U	160 U	38 U
AROCLOR-1242	190 U	39 U	160 U	75 U	160 U	38 U
AROCLOR-1248	190 U	39 U	160 U	75 U	160 U	38 U
AROCLOR-1254	190 U	39 U	160 U	75 U	160 U	38 U
AROCLOR-1260	190 U	39 U	160 U	75 U	160 U	38 U

SITE 87 - SURFACE SOIL
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SB01-01	87-SB02-01	87-SB03-01	87-SB04-01	87-SB05-01	87-SB06-01
DATE SAMPLED	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95
DEPTH	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	3760	2900	3370	2290	3220	4250
ANTIMONY, TOTAL	10 U	10.1 U	10.1 U	9.7 U	10.7 U	9.9 U
ARSENIC, TOTAL	3.8 J	1.3 J	4 J	0.94 J	1.5 J	4.6 J
BARIUM, TOTAL	13.4 J	12 J	13.3 J	14.6 J	18 J	16.1 J
BERYLLIUM, TOTAL	0.49	0.76	0.76	0.34 U	0.51	0.87
CADMIUM, TOTAL	0.79 U	0.8 U	0.8 U	0.99	1.5	0.78 U
CALCIUM, TOTAL	221 J	300 J	2720 J	15500 J	18100 J	119 J
CHROMIUM, TOTAL	8.7 J	4.2 J	16.8 J	25.2 J	18.2 J	10.1 J
COBALT, TOTAL	0.96	0.97	0.69	1.5	1.2	0.94
COPPER, TOTAL	3.6	2.3	5.6	16.2	10.2	3.6
IRON, TOTAL	5710	4560	4880	3060	3050	6530
LEAD, TOTAL	9.3 J	13.4 J	52.8 J	143 J	129 J	45 J
MAGNESIUM, TOTAL	321	144	357	466	551	351
MANGANESE, TOTAL	10	25.8	23.7	15.5	23.1	7.7
MERCURY, TOTAL	0.06 U	0.06 U	0.06 U	0.1	0.06 U	0.06 U
NICKEL, TOTAL	3.5 U	3.5 U	3.5 U	19.7 J	8 J	3.4 U
POTASSIUM, TOTAL	575	202	539	233	222	611
SELENIUM, TOTAL	0.37 U	0.37 U	0.38 U	0.36	0.44 U	0.55 U
SILVER, TOTAL	2.2 U	1.8 U	2.3 U	1.2 U	2 U	2.2 U
SODIUM, TOTAL	77	63.3	92	138	94.7	98.1
THALLIUM, TOTAL	1.8 J	0.21 UJ	0.21 UJ	0.2 UJ	0.22 UJ	0.21 UJ
VANADIUM, TOTAL	12	10.6	13.2	19.3	19.1	14.7
ZINC, TOTAL	9 J	17.6 J	19.6 J	65.7 J	53.5 J	7.9 U
CYANIDE	0.58 U	0.59 U	0.59 U	0.56 U	0.62 U	0.58 U

SITE 87 - SUBSURFACE SOIL (TEST PITS)
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-TP01-01	87-TP02-01	87-TP03-01	87-TP04-01
DATE SAMPLED	01/29/96	01/29/96	01/30/96	01/30/96
DEPTH	8'	8'	8'	8'
VOLATILES (ug/kg)				
CHLOROMETHANE	12 U	11 U	11 U	12 U
BROMOMETHANE	12 U	11 U	11 U	12 U
VINYL CHLORIDE	12 U	11 U	11 U	12 U
CHLOROETHANE	12 U	11 U	11 U	12 U
METHYLENE CHLORIDE	12 U	11 U	11 U	12 U
ACETONE	16 U	21 U	26 U	70 U
CARBON DISULFIDE	12 U	11 U	11 U	12 U
1,1-DICHLOROETHENE	12 U	11 U	11 U	12 U
1,1-DICHLOROETHANE	12 U	11 U	11 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U	11 U	12 U
CHLOROFORM	12 U	11 U	11 U	12 U
1,2-DICHLOROETHANE	12 U	11 U	11 U	12 U
2-BUTANONE	12 U	11 U	11 U	12 U
1,1,1-TRICHLOROETHANE	12 U	11 U	11 U	12 U
CARBON TETRACHLORIDE	12 U	11 U	11 U	12 U
BROMODICHLOROMETHANE	12 U	11 U	11 U	12 U
1,2-DICHLOROPROPANE	12 U	11 U	11 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	12 U
TRICHLOROETHENE	12 U	11 U	11 U	12 U
DIBROMOCHLOROMETHANE	12 U	11 U	11 U	12 U
1,1,2-TRICHLOROETHANE	12 U	11 U	11 U	12 U
BENZENE	12 U	11 U	11 U	12 U
TRANS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	12 U
BROMOFORM	12 U	11 U	11 U	12 U
4-METHYL-2-PENTANONE	12 U	11 U	11 U	12 U
2-HEXANONE	12 U	11 U	11 U	12 U
TETRACHLOROETHENE	12 U	11 U	11 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	11 U	11 U	12 U
TOLUENE	12 U	11 U	11 U	12 U
CHLOROBENZENE	12 U	11 U	11 U	12 U
ETHYLBENZENE	12 U	11 U	11 U	12 U
STYRENE	12 U	11 U	11 U	12 U
XYLENE (TOTAL)	12 U	11 U	11 U	12 U

SITE 87 - SUBSURFACE SOIL (TEST PITS)
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-TP01-01	87-TP02-01	87-TP03-01	87-TP04-01
DATE SAMPLED	01/29/96	01/29/96	01/30/96	01/30/96
DEPTH	8'	8'	8'	8'
SEMIVOLATILES (ug/kg)				
PHENOL	380 U	370 U	360 U	380 U
BIS(2-CHLOROETHYL)ETHER	380 U	370 U	360 U	380 U
2-CHLOROPHENOL	380 U	370 U	360 U	380 U
1,3-DICHLOROBENZENE	380 U	370 U	360 U	380 U
1,4-DICHLOROBENZENE	380 U	370 U	360 U	380 U
1,2-DICHLOROBENZENE	380 U	370 U	360 U	380 U
2-METHYLPHENOL	380 U	370 U	360 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	370 U	360 U	380 U
4-METHYLPHENOL	380 U	370 U	360 U	380 U
N-NITROSO-DI-N-PROPYLAMINE	380 U	370 U	360 U	380 U
HEXACHLOROETHANE	380 U	370 U	360 U	380 U
NITROBENZENE	380 U	370 U	360 U	380 U
ISOPHORONE	380 U	370 U	360 U	380 U
2-NITROPHENOL	380 U	370 U	360 U	380 U
2,4-DIMETHYLPHENOL	380 U	370 U	360 U	380 U
BIS(2-CHLOROETHOXY)METHANE	380 U	370 U	360 U	380 U
2,4-DICHLOROPHENOL	380 U	370 U	360 U	380 U
1,2,4-TRICHLOROBENZENE	380 U	370 U	360 U	380 U
NAPHTHALENE	380 U	370 U	360 U	380 U
4-CHLOROANILINE	380 U	370 U	360 U	380 U
HEXACHLOROBUTADIENE	380 U	370 U	360 U	380 U
4-CHLORO-3-METHYLPHENOL	380 U	370 U	360 U	380 U
2-METHYLNAPHTHALENE	380 U	370 U	360 U	380 U
HEXACHLOROCYCLOPENTADIENE	380 U	370 U	360 U	380 U
2,4,6-TRICHLOROPHENOL	380 U	370 U	360 U	380 U
2,4,5-TRICHLOROPHENOL	960 U	920 U	890 U	960 U
2-CHLORONAPHTHALENE	380 U	370 U	360 U	380 U
2-NITROANILINE	960 U	920 U	890 U	960 U
DIMETHYLPHTHALATE	380 U	370 U	360 U	380 U
ACENAPHTHYLENE	380 U	370 U	360 U	380 U
2,6-DINITROTOLUENE	380 U	370 U	360 U	380 U
3-NITROANILINE	960 U	920 U	890 U	960 U
ACENAPHTHENE	380 U	370 U	360 U	380 U
SEMIVOLATILES (ug/kg) cont.				

SITE 87 - SUBSURFACE SOIL (TEST PITS)
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-TP01-01	87-TP02-01	87-TP03-01	87-TP04-01
DATE SAMPLED	01/29/96	01/29/96	01/30/96	01/30/96
DEPTH	8'	8'	8'	8'
2,4-DINITROPHENOL	960 UJ	920 U	890 U	960 U
4-NITROPHENOL	960 U	920 U	890 U	960 U
DIBENZOFURAN	380 U	370 U	360 U	380 U
2,4-DINITROTOLUENE	380 U	370 U	360 U	380 U
DIETHYLPHTHALATE	380 U	370 U	360 U	380 U
4-CHLOROPHENYL-PHENYLETHER	380 U	370 U	360 U	380 U
FLUORENE	380 U	370 U	360 U	380 U
4-NITROANILINE	960 U	920 U	890 U	960 U
4,6-DINITRO-2-METHYLPHENOL	960 U	920 U	890 U	960 U
N-NITROSODIPHENYLAMINE (1)	380 U	370 U	360 U	380 U
4-BROMOPHENYL-PHENYLETHER	380 U	370 U	360 U	380 U
HEXACHLOROBENZENE	380 U	370 U	360 U	380 U
PENTACHLOROPHENOL	960 U	920 U	890 U	960 U
PHENANTHRENE	380 U	370 U	360 U	380 U
ANTHRACENE	380 U	370 U	360 U	380 U
CARBAZOLE	380 U	370 U	360 U	380 U
DI-N-BUTYLPHTHALATE	380 U	370 U	360 U	380 U
FLUORANTHENE	380 U	370 U	360 U	380 U
PYRENE	380 U	370 U	360 U	380 U
BUTYLBENZYLPHTHALATE	380 U	370 U	360 U	380 U
3,3'-DICHLOROBENZIDINE	380 U	370 U	360 U	380 U
BENZO(A)ANTHRACENE	380 U	370 U	360 U	380 U
CHRYSENE	380 U	370 U	360 U	380 U
BIS(2-ETHYLHEXYL)PHTHALATE	380 U	370 U	360 U	380 U
DI-N-OCTYL PHTHALATE	380 U	370 U	360 U	380 U
BENZO(B)FLUORANTHENE	380 U	370 U	360 U	380 U
BENZO(K)FLUORANTHENE	380 U	370 U	360 U	380 U
BENZO(A)PYRENE	380 U	370 U	360 U	380 U
INDENO(1,2,3-CD)PYRENE	380 U	370 U	360 U	380 U
DIBENZO(A,H)ANTHRACENE	380 U	370 U	360 U	380 U
BENZO(G,H,I)PERYLENE	380 U	370 U	360 U	380 U

SITE 87 - SUBSURFACE SOIL (TEST PITS)
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-TP01-01	87-TP02-01	87-TP03-01	87-TP04-01
DATE SAMPLED	01/29/96	01/29/96	01/30/96	01/30/96
DEPTH	8'	8'	8'	8'
PESTICIDE/PCBS (ug/kg)				
ALPHA-BHC	1.9 UJ	1.8 U	1.8 U	1.9 UJ
BETA-BHC	1.9 UJ	1.8 U	1.8 U	1.9 UJ
DELTA-BHC	1.9 UJ	1.8 U	1.8 U	1.9 UJ
GAMMA-BHC (LINDANE)	1.9 UJ	1.8 U	1.8 U	1.9 UJ
HEPTACHLOR	1.9 UJ	1.8 U	1.8 U	1.9 UJ
ALDRIN	1.9 UJ	1.8 U	1.8 U	1.9 UJ
HEPTACHLOR EPOXIDE	1.9 UJ	1.8 U	1.8 U	1.9 UJ
ENDOSULFAN I	1.9 UJ	1.8 U	1.8 U	1.9 UJ
DIELDRIN	3.8 UJ	3.7 U	3.6 U	3.8 UJ
4,4'-DDE	2.3 J	3.7 U	4.7 J	3.8 UJ
ENDRIN	3.8 UJ	3.7 U	3.6 U	3.8 UJ
ENDOSULFAN II	3.8 UJ	3.7 U	3.6 U	3.8 UJ
4,4'-DDD	3.8 UJ	3.7 U	5.1 J	3.8 UJ
ENDOSULFAN SULFATE	3.8 UJ	3.7 U	3.6 U	3.8 UJ
4,4'-DDT	6.1 NJ	1.8 NJ	28 NJ	1.5 NJ
METHOXYCHLOR	19 UJ	18 U	18 U	19 UJ
ENDRIN KETONE	3.8 UJ	3.7 U	3.6 U	3.8 UJ
ENDRIN ALDEHYDE	3.8 UJ	3.7 U	3.6 U	3.8 UJ
ALPHA-CHLORDANE	1.9 UJ	1.8 U	1.8 U	1.9 UJ
GAMMA-CHLORDANE	1.9 UJ	1.8 U	1.8 U	1.9 UJ
TOXAPHENE	190 UJ	180 U	180 U	190 UJ
AROCLOR-1016	38 UJ	37 U	36 U	38 UJ
AROCLOR-1221	77 UJ	74 U	72 U	77 UJ
AROCLOR-1232	38 UJ	37 U	36 U	38 UJ
AROCLOR-1242	38 UJ	37 U	36 U	38 UJ
AROCLOR-1248	38 UJ	37 U	36 U	38 UJ
AROCLOR-1254	38 UJ	37 U	36 U	38 UJ
AROCLOR-1260	38 UJ	37 U	36 U	38 UJ

SITE 87 - SUBSURFACE SOIL (TEST PITS)
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-TP01-01	87-TP02-01	87-TP03-01	87-TP04-01
DATE SAMPLED	01/29/96	01/29/96	01/30/96	01/30/96
DEPTH	8'	8'	8'	8'
TOTAL METALS (mg/kg)				
ALUMINUM, TOTAL	2100	1450	1490	1890
ANTIMONY, TOTAL	3.4 UJ	4.1 UJ	3.2 UJ	3.3 J
ARSENIC, TOTAL	1	0.47	0.61	0.63
BARIUM, TOTAL	28.3	24.6	30.4	30.3
BERYLLIUM, TOTAL	0.14	0.17 U	0.13 U	0.13 U
CADMIUM, TOTAL	0.38 U	0.46 U	0.36 U	0.36 U
CALCIUM, TOTAL	53.9	49.1 U	72.8	58.3
CHROMIUM, TOTAL	3.4 U	2.8 U	2.4 U	3.7
COBALT, TOTAL	0.63	0.62 U	0.49 U	0.59
COPPER, TOTAL	0.35 U	0.42 U	0.58	0.39
IRON, TOTAL	2480 J	1400 J	1640 J	3130 J
LEAD, TOTAL	3.1 J	1.2 J	3 J	3.2 J
MAGNESIUM, TOTAL	94.5	61.7	70.2	69.4
MANGANESE, TOTAL	3.8	4.5	5.9	5
MERCURY, TOTAL	0.06 U	0.05 U	0.04 U	0.05 U
NICKEL, TOTAL	2 U	2.3 U	1.8 U	1.9 U
POTASSIUM, TOTAL	143 U	172 U	134 U	136 U
SELENIUM, TOTAL	0.27 U	0.25 U	0.22 U	0.22 U
SILVER, TOTAL	0.54 U	0.64 U	0.5 U	0.51 U
SODIUM, TOTAL	10.7 U	6.9 U	8.8 U	10.4 U
THALLIUM, TOTAL	0.18 U	0.17 U	0.15 U	0.15 U
VANADIUM, TOTAL	5	3	3.3	5.4
ZINC, TOTAL	2.9	1.9	2.1	2.1

SITE 87 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-GW01-01	87-GW02-01
DATE SAMPLED	10/28/95	10/28/95
VOLATILES (ug/L)		
CHLOROMETHANE	10 U	10 U
BROMOMETHANE	10 U	10 U
VINYL CHLORIDE	10 U	10 U
CHLOROETHANE	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U
ACETONE	10 U	10 U
CARBON DISULFIDE	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U
CHLOROFORM	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U
2-BUTANONE	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U
TRICHLOROETHENE	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U
BENZENE	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U
BROMOFORM	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U
2-HEXANONE	10 U	10 U
TETRACHLOROETHENE	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U
TOLUENE	10 U	10 U
CHLOROBENZENE	10 U	10 U
ETHYLBENZENE	10 U	10 U
STYRENE	10 U	10 U
XYLENE (TOTAL)	10 U	10 U

SITE 87 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-GW01-01	87-GW02-01
DATE SAMPLED	10/28/95	10/28/95
SEMIVOLATILES (ug/L)		
PHENOL	11 U	12 U
BIS(2-CHLOROETHYL)ETHER	11 U	12 U
2-CHLOROPHENOL	11 U	12 U
1,3-DICHLOROBENZENE	11 U	12 U
1,4-DICHLOROBENZENE	11 U	12 U
1,2-DICHLOROBENZENE	11 U	12 U
2-METHYLPHENOL	11 U	12 U
2,2'-OXYBIS(1-CHLOROPROPANE)	11 U	12 U
4-METHYLPHENOL	11 U	12 U
N-NITROSO-DI-N-PROPYLAMINE	11 U	12 U
HEXACHLOROETHANE	11 U	12 U
NITROBENZENE	11 U	12 U
ISOPHORONE	11 U	12 U
2-NITROPHENOL	11 U	12 U
2,4-DIMETHYLPHENOL	11 U	12 U
BIS(2-CHLOROETHOXY)METHANE	11 U	12 U
2,4-DICHLOROPHENOL	11 U	12 U
1,2,4-TRICHLOROBENZENE	11 U	12 U
NAPHTHALENE	11 U	12 U
4-CHLOROANILINE	11 U	12 U
HEXACHLOROBUTADIENE	11 U	12 U
4-CHLORO-3-METHYLPHENOL	11 U	12 U
2-METHYLNAPHTHALENE	11 U	12 U
HEXACHLOROCYCLOPENTADIENE	11 U	12 U
2,4,6-TRICHLOROPHENOL	11 U	12 U
2,4,5-TRICHLOROPHENOL	26 U	30 U
2-CHLORONAPHTHALENE	11 U	12 U
2-NITROANILINE	26 U	30 U
DIMETHYLPHTHALATE	11 U	12 U
ACENAPHTHYLENE	11 U	12 U
2,6-DINITROTOLUENE	11 U	12 U
3-NITROANILINE	26 U	30 U
ACENAPHTHENE	11 U	12 U
2,4-DINITROPHENOL	26 U	30 U

SITE 87 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-GW01-01	87-GW02-01
DATE SAMPLED	10/28/95	10/28/95
SEMIVOLATILES (cont)		
4-NITROPHENOL	1 J	30 U
DIBENZOFURAN	11 U	12 U
2,4-DINITROTOLUENE	11 U	12 U
DIETHYLPHTHALATE	11 U	12 U
4-CHLOROPHENYL-PHENYLETHER	11 U	12 U
FLUORENE	11 U	12 U
4-NITROANILINE	26 U	30 U
4,6-DINITRO-2-METHYLPHENOL	26 U	30 U
N-NITROSODIPHENYLAMINE (1)	11 U	12 U
4-BROMOPHENYL-PHENYLETHER	11 U	12 U
HEXACHLOROBENZENE	11 U	12 U
PENTACHLOROPHENOL	0.8 J	30 U
PHENANTHRENE	11 U	12 U
ANTHRACENE	11 U	12 U
CARBAZOLE	11 U	12 U
DI-N-BUTYLPHTHALATE	11 U	12 U
FLUORANTHENE	11 U	12 U
PYRENE	11 U	12 U
BUTYLBENZYLPHTHALATE	11 U	12 U
3,3'-DICHLOROBENZIDINE	11 U	12 U
BENZO(A)ANTHRACENE	11 U	12 U
CHRYSENE	11 U	12 U
BIS(2-ETHYLHEXYL)PHTHALATE	11 U	12 U
DI-N-OCTYL PHTHALATE	11 U	12 U
BENZO(B)FLUORANTHENE	11 U	12 U
BENZO(K)FLUORANTHENE	11 U	12 U
BENZO(A)PYRENE	11 U	12 U
INDENO(1,2,3-CD)PYRENE	11 U	12 U
DIBENZO(A,H)ANTHRACENE	11 U	12 U
BENZO(G,H,I)PERYLENE	11 U	12 U

SITE 87 - GROUNDWATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-GW01-01	87-GW02-01
DATE SAMPLED	10/28/95	10/28/95
PESTICIDE/PCBS (ug/L)		
ALPHA-BHC	0.054 R	0.054 UJ
BETA-BHC	0.054 R	0.054 UJ
DELTA-BHC	0.054 R	0.054 UJ
GAMMA-BHC (LINDANE)	0.054 R	0.054 UJ
HEPTACHLOR	0.054 R	0.054 UJ
ALDRIN	0.054 R	0.054 UJ
HEPTACHLOR EPOXIDE	0.054 R	0.054 UJ
ENDOSULFAN I	0.054 R	0.054 UJ
DIELDRIN	0.11 R	0.11 UJ
4,4'-DDE	0.11 R	0.11 UJ
ENDRIN	0.11 R	0.11 UJ
ENDOSULFAN II	0.11 R	0.11 UJ
4,4'-DDD	0.11 R	0.11 UJ
ENDOSULFAN SULFATE	0.11 R	0.11 UJ
4,4'-DDT	0.11 R	0.11 UJ
METHOXYCHLOR	0.54 R	0.54 UJ
ENDRIN KETONE	0.11 R	0.11 UJ
ENDRIN ALDEHYDE	0.11 R	0.11 UJ
ALPHA-CHLORDANE	0.054 R	0.054 UJ
GAMMA-CHLORDANE	0.054 R	0.054 UJ
TOXAPHENE	5.4 R	5.4 UJ
AROCLOR-1016	1.1 R	1.1 UJ
AROCLOR-1221	2.2 R	2.2 UJ
AROCLOR-1232	1.1 R	1.1 UJ
AROCLOR-1242	1.1 R	1.1 UJ
AROCLOR-1248	1.1 R	1.1 UJ
AROCLOR-1254	1.1 R	1.1 UJ
AROCLOR-1260	1.1 R	1.1 UJ

SITE 87 - GROUNDWATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-GW01-01	87-GW02-01
DATE SAMPLED	10/28/95	10/28/95
TOTAL METALS (ug/L)		
ALUMINUM, TOTAL	3770	947
ANTIMONY, TOTAL	43.2 U	43.2 U
ARSENIC, TOTAL	1.8 UJ	1.8 UJ
BARIUM, TOTAL	35.1	7.1 U
BERYLLIUM, TOTAL	1.5 U	1.5 U
CADMIUM, TOTAL	3.4 U	3.4 U
CALCIUM, TOTAL	8400 J	82300 J
CHROMIUM, TOTAL	9.6 U	9.6 U
COBALT, TOTAL	3.8 J	2.7 UJ
COPPER, TOTAL	4.7 U	18.4
IRON, TOTAL	115	3130
LEAD, TOTAL	0.8 UJ	1.1 J
MAGNESIUM, TOTAL	5280	3180
MANGANESE, TOTAL	224	37.3
MERCURY, TOTAL	0.1 U	0.1 U
NICKEL, TOTAL	14.9 U	14.9 U
POTASSIUM, TOTAL	2020	1250
SELENIUM, TOTAL	1.3 UJ	1.6 J
SILVER, TOTAL	4.4 U	4.4 U
SODIUM, TOTAL	14200	12100
THALLIUM, TOTAL	0.9 R	12 J
VANADIUM, TOTAL	3.1 U	3.1 U
ZINC, TOTAL	28.2	3 U
CYANIDE	5 U	5 U

SITE 87 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SW01-01	87-SW02-01
DATE SAMPLED	10/28/95	10/28/95
VOLATILES (ug/L)		
CHLOROMETHANE	10 U	10 U
BROMOMETHANE	10 U	10 U
VINYL CHLORIDE	10 U	10 U
CHLOROETHANE	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U
ACETONE	10 U	10 U
CARBON DISULFIDE	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U
CHLOROFORM	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U
2-BUTANONE	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U
TRICHLOROETHENE	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U
BENZENE	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U
BROMOFORM	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U
2-HEXANONE	10 U	10 U
TETRACHLOROETHENE	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U
TOLUENE	10 U	10 U
CHLOROBENZENE	10 U	10 U
ETHYLBENZENE	10 U	10 U
STYRENE	10 U	10 U
XYLENE (TOTAL)	10 U	10 U

SITE 87 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SW01-01	87-SW02-01
DATE SAMPLED	10/28/95	10/28/95
SEMIVOLATILES (ug/kg)		
PHENOL	11 U	11 U
BIS(2-CHLOROETHYL)ETHER	11 U	11 U
2-CHLOROPHENOL	11 U	11 U
1,3-DICHLOROBENZENE	11 U	11 U
1,4-DICHLOROBENZENE	11 U	11 U
1,2-DICHLOROBENZENE	11 U	11 U
2-METHYLPHENOL	11 U	11 U
2,2'-OXYBIS(1-CHLOROPROPANE)	11 U	11 U
4-METHYLPHENOL	11 U	11 U
N-NITROSO-DI-N-PROPYLAMINE	11 U	11 U
HEXACHLOROETHANE	11 U	11 U
NITROBENZENE	11 U	11 U
ISOPHORONE	11 U	11 U
2-NITROPHENOL	11 U	11 U
2,4-DIMETHYLPHENOL	11 U	11 U
BIS(2-CHLOROETHOXY)METHANE	11 U	11 U
2,4-DICHLOROPHENOL	11 U	11 U
1,2,4-TRICHLOROBENZENE	11 U	11 U
NAPHTHALENE	11 U	11 U
4-CHLOROANILINE	11 U	11 U
HEXACHLOROBUTADIENE	11 U	11 U
4-CHLORO-3-METHYLPHENOL	11 U	11 U
2-METHYLNAPHTHALENE	11 U	11 U
HEXACHLOROCYCLOPENTADIENE	11 U	11 U
2,4,6-TRICHLOROPHENOL	11 U	11 U
2,4,5-TRICHLOROPHENOL	28 U	28 U
2-CHLORONAPHTHALENE	11 U	11 U
2-NITROANILINE	28 U	28 U
DIMETHYLPHTHALATE	11 U	11 U
ACENAPHTHYLENE	11 U	11 U
2,6-DINITROTOLUENE	11 U	11 U
3-NITROANILINE	28 U	28 U
ACENAPHTHENE	11 U	11 U
2,4-DINITROPHENOL	28 U	28 U
4-NITROPHENOL	28 U	28 U

SITE 87 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SW01-01	87-SW02-01
DATE SAMPLED	10/28/95	10/28/95
SEMIVOLATILES (ug/kg) cont.		
DIBENZOFURAN	11 U	11 U
2,4-DINITROTOLUENE	11 U	11 U
DIETHYLPHTHALATE	11 U	11 U
4-CHLOROPHENYL-PHENYLETHER	11 U	11 U
FLUORENE	11 U	11 U
4-NITROANILINE	28 U	28 U
4,6-DINITRO-2-METHYLPHENOL	28 U	28 U
N-NITROSODIPHENYLAMINE (1)	11 U	11 U
4-BROMOPHENYL-PHENYLETHER	11 U	11 U
HEXACHLOROBENZENE	11 U	11 U
PENTACHLOROPHENOL	28 U	28 U
PHENANTHRENE	11 U	11 U
ANTHRACENE	11 U	11 U
CARBAZOLE	11 U	11 U
DI-N-BUTYLPHTHALATE	11 U	11 U
FLUORANTHENE	11 U	11 U
PYRENE	11 U	11 U
BUTYLBENZYLPHTHALATE	11 U	11 U
3,3'-DICHLOROBENZIDINE	11 U	11 U
BENZO(A)ANTHRACENE	11 U	11 U
CHRYSENE	11 U	11 U
BIS(2-ETHYLHEXYL)PHTHALATE	11 U	11 U
DI-N-OCTYL PHTHALATE	11 U	11 U
BENZO(B)FLUORANTHENE	11 U	11 U
BENZO(K)FLUORANTHENE	11 U	11 U
BENZO(A)PYRENE	11 U	11 U
INDENO(1,2,3-CD)PYRENE	11 U	11 U
DIBENZO(A,H)ANTHRACENE	11 U	11 U
BENZO(G,H,I)PERYLENE	11 U	11 U

SITE 87 - SURFACE WATER
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SW01-01	87-SW02-01
DATE SAMPLED	10/28/95	10/28/95
PESTICIDE/PCBS (ug/L)		
ALPHA-BHC	0.054 UJ	0.056 UJ
BETA-BHC	0.054 UJ	0.056 UJ
DELTA-BHC	0.054 UJ	0.056 UJ
GAMMA-BHC (LINDANE)	0.054 UJ	0.056 UJ
HEPTACHLOR	0.054 UJ	0.056 UJ
ALDRIN	0.054 UJ	0.056 UJ
HEPTACHLOR EPOXIDE	0.054 UJ	0.056 UJ
ENDOSULFAN I	0.054 UJ	0.056 UJ
DIELDRIN	0.11 UJ	0.11 UJ
4,4'-DDE	0.11 UJ	0.11 UJ
ENDRIN	0.11 UJ	0.11 UJ
ENDOSULFAN II	0.11 UJ	0.11 UJ
4,4'-DDD	0.11 UJ	0.11 UJ
ENDOSULFAN SULFATE	0.11 UJ	0.11 UJ
4,4'-DDT	0.11 UJ	0.11 UJ
METHOXYCHLOR	0.54 UJ	0.56 UJ
ENDRIN KETONE	0.11 UJ	0.11 UJ
ENDRIN ALDEHYDE	0.11 UJ	0.11 UJ
ALPHA-CHLORDANE	0.054 UJ	0.056 UJ
GAMMA-CHLORDANE	0.054 UJ	0.056 UJ
TOXAPHENE	5.4 UJ	5.6 UJ
AROCLOR-1016	1.1 UJ	1.1 UJ
AROCLOR-1221	2.2 UJ	2.2 UJ
AROCLOR-1232	1.1 UJ	1.1 UJ
AROCLOR-1242	1.1 UJ	1.1 UJ
AROCLOR-1248	1.1 UJ	1.1 UJ
AROCLOR-1254	1.1 UJ	1.1 UJ
AROCLOR-1260	1.1 UJ	1.1 UJ

SITE 87 - SURFACE WATER
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SW01-01	87-SW02-01
DATE SAMPLED	10/28/95	10/28/95
TOTAL METALS (ug/L)		
ALUMINUM, TOTAL	488	375
ANTIMONY, TOTAL	54.5	43.2 U
ARSENIC, TOTAL	1.8 UJ	1.8 UJ
BARIUM, TOTAL	26.7	16.1
BERYLLIUM, TOTAL	1.5 U	1.5 U
CADMIUM, TOTAL	3.4 U	3.4 U
CALCIUM, TOTAL	116000 J	116000 J
CHROMIUM, TOTAL	9.6 U	9.6 U
COBALT, TOTAL	2.7 UJ	2.7 UJ
COPPER, TOTAL	4.9	4.7 U
IRON, TOTAL	326	269
LEAD, TOTAL	8 J	0.8 UJ
MAGNESIUM, TOTAL	332000	334000
MANGANESE, TOTAL	26.1	26.1
MERCURY, TOTAL	0.1 U	0.1 U
NICKEL, TOTAL	14.9 U	14.9 U
POTASSIUM, TOTAL	107000	109000
SELENIUM, TOTAL	1.3 UJ	22 J
SILVER, TOTAL	4.4 U	4.4 U
SODIUM, TOTAL	2900000	3040000
THALLIUM, TOTAL	9 R	9 R
VANADIUM, TOTAL	11.2	5.4
ZINC, TOTAL	11.7	9.4
CYANIDE	5 U	53.4

SITE 87 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SD01-01	87-SD02-01
DATE SAMPLED	10/28/95	10/28/95
DEPTH	0-0.5	0-0.5
VOLATILES (ug/kg)		
CHLOROMETHANE	13 U	12 U
BROMOMETHANE	13 U	12 U
VINYL CHLORIDE	13 U	12 U
CHLOROETHANE	13 U	12 U
METHYLENE CHLORIDE	13 U	13 U
ACETONE	6 J	12 U
CARBON DISULFIDE	13 U	12 U
1,1-DICHLOROETHENE	13 U	12 U
1,1-DICHLOROETHANE	13 U	12 U
1,2-DICHLOROETHENE (TOTAL)	13 U	12 U
CHLOROFORM	13 U	12 U
1,2-DICHLOROETHANE	13 U	12 U
2-BUTANONE	13 U	12 U
1,1,1-TRICHLOROETHANE	13 U	12 U
CARBON TETRACHLORIDE	13 U	12 U
BROMODICHLOROMETHANE	13 U	12 U
1,2-DICHLOROPROPANE	13 U	12 U
CIS-1,3-DICHLOROPROPENE	13 U	12 U
TRICHLOROETHENE	13 U	12 U
DIBROMOCHLOROMETHANE	13 U	12 U
1,1,2-TRICHLOROETHANE	13 U	12 U
BENZENE	13 U	12 U
TRANS-1,3-DICHLOROPROPENE	13 U	12 U
BROMOFORM	13 U	12 U
4-METHYL-2-PENTANONE	13 U	12 U
2-HEXANONE	13 U	12 U
TETRACHLOROETHENE	13 U	12 U
1,1,2,2-TETRACHLOROETHANE	13 U	12 U
TOLUENE	13 U	12 U
CHLOROBENZENE	13 U	12 U
ETHYLBENZENE	13 U	12 U
STYRENE	13 U	12 U
XYLENE (TOTAL)	13 U	12 U

SITE 87 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SD01-01	87-SD02-01
DATE SAMPLED	10/28/95	10/28/95
DEPTH	0-0.5	0-0.5
SEMIVOLATILES (ug/kg)		
PHENOL	430 U	410 U
BIS(2-CHLOROETHYL)ETHER	430 U	410 U
2-CHLOROPHENOL	430 U	410 U
1,3-DICHLOROBENZENE	430 U	410 U
1,4-DICHLOROBENZENE	430 U	410 U
1,2-DICHLOROBENZENE	430 U	410 U
2-METHYLPHENOL	430 U	410 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	410 U
4-METHYLPHENOL	430 U	410 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	410 U
HEXACHLOROETHANE	430 U	410 U
NITROBENZENE	430 U	410 U
ISOPHORONE	430 U	410 U
2-NITROPHENOL	430 U	410 U
2,4-DIMETHYLPHENOL	430 U	410 U
BIS(2-CHLOROETHOXY)METHANE	430 U	410 U
2,4-DICHLOROPHENOL	430 U	410 U
1,2,4-TRICHLOROBENZENE	430 U	410 U
NAPHTHALENE	430 U	410 U
4-CHLOROANILINE	430 U	410 U
HEXACHLOROBUTADIENE	430 U	410 U
4-CHLORO-3-METHYLPHENOL	430 U	410 U
2-METHYLNAPHTHALENE	430 U	410 U
HEXACHLOROCYCLOPENTADIENE	430 U	410 U
2,4,6-TRICHLOROPHENOL	430 U	410 U
2,4,5-TRICHLOROPHENOL	1100 U	1000 U
2-CHLORONAPHTHALENE	430 U	410 U
2-NITROANILINE	1100 U	1000 U
DIMETHYLPHTHALATE	430 U	410 U
ACENAPHTHYLENE	430 U	410 U
2,6-DINITROTOLUENE	430 U	410 U
3-NITROANILINE	1100 U	1000 U
ACENAPHTHENE	430 U	410 U
2,4-DINITROPHENOL	1100 U	1000 U

SITE 87 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SD01-01	87-SD02-01
DATE SAMPLED	10/28/95	10/28/95
DEPTH	0-0.5	0-0.5
SEMIVOLATILES (ug/kg) cont.		
4-NITROPHENOL	1100 U	1000 U
DIBENZOFURAN	430 U	410 U
2,4-DINITROTOLUENE	430 U	410 U
DIETHYLPHTHALATE	430 U	410 U
4-CHLOROPHENYL-PHENYLETHER	430 U	410 U
FLUORENE	430 U	410 U
4-NITROANILINE	1100 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1000 U
N-NITROSODIPHENYLAMINE (1)	430 U	410 U
4-BROMOPHENYL-PHENYLETHER	430 U	410 U
HEXACHLOROBENZENE	430 U	410 U
PENTACHLOROPHENOL	1100 U	1000 U
PHENANTHRENE	430 U	410 U
ANTHRACENE	430 U	410 U
CARBAZOLE	430 U	410 U
DI-N-BUTYLPHTHALATE	430 U	410 U
FLUORANTHENE	430 U	24 J
PYRENE	430 U	28 J
BUTYLBENZYLPHTHALATE	430 U	410 U
3,3'-DICHLOROBENZIDINE	430 U	410 U
BENZO(A)ANTHRACENE	430 U	24 J
CHRYSENE	430 U	32 J
BIS(2-ETHYLHEXYL)PHTHALATE	27 J	410 U
DI-N-OCTYL PHTHALATE	430 U	410 U
BENZO(B)FLUORANTHENE	430 U	25 J
BENZO(K)FLUORANTHENE	430 U	32 J
BENZO(A)PYRENE	430 U	41 J
INDENO(1,2,3-CD)PYRENE	430 U	24 J
DIBENZO(A,H)ANTHRACENE	430 U	410 U
BENZO(G,H,I)PERYLENE	430 U	32 J

SITE 87 - SEDIMENT
ORGANIC COMPOUNDS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SD01-01	87-SD02-01
DATE SAMPLED	10/28/95	10/28/95
DEPTH	0-0.5	0-0.5
PESTICIDE/PCBS (ug/kg)		
ALPHA-BHC	2.2 U	4.1 U
BETA-BHC	2.2 U	4.1 U
DELTA-BHC	2.2 U	4.1 U
GAMMA-BHC (LINDANE)	2.2 U	4.1 U
HEPTACHLOR	2.2 U	4.1 U
ALDRIN	2.2 U	4.1 U
HEPTACHLOR EPOXIDE	2.2 U	4.1 U
ENDOSULFAN I	2.2 U	4.1 U
DIELDRIN	4.3 U	8.1 U
4,4'-DDE	4.3 U	8.1 U
ENDRIN	4.3 U	8.1 U
ENDOSULFAN II	4.3 U	8.1 U
4,4'-DDD	4.3 U	8.1 U
ENDOSULFAN SULFATE	4.3 U	8.1 U
4,4'-DDT	4.3 UJ	8.1 UJ
METHOXYCHLOR	22 U	41 U
ENDRIN KETONE	4.3 U	8.1 U
ENDRIN ALDEHYDE	4.3 U	8.1 U
ALPHA-CHLORDANE	2.2 U	4.1 U
GAMMA-CHLORDANE	2.2 U	4.1 U
TOXAPHENE	220 U	410 U
AROCLOR-1016	43 U	81 U
AROCLOR-1221	86 U	160 U
AROCLOR-1232	43 U	81 U
AROCLOR-1242	43 U	81 U
AROCLOR-1248	43 U	81 U
AROCLOR-1254	43 U	81 U
AROCLOR-1260	43 U	81 U

SITE 87 - SEDIMENT
TOTAL METALS
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	87-SD01-01	87-SD02-01
DATE SAMPLED	10/28/95	10/28/95
DEPTH	0-0.5	0-0.5
TOTAL METALS (mg/kg)		
ALUMINUM, TOTAL	1030	1060
ANTIMONY, TOTAL	11.2 U	10.5 U
ARSENIC, TOTAL	0.47 U	0.44 U
BARIUM, TOTAL	35	8.8
BERYLLIUM, TOTAL	0.39 U	0.36 U
CADMIUM, TOTAL	0.88 U	0.83 U
CALCIUM, TOTAL	133	514
CHROMIUM, TOTAL	2.5 U	11.5
COBALT, TOTAL	1.6 U	1.9 U
COPPER, TOTAL	1.2 U	38.4
IRON, TOTAL	922	6040
LEAD, TOTAL	0.6 B	6.1
MAGNESIUM, TOTAL	72.3 U	136
MANGANESE, TOTAL	8.4	45.2
MERCURY, TOTAL	0.06 U	0.06 U
NICKEL, TOTAL	3.9 U	7.2
POTASSIUM, TOTAL	221 U	208 U
SELENIUM, TOTAL	0.67 J	0.44 J
SILVER, TOTAL	2.1	1.1 U
SODIUM, TOTAL	242	236
THALLIUM, TOTAL	0.23 UJ	0.22 UJ
VANADIUM, TOTAL	2.2	2.5
ZINC, TOTAL	4.6	11
CYANIDE	0.65 U	0.61 U

APPENDIX J
STATISTICAL SUMMARIES

SITE 68

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	7.25	3.10	8.34	1.92	0.32	8.16
SEMIVOLATILES (ug/kg)						
PHENOL	185.75	24.55	194.34	5.21	0.19	199.93
DI-N-BUTYLPHTHALATE	185.17	31.42	196.16	5.19	0.30	212.33
BIS(2-ETHYLHEXYL)PHTHALATE	174.17	43.93	189.54	5.11	0.39	208.08
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	0.98	0.10	1.01	-0.03	0.09	1.01
4,4'-DDT	2.10	0.90	2.42	0.70	0.25	2.28
METHOXYCHLOR	20.72	41.42	35.21	1.73	1.49	47.48
AROCLOR-1260	9.44	15.90	15.00	1.43	1.13	15.61
	9.96	1.78	10.58	2.29	0.14	10.47
	30.48	55.28	49.82	3.07	0.56	31.93

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	3949.58	2008.44	4652.27	8.13	0.59	5217.55
ANTIMONY, TOTAL	2.01	0.58	2.21	0.67	0.21	2.17
ARSENIC, TOTAL	0.45	0.23	0.53	-0.96	0.63	0.62
BARIUM, TOTAL	14.53	6.95	16.96	2.54	0.59	19.40
BERYLLIUM, TOTAL	0.23	0.20	0.29	-1.84	0.84	0.35
CADMIUM, TOTAL	0.22	0.05	0.24	-1.53	0.20	0.24
CALCIUM, TOTAL	537.25	1722.69	1139.97	4.91	1.27	730.18
CHROMIUM, TOTAL	2.54	1.03	2.90	0.84	0.45	3.10
COBALT, TOTAL	0.61	0.34	0.73	-0.65	0.58	0.79
COPPER, TOTAL	1.48	1.42	1.97	0.10	0.76	2.14
IRON, TOTAL	1208.00	741.09	1467.28	6.94	0.57	1547.41
LEAD, TOTAL	13.93	23.34	22.09	2.26	0.67	16.17
MAGNESIUM, TOTAL	108.76	57.70	128.95	4.54	0.57	141.33
MANGANESE, TOTAL	49.71	45.33	65.57	3.45	1.08	108.01
MERCURY, TOTAL	0.03	0.01	0.03	-3.63	0.22	0.03
NICKEL, TOTAL	1.96	0.96	2.30	0.56	0.49	2.41
POTASSIUM, TOTAL	84.58	26.17	93.74	4.41	0.22	91.77
SELENIUM, TOTAL	0.13	0.03	0.14	-2.04	0.17	0.14
SODIUM, TOTAL	10.36	7.44	12.97	2.17	0.56	12.99
VANADIUM, TOTAL	3.90	1.70	4.49	1.26	0.46	4.77
ZINC, TOTAL	6.53	4.19	7.99	1.67	0.69	9.30

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	19.10	30.15	29.42	2.46	0.83	24.97
CARBON DISULFIDE	6.78	1.95	7.45	1.89	0.19	7.23
2-BUTANONE	6.52	0.64	6.74	1.87	0.09	6.73
SEMIVOLATILES (ug/kg)						
PYRENE	205.12	35.00	217.10	5.29	0.30	234.49
BIS(2-ETHYLHEXYL)PHTHALATE	191.80	50.19	208.97	5.20	0.41	232.26
PESTICIDE/PCBS (ug/kg)						
4,4'-DDT	2.16	0.29	2.25	0.76	0.11	2.25
AROCLOR-1260	20.62	2.66	21.53	3.02	0.15	21.79

STATISTICAL SUMMARY
SUBSURFACE SOIL - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	9267.00	3639.88	10512.57	8.96	0.78	15189.96
ARSENIC, TOTAL	3.08	1.77	3.69	0.74	1.23	9.39
BARIUM, TOTAL	16.84	14.72	21.88	2.53	0.91	30.51
BERYLLIUM, TOTAL	0.30	0.20	0.37	-1.44	0.75	0.45
CADMIUM, TOTAL	0.29	0.15	0.34	-1.30	0.36	0.33
CALCIUM, TOTAL	208.74	196.22	275.88	4.88	1.04	420.42
CHROMIUM, TOTAL	15.75	7.23	18.22	2.54	0.82	26.67
COBALT, TOTAL	1.72	2.76	2.66	-0.10	1.04	2.88
COPPER, TOTAL	3.51	2.27	4.29	0.91	1.10	8.81
IRON, TOTAL	9428.88	5406.29	11278.91	8.84	0.98	18692.41
LEAD, TOTAL	7.12	2.49	7.97	1.85	0.59	9.72
MAGNESIUM, TOTAL	582.80	342.93	700.15	6.05	1.06	1387.40
MANGANESE, TOTAL	23.75	37.59	36.61	2.52	1.17	49.01
NICKEL, TOTAL	4.23	4.56	5.79	1.04	0.87	6.36
POTASSIUM, TOTAL	651.42	352.40	772.01	6.18	0.97	1286.04
SELENIUM, TOTAL	0.19	0.11	0.23	-1.79	0.43	0.22
SODIUM, TOTAL	38.10	20.06	44.97	3.40	0.84	64.61
VANADIUM, TOTAL	16.50	8.32	19.35	2.59	0.81	27.61
ZINC, TOTAL	17.52	21.22	24.78	2.31	1.23	44.86

STATISTICAL SUMMARY
GROUNDWATER - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/L)						
CARBON DISULFIDE	4.78	0.44	5.05	1.56	0.10	5.10
2-HEXANONE	5.11	0.33	5.32	1.63	0.06	5.32

STATISTICAL SUMMARY - GROUNDWATER
TOTAL METALS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
METALS (ug/l)						
Aluminum	664.36	1083.15	1108.48	4.78	2.08	14539.53
Antimony	21.14	9.68	25.11	2.93	0.53	28.32
Arsenic	2.75	2.31	3.7	0.45	1.21	7.91
Barium	29.61	14.69	35.63	3.22	0.69	46.18
Beryllium	1.57	1.22	2.07	0.08	0.94	3.07
Cadmium	2.01	0.99	2.42	0.59	0.48	2.56
Calcium	41814.44	43987.58	59850.63	9.88	1.4	167044.29
Chromium	3.27	1.95	4.07	0.96	0.72	5.11
Cobalt	14.64	12.34	19.7	2.05	1.34	58.2
Copper	5.11	5.92	7.54	1.21	0.9	8.67
Iron	938.32	1681.11	1627.62	5.35	1.94	10526.17
Lead	1.25	0.76	1.56	0.01	0.69	1.86
Magnesium	3180.28	2122.33	4050.5	7.82	0.8	5422.41
Manganese	149.97	328.48	284.66	3.47	1.92	1513.37
Mercury	0.07	0.03	0.08	-2.77	0.41	0.08
Nickel	16.04	14.08	21.81	2.51	0.73	24.4
Potassium	2453.78	3229.25	3777.87	7.45	0.77	3595.93
Selenium	1.66	0.93	2.04	0.31	0.68	2.49
Sodium	11958.89	10183.73	16134.52	9.14	0.71	18011.88
Thallium	2.65	2.3	3.59	0.41	1.19	7.32
Vanadium	10.28	10.58	14.62	1.56	1.39	39.79
Zinc	24.63	57.28	48.12	2.21	1.23	47.83

STATISTICAL SUMMARY - GROUNDWATER
DISSOLVED METALS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION DATE SAMPLED	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
DISSOLVED METALS (ug/L)						
ALUMINUM, SOLUBLE	102.35	98.50	542.12	4.32	1.17	NA
BARIUM, SOLUBLE	33.80	29.13	163.87	3.29	1.00	NA
CALCIUM, SOLUBLE	46950.00	32173.36	190593.50	10.62	0.75	NA
CHROMIUM, SOLUBLE	2.25	1.48	8.88	0.69	0.72	NA
COBALT, SOLUBLE	2.35	1.20	7.72	0.78	0.54	NA
IRON, SOLUBLE	306.70	385.09	2026.00	4.95	2.00	NA
MAGNESIUM, SOLUBLE	3085.00	2665.79	14986.89	7.80	1.00	NA
MANGANESE, SOLUBLE	70.30	5.80	96.19	4.25	0.08	NA
POTASSIUM, SOLUBLE	1750.50	1074.10	6545.98	7.36	0.66	NA
SODIUM, SOLUBLE	16850.00	6010.41	43684.50	9.70	0.36	NA
ZINC, SOLUBLE	7.30	7.78	42.03	1.57	1.39	NA

STATISTICAL SUMMARY
SURFACE WATER - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/L)						
DI-N-BUTYLPHTHALATE	4.55	1.26	5.28	1.44	0.51	7.14

STATISTICAL SUMMARY
SURFACE WATER - TOTAL INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	312.90	110.97	377.23	5.68	0.41	430.07
BARIUM, TOTAL	13.39	2.35	14.75	2.58	0.16	14.83
CADMIUM, TOTAL	1.28	0.57	1.61	0.19	0.31	1.57
CALCIUM, TOTAL	17335.00	8518.24	22272.56	9.62	0.60	28842.18
IRON, TOTAL	449.90	58.68	483.91	6.10	0.12	485.00
LEAD, TOTAL	1.20	0.86	1.70	-0.09	0.79	2.58
MAGNESIUM, TOTAL	6885.00	9560.91	12426.94	8.10	1.19	28397.48
MANGANESE, TOTAL	24.93	12.51	32.18	3.10	0.52	38.31
POTASSIUM, TOTAL	2383.10	2989.34	4115.86	7.12	1.17	10282.77
SELENIUM, TOTAL	0.76	0.33	0.95	-0.33	0.30	0.93
SODIUM, TOTAL	54921.00	80162.05	101386.57	10.07	1.30	335127.59
VANADIUM, TOTAL	1.32	0.38	1.54	0.25	0.22	1.52
ZINC, TOTAL	2.27	0.99	2.84	0.75	0.35	2.89

STATISTICAL SUMMARY - SEDIMENT
ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
PHENANTHRENE	563.50	425.01	809.86	6.07	0.76	1150.21
ANTHRACENE	541.70	446.23	800.35	5.92	0.97	1647.56
FLUORANTHENE	577.50	416.86	819.13	6.11	0.74	1167.64
PYRENE	568.50	421.58	812.87	6.09	0.75	1152.24
BENZO(A)ANTHRACENE	554.50	432.57	805.24	6.04	0.79	1171.65
CHRYSENE	556.50	430.74	806.17	6.05	0.78	1162.62
BIS(2-ETHYLHEXYL)PHTHALATE	475.00	391.42	701.89	5.91	0.71	899.19
BENZO(B)FLUORANTHENE	560.50	427.33	808.20	6.06	0.77	1152.69
BENZO(K)FLUORANTHENE	545.20	442.17	801.50	5.97	0.89	1373.17
BENZO(A)PYRENE	420.50	322.79	607.60	5.83	0.65	727.82
INDENO(1,2,3-CD)PYRENE	546.50	440.72	801.96	5.98	0.87	1337.05
BENZO(G,H,I)PERYLENE	545.30	442.05	801.53	5.97	0.89	1370.05
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	115.58	195.71	229.02	3.47	1.71	2157.01
4,4'-DDD	386.96	903.67	910.77	3.85	2.24	81094.52
4,4'-DDT	482.59	1412.48	1301.33	3.23	2.26	47480.66
ALPHA-CHLORDANE	7.16	8.67	12.18	1.29	1.26	46.55
GAMMA-CHLORDANE	7.26	8.75	12.33	1.30	1.26	47.98

STATISTICAL SUMMARY
SEDIMENT - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	4995.60	4731.32	7738.09	7.74	1.52	83829.01
ARSENIC, TOTAL	1.29	1.57	2.20	-0.84	1.74	31.12
BARIUM, TOTAL	10.92	10.29	16.89	1.83	1.20	55.21
CADMIUM, TOTAL	1.08	1.39	1.88	-0.49	1.07	3.96
CALCIUM, TOTAL	4025.73	4665.04	6729.80	7.11	1.92	240129.03
CHROMIUM, TOTAL	5.16	4.63	7.85	1.16	1.10	22.16
COBALT, TOTAL	2.05	2.08	3.26	0.13	1.22	10.61
COPPER, TOTAL	3.60	4.92	6.45	0.29	1.56	53.83
IRON, TOTAL	5534.80	5708.30	8843.59	7.71	1.65	121477.91
LEAD, TOTAL	17.63	21.90	30.32	2.17	1.31	129.69
MAGNESIUM, TOTAL	2176.90	2990.65	3910.42	5.97	2.39	1298969.34
MANGANESE, TOTAL	33.92	45.82	60.48	2.57	1.51	461.23
MERCURY, TOTAL	0.10	0.12	0.17	-2.81	0.98	0.27
NICKEL, TOTAL	4.22	3.18	6.07	1.12	0.88	10.66
SELENIUM, TOTAL	0.49	0.41	0.73	-1.12	1.00	1.82
SODIUM, TOTAL	3385.23	5223.30	6412.89	5.69	3.10	443790736.51
VANADIUM, TOTAL	8.60	8.98	13.81	1.48	1.33	68.91
ZINC, TOTAL	20.36	26.43	35.67	2.25	1.41	184.55

SITE 75

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
DI-N-BUTYLPHTHALATE	231.00	72.12	263.79	5.41	0.25	260.57
BIS(2-ETHYLHEXYL)PHTHALATE	141.07	66.57	171.34	4.81	0.57	203.02
PESTICIDE/PCBS (ug/kg)						
HEPTACHLOR	1.13	0.52	1.37	0.07	0.29	1.29
HEPTACHLOR EPOXIDE	3.40	9.30	7.63	0.24	0.93	3.90
DIELDRIN	2.10	0.37	2.27	0.73	0.14	2.25
4,4'-DDE	9.52	11.89	14.93	1.69	1.06	23.14
ENDRIN	2.61	2.32	3.66	0.81	0.44	3.16
4,4'-DDD	5.14	11.59	10.41	0.95	0.82	6.45
4,4'-DDT	6.21	4.61	8.30	1.54	0.80	10.84
ALPHA-CHLORDANE	30.32	113.34	81.85	0.45	1.57	29.36
GAMMA-CHLORDANE	32.34	121.07	87.39	0.47	1.58	31.42

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	5841.33	1305.79	6435.06	8.65	0.25	6641.00
ARSENIC, TOTAL	0.84	0.30	0.98	-0.22	0.32	0.99
BARIUM, TOTAL	16.85	8.59	20.75	2.74	0.40	20.93
CALCIUM, TOTAL	5959.07	11403.06	11143.91	7.85	1.13	12519.08
CHROMIUM, TOTAL	6.32	1.33	6.92	1.82	0.22	7.06
COBALT, TOTAL	0.50	0.23	0.60	-0.80	0.47	0.65
COPPER, TOTAL	2.59	1.35	3.20	0.83	0.51	3.51
IRON, TOTAL	2846.00	694.47	3161.77	7.92	0.27	3276.19
LEAD, TOTAL	22.13	13.77	28.39	2.95	0.53	30.01
MAGNESIUM, TOTAL	283.60	153.48	353.38	5.54	0.48	370.02
MANGANESE, TOTAL	10.93	2.77	12.19	2.36	0.26	12.52
MERCURY, TOTAL	0.04	0.03	0.06	-3.37	0.56	0.06
NICKEL, TOTAL	1.43	0.73	1.76	0.28	0.36	1.71
POTASSIUM, TOTAL	144.10	70.24	176.04	4.86	0.48	189.25
SELENIUM, TOTAL	0.19	0.09	0.23	-1.73	0.43	0.25
SODIUM, TOTAL	34.76	32.19	49.40	3.31	0.65	50.55
VANADIUM, TOTAL	10.26	1.90	11.12	2.31	0.20	11.38
ZINC, TOTAL	20.81	14.41	27.36	2.84	0.64	31.40

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
DI-N-BUTYLPHTHALATE	183.47	39.59	200.24	5.18	0.31	214.81
BIS(2-ETHYLHEXYL)PHTHALATE	173.82	56.58	197.79	5.07	0.51	234.29
PESTICIDE/PCBS (ug/kg)						
DIELDRIN	2.23	1.13	2.71	0.74	0.31	2.53
4,4'-DDE	5.51	9.70	9.62	1.07	0.91	7.64
4,4'-DDD	6.52	12.79	11.94	1.04	1.00	9.29
4,4'-DDT	2.73	2.02	3.58	0.87	0.44	3.28
ALPHA-CHLORDANE	1.15	0.46	1.34	0.09	0.28	1.29
GAMMA-CHLORDANE	1.06	0.25	1.16	0.04	0.17	1.14

STATISTICAL SUMMARY
SUBSURFACE SOIL - TOTAL METALS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	8690.00	3814.90	10305.48	8.96	0.55	11878.34
ANTIMONY, TOTAL	2.10	0.65	2.38	0.71	0.23	2.32
ARSENIC, TOTAL	3.13	10.69	7.66	-0.65	1.44	4.44
BARIUM, TOTAL	16.89	10.78	21.46	2.63	0.69	25.10
BERYLLIUM, TOTAL	0.08	0.02	0.09	-2.50	0.22	0.09
CALCIUM, TOTAL	1426.41	3001.46	2697.43	6.11	1.49	4336.45
CHROMIUM, TOTAL	8.82	3.76	10.41	2.08	0.47	11.28
COBALT, TOTAL	0.57	0.32	0.71	-0.70	0.55	0.76
COPPER, TOTAL	0.73	0.46	0.92	-0.54	0.73	1.14
IRON, TOTAL	3713.47	2315.06	4693.82	7.99	0.76	5977.80
LEAD, TOTAL	6.80	3.45	8.26	1.82	0.44	8.41
MAGNESIUM, TOTAL	368.03	278.45	485.94	5.68	0.74	578.59
MANGANESE, TOTAL	6.49	4.38	8.34	1.74	0.50	8.19
NICKEL, TOTAL	2.34	3.76	3.93	0.43	0.71	2.95
POTASSIUM, TOTAL	183.62	109.42	229.95	5.05	0.60	255.38
SELENIUM, TOTAL	0.19	0.12	0.24	-1.82	0.50	0.24
SODIUM, TOTAL	24.43	16.52	31.43	2.95	0.82	42.80
VANADIUM, TOTAL	11.35	4.99	13.46	2.32	0.52	15.16
ZINC, TOTAL	7.05	10.20	11.37	1.29	1.18	16.45

STATISTICAL SUMMARY
GROUNDWATER - TOTAL INORGANIC ANALYTES
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	233.80	309.14	528.55	4.96	0.99	2615.93
BARIUM, TOTAL	26.75	16.51	42.49	2.94	1.16	1225.22
CALCIUM, TOTAL	12186.00	12136.11	23757.29	9.11	0.79	62215.76
COBALT, TOTAL	2.26	1.05	3.26	0.73	0.45	4.46
COPPER, TOTAL	1.64	0.88	2.48	0.38	0.52	3.97
IRON, TOTAL	142.71	168.97	303.81	4.49	1.06	3673.11
MAGNESIUM, TOTAL	1142.00	913.30	2012.79	6.82	0.74	5367.91
MANGANESE, TOTAL	24.20	29.70	52.52	2.17	1.83	255203.39
POTASSIUM, TOTAL	545.20	293.37	824.92	6.22	0.42	1024.20
SELENIUM, TOTAL	0.94	0.65	1.56	-0.20	0.52	2.23
SODIUM, TOTAL	7782.00	9423.87	16767.27	8.49	1.02	174321.08
ZINC, TOTAL	21.86	31.13	51.54	2.29	1.43	4531.77

STATISTICAL SUMMARY - GROUNDWATER
DISSOLVED METALS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
DISSOLVED METALS (ug/L)						
ANTIMONY, SOLUBLE	17.65	10.96	66.58	2.76	0.67	NA
BARIUM, SOLUBLE	15.63	19.34	101.97	2.02	1.92	NA
CALCIUM, SOLUBLE	21025.00	16793.79	96003.75	9.76	0.90	NA
COPPER, SOLUBLE	2.80	0.57	5.33	1.02	0.20	NA
MAGNESIUM, SOLUBLE	1730.00	1994.04	10632.74	6.91	1.61	NA
MANGANESE, SOLUBLE	33.45	46.17	239.60	1.98	3.12	NA
POTASSIUM, SOLUBLE	822.00	577.00	3398.11	6.57	0.77	NA
SODIUM, SOLUBLE	4380.00	3606.24	20480.70	8.18	0.94	NA
ZINC, SOLUBLE	12.50	3.54	28.29	2.51	0.29	NA

SITE 76

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
PHENANTHRENE	192.25	36.50	208.25	5.23	0.30	226.28
FLUORANTHENE	185.38	47.18	206.05	5.16	0.43	238.16
PYRENE	184.88	48.25	206.02	5.16	0.44	239.46
CHRYSENE	192.88	34.11	207.82	5.24	0.26	220.83
BIS(2-ETHYLHEXYL)PHTHALATE	170.75	100.40	214.75	5.01	0.54	229.77
BENZO(B)FLUORANTHENE	182.94	47.10	203.58	5.15	0.41	232.39
BENZO(A)PYRENE	191.56	39.15	208.72	5.22	0.35	232.65
PESTICIDE/PCBS (ug/kg)						
HEPTACHLOR	1.03	0.08	1.06	0.03	0.07	1.06
HEPTACHLOR EPOXIDE	1.10	0.35	1.26	0.07	0.22	1.22
DIELDRIN	2.01	0.16	2.08	0.69	0.08	2.08
4,4'-DDE	77.34	138.00	137.82	3.07	1.72	497.16
4,4'-DDD	2.53	1.72	3.28	0.82	0.39	2.98
4,4'-DDT	31.88	35.22	47.32	2.83	1.24	92.77
ALPHA-CHLORDANE	2.20	4.75	4.28	0.20	0.75	2.52
GAMMA-CHLORDANE	1.57	2.22	2.55	0.16	0.57	1.88

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	4849.38	1523.80	5517.18	8.43	0.37	5903.83
ARSENIC, TOTAL	0.70	0.19	0.79	-0.39	0.27	0.80
BARIUM, TOTAL	13.34	5.76	15.86	2.52	0.37	15.98
BERYLLIUM, TOTAL	0.11	0.08	0.14	-2.37	0.47	0.13
CALCIUM, TOTAL	1526.00	743.65	1851.90	7.20	0.54	2079.85
CHROMIUM, TOTAL	5.49	1.54	6.16	1.66	0.31	6.43
COBALT, TOTAL	0.34	0.13	0.40	-1.11	0.29	0.39
COPPER, TOTAL	3.03	1.69	3.77	0.96	0.58	4.21
IRON, TOTAL	2817.50	1041.54	3273.96	7.87	0.40	3500.77
LEAD, TOTAL	20.49	9.84	24.80	2.93	0.41	25.31
MAGNESIUM, TOTAL	211.59	80.15	246.72	5.29	0.36	253.49
MANGANESE, TOTAL	11.18	5.58	13.63	2.29	0.51	14.86
MERCURY, TOTAL	0.04	0.04	0.06	-3.38	0.58	0.06
NICKEL, TOTAL	1.39	0.78	1.73	0.24	0.37	1.64
POTASSIUM, TOTAL	115.03	67.36	144.55	4.63	0.45	143.32
SELENIUM, TOTAL	0.17	0.08	0.20	-1.88	0.40	0.20
SODIUM, TOTAL	19.45	13.76	25.48	2.77	0.63	27.65
VANADIUM, TOTAL	12.66	4.95	14.83	2.48	0.35	15.06
ZINC, TOTAL	16.58	7.44	19.84	2.69	0.52	22.49

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	7.22	4.49	9.19	1.89	0.35	8.36
SEMIVOLATILES (ug/kg)						
DI-N-BUTYLPHTHALATE	231.56	120.09	284.19	5.38	0.31	265.33
BIS(2-ETHYLHEXYL)PHTHALAT	190.88	39.45	208.16	5.21	0.36	232.52
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	4.47	9.48	8.62	0.91	0.75	5.19
4,4'-DDD	31.88	119.50	84.25	1.04	1.37	23.32
4,4'-DDT	2.23	0.99	2.66	0.75	0.28	2.52

STATISTICAL SUMMARY - SUBSURFACE SOIL
TOTAL METALS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION DATE_SAMP DEPTH	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	9285.63	3275.73	10721.21	9.08	0.36	11132.32
ARSENIC, TOTAL	1.44	3.28	2.88	-0.38	0.95	1.99
BARIUM, TOTAL	14.36	8.78	18.21	2.53	0.52	18.95
BERYLLIUM, TOTAL	0.12	0.09	0.16	-2.28	0.58	0.17
CALCIUM, TOTAL	346.13	598.67	608.49	5.08	1.14	726.49
CHROMIUM, TOTAL	10.16	5.90	12.75	2.20	0.47	12.88
COBALT, TOTAL	0.36	0.16	0.43	-1.08	0.34	0.43
COPPER, TOTAL	0.77	0.82	1.13	-0.70	0.94	1.45
IRON, TOTAL	4822.50	3015.29	6143.95	8.33	0.56	6532.52
LEAD, TOTAL	7.16	2.88	8.43	1.89	0.41	8.92
MAGNESIUM, TOTAL	298.69	151.12	364.91	5.59	0.47	383.39
MANGANESE, TOTAL	5.38	2.49	6.47	1.57	0.52	7.31
MERCURY, TOTAL	0.03	0.01	0.03	-3.69	0.32	0.03
NICKEL, TOTAL	1.25	0.42	1.44	0.19	0.26	1.41
POTASSIUM, TOTAL	261.25	228.42	361.36	5.28	0.76	412.98
SELENIUM, TOTAL	0.20	0.18	0.28	-1.80	0.52	0.25
SODIUM, TOTAL	36.27	32.82	50.65	3.29	0.80	59.60
VANADIUM, TOTAL	14.14	6.07	16.80	2.58	0.35	16.75
ZINC, TOTAL	3.27	1.59	3.96	1.09	0.44	4.10

STATISTICAL SUMMARY
GROUNDWATER - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/L)						
DI-N-BUTYLPHTHALATE	4.40	0.82	5.18	1.47	0.21	5.71

STATISTICAL SUMMARY - GROUNDWATER
TOTAL METALS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (ug/L)						
Aluminum	1145.42	1407.29	1961.2	5.44	2.26	434356.11
Arsenic	17.92	46.83	45.07	1	1.87	451.22
Barium	45.5	55.23	77.52	3.07	1.4	408.82
Calcium	45612	32348.69	64363.94	10.45	0.85	112812.6
Chromium	3.14	2.05	4.33	0.9	0.76	6.52
Cobalt	11.39	11.81	18.24	1.68	1.4	101.83
Copper	3.84	4.64	6.53	0.83	1	10.64
Iron	4651.02	10126.45	10521.14	6.6	2.3	1657962.51
Lead	2.04	1.66	3	0.34	0.98	6.26
Magnesium	2783	1416.47	3604.1	7.83	0.46	3929.23
Manganese	13.92	13.11	21.52	1.98	1.43	149.57
Mercury	0.06	0.03	0.08	-2.87	0.42	0.08
Potassium	1193.9	932.25	1734.31	6.81	0.78	2486.92
Selenium	1.88	1.29	2.63	0.39	0.75	3.85
Sodium	19244	11511.61	25917.07	9.7	0.62	33372.25
Thallium	3.56	3.78	5.75	0.78	1.05	13.53
Vanadium	18.65	31.53	36.93	1.81	1.63	312.23
Zinc	9.72	13.12	17.33	1.65	1.09	35.38

STATISTICAL SUMMARY - GROUNDWATER
DISSOLVED METALS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION DATE SAMPLED	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
DISSOLVED METALS (ug/L)						
BARIUM, SOLUBLE	9.63	10.57	56.82	1.80	1.47	NA
CALCIUM, SOLUBLE	57350.00	18596.91	140379.10	10.93	0.33	NA
IRON, SOLUBLE	684.63	940.98	4885.80	5.08	3.01	NA
MAGNESIUM, SOLUBLE	2235.00	799.03	5802.41	7.68	0.37	NA
MANGANESE, SOLUBLE	15.75	21.14	110.14	1.60	2.58	NA
SODIUM, SOLUBLE	12695.00	8633.77	51241.97	9.32	0.74	NA
ZINC, SOLUBLE	4.85	1.34	10.85	1.56	0.28	NA

SITE 84

STATISTICAL SUMMARY - SURFACE SOIL (0-6")
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
PCB's (ug/kg)						
Aroclor 1260	7615.63	28767.96	14582.88	6.67	2.53	123516.5

STATISTICAL SUMMARY - SURFACE SOIL (6-12")
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
PCB's (ug/kg)						
Aroclor 1260	9361.07	37719.16	21502.54	5.58	2.74	206103.16

STATISTICAL SUMMARY - GROUNDWATER
VOLATILE ORGANICS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
VOLATILES (ug/L)						
Chloroform	8.67	5.68	13.34	2	0.6	19.22
Benzene	4.15	1.45	5.34	1.34	0.49	7.68
Ethylbenzene	5.05	0.98	5.86	1.6	0.2	6.08

STATISTICAL SUMMARY - SEDIMENT
ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
PCB's (ug/kg)						
Aroclor 1248	767.95	1075.94	1391.65	5.32	1.88	35196.2
Aroclor 1260	9907.95	12648.79	17240.22	7.43	2.96	315587540.3

STATISTICAL SUMMARY - SEDIMENT
ENGINEERING PARAMETERS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
Diesel Range Organics (mg/kg)	7750	4869.29	13479.6	8.8	0.65	49660.15
pH (solid)	6.6	0.21	6.8	2.83	2.11	34896601.35
Percent Moisture (%)	41.4	17.32	57.91	11.66	18.03	9.2379E+256

SITE 85

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL ANALYTES (mg/kg)						
ALUMINUM, TOTAL	2438.00	895.53	3291.85	7.73	0.44	4814.09
ARSENIC, TOTAL	16.01	33.99	48.41	0.62	2.12	4239489.55
BARIUM, TOTAL	35.80	55.10	88.33	2.86	1.20	1317.70
CADMIUM, TOTAL	10.01	20.75	29.79	0.17	2.23	6603374.67
CALCIUM, TOTAL	356.38	329.33	670.38	5.48	1.02	8749.84
CHROMIUM, TOTAL	31.72	64.44	93.17	1.84	1.77	119203.07
COBALT, TOTAL	3.64	7.64	10.92	-0.62	1.94	32705.76
COPPER, TOTAL	394.04	825.92	1181.52	2.94	3.11	230524599620240.00
IRON, TOTAL	69726.00	150534.14	213254.19	8.68	2.31	60158520487.18
LEAD, TOTAL	641.84	1336.24	1915.89	3.99	2.57	93757445026.04
MAGNESIUM, TOTAL	96.36	21.65	117.00	4.54	0.25	131.50
MANGANESE, TOTAL	4136.00	8705.62	12436.46	5.23	3.32	23558821883075400.00
MERCURY, TOTAL	14.65	31.34	44.54	-0.34	2.96	54692300607.64
NICKEL, TOTAL	24.79	51.56	73.95	1.28	2.01	3257156.96
POTASSIUM, TOTAL	245.00	122.98	362.26	5.42	0.43	468.87
SODIUM, TOTAL	22.92	25.79	47.51	2.79	0.82	141.34
VANADIUM, TOTAL	6.76	4.04	10.62	1.80	0.48	13.85
ZINC, TOTAL	13139.04	28381.09	40199.26	6.08	3.46	294541214059753984.00
CYANIDE	0.76	0.79	1.52	-0.65	0.94	8.01

STATISTICAL SUMMARY - SUBSURFACE SOIL
METALS AND CYANIDE
SITE 85, THE CAMP JOHNSON BATTERY DUMP
CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL ANALYTES (mg/kg)						
Aluminum, Total	3117.70	3116.38	4924.10	7.50	1.19	15457.35
Arsenic, Total	1.00	0.84	1.48	-0.31	0.85	2.41
Barium, Total	4.01	4.01	6.33	0.91	1.06	15.92
Cadmium, Total	0.30	0.13	0.37	-1.27	0.32	0.37
Calcium, Total	41.18	43.04	66.13	3.23	1.02	147.83
Chromium, Total	4.02	3.24	5.90	1.08	0.86	9.85
Copper, Total	1.44	2.62	2.96	-0.40	1.09	4.56
Iron, Total	2524.80	2692.93	4085.75	7.39	1.01	9176.27
Lead, Total	6.55	12.03	13.52	1.18	1.02	18.72
Magnesium, Total	78.20	71.09	119.41	3.89	1.11	350.57
Manganese, Total	6.27	14.55	14.70	0.59	1.40	33.92
Mercury, Total	0.12	0.18	0.22	-2.63	0.83	0.23
Nickel, Total	1.73	1.20	2.42	0.38	0.57	2.71
Potassium, Total	139.11	80.26	185.63	4.75	0.67	254.22
Sodium, Total	10.22	3.23	12.09	2.28	0.34	13.04
Vanadium, Total	6.35	5.70	9.65	1.51	0.89	15.71
Zinc, Total	22.53	57.85	56.06	1.60	1.49	119.39

STATISTICAL SUMMARY - GROUNDWATER
TOTAL METALS
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID. MATRIX	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
ANALYTES (ug/L)						
Aluminum	270333.33	141086.26	508185.41	12.42	0.50	4561262.93
Arsenic	15.93	4.70	23.85	2.74	0.32	52.07
Barium	389.00	153.35	647.53	5.91	0.41	2622.75
Beryllium	2.28	1.35	4.56	0.65	0.81	2246.21
Cadmium	12.07	10.89	30.43	2.23	0.86	16328.79
Calcium	3556.67	2278.60	7398.08	8.05	0.59	97992.23
Chromium	546.67	239.05	949.68	6.25	0.41	3649.61
Cobalt	12.00	7.23	24.18	2.37	0.56	275.64
Copper	122.13	60.38	223.93	4.70	0.60	6424.77
Iron	265666.67	203505.12	608748.37	12.30	0.74	66071640.40
Lead	366.33	152.96	624.20	5.84	0.46	3175.39
Magnesium	10243.33	4227.49	17370.29	9.16	0.48	97784.24
Manganese	631.00	559.65	1574.50	6.19	0.88	1035673.21
Mercury	0.99	1.22	3.05	-0.55	1.23	1828927.80
Nickel	1603.10	2553.23	5907.50	5.91	2.28	380435306463996310000000000.00
Potassium	9926.67	5445.38	19106.83	9.10	0.54	205398.66
Sodium	3363.33	1961.95	6670.91	8.01	0.56	78938.86
Vanadium	555.33	310.69	1079.12	6.22	0.53	11001.38
Zinc	1516.03	2134.21	5114.02	6.33	1.88	4155119682923788260.00

STATISTICAL SUMMARY - GROUNDWATER
DISSOLVED METALS
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID. MATRIX	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
ANALYTES (ug/L)						
Aluminum	119.97	49.28	203.05	4.73	0.40	534.47
Barium	12.50	3.72	18.78	2.49	0.33	43.10
Cadmium	2.07	1.15	4.01	0.63	0.51	36.29
Calcium	1113.00	719.28	2325.61	6.89	0.60	32038.46
Copper	1.37	0.72	2.58	0.23	0.48	13.10
Iron	5956.67	4081.50	12837.51	8.53	0.70	590878.20
Lead	1.20	0.87	2.66	0.03	0.66	90.67
Magnesium	1044.33	674.42	2181.32	6.81	0.66	80611.72
Manganese	103.90	104.62	280.27	4.30	1.00	1193968.89
Nickel	72.53	115.59	267.39	2.95	2.06	784071449932535436000000.00
Potassium	953.67	389.09	1609.62	6.81	0.38	3985.55
Sodium	2710.00	1576.17	5367.20	7.80	0.54	55811.72
Zinc	178.80	256.22	610.75	3.92	2.32	14634805182813934200000000000.00

SITE 87

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
ACENAPHTHENE	169.50	65.10	223.05	5.00	0.68	508.58
FLUORENE	112.50	88.75	185.51	4.35	1.02	1395.30
PHENANTHRENE	273.33	121.56	373.33	5.54	0.38	420.22
ANTHRACENE	139.50	62.00	190.50	4.83	0.54	295.71
CARBAZOLE	111.33	90.12	185.47	4.30	1.08	1646.60
DI-N-BUTYLPHTHALATE	225.00	71.20	283.57	5.38	0.26	293.43
FLUORANTHENE	406.67	271.99	630.41	5.82	0.66	1103.53
PYRENE	355.00	206.93	525.22	5.74	0.56	770.69
BUTYLBENZYLPHTHALATE	161.67	94.30	239.24	4.88	0.77	613.91
BENZO(A)ANTHRACENE	256.67	85.65	327.13	5.50	0.31	365.17
CHRYSENE	276.67	99.08	358.17	5.57	0.35	412.69
BIS(2-ETHYLHEXYL)PHTHALATE	135.83	134.60	246.56	4.46	1.11	2121.48
BENZO(B)FLUORANTHENE	271.67	87.90	343.98	5.56	0.33	393.92
BENZO(K)FLUORANTHENE	263.33	81.10	330.05	5.53	0.31	371.73
BENZO(A)PYRENE	268.33	85.13	338.36	5.55	0.32	384.95
INDENO(1,2,3-CD)PYRENE	211.67	39.07	243.81	5.34	0.18	250.75
DIBENZO(A,H)ANTHRACENE	132.00	69.39	189.09	4.74	0.63	349.65
BENZO(G,H,I)PERYLENE	218.33	54.83	263.44	5.36	0.23	275.74
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	54.67	27.90	77.62	3.86	0.63	145.98
4,4'-DDD	112.99	178.81	260.08	3.61	1.85	158205.54
4,4'-DDT	175.83	121.92	276.13	4.74	1.24	4455.32
ALPHA-CHLORDANE	7.28	7.84	13.73	1.40	1.26	292.12
GAMMA-CHLORDANE	7.78	9.52	15.61	1.41	1.29	331.56

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	3298.33	679.04	3856.93	8.08	0.21	4116.36
ARSENIC, TOTAL	2.69	1.61	4.02	0.81	0.68	7.76
BARIUM, TOTAL	14.57	2.18	16.36	2.67	0.15	16.74
BERYLLIUM, TOTAL	0.59	0.26	0.80	-0.64	0.60	1.52
CADMIUM, TOTAL	0.68	0.47	1.06	-0.55	0.59	1.52
CALCIUM, TOTAL	6160.00	8339.52	13020.26	7.21	2.22	324493724.13
CHROMIUM, TOTAL	13.87	7.62	20.13	2.48	0.64	37.68
COBALT, TOTAL	1.04	0.28	1.27	0.01	0.26	1.37
COPPER, TOTAL	6.92	5.33	11.30	1.70	0.73	23.33
IRON, TOTAL	4631.67	1400.36	5783.63	8.40	0.32	6631.51
LEAD, TOTAL	65.42	57.43	112.66	3.74	1.13	1111.34
MAGNESIUM, TOTAL	365.00	138.44	478.89	5.82	0.46	659.83
MANGANESE, TOTAL	17.63	7.68	23.95	2.77	0.50	35.65
MERCURY, TOTAL	0.04	0.03	0.07	-3.31	0.49	0.07
NICKEL, TOTAL	5.78	7.27	11.75	1.21	1.06	69.82
POTASSIUM, TOTAL	397.00	196.57	558.70	5.87	0.53	830.05
SELENIUM, TOTAL	0.24	0.07	0.29	-1.48	0.27	0.31
SODIUM, TOTAL	93.85	25.25	114.62	4.51	0.26	122.86
THALLIUM, TOTAL	0.39	0.69	0.96	-1.78	1.16	4.95
VANADIUM, TOTAL	14.82	3.65	17.82	2.67	0.25	19.08
ZINC, TOTAL	28.23	25.26	49.00	2.93	1.06	391.81

STATISTICAL SUMMARY
TEST PITS - ORGANIC COMPOUNDS
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	2.69	1.36	4.28	0.91	0.44	8.97
4,4'-DDD	2.69	1.61	4.58	0.88	0.50	10.64
4,4'-DDT	9.35	12.61	24.19	1.53	1.35	388157.16

STATISTICAL SUMMARY
TEST PITS - INORGANIC ANALYTES
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	1732.50	315.42	2103.60	7.44	0.18	2318.17
ANTIMONY, TOTAL	2.16	0.78	3.08	0.73	0.33	4.60
ARSENIC, TOTAL	0.68	0.23	0.94	-0.43	0.31	1.40
BARIUM, TOTAL	28.40	2.71	31.59	3.34	0.10	32.61
BERYLLIUM, TOTAL	0.09	0.04	0.13	-2.47	0.36	0.20
CALCIUM, TOTAL	52.39	20.24	76.20	3.89	0.47	198.14
CHROMIUM, TOTAL	2.00	1.15	3.36	0.59	0.50	10.13
COBALT, TOTAL	0.44	0.19	0.67	-0.89	0.47	1.64
COPPER, TOTAL	0.34	0.19	0.56	-1.20	0.55	2.08
IRON, TOTAL	2162.50	793.99	3096.63	7.63	0.37	5099.31
LEAD, TOTAL	2.63	0.95	3.75	0.89	0.48	9.99
MAGNESIUM, TOTAL	73.95	14.23	90.69	4.29	0.18	99.00
MANGANESE, TOTAL	4.80	0.88	5.84	1.56	0.18	6.46
VANADIUM, TOTAL	4.18	1.20	5.59	1.40	0.29	7.34
ZINC, TOTAL	2.25	0.44	2.77	0.80	0.18	3.02

APPENDIX K
DERMAL PERMEABILITY CONSTANT CALCULATIONS

SITE 68

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	7.25	3.10	8.34	1.92	0.32	8.16
SEMIVOLATILES (ug/kg)						
PHENOL	185.75	24.55	194.34	5.21	0.19	199.93
DI-N-BUTYLPHTHALATE	185.17	31.42	196.16	5.19	0.30	212.33
BIS(2-ETHYLHEXYL)PHTHALATE	174.17	43.93	189.54	5.11	0.39	208.08
PESTICIDE/PCBS (ug/kg)						
BETA-BHC	0.98	0.10	1.01	-0.03	0.09	1.01
DIELDRIN	2.10	0.90	2.42	0.70	0.25	2.28
4,4'-DDE	20.72	41.42	35.21	1.73	1.49	47.48
4,4'-DDT	9.44	15.90	15.00	1.43	1.13	15.61
METHOXYCHLOR	9.96	1.78	10.58	2.29	0.14	10.47
AROCLOR-1260	30.48	55.28	49.82	3.07	0.56	31.93

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	3949.58	2008.44	4652.27	8.13	0.59	5217.55
ANTIMONY, TOTAL	2.01	0.58	2.21	0.67	0.21	2.17
ARSENIC, TOTAL	0.45	0.23	0.53	-0.96	0.63	0.62
BARIUM, TOTAL	14.53	6.95	16.96	2.54	0.59	19.40
BERYLLIUM, TOTAL	0.23	0.20	0.29	-1.84	0.84	0.35
CADMIUM, TOTAL	0.22	0.05	0.24	-1.53	0.20	0.24
CALCIUM, TOTAL	537.25	1722.69	1139.97	4.91	1.27	730.18
CHROMIUM, TOTAL	2.54	1.03	2.90	0.84	0.45	3.10
COBALT, TOTAL	0.61	0.34	0.73	-0.65	0.58	0.79
COPPER, TOTAL	1.48	1.42	1.97	0.10	0.76	2.14
IRON, TOTAL	1208.00	741.09	1467.28	6.94	0.57	1547.41
LEAD, TOTAL	13.93	23.34	22.09	2.26	0.67	16.17
MAGNESIUM, TOTAL	108.76	57.70	128.95	4.54	0.57	141.33
MANGANESE, TOTAL	49.71	45.33	65.57	3.45	1.08	108.01
MERCURY, TOTAL	0.03	0.01	0.03	-3.63	0.22	0.03
NICKEL, TOTAL	1.96	0.96	2.30	0.56	0.49	2.41
POTASSIUM, TOTAL	84.58	26.17	93.74	4.41	0.22	91.77
SELENIUM, TOTAL	0.13	0.03	0.14	-2.04	0.17	0.14
SODIUM, TOTAL	10.36	7.44	12.97	2.17	0.56	12.99
VANADIUM, TOTAL	3.90	1.70	4.49	1.26	0.46	4.77
ZINC, TOTAL	6.53	4.19	7.99	1.67	0.69	9.30

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	19.10	30.15	29.42	2.46	0.83	24.97
CARBON DISULFIDE	6.78	1.95	7.45	1.89	0.19	7.23
2-BUTANONE	6.52	0.64	6.74	1.87	0.09	6.73
SEMIVOLATILES (ug/kg)						
PYRENE	205.12	35.00	217.10	5.29	0.30	234.49
BIS(2-ETHYLHEXYL)PHTHALATE	191.80	50.19	208.97	5.20	0.41	232.26
PESTICIDE/PCBS (ug/kg)						
4,4'-DDT	2.16	0.29	2.25	0.76	0.11	2.25
AROCLOR-1260	20.62	2.66	21.53	3.02	0.15	21.79

STATISTICAL SUMMARY
SUBSURFACE SOIL - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	9267.00	3639.88	10512.57	8.96	0.78	15189.96
ARSENIC, TOTAL	3.08	1.77	3.69	0.74	1.23	9.39
BARIUM, TOTAL	16.84	14.72	21.88	2.53	0.91	30.51
BERYLLIUM, TOTAL	0.30	0.20	0.37	-1.44	0.75	0.45
CADMIUM, TOTAL	0.29	0.15	0.34	-1.30	0.36	0.33
CALCIUM, TOTAL	208.74	196.22	275.88	4.88	1.04	420.42
CHROMIUM, TOTAL	15.75	7.23	18.22	2.54	0.82	26.67
COBALT, TOTAL	1.72	2.76	2.66	-0.10	1.04	2.88
COPPER, TOTAL	3.51	2.27	4.29	0.91	1.10	8.81
IRON, TOTAL	9428.88	5406.29	11278.91	8.84	0.98	18692.41
LEAD, TOTAL	7.12	2.49	7.97	1.85	0.59	9.72
MAGNESIUM, TOTAL	582.80	342.93	700.15	6.05	1.06	1387.40
MANGANESE, TOTAL	23.75	37.59	36.61	2.52	1.17	49.01
NICKEL, TOTAL	4.23	4.56	5.79	1.04	0.87	6.36
POTASSIUM, TOTAL	651.42	352.40	772.01	6.18	0.97	1286.04
SELENIUM, TOTAL	0.19	0.11	0.23	-1.79	0.43	0.22
SODIUM, TOTAL	38.10	20.06	44.97	3.40	0.84	64.61
VANADIUM, TOTAL	16.50	8.32	19.35	2.59	0.81	27.61
ZINC, TOTAL	17.52	21.22	24.78	2.31	1.23	44.86

STATISTICAL SUMMARY
GROUNDWATER - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/L)						
CARBON DISULFIDE	4.78	0.44	5.05	1.56	0.10	5.10
2-HEXANONE	5.11	0.33	5.32	1.63	0.06	5.32

STATISTICAL SUMMARY
GROUNDWATER - TOTAL INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	353.30	579.15	712.37	4.33	1.91	24558.02
ANTIMONY, TOTAL	12.29	4.74	15.23	2.46	0.32	15.72
ARSENIC, TOTAL	0.51	0.17	0.61	-0.71	0.25	0.61
BARIUM, TOTAL	28.38	14.51	37.37	3.15	0.79	70.64
CADMIUM, TOTAL	1.51	1.23	2.28	0.26	0.49	2.18
CALCIUM, TOTAL	41185.56	41646.72	67006.52	9.89	1.49	644461.86
CHROMIUM, TOTAL	1.46	0.77	1.93	0.30	0.36	1.89
COBALT, TOTAL	3.08	3.11	5.01	0.83	0.72	6.15
COPPER, TOTAL	2.70	2.62	4.32	0.69	0.78	5.90
IRON, TOTAL	216.44	262.38	379.11	4.55	1.61	6558.27
LEAD, TOTAL	0.65	0.36	0.87	-0.55	0.48	0.96
MAGNESIUM, TOTAL	3086.00	2550.83	4667.51	7.71	0.94	10319.71
MANGANESE, TOTAL	97.38	122.22	173.16	3.65	1.85	9592.07
NICKEL, TOTAL	8.24	5.37	11.57	1.98	0.49	12.20
POTASSIUM, TOTAL	2982.00	4604.22	5836.61	7.39	1.07	12568.47
SELENIUM, TOTAL	0.81	0.48	1.11	-0.30	0.39	1.08
SODIUM, TOTAL	15254.44	13764.37	23788.35	9.27	0.96	51223.06
VANADIUM, TOTAL	1.38	0.53	1.71	0.28	0.28	1.68
ZINC, TOTAL	11.96	13.53	20.35	1.95	1.09	57.04

STATISTICAL SUMMARY
SURFACE WATER - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC	NORMAL STANDARD	NORMAL UPPER 95% CONFIDENCE	LOG ARITHMETIC	LOG STANDARD	LOG UPPER 95% CONFIDENCE
SEMIVOLATILES (ug/L)						
DI-N-BUTYLPHTHALATE	4.55	1.26	5.28	1.44	0.51	7.14

STATISTICAL SUMMARY
SURFACE WATER - TOTAL INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC	NORMAL STANDARD	NORMAL UPPER 95% CONFIDENCE	LOG ARITHMETIC	LOG STANDARD	LOG UPPER 95% CONFIDENCE
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	312.90	110.97	377.23	5.68	0.41	430.07
BARIUM, TOTAL	13.39	2.35	14.75	2.58	0.16	14.83
CADMIUM, TOTAL	1.28	0.57	1.61	0.19	0.31	1.57
CALCIUM, TOTAL	17335.00	8518.24	22272.56	9.62	0.60	28842.18
IRON, TOTAL	449.90	58.68	483.91	6.10	0.12	485.00
LEAD, TOTAL	1.20	0.86	1.70	-0.09	0.79	2.58
MAGNESIUM, TOTAL	6885.00	9560.91	12426.94	8.10	1.19	28397.48
MANGANESE, TOTAL	24.93	12.51	32.18	3.10	0.52	38.31
POTASSIUM, TOTAL	2383.10	2989.34	4115.86	7.12	1.17	10282.77
SELENIUM, TOTAL	0.76	0.33	0.95	-0.33	0.30	0.93
SODIUM, TOTAL	54921.00	80162.05	101386.57	10.07	1.30	335127.59
VANADIUM, TOTAL	1.32	0.38	1.54	0.25	0.22	1.52
ZINC, TOTAL	2.27	0.99	2.84	0.75	0.35	2.89

STATISTICAL SUMMARY
SEDIMENT - ORGANIC COMPOUNDS
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
PHENANTHRENE	563.50	425.01	809.86	6.07	0.76	1150.21
ANTHRACENE	541.70	446.23	800.35	5.92	0.97	1647.56
FLUORANTHENE	577.50	416.86	819.13	6.11	0.74	1167.64
PYRENE	568.50	421.58	812.87	6.09	0.75	1152.24
BENZO(A)ANTHRACENE	554.50	432.57	805.24	6.04	0.79	1171.65
CHRYSENE	556.50	430.74	806.17	6.05	0.78	1162.62
BIS(2-ETHYLHEXYL)PHTHALATE	475.00	391.42	701.89	5.91	0.71	899.19
BENZO(B)FLUORANTHENE	560.50	427.33	808.20	6.06	0.77	1152.69
BENZO(K)FLUORANTHENE	545.20	442.17	801.50	5.97	0.89	1373.17
BENZO(A)PYRENE	420.50	322.79	607.60	5.83	0.65	727.82
INDENO(1,2,3-CD)PYRENE	546.50	440.72	801.96	5.98	0.87	1337.05
BENZO(G,H,I)PERYLENE	545.30	442.05	801.53	5.97	0.89	1370.05
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	115.58	195.71	229.02	3.47	1.71	2157.01
4,4'-DDD	386.96	903.67	910.77	3.85	2.24	81094.52
4,4'-DDT	482.59	1412.48	1301.33	3.23	2.26	47480.66
ALPHA-CHLORDANE	7.16	8.67	12.18	1.29	1.26	46.55
GAMMA-CHLORDANE	7.26	8.75	12.33	1.30	1.26	47.98

STATISTICAL SUMMARY
SEDIMENT - INORGANIC ANALYTES
SITE 68, RIFLE RANGE DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	4995.60	4731.32	7738.09	7.74	1.52	83829.01
ARSENIC, TOTAL	1.29	1.57	2.20	-0.84	1.74	31.12
BARIUM, TOTAL	10.92	10.29	16.89	1.83	1.20	55.21
CADMIUM, TOTAL	1.08	1.39	1.88	-0.49	1.07	3.96
CALCIUM, TOTAL	4025.73	4665.04	6729.80	7.11	1.92	240129.03
CHROMIUM, TOTAL	5.16	4.63	7.85	1.16	1.10	22.16
COBALT, TOTAL	2.05	2.08	3.26	0.13	1.22	10.61
COPPER, TOTAL	3.60	4.92	6.45	0.29	1.56	53.83
IRON, TOTAL	5534.80	5708.30	8843.59	7.71	1.65	121477.91
LEAD, TOTAL	17.63	21.90	30.32	2.17	1.31	129.69
MAGNESIUM, TOTAL	2176.90	2990.65	3910.42	5.97	2.39	1298969.34
MANGANESE, TOTAL	33.92	45.82	60.48	2.57	1.51	461.23
MERCURY, TOTAL	0.10	0.12	0.17	-2.81	0.98	0.27
NICKEL, TOTAL	4.22	3.18	6.07	1.12	0.88	10.66
SELENIUM, TOTAL	0.49	0.41	0.73	-1.12	1.00	1.82
SODIUM, TOTAL	3385.23	5223.30	6412.89	5.69	3.10	443790736.51
VANADIUM, TOTAL	8.60	8.98	13.81	1.48	1.33	68.91
ZINC, TOTAL	20.36	26.43	35.67	2.25	1.41	184.55

SITE 75

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
DI-N-BUTYLPHTHALATE	231.00	72.12	263.79	5.41	0.25	260.57
BIS(2-ETHYLHEXYL)PHTHALATE	141.07	66.57	171.34	4.81	0.57	203.02
PESTICIDE/PCBS (ug/kg)						
HEPTACHLOR	1.13	0.52	1.37	0.07	0.29	1.29
HEPTACHLOR EPOXIDE	3.40	9.30	7.63	0.24	0.93	3.90
DIELDRIN	2.10	0.37	2.27	0.73	0.14	2.25
4,4'-DDE	9.52	11.89	14.93	1.69	1.06	23.14
ENDRIN	2.61	2.32	3.66	0.81	0.44	3.16
4,4'-DDD	5.14	11.59	10.41	0.95	0.82	6.45
4,4'-DDT	6.21	4.61	8.30	1.54	0.80	10.84
ALPHA-CHLORDANE	30.32	113.34	81.85	0.45	1.57	29.36
GAMMA-CHLORDANE	32.34	121.07	87.39	0.47	1.58	31.42

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	5841.33	1305.79	6435.06	8.65	0.25	6641.00
ARSENIC, TOTAL	0.84	0.30	0.98	-0.22	0.32	0.99
BARIUM, TOTAL	16.85	8.59	20.75	2.74	0.40	20.93
CALCIUM, TOTAL	5959.07	11403.06	11143.91	7.85	1.13	12519.08
CHROMIUM, TOTAL	6.32	1.33	6.92	1.82	0.22	7.06
COBALT, TOTAL	0.50	0.23	0.60	-0.80	0.47	0.65
COPPER, TOTAL	2.59	1.35	3.20	0.83	0.51	3.51
IRON, TOTAL	2846.00	694.47	3161.77	7.92	0.27	3276.19
LEAD, TOTAL	22.13	13.77	28.39	2.95	0.53	30.01
MAGNESIUM, TOTAL	283.60	153.48	353.38	5.54	0.48	370.02
MANGANESE, TOTAL	10.93	2.77	12.19	2.36	0.26	12.52
MERCURY, TOTAL	0.04	0.03	0.06	-3.37	0.56	0.06
NICKEL, TOTAL	1.43	0.73	1.76	0.28	0.36	1.71
POTASSIUM, TOTAL	144.10	70.24	176.04	4.86	0.48	189.25
SELENIUM, TOTAL	0.19	0.09	0.23	-1.73	0.43	0.25
SODIUM, TOTAL	34.76	32.19	49.40	3.31	0.65	50.55
VANADIUM, TOTAL	10.26	1.90	11.12	2.31	0.20	11.38
ZINC, TOTAL	20.81	14.41	27.36	2.84	0.64	31.40

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
DI-N-BUTYLPHTHALATE	183.47	39.59	200.24	5.18	0.31	214.81
BIS(2-ETHYLHEXYL)PHTHALATE	173.82	56.58	197.79	5.07	0.51	234.29
PESTICIDE/PCBS (ug/kg)						
DIELDRIN	2.23	1.13	2.71	0.74	0.31	2.53
4,4'-DDE	5.51	9.70	9.62	1.07	0.91	7.64
4,4'-DDD	6.52	12.79	11.94	1.04	1.00	9.29
4,4'-DDT	2.73	2.02	3.58	0.87	0.44	3.28
ALPHA-CHLORDANE	1.15	0.46	1.34	0.09	0.28	1.29
GAMMA-CHLORDANE	1.06	0.25	1.16	0.04	0.17	1.14

STATISTICAL SUMMARY
SUBSURFACE SOIL - INORGANIC ANALYTES
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	8690.00	3814.90	10305.48	8.96	0.55	11878.34
ANTIMONY, TOTAL	2.10	0.65	2.38	0.71	0.23	2.32
ARSENIC, TOTAL	3.13	10.69	7.66	-0.65	1.44	4.44
BARIUM, TOTAL	16.89	10.78	21.46	2.63	0.69	25.10
BERYLLIUM, TOTAL	0.08	0.02	0.09	-2.50	0.22	0.09
CALCIUM, TOTAL	1426.41	3001.46	2697.43	6.11	1.49	4336.45
CHROMIUM, TOTAL	8.82	3.76	10.41	2.08	0.47	11.28
COBALT, TOTAL	0.57	0.32	0.71	-0.70	0.55	0.76
COPPER, TOTAL	0.73	0.46	0.92	-0.54	0.73	1.14
IRON, TOTAL	3713.47	2315.06	4693.82	7.99	0.76	5977.80
LEAD, TOTAL	6.80	3.45	8.26	1.82	0.44	8.41
MAGNESIUM, TOTAL	368.03	278.45	485.94	5.68	0.74	578.59
MANGANESE, TOTAL	6.49	4.38	8.34	1.74	0.50	8.19
NICKEL, TOTAL	2.34	3.76	3.93	0.43	0.71	2.95
POTASSIUM, TOTAL	183.62	109.42	229.95	5.05	0.60	255.38
SELENIUM, TOTAL	0.19	0.12	0.24	-1.82	0.50	0.24
SODIUM, TOTAL	24.43	16.52	31.43	2.95	0.82	42.80
VANADIUM, TOTAL	11.35	4.99	13.46	2.32	0.52	15.16
ZINC, TOTAL	7.05	10.20	11.37	1.29	1.18	16.45

STATISTICAL SUMMARY
GROUNDWATER - TOTAL INORGANIC ANALYTES
SITE 75, MCAS BASKETBALL COURT
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC	NORMAL STANDARD	NORMAL UPPER 95% CONFIDENCE	LOG ARITHMETIC	LOG STANDARD	LOG UPPER 95% CONFIDENCE
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	233.80	309.14	528.55	4.96	0.99	2615.93
BARIUM, TOTAL	26.75	16.51	42.49	2.94	1.16	1225.22
CALCIUM, TOTAL	12186.00	12136.11	23757.29	9.11	0.79	62215.76
COBALT, TOTAL	2.26	1.05	3.26	0.73	0.45	4.46
COPPER, TOTAL	1.64	0.88	2.48	0.38	0.52	3.97
IRON, TOTAL	142.71	168.97	303.81	4.49	1.06	3673.11
MAGNESIUM, TOTAL	1142.00	913.30	2012.79	6.82	0.74	5367.91
MANGANESE, TOTAL	24.20	29.70	52.52	2.17	1.83	255203.39
POTASSIUM, TOTAL	545.20	293.37	824.92	6.22	0.42	1024.20
SELENIUM, TOTAL	0.94	0.65	1.56	-0.20	0.52	2.23
SODIUM, TOTAL	7782.00	9423.87	16767.27	8.49	1.02	174321.08
ZINC, TOTAL	21.86	31.13	51.54	2.29	1.43	4531.77

SITE 76

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
PHENANTHRENE	192.25	36.50	208.25	5.23	0.30	226.28
FLUORANTHENE	185.38	47.18	206.05	5.16	0.43	238.16
PYRENE	184.88	48.25	206.02	5.16	0.44	239.46
CHRYSENE	192.88	34.11	207.82	5.24	0.26	220.83
BIS(2-ETHYLHEXYL)PHTHALATE	170.75	100.40	214.75	5.01	0.54	229.77
BENZO(B)FLUORANTHENE	182.94	47.10	203.58	5.15	0.41	232.39
BENZO(A)PYRENE	191.56	39.15	208.72	5.22	0.35	232.65
PESTICIDE/PCBS (ug/kg)						
HEPTACHLOR	1.03	0.08	1.06	0.03	0.07	1.06
HEPTACHLOR EPOXIDE	1.10	0.35	1.26	0.07	0.22	1.22
DIELDRIN	2.01	0.16	2.08	0.69	0.08	2.08
4,4'-DDE	77.34	138.00	137.82	3.07	1.72	497.16
4,4'-DDD	2.53	1.72	3.28	0.82	0.39	2.98
4,4'-DDT	31.88	35.22	47.32	2.83	1.24	92.77
ALPHA-CHLORDANE	2.20	4.75	4.28	0.20	0.75	2.52
GAMMA-CHLORDANE	1.57	2.22	2.55	0.16	0.57	1.88

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	4849.38	1523.80	5517.18	8.43	0.37	5903.83
ARSENIC, TOTAL	0.70	0.19	0.79	-0.39	0.27	0.80
BARIUM, TOTAL	13.34	5.76	15.86	2.52	0.37	15.98
BERYLLIUM, TOTAL	0.11	0.08	0.14	-2.37	0.47	0.13
CALCIUM, TOTAL	1526.00	743.65	1851.90	7.20	0.54	2079.85
CHROMIUM, TOTAL	5.49	1.54	6.16	1.66	0.31	6.43
COBALT, TOTAL	0.34	0.13	0.40	-1.11	0.29	0.39
COPPER, TOTAL	3.03	1.69	3.77	0.96	0.58	4.21
IRON, TOTAL	2817.50	1041.54	3273.96	7.87	0.40	3500.77
LEAD, TOTAL	20.49	9.84	24.80	2.93	0.41	25.31
MAGNESIUM, TOTAL	211.59	80.15	246.72	5.29	0.36	253.49
MANGANESE, TOTAL	11.18	5.58	13.63	2.29	0.51	14.86
MERCURY, TOTAL	0.04	0.04	0.06	-3.38	0.58	0.06
NICKEL, TOTAL	1.39	0.78	1.73	0.24	0.37	1.64
POTASSIUM, TOTAL	115.03	67.36	144.55	4.63	0.45	143.32
SELENIUM, TOTAL	0.17	0.08	0.20	-1.88	0.40	0.20
SODIUM, TOTAL	19.45	13.76	25.48	2.77	0.63	27.65
VANADIUM, TOTAL	12.66	4.95	14.83	2.48	0.35	15.06
ZINC, TOTAL	16.58	7.44	19.84	2.69	0.52	22.49

STATISTICAL SUMMARY
SUBSURFACE SOIL - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES (ug/kg)						
ACETONE	7.22	4.49	9.19	1.89	0.35	8.36
SEMIVOLTILES (ug/kg)						
DI-N-BUTYLPHTHALATE	231.56	120.09	284.19	5.38	0.31	265.33
BIS(2-ETHYLHEXYL)PHTHALATE	190.88	39.45	208.16	5.21	0.36	232.52
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	4.47	9.48	8.62	0.91	0.75	5.19
4,4'-DDD	31.88	119.50	84.25	1.04	1.37	23.32
4,4'-DDT	2.23	0.99	2.66	0.75	0.28	2.52

STATISTICAL SUMMARY
SUBSURFACE SOIL - INORGANIC ANALYTES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	9285.63	3275.73	10721.21	9.08	0.36	11132.32
ARSENIC, TOTAL	1.44	3.28	2.88	-0.38	0.95	1.99
BARIUM, TOTAL	14.36	8.78	18.21	2.53	0.52	18.95
BERYLLIUM, TOTAL	0.12	0.09	0.16	-2.28	0.58	0.17
CALCIUM, TOTAL	346.13	598.67	608.49	5.08	1.14	726.49
CHROMIUM, TOTAL	10.16	5.90	12.75	2.20	0.47	12.88
COBALT, TOTAL	0.36	0.16	0.43	-1.08	0.34	0.43
COPPER, TOTAL	0.77	0.82	1.13	-0.70	0.94	1.45
IRON, TOTAL	4822.50	3015.29	6143.95	8.33	0.56	6532.52
LEAD, TOTAL	7.16	2.88	8.43	1.89	0.41	8.92
MAGNESIUM, TOTAL	298.69	151.12	364.91	5.59	0.47	383.39
MANGANESE, TOTAL	5.38	2.49	6.47	1.57	0.52	7.31
MERCURY, TOTAL	0.03	0.01	0.03	-3.69	0.32	0.03
NICKEL, TOTAL	1.25	0.42	1.44	0.19	0.26	1.41
POTASSIUM, TOTAL	261.25	228.42	361.36	5.28	0.76	412.98
SELENIUM, TOTAL	0.20	0.18	0.28	-1.80	0.52	0.25
SODIUM, TOTAL	36.27	32.82	50.65	3.29	0.80	59.60
VANADIUM, TOTAL	14.14	6.07	16.80	2.58	0.35	16.75
ZINC, TOTAL	3.27	1.59	3.96	1.09	0.44	4.10

STATISTICAL SUMMARY
GROUNDWATER - ORGANIC COMPOUNDS
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC	NORMAL STANDARD	NORMAL UPPER 95% CONFIDENCE	LOG ARITHMETIC	LOG STANDARD	LOG UPPER 95% CONFIDENCE
SEMIVOLATILES (ug/L)						
DI-N-BUTYLPHTHALATE	4.40	0.82	5.18	1.47	0.21	5.71

STATISTICAL SUMMARY
GROUNDWATER - TOTAL INORGANIC ANALYTES
SITE 76, MCAS CURTIS ROAD
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC	NORMAL STANDARD	NORMAL UPPER 95% CONFIDENCE	LOG ARITHMETIC	LOG STANDARD	LOG UPPER 95% CONFIDENCE
TOTAL METALS (ug/L)						
ALUMINUM, TOTAL	944.86	1258.71	2144.99	5.06	2.47	6164486194.62
ARSENIC, TOTAL	1.92	3.29	5.05	-0.23	1.28	168.58
BARIUM, TOTAL	37.99	48.37	84.11	2.82	1.58	38538.82
CALCIUM, TOTAL	35784.00	23883.01	58555.48	10.26	0.81	240896.05
COPPER, TOTAL	1.28	0.63	1.88	0.18	0.39	2.16
IRON, TOTAL	864.28	905.91	1728.03	5.73	1.99	24788591.38
LEAD, TOTAL	0.90	0.75	1.62	-0.36	0.78	4.59
MAGNESIUM, TOTAL	2352.00	852.51	3164.83	7.71	0.37	3881.30
MANGANESE, TOTAL	11.48	12.24	23.15	1.60	1.71	25169.89
POTASSIUM, TOTAL	667.20	566.17	1207.02	6.31	0.63	2098.84
SELENIUM, TOTAL	0.84	0.42	1.25	-0.25	0.40	1.53
SODIUM, TOTAL	17460.00	12047.95	28947.23	9.57	0.70	77104.47
ZINC, TOTAL	9.06	9.97	18.56	1.80	0.98	108.62

SITE 84

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
PCBS (ug/kg)						
AROCLOR-1260	5172.00	3827.96	6651.95	8.20	0.97	10684.32

STATISTICAL SUMMARY
SEDIMENT - ORGANIC COMPOUNDS
SITE 84, BUILDING 45 AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
PCBS (ug/kg)						
AROCLOR-1248	1014.93	1219.78	1910.72	5.47	2.23	5584871.08
AROCLOR-1260	6982.79	8435.91	13177.99	6.67	3.23	5.97E+11

SITE 85

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL ANALYTES (mg/kg)						
ALUMINUM, TOTAL	2438.00	895.53	3291.85	7.73	0.44	4814.09
ARSENIC, TOTAL	16.01	33.99	48.41	0.62	2.12	4239489.55
BARIUM, TOTAL	35.80	55.10	88.33	2.86	1.20	1317.70
CADMIUM, TOTAL	10.01	20.75	29.79	0.17	2.23	6603374.67
CALCIUM, TOTAL	356.38	329.33	670.38	5.48	1.02	8749.84
CHROMIUM, TOTAL	31.72	64.44	93.17	1.84	1.77	119203.07
COBALT, TOTAL	3.64	7.64	10.92	-0.62	1.94	32705.76
COPPER, TOTAL	394.04	825.92	1181.52	2.94	3.11	2.31E+14
IRON, TOTAL	69726.00	150534.14	213254.19	8.68	2.31	6.02E+10
LEAD, TOTAL	641.84	1336.24	1915.89	3.99	2.57	9.38E+10
MAGNESIUM, TOTAL	96.36	21.65	117.00	4.54	0.25	131.50
MANGANESE, TOTAL	4136.00	8705.62	12436.46	5.23	3.32	2.36E+16
MERCURY, TOTAL	14.65	31.34	44.54	-0.34	2.96	5.47E+10
NICKEL, TOTAL	24.79	51.56	73.95	1.28	2.01	3257156.96
POTASSIUM, TOTAL	245.00	122.98	362.26	5.42	0.43	468.87
SODIUM, TOTAL	22.92	25.79	47.51	2.79	0.82	141.34
VANADIUM, TOTAL	6.76	4.04	10.62	1.80	0.48	13.85
ZINC, TOTAL	13139.04	28381.09	40199.26	6.08	3.46	2.95E+17
CYANIDE	0.76	0.79	1.52	-0.65	0.94	8.01

STATISTICAL SUMMARY
SUBSURFACE SOIL - INORGANIC ANALYTES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL ANALYTES (mg/kg)						
ALUMINUM, TOTAL	3117.70	3116.38	4924.10	7.50	1.19	15457.35
ARSENIC, TOTAL	1.00	0.84	1.48	-0.31	0.85	2.41
BARIUM, TOTAL	4.01	4.01	6.33	0.91	1.06	15.92
CADMIUM, TOTAL	0.30	0.13	0.37	-1.27	0.32	0.37
CALCIUM, TOTAL	41.18	43.04	66.13	3.23	1.02	147.83
CHROMIUM, TOTAL	4.02	3.24	5.90	1.08	0.86	9.85
COPPER, TOTAL	1.44	2.62	2.96	-0.40	1.09	4.56
IRON, TOTAL	2524.80	2692.93	4085.75	7.39	1.01	9176.27
LEAD, TOTAL	6.55	12.03	13.52	1.18	1.02	18.72
MAGNESIUM, TOTAL	78.20	71.09	119.41	3.89	1.11	350.57
MANGANESE, TOTAL	6.27	14.55	14.70	0.59	1.40	33.92
MERCURY, TOTAL	0.12	0.18	0.22	-2.63	0.83	0.23
NICKEL, TOTAL	1.73	1.20	2.42	0.38	0.57	2.71
POTASSIUM, TOTAL	139.11	80.26	185.63	4.75	0.67	254.22
SODIUM, TOTAL	10.22	3.23	12.09	2.28	0.34	13.04
VANADIUM, TOTAL	6.35	5.70	9.65	1.51	0.89	15.71
ZINC, TOTAL	22.53	57.85	56.06	1.60	1.49	119.39

STATISTICAL SUMMARY
GROUNDWATER - TOTAL INORGANIC ANALYTES
SITE 85, THE CAMP JOHNSON BATTERY DUMP
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

ANALYTES (ug/L)	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
ALUMINUM	270333.33	141086.26	508185.41	12.42	0.50	4561262.93
ARSENIC	15.93	4.70	23.85	2.74	0.32	52.07
BARIUM	389.00	153.35	647.53	5.91	0.41	2622.75
BERYLLIUM	2.28	1.35	4.56	0.65	0.81	2246.21
CADMIUM	12.07	10.89	30.43	2.23	0.86	16328.79
CALCIUM	3556.67	2278.60	7398.08	8.05	0.59	97992.23
CHROMIUM	546.67	239.05	949.68	6.25	0.41	3649.61
COBALT	12.00	7.23	24.18	2.37	0.56	275.64
COPPER	122.13	60.38	223.93	4.70	0.60	6424.77
IRON	265666.67	203505.12	608748.37	12.30	0.74	66071640.40
LEAD	366.33	152.96	624.20	5.84	0.46	3175.39
MAGNESIUM	10243.33	4227.49	17370.29	9.16	0.48	97784.24
MANGANESE	631.00	559.65	1574.50	6.19	0.88	1035673.21
MERCURY	0.99	1.22	3.05	-0.55	1.23	1828927.80
NICKEL	1603.10	2553.23	5907.50	5.91	2.28	3.80E+26
POTASSIUM	9926.67	5445.38	19106.83	9.10	0.54	205398.66
SODIUM	3363.33	1961.95	6670.91	8.01	0.56	78938.86
VANADIUM	555.33	310.69	1079.12	6.22	0.53	11001.38
ZINC	1516.03	2134.21	5114.02	6.33	1.88	4.16E+18

SITE 87

STATISTICAL SUMMARY
SURFACE SOIL - ORGANIC COMPOUNDS
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
SEMIVOLATILES (ug/kg)						
ACENAPHTHENE	169.50	65.10	223.05	5.00	0.68	508.58
FLUORENE	112.50	88.75	185.51	4.35	1.02	1395.30
PHENANTHRENE	273.33	121.56	373.33	5.54	0.38	420.22
ANTHRACENE	139.50	62.00	190.50	4.83	0.54	295.71
CARBAZOLE	111.33	90.12	185.47	4.30	1.08	1646.60
DI-N-BUTYLPHTHALATE	225.00	71.20	283.57	5.38	0.26	293.43
FLUORANTHENE	406.67	271.99	630.41	5.82	0.66	1103.53
PYRENE	355.00	206.93	525.22	5.74	0.56	770.69
BUTYLBENZYLPHTHALATE	161.67	94.30	239.24	4.88	0.77	613.91
BENZO(A)ANTHRACENE	256.67	85.65	327.13	5.50	0.31	365.17
CHRYSENE	276.67	99.08	358.17	5.57	0.35	412.69
BIS(2-ETHYLHEXYL)PHTHALATE	135.83	134.60	246.56	4.46	1.11	2121.48
BENZO(B)FLUORANTHENE	271.67	87.90	343.98	5.56	0.33	393.92
BENZO(K)FLUORANTHENE	263.33	81.10	330.05	5.53	0.31	371.73
BENZO(A)PYRENE	268.33	85.13	338.36	5.55	0.32	384.95
INDENO(1,2,3-CD)PYRENE	211.67	39.07	243.81	5.34	0.18	250.75
DIBENZO(A,H)ANTHRACENE	132.00	69.39	189.09	4.74	0.63	349.65
BENZO(G,H,I)PERYLENE	218.33	54.83	263.44	5.36	0.23	275.74
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	54.67	27.90	77.62	3.86	0.63	145.98
4,4'-DDD	112.99	178.81	260.08	3.61	1.85	158205.54
4,4'-DDT	175.83	121.92	276.13	4.74	1.24	4455.32
ALPHA-CHLORDANE	7.28	7.84	13.73	1.40	1.26	292.12
GAMMA-CHLORDANE	7.78	9.52	15.61	1.41	1.29	331.56

STATISTICAL SUMMARY
SURFACE SOIL - INORGANIC ANALYTES
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	3298.33	679.04	3856.93	8.08	0.21	4116.36
ARSENIC, TOTAL	2.69	1.61	4.02	0.81	0.68	7.76
BARIUM, TOTAL	14.57	2.18	16.36	2.67	0.15	16.74
BERYLLIUM, TOTAL	0.59	0.26	0.80	-0.64	0.60	1.52
CADMIUM, TOTAL	0.68	0.47	1.06	-0.55	0.59	1.52
CALCIUM, TOTAL	6160.00	8339.52	13020.26	7.21	2.22	324493724.13
CHROMIUM, TOTAL	13.87	7.62	20.13	2.48	0.64	37.68
COBALT, TOTAL	1.04	0.28	1.27	0.01	0.26	1.37
COPPER, TOTAL	6.92	5.33	11.30	1.70	0.73	23.33
IRON, TOTAL	4631.67	1400.36	5783.63	8.40	0.32	6631.51
LEAD, TOTAL	65.42	57.43	112.66	3.74	1.13	1111.34
MAGNESIUM, TOTAL	365.00	138.44	478.89	5.82	0.46	659.83
MANGANESE, TOTAL	17.63	7.68	23.95	2.77	0.50	35.65
MERCURY, TOTAL	0.04	0.03	0.07	-3.31	0.49	0.07
NICKEL, TOTAL	5.78	7.27	11.75	1.21	1.06	69.82
POTASSIUM, TOTAL	397.00	196.57	558.70	5.87	0.53	830.05
SELENIUM, TOTAL	0.24	0.07	0.29	-1.48	0.27	0.31
SODIUM, TOTAL	93.85	25.25	114.62	4.51	0.26	122.86
THALLIUM, TOTAL	0.39	0.69	0.96	-1.78	1.16	4.95
VANADIUM, TOTAL	14.82	3.65	17.82	2.67	0.25	19.08
ZINC, TOTAL	28.23	25.26	49.00	2.93	1.06	391.81

STATISTICAL SUMMARY
TEST PITS - ORGANIC COMPOUNDS
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
PESTICIDE/PCBS (ug/kg)						
4,4'-DDE	2.69	1.36	4.28	0.91	0.44	8.97
4,4'-DDD	2.69	1.61	4.58	0.88	0.50	10.64
4,4'-DDT	9.35	12.61	24.19	1.53	1.35	388157.16

STATISTICAL SUMMARY
TEST PITS - INORGANIC ANALYTES
SITE 87, MCAS OFFICER'S HOUSING AREA
PRE-REMEDIAL INVESTIGATION SCREENING STUDY, CTO-0314
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS (mg/kg)						
ALUMINUM, TOTAL	1732.50	315.42	2103.60	7.44	0.18	2318.17
ANTIMONY, TOTAL	2.16	0.78	3.08	0.73	0.33	4.60
ARSENIC, TOTAL	0.68	0.23	0.94	-0.43	0.31	1.40
BARIUM, TOTAL	28.40	2.71	31.59	3.34	0.10	32.61
BERYLLIUM, TOTAL	0.09	0.04	0.13	-2.47	0.36	0.20
CALCIUM, TOTAL	52.39	20.24	76.20	3.89	0.47	198.14
CHROMIUM, TOTAL	2.00	1.15	3.36	0.59	0.50	10.13
COBALT, TOTAL	0.44	0.19	0.67	-0.89	0.47	1.64
COPPER, TOTAL	0.34	0.19	0.56	-1.20	0.55	2.08
IRON, TOTAL	2162.50	793.99	3096.63	7.63	0.37	5099.31
LEAD, TOTAL	2.63	0.95	3.75	0.89	0.48	9.99
MAGNESIUM, TOTAL	73.95	14.23	90.69	4.29	0.18	99.00
MANGANESE, TOTAL	4.80	0.88	5.84	1.56	0.18	6.46
VANADIUM, TOTAL	4.18	1.20	5.59	1.40	0.29	7.34
ZINC, TOTAL	2.25	0.44	2.77	0.80	0.18	3.02

APPENDIX L
HUMAN HEALTH RISK CALCULATION SPREADSHEET

SOIL

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE SOIL* INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 25{,}550\ days}$$

$$= 3.6E\text{-}07$$

Risk = 3.6E-07 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ =5.46E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{1547.41\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 10{,}950\ days}$$

$$= 2.1E\text{-}03$$

$$Risk = \frac{2.1E{-}03\ mg/kg{\cdot}day}{3.0E{-}01\ mg/kg{\cdot}day} = 7.1E{-}03$$

* This example calculation also is applicable for sediment ingestion.
Re: Site 68 Future Residential Adult

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.82	250	4	1E-06	100	70	25550	3.5E-08	1.5E+00	5.20E-08	100%	1460	6.1E-07	3.0E-04	2.02E-03	17%
Iron	1547.41	250	4	1E-06	100	70	25550	8.7E-05	0.0E+00	0.00E+00	0%	1460	1.5E-03	3.0E-01	5.05E-03	43%
Manganese	108.01	250	4	1E-06	100	70	25550	6.0E-06	0.0E+00	0.00E+00	0%	1460	1.1E-04	2.3E-02	4.59E-03	39%
TOTAL										5.2E-08					1.2E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY, CTO-0314
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 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
Arsenic	0.62	350	30	1E-06	100	70	25550	3.6E-07	1.5E+00	5.46E-07	100%	10950	8.5E-07	3.0E-04	2.8E-03	17%
Iron	1547.41	350	30	1E-06	100	70	25550	9.1E-04	0.0E+00	0.00E+00	0%	10950	2.1E-03	3.0E-01	7.1E-03	43%
Manganese	108.01	350	30	1E-06	100	70	25550	6.3E-05	0.0E+00	0.00E+00	0%	10950	1.5E-04	2.3E-02	6.4E-03	39%
TOTAL										5.5E-07					1.6E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.62	350	6	1E-06	200	15	25550	6.8E-07	1.50E+00	1.02E-06	100%	2190	7.9E-06	3.00E-04	2.6E-02	17%
Iron	1547.41	350	6	1E-06	200	15	25550	1.7E-03	0.00E+00	0.00E+00	0%	2190	2.0E-02	3.00E-01	6.6E-02	43%
Manganese	108.01	350	6	1E-06	200	15	25550	1.2E-04	0.00E+00	0.00E+00	0%	2190	1.4E-03	2.30E-02	6.0E-02	39%
TOTAL										1.0E-06					1.5E-01	

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	13200.00	250	4	1E-06	100	70	25550	7.4E-04	0.0E+00	0.0E+00	0%	1460	1.3E-02	1.0E+00	1.3E-02	13%
Arsenic	7.60	250	4	1E-06	100	70	25550	4.2E-07	1.5E+00	6.4E-07	100%	1460	7.4E-06	3.0E-04	2.5E-02	25%
Iron	18600.00	250	4	1E-06	100	70	25550	1.0E-03	0.0E+00	0.0E+00	0%	1460	1.8E-02	3.0E-01	6.1E-02	60%
Manganese	49.01	250	4	1E-06	100	70	25550	2.7E-06	0.0E+00	0.0E+00	0%	1460	4.8E-05	2.3E-02	2.1E-03	2%
TOTAL										6.4E-07					1.0E-01	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 66-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	48	4	100	1E-06	70	25550	3.0E-09	0.0E+00	0.0E+00	0%	1460	5.3E-08	3.0E-02	1.8E-06	0%
Anthracene	0.062	48	4	100	1E-06	70	25550	6.7E-10	0.0E+00	0.0E+00	0%	1460	1.2E-08	3.0E-01	3.9E-08	0%
Fluoranthene	0.420	48	4	100	1E-06	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.9E-08	4.0E-02	2.0E-06	0%
Pyrene	0.330	48	4	100	1E-06	70	25550	3.5E-09	0.0E+00	0.0E+00	0%	1460	6.2E-08	3.0E-02	2.1E-06	0%
Benzo(a)anthracene	0.190	48	4	100	1E-06	70	25550	2.0E-09	7.3E-01	1.5E-09	1%	1460	3.6E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	4	100	1E-06	70	25550	2.3E-09	7.3E-03	1.6E-11	0%	1460	3.9E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	4	100	1E-06	70	25550	2.7E-09	1.4E-02	3.8E-11	0%	1460	4.7E-08	2.0E-02	2.3E-06	0%
Benzo(b)fluoranthene	0.250	48	4	100	1E-06	70	25550	2.7E-09	7.3E-01	2.0E-09	2%	1460	4.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	4	100	1E-06	70	25550	1.0E-09	7.3E-02	7.6E-11	0%	1460	1.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	4	100	1E-06	70	25550	4.1E-09	7.3E+00	3.0E-08	23%	1460	7.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	4	100	1E-06	70	25550	1.2E-09	7.3E-01	8.6E-10	1%	1460	2.1E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	4	100	1E-06	70	25550	1.1E-09	0.0E+00	0.0E+00	0%	1460	1.8E-08	3.0E-02	6.1E-07	0%
4,4'-DDE	0.550	48	4	100	1E-06	70	25550	5.9E-09	3.4E-01	2.0E-09	2%	1460	1.0E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	4	100	1E-06	70	25550	3.1E-08	2.4E-01	7.5E-09	6%	1460	5.4E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	4	100	1E-06	70	25550	4.8E-08	3.4E-01	1.6E-08	13%	1460	8.5E-07	5.0E-04	1.7E-03	8%
alpha-Chlordane	0.013	48	4	100	1E-06	70	25550	1.4E-10	3.5E-01	4.9E-11	0%	1460	2.4E-09	5.0E-04	4.9E-06	0%
gamma-Chlordane	0.014	48	4	100	1E-06	70	25550	1.5E-10	3.5E-01	5.3E-11	0%	1460	2.6E-09	5.0E-04	5.3E-06	0%
Aluminum	11500.000	48	4	100	1E-06	70	25550	1.2E-04	0.0E+00	0.0E+00	0%	1460	2.2E-03	1.0E+00	2.2E-03	11%
Arsenic	4.200	48	4	100	1E-06	70	25550	4.5E-08	1.5E+00	6.8E-08	53%	1460	7.9E-07	3.0E-04	2.6E-03	13%
Barium	28.100	48	4	100	1E-06	70	25550	3.0E-07	0.0E+00	0.0E+00	0%	1460	5.3E-06	7.0E-02	7.5E-05	0%
Cadmium (soil)	3.960	48	4	100	1E-06	70	25550	4.3E-08	0.0E+00	0.0E+00	0%	1460	7.4E-07	1.0E-03	7.4E-04	4%
Chromium	12.600	48	4	100	1E-06	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	1460	2.4E-06	5.0E-03	4.7E-04	2%
Cobalt	6.300	48	4	100	1E-06	70	25550	6.8E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	6.0E-02	2.0E-05	0%
Copper	14.900	48	4	100	1E-06	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	4.0E-02	7.0E-05	0%
Iron	16300.000	48	4	100	1E-06	70	25550	1.7E-04	0.0E+00	0.0E+00	0%	1460	3.1E-03	3.0E-01	1.0E-02	51%
Lead	73.000	48	4	100	1E-06	70	25550	7.8E-07	0.0E+00	0.0E+00	0%	1460	1.4E-05	0.0E+00	0.0E+00	0%
Manganese	127.000	48	4	100	1E-06	70	25550	1.4E-06	0.0E+00	0.0E+00	0%	1460	2.4E-05	2.3E-02	1.0E-03	5%
Mercury	0.270	48	4	100	1E-06	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.1E-08	3.0E-04	1.7E-04	1%
Nickel	9.700	48	4	100	1E-06	70	25550	1.0E-07	0.0E+00	0.0E+00	0%	1460	1.8E-06	2.0E-02	9.1E-05	0%
Selenium	1.200	48	4	100	1E-06	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	5.0E-03	4.5E-05	0%
Vanadium	26.600	48	4	100	1E-06	70	25550	2.9E-07	0.0E+00	0.0E+00	0%	1460	5.0E-06	7.0E-03	7.1E-04	4%
Zinc	86.500	48	4	100	1E-06	70	25550	9.3E-07	0.0E+00	0.0E+00	0%	1460	1.6E-05	3.0E-01	5.4E-05	0%
TOTAL										1.3E-07					2.0E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	30
IR = soil ingestion rate (mg/day)	100
BW = 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)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	48	30	100	1E-06	70	25550	2.3E-08	0.0E+00	0.0E+00	0%	10950	5.3E-08	3.0E-02	1.8E-06	0%
Anthracene	0.062	48	30	100	1E-06	70	25550	5.0E-09	0.0E+00	0.0E+00	0%	10950	1.2E-08	3.0E-01	3.9E-08	0%
Fluoranthene	0.420	48	30	100	1E-06	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	10950	7.9E-08	4.0E-02	2.0E-06	0%
Pyrene	0.330	48	30	100	1E-06	70	25550	2.7E-08	0.0E+00	0.0E+00	0%	10950	6.2E-08	3.0E-02	2.1E-06	0%
Benzo(a)anthracene	0.190	48	30	100	1E-06	70	25550	1.5E-08	7.3E-01	1.1E-08	1%	10950	3.6E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	30	100	1E-06	70	25550	1.7E-08	7.3E-03	1.2E-10	0%	10950	3.9E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	30	100	1E-06	70	25550	2.0E-08	1.4E-02	2.8E-10	0%	10950	4.7E-08	2.0E-02	2.3E-06	0%
Benzo(b)fluoranthene	0.250	48	30	100	1E-06	70	25550	2.0E-08	7.3E-01	1.5E-08	2%	10950	4.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	30	100	1E-06	70	25550	7.8E-09	7.3E-02	5.7E-10	0%	10950	1.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	30	100	1E-06	70	25550	3.1E-08	7.3E+00	2.2E-07	23%	10950	7.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	30	100	1E-06	70	25550	8.9E-09	7.3E-01	6.5E-09	1%	10950	2.1E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	30	100	1E-06	70	25550	7.9E-09	0.0E+00	0.0E+00	0%	10950	1.8E-08	3.0E-02	6.1E-07	0%
4,4'-DDE	0.550	48	30	100	1E-06	70	25550	4.4E-08	3.4E-01	1.5E-08	2%	10950	1.0E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	30	100	1E-06	70	25550	2.3E-07	2.4E-01	5.6E-08	6%	10950	5.4E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	30	100	1E-06	70	25550	3.6E-07	3.4E-01	1.2E-07	13%	10950	8.5E-07	5.0E-04	1.7E-03	8%
alpha-Chlordane	0.013	48	30	100	1E-06	70	25550	1.0E-09	3.5E-01	3.7E-10	0%	10950	2.4E-09	5.0E-04	4.9E-06	0%
gamma-Chlordane	0.014	48	30	100	1E-06	70	25550	1.1E-09	3.5E-01	3.9E-10	0%	10950	2.6E-09	5.0E-04	5.3E-06	0%
Aluminum	11500.000	48	30	100	1E-06	70	25550	9.3E-04	0.0E+00	0.0E+00	0%	10950	2.2E-03	1.0E+00	2.2E-03	11%
Arsenic	4.200	48	30	100	1E-06	70	25550	3.4E-07	1.5E+00	5.1E-07	53%	10950	7.9E-07	3.0E-04	2.6E-03	13%
Barium	28.100	48	30	100	1E-06	70	25550	2.3E-06	0.0E+00	0.0E+00	0%	10950	5.3E-06	7.0E-02	7.5E-05	0%
Cadmium (soil)	3.960	48	30	100	1E-06	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.4E-07	1.0E-03	7.4E-04	4%
Chromium	12.600	48	30	100	1E-06	70	25550	1.0E-06	0.0E+00	0.0E+00	0%	10950	2.4E-06	5.0E-03	4.7E-04	2%
Cobalt	6.300	48	30	100	1E-06	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	10950	1.2E-06	6.0E-02	2.0E-05	0%
Copper	14.900	48	30	100	1E-06	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.8E-06	4.0E-02	7.0E-05	0%
Iron	16300.000	48	30	100	1E-06	70	25550	1.3E-03	0.0E+00	0.0E+00	0%	10950	3.1E-03	3.0E-01	1.0E-02	51%
Lead	73.000	48	30	100	1E-06	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	0.0E+00	0.0E+00	0%
Manganese	127.000	48	30	100	1E-06	70	25550	1.0E-05	0.0E+00	0.0E+00	0%	10950	2.4E-05	2.3E-02	1.0E-03	5%
Mercury	0.270	48	30	100	1E-06	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	10950	5.1E-08	3.0E-04	1.7E-04	1%
Nickel	9.700	48	30	100	1E-06	70	25550	7.8E-07	0.0E+00	0.0E+00	0%	10950	1.8E-06	2.0E-02	9.1E-05	0%
Selenium	1.200	48	30	100	1E-06	70	25550	8.7E-08	0.0E+00	0.0E+00	0%	10950	2.3E-07	5.0E-03	4.5E-05	0%
Vanadium	26.600	48	30	100	1E-06	70	25550	2.1E-06	0.0E+00	0.0E+00	0%	10950	5.0E-06	7.0E-03	7.1E-04	4%
Zinc	86.500	48	30	100	1E-06	70	25550	7.0E-06	0.0E+00	0.0E+00	0%	10950	1.6E-05	3.0E-01	5.4E-05	0%
TOTAL										9.6E-07					2.0E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	6
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (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	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Phenanthrene	0.280	48	6	200	1E-06	15	25550	4.2E-08	0.0E+00	0.0E+00	0%	2190	4.9E-07	3.0E-02	1.6E-05	0%
Anthracene	0.062	48	6	200	1E-06	15	25550	9.3E-09	0.0E+00	0.0E+00	0%	2190	1.1E-07	3.0E-01	3.6E-07	0%
Fluoranthene	0.420	48	6	200	1E-06	15	25550	6.3E-08	0.0E+00	0.0E+00	0%	2190	7.4E-07	4.0E-02	1.8E-05	0%
Pyrene	0.330	48	6	200	1E-06	15	25550	5.0E-08	0.0E+00	0.0E+00	0%	2190	5.8E-07	3.0E-02	1.9E-05	0%
Benzo(a)anthracene	0.190	48	6	200	1E-06	15	25550	2.9E-08	7.3E-01	2.1E-08	1%	2190	3.3E-07	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	6	200	1E-06	15	25550	3.2E-08	7.3E-03	2.3E-10	0%	2190	3.7E-07	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	6	200	1E-06	15	25550	3.8E-08	1.4E-02	5.3E-10	0%	2190	4.4E-07	2.0E-02	2.2E-05	0%
Benzo(b)fluoranthene	0.250	48	6	200	1E-06	15	25550	3.8E-08	7.3E-01	2.7E-08	2%	2190	4.4E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	6	200	1E-06	15	25550	1.5E-08	7.3E-02	1.1E-09	0%	2190	1.7E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	6	200	1E-06	15	25550	5.7E-08	7.3E+00	4.2E-07	23%	2190	6.7E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	6	200	1E-06	15	25550	1.7E-08	7.3E-01	1.2E-08	1%	2190	1.9E-07	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	6	200	1E-06	15	25550	1.5E-08	0.0E+00	0.0E+00	0%	2190	1.7E-07	3.0E-02	5.7E-06	0%
4,4'-DDE	0.550	48	6	200	1E-06	15	25550	8.3E-08	3.4E-01	2.8E-08	2%	2190	9.6E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	6	200	1E-06	15	25550	4.4E-07	2.4E-01	1.0E-07	6%	2190	5.1E-06	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	6	200	1E-06	15	25550	6.8E-07	3.4E-01	2.3E-07	13%	2190	7.9E-06	5.0E-04	1.6E-02	8%
alpha-Chlordane	0.013	48	6	200	1E-06	15	25550	2.0E-09	3.5E-01	6.8E-10	0%	2190	2.3E-08	5.0E-04	4.6E-05	0%
gamma-Chlordane	0.014	48	6	200	1E-06	15	25550	2.1E-09	3.5E-01	7.4E-10	0%	2190	2.5E-08	5.0E-04	4.9E-05	0%
Aluminum	11500.000	48	6	200	1E-06	15	25550	1.7E-03	0.0E+00	0.0E+00	0%	2190	2.0E-02	1.0E+00	2.0E-02	11%
Arsenic	4.200	48	6	200	1E-06	15	25550	6.3E-07	1.5E+00	9.5E-07	53%	2190	7.4E-06	3.0E-04	2.5E-02	13%
Barium	28.100	48	6	200	1E-06	15	25550	4.2E-06	0.0E+00	0.0E+00	0%	2190	4.9E-05	7.0E-02	7.0E-04	0%
Cadmium (soil)	3.960	48	6	200	1E-06	15	25550	6.0E-07	0.0E+00	0.0E+00	0%	2190	6.9E-06	1.0E-03	6.9E-03	4%
Chromium	12.600	48	6	200	1E-06	15	25550	1.9E-06	0.0E+00	0.0E+00	0%	2190	2.2E-05	5.0E-03	4.4E-03	2%
Cobalt	6.300	48	6	200	1E-06	15	25550	9.5E-07	0.0E+00	0.0E+00	0%	2190	1.1E-05	6.0E-02	1.8E-04	0%
Copper	14.900	48	6	200	1E-06	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.6E-05	4.0E-02	6.5E-04	0%
Iron	16300.000	48	6	200	1E-06	15	25550	2.4E-03	0.0E+00	0.0E+00	0%	2190	2.9E-02	3.0E-01	9.5E-02	51%
Lead	73.000	48	6	200	1E-06	15	25550	1.1E-05	0.0E+00	0.0E+00	0%	2190	1.3E-04	0.0E+00	0.0E+00	0%
Manganese	127.000	48	6	200	1E-06	15	25550	1.9E-05	0.0E+00	0.0E+00	0%	2190	2.2E-04	2.3E-02	9.7E-03	5%
Mercury	0.270	48	6	200	1E-06	15	25550	4.1E-08	0.0E+00	0.0E+00	0%	2190	4.7E-07	3.0E-04	1.6E-03	1%
Nickel	9.700	48	6	200	1E-06	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	2.0E-02	8.5E-04	0%
Selenium	1.200	48	6	200	1E-06	15	25550	1.8E-07	0.0E+00	0.0E+00	0%	2190	2.1E-06	5.0E-03	4.2E-04	0%
Vanadium	26.600	48	6	200	1E-06	15	25550	4.0E-06	0.0E+00	0.0E+00	0%	2190	4.7E-05	7.0E-03	6.7E-03	4%
Zinc	86.500	48	6	200	1E-06	15	25550	1.3E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	3.0E-01	5.1E-04	0%
TOTAL										1.8E-06					1.9E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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
Aluminum	6641.00	350	4	1E-06	100	70	25550	5.2E-04	0.0E+00	0.00E+00	0%	1460	9.1E-03	1.0E+00	9.1E-03	32%
Arsenic	0.99	350	4	1E-06	100	70	25550	7.7E-08	1.5E+00	1.16E-07	100%	1460	1.4E-06	3.0E-04	4.5E-03	16%
Iron	3276.19	350	4	1E-06	100	70	25550	2.6E-04	0.0E+00	0.00E+00	0%	1460	4.5E-03	3.0E-01	1.5E-02	52%
TOTAL										1.2E-07					2.9E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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 (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	6641.00	350	4	1E-06	200	15	25550	4.9E-03	0.00E+00	0.00E+00	0%	1460	8.5E-02	1.00E+00	8.5E-02	32%
Arsenic	0.99	350	4	1E-06	200	15	25550	7.2E-07	1.50E+00	1.08E-06	100%	1460	1.3E-05	3.00E-04	4.2E-02	16%
Iron	3276.19	350	4	1E-06	200	15	25550	2.4E-03	0.00E+00	0.00E+00	0%	1460	4.2E-02	3.00E-01	1.4E-01	52%
TOTAL										1.1E-06					2.7E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aluminum	6641.00	350	30	1E-06	100	70	25550	3.9E-03	0.0E+00	0.00E+00	0%	10950	9.1E-03	1.0E+00	9.1E-03	32%
Arsenic	0.99	350	30	1E-06	100	70	25550	5.8E-07	1.5E+00	8.72E-07	100%	10950	1.4E-06	3.0E-04	4.5E-03	16%
Iron	3276.19	350	30	1E-06	100	70	25550	1.9E-03	0.0E+00	0.00E+00	0%	10950	4.5E-03	3.0E-01	1.5E-02	52%
TOTAL										8.7E-07					2.9E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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	6641.00	350	6	1E-06	200	15	25550	7.3E-03	0.00E+00	0.00E+00	0%	2190	8.5E-02	1.00E+00	8.5E-02	32%
Arsenic	0.99	350	6	1E-06	200	15	25550	1.1E-06	1.50E+00	1.63E-06	100%	2190	1.3E-05	3.00E-04	4.2E-02	16%
Iron	3276.19	350	6	1E-06	200	15	25550	3.6E-03	0.00E+00	0.00E+00	0%	2190	4.2E-02	3.00E-01	1.4E-01	52%
TOTAL										1.6E-06					2.7E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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
Arsenic	0.80	350	4	1E-06	100	70	25550	6.3E-08	1.5E+00	9.39E-08	100%	1460	1.1E-06	3.0E-04	3.7E-03	19%
Iron	3500.77	350	4	1E-06	100	70	25550	2.7E-04	0.0E+00	0.00E+00	0%	1460	4.8E-03	3.0E-01	1.6E-02	81%
TOTAL										9.4E-08					2.0E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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 (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
Arsenic	0.80	350	4	1E-06	200	15	25550	5.8E-07	1.50E+00	8.77E-07	100%	1460	1.0E-05	3.00E-04	3.4E-02	19%
Iron	3500.77	350	4	1E-06	200	15	25550	2.8E-03	0.00E+00	0.00E+00	0%	1460	4.5E-02	3.00E-01	1.5E-01	81%
TOTAL										8.8E-07					1.8E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	0.80	350	30	1E-06	100	70	25550	4.7E-07	1.5E+00	7.05E-07	100%	10950	1.1E-06	3.0E-04	3.7E-03	19%
Iron	3500.77	350	30	1E-06	100	70	25550	2.1E-03	0.0E+00	0.00E+00	0%	10950	4.8E-03	3.0E-01	1.6E-02	81%
TOTAL										7.0E-07					2.0E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.80	350	6	1E-06	200	15	25550	8.8E-07	1.50E+00	1.32E-06	100%	2190	1.0E-05	3.00E-04	3.4E-02	19%
Iron	3500.77	350	6	1E-06	200	15	25550	3.8E-03	0.00E+00	0.00E+00	0%	2190	4.5E-02	3.00E-01	1.5E-01	81%
TOTAL										1.3E-06					1.8E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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	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
Aroclor-1260	123.52	250	4	1E-06	100	70	25550	6.9E-06	2.0E+00	1.38E-05	100%	1460	1.2E-04	0.0E+00	0.00E+00	0%
TOTAL										1.4E-05					0.0E+00	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aroclor-1248	2.800	48	4	100	1E-06	70	25550	3.0E-08	2.0E+00	6.0E-08	7%	1460	5.3E-07	0.0E+00	0.0E+00	0%
Aroclor-1260	40.000	48	4	100	1E-06	70	25550	4.3E-07	2.0E+00	8.6E-07	93%	1460	7.5E-06	0.0E+00	0.0E+00	0%
TOTAL										9.2E-07					0.0E+00	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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	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
Arsenic	76.80	250	4	1E-06	100	70	25550	4.3E-06	1.5E+00	6.44E-06	100%	1460	7.5E-05	3.0E-04	2.50E-01	2%
Cadmium (soil)	47.10	250	4	1E-06	100	70	25550	2.6E-06	0.0E+00	0.00E+00	0%	1460	4.6E-05	1.0E-03	4.61E-02	0%
Chromium	147.00	250	4	1E-06	100	70	25550	8.2E-06	0.0E+00	0.00E+00	0%	1460	1.4E-04	5.0E-03	2.88E-02	0%
Copper	1870.00	250	4	1E-06	100	70	25550	1.0E-04	0.0E+00	0.00E+00	0%	1460	1.8E-03	4.0E-02	4.57E-02	0%
Iron	339000.00	250	4	1E-06	100	70	25550	1.9E-02	0.0E+00	0.00E+00	0%	1460	3.3E-01	3.0E-01	1.11E+00	11%
Lead	3030.00	250	4	1E-06	100	70	25550	1.7E-04	0.0E+00	0.00E+00	0%	1460	3.0E-03	0.0E+00	0.00E+00	0%
Manganese	197000.00	250	4	1E-06	100	70	25550	1.1E-02	0.0E+00	0.00E+00	0%	1460	1.9E-01	2.3E-02	8.38E+00	81%
Mercury	70.70	250	4	1E-06	100	70	25550	4.0E-06	0.0E+00	0.00E+00	0%	1460	6.9E-05	3.0E-04	2.31E-01	2%
Zinc	63900.00	250	4	1E-06	100	70	25550	3.6E-03	0.0E+00	0.00E+00	0%	1460	6.3E-02	3.0E-01	2.08E-01	2%
TOTAL										6.4E-06					1.0E+01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	76.80	350	30	1E-06	100	70	25550	4.5E-05	1.5E+00	6.76E-05	100%	10950	1.1E-04	3.0E-04	3.5E-01	2%
Cadmium (soil)	47.10	350	30	1E-06	100	70	25550	2.8E-05	0.0E+00	0.00E+00	0%	10950	6.5E-05	1.0E-03	6.5E-02	0%
Chromium	147.00	350	30	1E-06	100	70	25550	8.6E-05	0.0E+00	0.00E+00	0%	10950	2.0E-04	5.0E-03	4.0E-02	0%
Copper	1870.00	350	30	1E-06	100	70	25550	1.1E-03	0.0E+00	0.00E+00	0%	10950	2.6E-03	4.0E-02	6.4E-02	0%
Iron	339000.00	350	30	1E-06	100	70	25550	2.0E-01	0.0E+00	0.00E+00	0%	10950	4.6E-01	3.0E-01	1.5E+00	11%
Lead	3030.00	350	30	1E-06	100	70	25550	1.8E-03	0.0E+00	0.00E+00	0%	10950	4.2E-03	0.0E+00	0.0E+00	0%
Manganese	197000.00	350	30	1E-06	100	70	25550	1.2E-01	0.0E+00	0.00E+00	0%	10950	2.7E-01	2.3E-02	1.2E+01	81%
Mercury	70.70	350	30	1E-06	100	70	25550	4.2E-05	0.0E+00	0.00E+00	0%	10950	9.7E-05	3.0E-04	3.2E-01	2%
Zinc	63900.00	350	30	1E-06	100	70	25550	3.8E-02	0.0E+00	0.00E+00	0%	10950	8.8E-02	3.0E-01	2.9E-01	2%
TOTAL										6.8E-05					1.4E+01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	76.80	350	6	1E-06	200	15	25550	8.4E-05	1.50E+00	1.26E-04	100%	2190	9.8E-04	3.00E-04	3.3E+00	2%
Cadmium (soil)	47.10	350	6	1E-06	200	15	25550	5.2E-05	0.00E+00	0.00E+00	0%	2190	6.0E-04	1.00E-03	6.0E-01	0%
Chromium	147.00	350	6	1E-06	200	15	25550	1.6E-04	0.00E+00	0.00E+00	0%	2190	1.9E-03	5.00E-03	3.8E-01	0%
Copper	1870.00	350	6	1E-06	200	15	25550	2.0E-03	0.00E+00	0.00E+00	0%	2190	2.4E-02	4.00E-02	6.0E-01	0%
Iron	339000.00	350	6	1E-06	200	15	25550	3.7E-01	0.00E+00	0.00E+00	0%	2190	4.3E+00	3.00E-01	1.4E+01	11%
Lead	3030.00	350	6	1E-06	200	15	25550	3.3E-03	0.00E+00	0.00E+00	0%	2190	3.9E-02	0.00E+00	0.0E+00	0%
Manganese	197000.00	350	6	1E-06	200	15	25550	2.2E-01	0.00E+00	0.00E+00	0%	2190	2.5E+00	2.30E-02	1.1E+02	81%
Mercury	70.70	350	6	1E-06	200	15	25550	7.7E-05	0.00E+00	0.00E+00	0%	2190	9.0E-04	3.00E-04	3.0E+00	2%
Zinc	63900.00	350	6	1E-06	200	15	25550	7.0E-02	0.00E+00	0.00E+00	0%	2190	8.2E-01	3.00E-01	2.7E+00	2%
TOTAL										1.3E-04					1.3E+02	

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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
Aluminum	10200.00	250	4	1E-06	100	70	25550	5.7E-04	0.0E+00	0.0E+00	0%	1460	1.0E-02	1.0E+00	1.0E-02	21%
Arsenic	2.41	250	4	1E-06	100	70	25550	1.3E-07	1.5E+00	2.0E-07	100%	1460	2.4E-06	3.0E-04	7.9E-03	16%
Iron	9176.27	250	4	1E-06	100	70	25550	5.1E-04	0.0E+00	0.0E+00	0%	1460	9.0E-03	3.0E-01	3.0E-02	63%
TOTAL										2.0E-07					4.8E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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
Carbazole	0.04	350	4	1E-06	100	70	25550	3.3E-09	2.0E-02	6.58E-11	0%	1460	5.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	350	4	1E-06	100	70	25550	2.9E-08	7.3E-01	2.09E-08	2%	1460	5.0E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	350	4	1E-06	100	70	25550	3.1E-08	7.3E-03	2.29E-10	0%	1460	5.5E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	350	4	1E-06	100	70	25550	3.0E-08	7.3E-01	2.17E-08	2%	1460	5.2E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	350	4	1E-06	100	70	25550	2.9E-08	7.3E-02	2.12E-09	0%	1460	5.1E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	350	4	1E-06	100	70	25550	2.0E-08	7.3E-01	1.43E-08	2%	1460	3.4E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	350	4	1E-06	100	70	25550	3.0E-08	7.3E+00	2.17E-07	25%	1460	5.2E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	4	1E-06	100	70	25550	7.8E-09	7.3E+00	5.71E-08	7%	1460	1.4E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	350	4	1E-06	100	70	25550	3.6E-07	1.5E+00	5.40E-07	62%	1460	6.3E-06	3.0E-04	2.1E-02	41%
Iron	6530.00	350	4	1E-06	100	70	25550	5.1E-04	0.0E+00	0.00E+00	0%	1460	8.9E-03	3.0E-01	3.0E-02	59%
TOTAL										8.7E-07					5.1E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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 (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
Carbazole	0.04	350	4	1E-06	200	15	25550	3.1E-08	2.00E-02	6.14E-10	0%	1460	5.4E-07	0.00E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	350	4	1E-06	200	15	25550	2.7E-07	7.30E-01	1.95E-07	2%	1460	4.7E-06	0.00E+00	0.0E+00	0%
Chrysene	0.40	350	4	1E-06	200	15	25550	2.9E-07	7.30E-03	2.13E-09	0%	1460	5.1E-06	0.00E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	350	4	1E-06	200	15	25550	2.8E-07	7.30E-01	2.03E-07	2%	1460	4.9E-06	0.00E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	350	4	1E-06	200	15	25550	2.7E-07	7.30E-02	1.98E-08	0%	1460	4.8E-06	0.00E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	350	4	1E-06	200	15	25550	1.8E-07	7.30E-01	1.34E-07	2%	1460	3.2E-06	0.00E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	350	4	1E-06	200	15	25550	2.8E-07	7.30E+00	2.03E-06	25%	1460	4.9E-06	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	4	1E-06	200	15	25550	7.3E-08	7.30E+00	5.33E-07	7%	1460	1.3E-06	0.00E+00	0.0E+00	0%
Arsenic	4.60	350	4	1E-06	200	15	25550	3.4E-06	1.50E+00	5.04E-06	62%	1460	5.9E-05	3.00E-04	2.0E-01	41%
Iron	6530.00	350	4	1E-06	200	15	25550	4.8E-03	0.00E+00	0.00E+00	0%	1460	8.3E-02	3.00E-01	2.8E-01	59%
TOTAL										8.2E-06					4.7E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Carbazole	0.04	350	30	1E-06	100	70	25550	2.5E-08	2.0E-02	4.93E-10	0%	10950	5.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	350	30	1E-06	100	70	25550	2.1E-07	7.3E-01	1.57E-07	2%	10950	5.0E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	350	30	1E-06	100	70	25550	2.3E-07	7.3E-03	1.71E-09	0%	10950	5.5E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	350	30	1E-06	100	70	25550	2.2E-07	7.3E-01	1.63E-07	2%	10950	5.2E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	350	30	1E-06	100	70	25550	2.2E-07	7.3E-02	1.59E-08	0%	10950	5.1E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	350	30	1E-06	100	70	25550	1.5E-07	7.3E-01	1.07E-07	2%	10950	3.4E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	350	30	1E-06	100	70	25550	2.2E-07	7.3E+00	1.63E-06	25%	10950	5.2E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	30	1E-06	100	70	25550	5.9E-08	7.3E+00	4.29E-07	7%	10950	1.4E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	350	30	1E-06	100	70	25550	2.7E-06	1.5E+00	4.05E-06	62%	10950	6.3E-06	3.0E-04	2.1E-02	41%
Iron	6530.00	350	30	1E-06	100	70	25550	3.8E-03	0.0E+00	0.00E+00	0%	10950	8.9E-03	3.0E-01	3.0E-02	59%
TOTAL										6.6E-06					5.1E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Carbazole	0.04	350	6	1E-06	200	15	25550	4.6E-08	2.00E-02	9.21E-10	0%	2190	5.4E-07	0.00E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	350	6	1E-06	200	15	25550	4.0E-07	7.30E-01	2.92E-07	2%	2190	4.7E-06	0.00E+00	0.0E+00	0%
Chrysene	0.40	350	6	1E-06	200	15	25550	4.4E-07	7.30E-03	3.20E-09	0%	2190	5.1E-06	0.00E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	350	6	1E-06	200	15	25550	4.2E-07	7.30E-01	3.04E-07	2%	2190	4.9E-06	0.00E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	350	6	1E-06	200	15	25550	4.1E-07	7.30E-02	2.97E-08	0%	2190	4.8E-06	0.00E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	350	6	1E-06	200	15	25550	2.7E-07	7.30E-01	2.01E-07	2%	2190	3.2E-06	0.00E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	350	6	1E-06	200	15	25550	4.2E-07	7.30E+00	3.04E-06	25%	2190	4.9E-06	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	6	1E-06	200	15	25550	1.1E-07	7.30E+00	8.00E-07	7%	2190	1.3E-06	0.00E+00	0.0E+00	0%
Arsenic	4.60	350	6	1E-06	200	15	25550	5.0E-06	1.50E+00	7.56E-06	62%	2190	5.9E-05	3.00E-04	2.0E-01	41%
Iron	6530.00	350	6	1E-06	200	15	25550	7.2E-03	0.00E+00	0.00E+00	0%	2190	8.3E-02	3.00E-01	2.8E-01	59%
TOTAL										1.2E-05					4.7E-01	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	48	4	100	1E-06	70	25550	6.4E-11	0.0E+00	0.0E+00	0%	1460	1.1E-09	1.0E-01	1.1E-08	0%
Fluoranthene	0.024	48	4	100	1E-06	70	25550	2.6E-10	0.0E+00	0.0E+00	0%	1460	4.5E-09	4.0E-02	1.1E-07	0%
Pyrene	0.028	48	4	100	1E-06	70	25550	3.0E-10	0.0E+00	0.0E+00	0%	1460	5.3E-09	3.0E-02	1.8E-07	0%
Benzo(a)anthracene	0.024	48	4	100	1E-06	70	25550	2.6E-10	7.3E-01	1.9E-10	5%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	4	100	1E-06	70	25550	3.4E-10	7.3E-03	2.5E-12	0%	1460	6.0E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	4	100	1E-06	70	25550	2.9E-10	1.4E-02	4.1E-12	0%	1460	5.1E-09	2.0E-02	2.5E-07	0%
Benzo(b)fluoranthene	0.025	48	4	100	1E-06	70	25550	2.7E-10	7.3E-01	2.0E-10	5%	1460	4.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	4	100	1E-06	70	25550	3.4E-10	7.3E-02	2.5E-11	1%	1460	6.0E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	4	100	1E-06	70	25550	4.4E-10	7.3E+00	3.2E-09	84%	1460	7.7E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	4	100	1E-06	70	25550	2.6E-10	7.3E-01	1.9E-10	5%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	4	100	1E-06	70	25550	3.4E-10	0.0E+00	0.0E+00	0%	1460	6.0E-09	3.0E-02	2.0E-07	0%
Aluminum	1060.000	48	4	100	1E-06	70	25550	1.1E-05	0.0E+00	0.0E+00	0%	1460	2.0E-04	1.0E+00	2.0E-04	4%
Barium	35.000	48	4	100	1E-06	70	25550	3.8E-07	0.0E+00	0.0E+00	0%	1460	6.6E-06	7.0E-02	9.4E-05	2%
Chromium	11.500	48	4	100	1E-06	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	1460	2.2E-06	5.0E-03	4.3E-04	8%
Copper	38.400	48	4	100	1E-06	70	25550	4.1E-07	0.0E+00	0.0E+00	0%	1460	7.2E-06	4.0E-02	1.8E-04	3%
Iron	6040.000	48	4	100	1E-06	70	25550	6.5E-05	0.0E+00	0.0E+00	0%	1460	1.1E-03	3.0E-01	3.8E-03	71%
Lead	6.100	48	4	100	1E-06	70	25550	6.5E-08	0.0E+00	0.0E+00	0%	1460	1.1E-06	0.0E+00	0.0E+00	0%
Manganese	45.200	48	4	100	1E-06	70	25550	4.9E-07	0.0E+00	0.0E+00	0%	1460	8.5E-06	2.3E-02	3.7E-04	7%
Nickel	7.200	48	4	100	1E-06	70	25550	7.7E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	2.0E-02	6.8E-05	1%
Selenium	0.670	48	4	100	1E-06	70	25550	7.2E-09	0.0E+00	0.0E+00	0%	1460	1.3E-07	5.0E-03	2.5E-05	0%
Silver	2.100	48	4	100	1E-06	70	25550	2.3E-08	0.0E+00	0.0E+00	0%	1460	3.9E-07	5.0E-03	7.9E-05	1%
Vanadium	2.500	48	4	100	1E-06	70	25550	2.7E-08	0.0E+00	0.0E+00	0%	1460	4.7E-07	7.0E-03	6.7E-05	1%
Zinc	11.000	48	4	100	1E-06	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	1460	2.1E-06	3.0E-01	6.9E-06	0%
TOTAL										3.8E-09					5.3E-03	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	4
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (kg)	15
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 (mg/kg)	Exposure Frequency (days/yr) Child	Exposure Duration (yr) Child	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Acetone	0.006	48	4	200	1E-06	15	25550	6.0E-10	0.0E+00	0.0E+00	0%	1460	1.1E-08	1.0E-01	1.1E-07	0%
Fluoranthene	0.024	48	4	200	1E-06	15	25550	2.4E-09	0.0E+00	0.0E+00	0%	1460	4.2E-08	4.0E-02	1.1E-06	0%
Pyrene	0.028	48	4	200	1E-06	15	25550	2.8E-09	0.0E+00	0.0E+00	0%	1460	4.9E-08	3.0E-02	1.6E-06	0%
Benzo(a)anthracene	0.024	48	4	200	1E-06	15	25550	2.4E-09	7.3E-01	1.8E-09	5%	1460	4.2E-08	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	4	200	1E-06	15	25550	3.2E-09	7.3E-03	2.3E-11	0%	1460	5.6E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	4	200	1E-06	15	25550	2.7E-09	1.4E-02	3.8E-11	0%	1460	4.7E-08	2.0E-02	2.4E-06	0%
Benzo(b)fluoranthene	0.025	48	4	200	1E-06	15	25550	2.5E-09	7.3E-01	1.8E-09	5%	1460	4.4E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	4	200	1E-06	15	25550	3.2E-09	7.3E-02	2.3E-10	1%	1460	5.6E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	4	200	1E-06	15	25550	4.1E-09	7.3E+00	3.0E-08	84%	1460	7.2E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	4	200	1E-06	15	25550	2.4E-09	7.3E-01	1.8E-09	5%	1460	4.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	4	200	1E-06	15	25550	3.2E-09	0.0E+00	0.0E+00	0%	1460	5.6E-08	3.0E-02	1.9E-06	0%
Aluminum	1060.000	48	4	200	1E-06	15	25550	1.1E-04	0.0E+00	0.0E+00	0%	1460	1.9E-03	1.0E+00	1.9E-03	4%
Barium	35.000	48	4	200	1E-06	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.1E-05	7.0E-02	8.8E-04	2%
Chromium	11.500	48	4	200	1E-06	15	25550	1.2E-06	0.0E+00	0.0E+00	0%	1460	2.0E-05	5.0E-03	4.0E-03	8%
Copper	38.400	48	4	200	1E-06	15	25550	3.8E-06	0.0E+00	0.0E+00	0%	1460	6.7E-05	4.0E-02	1.7E-03	3%
Iron	6040.000	48	4	200	1E-06	15	25550	6.1E-04	0.0E+00	0.0E+00	0%	1460	1.1E-02	3.0E-01	3.5E-02	71%
Lead	6.100	48	4	200	1E-06	15	25550	6.1E-07	0.0E+00	0.0E+00	0%	1460	1.1E-05	0.0E+00	0.0E+00	0%
Manganese	45.200	48	4	200	1E-06	15	25550	4.5E-06	0.0E+00	0.0E+00	0%	1460	7.9E-05	2.3E-02	3.4E-03	7%
Nickel	7.200	48	4	200	1E-06	15	25550	7.2E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	2.0E-02	6.3E-04	1%
Selenium	0.670	48	4	200	1E-06	15	25550	6.7E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	5.0E-03	2.3E-04	0%
Silver	2.100	48	4	200	1E-06	15	25550	2.1E-07	0.0E+00	0.0E+00	0%	1460	3.7E-06	5.0E-03	7.4E-04	1%
Vanadium	2.500	48	4	200	1E-06	15	25550	2.5E-07	0.0E+00	0.0E+00	0%	1460	4.4E-06	7.0E-03	6.3E-04	1%
Zinc	11.000	48	4	200	1E-06	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	1460	1.9E-05	3.0E-01	6.4E-05	0%
TOTAL										3.6E-08					4.9E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	30
IR = soil ingestion rate (mg/day)	100
BW = 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)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	48	30	100	1E-06	70	25550	4.8E-10	0.0E+00	0.0E+00	0%	10950	1.1E-09	1.0E-01	1.1E-08	0%
Fluoranthene	0.024	48	30	100	1E-06	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	10950	4.5E-09	4.0E-02	1.1E-07	0%
Pyrene	0.028	48	30	100	1E-06	70	25550	2.3E-09	0.0E+00	0.0E+00	0%	10950	5.3E-09	3.0E-02	1.8E-07	0%
Benzo(a)anthracene	0.024	48	30	100	1E-06	70	25550	1.9E-09	7.3E-01	1.4E-09	5%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	30	100	1E-06	70	25550	2.6E-09	7.3E-03	1.9E-11	0%	10950	6.0E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	30	100	1E-06	70	25550	2.2E-09	1.4E-02	3.0E-11	0%	10950	5.1E-09	2.0E-02	2.5E-07	0%
Benzo(b)fluoranthene	0.025	48	30	100	1E-06	70	25550	2.0E-09	7.3E-01	1.5E-09	5%	10950	4.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	30	100	1E-06	70	25550	2.6E-09	7.3E-02	1.9E-10	1%	10950	6.0E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	30	100	1E-06	70	25550	3.3E-09	7.3E+00	2.4E-08	84%	10950	7.7E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	30	100	1E-06	70	25550	1.9E-09	7.3E-01	1.4E-09	5%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	30	100	1E-06	70	25550	2.6E-09	0.0E+00	0.0E+00	0%	10950	6.0E-09	3.0E-02	2.0E-07	0%
Aluminum	1060.000	48	30	100	1E-06	70	25550	8.5E-05	0.0E+00	0.0E+00	0%	10950	2.0E-04	1.0E+00	2.0E-04	4%
Barium	35.000	48	30	100	1E-06	70	25550	2.8E-06	0.0E+00	0.0E+00	0%	10950	6.6E-06	7.0E-02	9.4E-05	2%
Chromium	11.500	48	30	100	1E-06	70	25550	9.3E-07	0.0E+00	0.0E+00	0%	10950	2.2E-06	5.0E-03	4.3E-04	8%
Copper	38.400	48	30	100	1E-06	70	25550	3.1E-06	0.0E+00	0.0E+00	0%	10950	7.2E-06	4.0E-02	1.8E-04	3%
Iron	6040.000	48	30	100	1E-06	70	25550	4.9E-04	0.0E+00	0.0E+00	0%	10950	1.1E-03	3.0E-01	3.8E-03	71%
Lead	6.100	48	30	100	1E-06	70	25550	4.9E-07	0.0E+00	0.0E+00	0%	10950	1.1E-06	0.0E+00	0.0E+00	0%
Manganese	45.200	48	30	100	1E-06	70	25550	3.6E-06	0.0E+00	0.0E+00	0%	10950	8.5E-06	2.3E-02	3.7E-04	7%
Nickel	7.200	48	30	100	1E-06	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	2.0E-02	6.8E-05	1%
Selenium	0.670	48	30	100	1E-06	70	25550	5.4E-08	0.0E+00	0.0E+00	0%	10950	1.3E-07	5.0E-03	2.5E-05	0%
Silver	2.100	48	30	100	1E-06	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	5.0E-03	7.9E-05	1%
Vanadium	2.500	48	30	100	1E-06	70	25550	2.0E-07	0.0E+00	0.0E+00	0%	10950	4.7E-07	7.0E-03	6.7E-05	1%
Zinc	11.000	48	30	100	1E-06	70	25550	8.8E-07	0.0E+00	0.0E+00	0%	10950	2.1E-06	3.0E-01	6.9E-06	0%
TOTAL										2.9E-08					5.3E-03	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

*Risk = Intake * CSF or /RfD*

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	6
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (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	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Acetone	0.006	48	6	200	1E-06	15	25550	9.0E-10	0.0E+00	0.0E+00	0%	2190	1.1E-08	1.0E-01	1.1E-07	0%
Fluoranthene	0.024	48	6	200	1E-06	15	25550	3.6E-09	0.0E+00	0.0E+00	0%	2190	4.2E-08	4.0E-02	1.1E-06	0%
Pyrene	0.028	48	6	200	1E-06	15	25550	4.2E-09	0.0E+00	0.0E+00	0%	2190	4.9E-08	3.0E-02	1.6E-06	0%
Benzo(a)anthracene	0.024	48	6	200	1E-06	15	25550	3.6E-09	7.3E-01	2.6E-09	5%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	6	200	1E-06	15	25550	4.8E-09	7.3E-03	3.5E-11	0%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	6	200	1E-06	15	25550	4.1E-09	1.4E-02	5.7E-11	0%	2190	4.7E-08	2.0E-02	2.4E-06	0%
Benzo(b)fluoranthene	0.025	48	6	200	1E-06	15	25550	3.8E-09	7.3E-01	2.7E-09	5%	2190	4.4E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	6	200	1E-06	15	25550	4.8E-09	7.3E-02	3.5E-10	1%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	6	200	1E-06	15	25550	6.2E-09	7.3E+00	4.5E-08	84%	2190	7.2E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	6	200	1E-06	15	25550	3.6E-09	7.3E-01	2.6E-09	5%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	6	200	1E-06	15	25550	4.8E-09	0.0E+00	0.0E+00	0%	2190	5.6E-08	3.0E-02	1.9E-06	0%
Aluminum	1060.000	48	6	200	1E-06	15	25550	1.6E-04	0.0E+00	0.0E+00	0%	2190	1.9E-03	1.0E+00	1.9E-03	4%
Barium	35.000	48	6	200	1E-06	15	25550	5.3E-06	0.0E+00	0.0E+00	0%	2190	6.1E-05	7.0E-02	8.8E-04	2%
Chromium	11.500	48	6	200	1E-06	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	2190	2.0E-05	5.0E-03	4.0E-03	8%
Copper	38.400	48	6	200	1E-06	15	25550	5.8E-06	0.0E+00	0.0E+00	0%	2190	6.7E-05	4.0E-02	1.7E-03	3%
Iron	6040.000	48	6	200	1E-06	15	25550	9.1E-04	0.0E+00	0.0E+00	0%	2190	1.1E-02	3.0E-01	3.5E-02	71%
Lead	6.100	48	6	200	1E-06	15	25550	9.2E-07	0.0E+00	0.0E+00	0%	2190	1.1E-05	0.0E+00	0.0E+00	0%
Manganese	45.200	48	6	200	1E-06	15	25550	6.8E-06	0.0E+00	0.0E+00	0%	2190	7.9E-05	2.3E-02	3.4E-03	7%
Nickel	7.200	48	6	200	1E-06	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	2.0E-02	6.3E-04	1%
Selenium	0.670	48	6	200	1E-06	15	25550	1.0E-07	0.0E+00	0.0E+00	0%	2190	1.2E-06	5.0E-03	2.3E-04	0%
Silver	2.100	48	6	200	1E-06	15	25550	3.2E-07	0.0E+00	0.0E+00	0%	2190	3.7E-06	5.0E-03	7.4E-04	1%
Vanadium	2.500	48	6	200	1E-06	15	25550	3.8E-07	0.0E+00	0.0E+00	0%	2190	4.4E-06	7.0E-03	6.3E-04	1%
Zinc	11.000	48	6	200	1E-06	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	2190	1.9E-05	3.0E-01	6.4E-05	0%
TOTAL										5.3E-08					4.9E-02	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE DERMAL CONTACT WITH SOIL* CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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)
	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 dermally - adjusted CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/ dermally - adjusted RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 1.0E{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 0.001 \times 1\ mg/cm^2 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 2.1E{-}08$$

Risk = 2.1E-08 mg/kg·day x 7.5 $mg/kg{\cdot}day^{-1}$ = 1.58E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{1547.41\ mg/kg \times 1.0E{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 1\ mg/cm^2 \times 0.001 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E{-}04$$

$$Risk = \frac{1.2E{-}04\ mg/kg{\cdot}day}{6.0E{-}02\ mg/kg{\cdot}day} = 2.0E{-}03$$

* This example calculation also is applicable for sediment dermal contact.
Re: Site 68 Future Residential Adult

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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
Arsenic	0.62	1E-06	4300	1	0.001	250	4	70	25550	1.5E-09	7.50E+00	1.12E-08	100%	1460	2.6E-08	6.00E-05	4.35E-04	17%
Iron	1547.41	1E-06	4300	1	0.001	250	4	70	25550	3.7E-06	0.00E+00	0.00E+00	0%	1460	6.5E-05	6.00E-02	1.09E-03	43%
Manganese	108.01	1E-06	4300	1	0.001	250	4	70	25550	2.6E-07	0.00E+00	0.00E+00	0%	1460	4.5E-06	4.60E-03	9.88E-04	39%
TOTAL												1.1E-08					2.5E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.62	1E-06	5800	1	0.001	350	30	70	25550	2.1E-08	7.5E+00	1.58E-07	100%	10950	4.9E-08	6.0E-05	8.2E-04	17%
Iron	1547.41	1E-06	5800	1	0.001	350	30	70	25550	5.3E-05	0.0E+00	0.00E+00	0%	10950	1.2E-04	6.0E-02	2.0E-03	43%
Manganese	108.01	1E-06	5800	1	0.001	350	30	70	25550	3.7E-06	0.0E+00	0.00E+00	0%	10950	8.6E-06	4.6E-03	1.9E-03	39%
TOTAL												1.6E-07					4.7E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.62	1E-06	2300	1	0.001	350	6	15	25550	7.8E-09	7.5E+00	5.86E-08	100%	2190	9.1E-08	6.0E-05	1.5E-03	17%
Iron	1547.41	1E-06	2300	1	0.001	350	6	15	25550	2.0E-05	0.0E+00	0.00E+00	0%	2190	2.3E-04	6.0E-02	3.8E-03	43%
Manganese	108.01	1E-06	2300	1	0.001	350	6	15	25550	1.4E-06	0.0E+00	0.00E+00	0%	2190	1.6E-05	4.6E-03	3.5E-03	39%
TOTAL												5.9E-08					8.8E-03	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	13200.00	1E-06	4300	1	0.001	250	4	70	25550	3.2E-05	0.0E+00	0.0E+00	0%	1460	5.6E-04	2.0E-01	2.8E-03	13%
Arsenic	7.60	1E-06	4300	1	0.001	250	4	70	25550	1.8E-08	7.5E+00	1.4E-07	100%	1460	3.2E-07	6.0E-05	5.3E-03	25%
Iron	18600.00	1E-06	4300	1	0.001	250	4	70	25550	4.5E-05	0.0E+00	0.0E+00	0%	1460	7.8E-04	6.0E-02	1.3E-02	60%
Manganese	49.01	1E-06	4300	1	0.001	250	4	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	1460	2.1E-06	4.6E-03	4.5E-04	2%
TOTAL												1.4E-07					2.2E-02	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	4300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	1E-06	4300	1	0.01	48	4	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	1460	2.3E-08	1.5E-02	1.5E-06	0%
Anthracene	0.062	1E-06	4300	1	0.01	48	4	70	25550	2.9E-10	0.0E+00	0.0E+00	0%	1460	5.0E-09	1.5E-01	3.3E-08	0%
Fluoranthene	0.420	1E-06	4300	1	0.01	48	4	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	1460	3.4E-08	2.0E-02	1.7E-06	0%
Pyrene	0.330	1E-06	4300	1	0.01	48	4	70	25550	1.5E-09	0.0E+00	0.0E+00	0%	1460	2.7E-08	1.5E-02	1.8E-06	0%
Benzo(a)anthracene	0.190	1E-06	4300	1	0.01	48	4	70	25550	8.8E-10	1.5E+00	1.3E-09	2%	1460	1.5E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	4300	1	0.01	48	4	70	25550	9.7E-10	1.5E-02	1.4E-11	0%	1460	1.7E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	4300	1	0.01	48	4	70	25550	1.2E-09	2.8E-02	3.2E-11	0%	1460	2.0E-08	1.0E-02	2.0E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	4300	1	0.01	48	4	70	25550	1.2E-09	1.5E+00	1.7E-09	3%	1460	2.0E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	4300	1	0.01	48	4	70	25550	4.5E-10	1.5E-01	6.5E-11	0%	1460	7.8E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	4300	1	0.01	48	4	70	25550	1.8E-09	1.5E+01	2.6E-08	39%	1460	3.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	4300	1	0.01	48	4	70	25550	5.1E-10	1.5E+00	7.4E-10	1%	1460	8.9E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	4300	1	0.01	48	4	70	25550	4.5E-10	0.0E+00	0.0E+00	0%	1460	7.9E-09	1.5E-02	5.3E-07	0%
4,4'-DDE	0.550	1E-06	4300	1	0.01	48	4	70	25550	2.5E-09	6.8E-01	1.7E-09	3%	1460	4.4E-08	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	4300	1	0.01	48	4	70	25550	1.3E-08	4.8E-01	6.4E-09	10%	1460	2.3E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	4300	1	0.01	48	4	70	25550	2.1E-08	6.8E-01	1.4E-08	21%	1460	3.6E-07	2.5E-04	1.5E-03	27%
alpha-Chlordane	0.013	1E-06	4300	1	0.01	48	4	70	25550	6.0E-11	7.0E-01	4.2E-11	0%	1460	1.1E-09	2.5E-04	4.2E-06	0%
gamma-Chlordane	0.014	1E-06	4300	1	0.01	48	4	70	25550	6.5E-11	7.0E-01	4.5E-11	0%	1460	1.1E-09	2.5E-04	4.5E-06	0%
Aluminum	11500.000	1E-06	4300	1	0.001	48	4	70	25550	5.3E-06	0.0E+00	0.0E+00	0%	1460	9.3E-05	2.0E-01	4.6E-04	9%
Arsenic	4.200	1E-06	4300	1	0.001	48	4	70	25550	1.9E-09	7.5E+00	1.5E-08	22%	1460	3.4E-08	6.0E-05	5.7E-04	10%
Barium	28.100	1E-06	4300	1	0.001	48	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	1.4E-02	1.6E-05	0%
Cadmium (soil)	3.960	1E-06	4300	1	0.001	48	4	70	25550	1.8E-09	0.0E+00	0.0E+00	0%	1460	3.2E-08	2.0E-04	1.6E-04	3%
Chromium	12.600	1E-06	4300	1	0.001	48	4	70	25550	5.8E-09	0.0E+00	0.0E+00	0%	1460	1.0E-07	1.0E-03	1.0E-04	2%
Cobalt	6.300	1E-06	4300	1	0.001	48	4	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.1E-08	1.2E-02	4.2E-06	0%
Copper	14.900	1E-06	4300	1	0.001	48	4	70	25550	6.9E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	8.0E-03	1.5E-05	0%
Iron	16300.000	1E-06	4300	1	0.001	48	4	70	25550	7.5E-06	0.0E+00	0.0E+00	0%	1460	1.3E-04	6.0E-02	2.2E-03	40%
Lead	73.000	1E-06	4300	1	0.001	48	4	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	1460	5.9E-07	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	4300	1	0.001	48	4	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	1460	1.0E-06	4.6E-03	2.2E-04	4%
Mercury	0.270	1E-06	4300	1	0.001	48	4	70	25550	1.2E-10	0.0E+00	0.0E+00	0%	1460	2.2E-09	6.0E-05	3.6E-05	1%
Nickel	9.700	1E-06	4300	1	0.001	48	4	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.8E-08	4.0E-03	2.0E-05	0%
Selenium	1.200	1E-06	4300	1	0.001	48	4	70	25550	5.5E-10	0.0E+00	0.0E+00	0%	1460	9.7E-09	1.0E-03	9.7E-06	0%
Vanadium	26.600	1E-06	4300	1	0.001	48	4	70	25550	1.2E-08	0.0E+00	0.0E+00	0%	1460	2.1E-07	1.4E-03	1.5E-04	3%
Zinc	86.500	1E-06	4300	1	0.001	48	4	70	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.0E-07	6.0E-02	1.2E-05	0%
TOTAL												6.6E-08					5.4E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	30
BW = 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)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	1E-06	5800	1	0.01	48	30	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	10950	3.1E-08	1.5E-02	2.0E-06	0%
Anthracene	0.062	1E-06	5800	1	0.01	48	30	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	10950	6.8E-09	1.5E-01	4.5E-08	0%
Fluoranthene	0.420	1E-06	5800	1	0.01	48	30	70	25550	2.0E-08	0.0E+00	0.0E+00	0%	10950	4.6E-08	2.0E-02	2.3E-06	0%
Pyrene	0.330	1E-06	5800	1	0.01	48	30	70	25550	1.5E-08	0.0E+00	0.0E+00	0%	10950	3.6E-08	1.5E-02	2.4E-06	0%
Benzo(a)anthracene	0.190	1E-06	5800	1	0.01	48	30	70	25550	8.8E-09	1.5E+00	1.3E-08	2%	10950	2.1E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	5800	1	0.01	48	30	70	25550	9.8E-09	1.5E-02	1.4E-10	0%	10950	2.3E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	5800	1	0.01	48	30	70	25550	1.2E-08	2.8E-02	3.3E-10	0%	10950	2.7E-08	1.0E-02	2.7E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	5800	1	0.01	48	30	70	25550	1.2E-08	1.5E+00	1.7E-08	3%	10950	2.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	5800	1	0.01	48	30	70	25550	4.5E-09	1.5E-01	6.6E-10	0%	10950	1.1E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	5800	1	0.01	48	30	70	25550	1.8E-08	1.5E+01	2.6E-07	39%	10950	4.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	5800	1	0.01	48	30	70	25550	5.1E-09	1.5E+00	7.5E-09	1%	10950	1.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	5800	1	0.01	48	30	70	25550	4.6E-09	0.0E+00	0.0E+00	0%	10950	1.1E-08	1.5E-02	7.1E-07	0%
4,4'-DDE	0.550	1E-06	5800	1	0.01	48	30	70	25550	2.6E-08	6.8E-01	1.7E-08	3%	10950	6.0E-08	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	5800	1	0.01	48	30	70	25550	1.4E-07	4.8E-01	6.5E-08	10%	10950	3.2E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	5800	1	0.01	48	30	70	25550	2.1E-07	6.8E-01	1.4E-07	21%	10950	4.9E-07	2.5E-04	2.0E-03	27%
alpha-Chlordane	0.013	1E-06	5800	1	0.01	48	30	70	25550	6.1E-10	7.0E-01	4.2E-10	0%	10950	1.4E-09	2.5E-04	5.7E-06	0%
gamma-Chlordane	0.014	1E-06	5800	1	0.01	48	30	70	25550	6.5E-10	7.0E-01	4.6E-10	0%	10950	1.5E-09	2.5E-04	6.1E-06	0%
Aluminum	11500.000	1E-06	5800	1	0.001	48	30	70	25550	5.4E-05	0.0E+00	0.0E+00	0%	10950	1.3E-04	2.0E-01	6.3E-04	9%
Arsenic	4.200	1E-06	5800	1	0.001	48	30	70	25550	2.0E-08	7.5E+00	1.5E-07	22%	10950	4.6E-08	6.0E-05	7.6E-04	10%
Barium	28.100	1E-06	5800	1	0.001	48	30	70	25550	1.3E-07	0.0E+00	0.0E+00	0%	10950	3.1E-07	1.4E-02	2.2E-05	0%
Cadmium (soil)	3.960	1E-06	5800	1	0.001	48	30	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	10950	4.3E-08	2.0E-04	2.2E-04	3%
Chromium	12.600	1E-06	5800	1	0.001	48	30	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	10950	1.4E-07	1.0E-03	1.4E-04	2%
Cobalt	6.300	1E-06	5800	1	0.001	48	30	70	25550	2.9E-08	0.0E+00	0.0E+00	0%	10950	6.9E-08	1.2E-02	5.7E-06	0%
Copper	14.900	1E-06	5800	1	0.001	48	30	70	25550	7.0E-08	0.0E+00	0.0E+00	0%	10950	1.6E-07	8.0E-03	2.0E-05	0%
Iron	16300.000	1E-06	5800	1	0.001	48	30	70	25550	7.6E-05	0.0E+00	0.0E+00	0%	10950	1.8E-04	6.0E-02	3.0E-03	40%
Lead	73.000	1E-06	5800	1	0.001	48	30	70	25550	3.4E-07	0.0E+00	0.0E+00	0%	10950	8.0E-07	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	5800	1	0.001	48	30	70	25550	5.9E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	4.6E-03	3.0E-04	4%
Mercury	0.270	1E-06	5800	1	0.001	48	30	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	10950	2.9E-09	6.0E-05	4.9E-05	1%
Nickel	9.700	1E-06	5800	1	0.001	48	30	70	25550	4.5E-08	0.0E+00	0.0E+00	0%	10950	1.1E-07	4.0E-03	2.6E-05	0%
Selenium	1.200	1E-06	5800	1	0.001	48	30	70	25550	5.6E-09	0.0E+00	0.0E+00	0%	10950	1.3E-08	1.0E-03	1.3E-05	0%
Vanadium	26.600	1E-06	5800	1	0.001	48	30	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	10950	2.9E-07	1.4E-03	2.1E-04	3%
Zinc	86.500	1E-06	5800	1	0.001	48	30	70	25550	4.0E-07	0.0E+00	0.0E+00	0%	10950	9.4E-07	6.0E-02	1.6E-05	0%
TOTAL												6.7E-07					7.3E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

The intake from dermal contact to sediment 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)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
ED = child expsosure 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 Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Phenanthrene	0.280	1E-06	2300	1	0.01	48	6	15	25550	4.8E-09	0.0E+00	0.0E+00	0%	2190	5.6E-08	1.5E-02	3.8E-06	0%
Anthracene	0.052	1E-06	2300	1	0.01	48	6	15	25550	1.1E-09	0.0E+00	0.0E+00	0%	2190	1.3E-08	1.5E-01	8.3E-08	0%
Fluoranthene	0.420	1E-06	2300	1	0.01	48	6	15	25550	7.3E-09	0.0E+00	0.0E+00	0%	2190	8.5E-08	2.0E-02	4.2E-06	0%
Pyrene	0.330	1E-06	2300	1	0.01	48	6	15	25550	5.7E-09	0.0E+00	0.0E+00	0%	2190	6.7E-08	1.5E-02	4.4E-06	0%
Benzo(a)anthracene	0.190	1E-06	2300	1	0.01	48	6	15	25550	3.3E-09	1.5E+00	4.8E-09	2%	2190	3.8E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	2300	1	0.01	48	6	15	25550	3.6E-09	1.5E-02	5.3E-11	0%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	2300	1	0.01	48	6	15	25550	4.3E-09	2.8E-02	1.2E-10	0%	2190	5.0E-08	1.0E-02	5.0E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	2300	1	0.01	48	6	15	25550	4.3E-09	1.5E+00	6.3E-09	3%	2190	5.0E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	2300	1	0.01	48	6	15	25550	1.7E-09	1.5E-01	2.4E-10	0%	2190	2.0E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	2300	1	0.01	48	6	15	25550	6.6E-09	1.5E+01	9.8E-08	39%	2190	7.7E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	2300	1	0.01	48	6	15	25550	1.9E-09	1.5E+00	2.8E-09	1%	2190	2.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	2300	1	0.01	48	6	15	25550	1.7E-09	0.0E+00	0.0E+00	0%	2190	2.0E-08	1.5E-02	1.3E-06	0%
4,4'-DDE	0.550	1E-06	2300	1	0.01	48	6	15	25550	9.5E-09	6.8E-01	6.5E-09	3%	2190	1.1E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	2300	1	0.01	48	6	15	25550	5.0E-08	4.8E-01	2.4E-08	10%	2190	5.8E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	2300	1	0.01	48	6	15	25550	7.8E-08	6.8E-01	5.3E-08	21%	2190	9.1E-07	2.5E-04	3.6E-03	28%
alpha-Chlordane	0.013	1E-06	2300	1	0.01	48	6	15	25550	2.2E-10	7.0E-01	1.6E-10	0%	2190	2.6E-09	2.5E-04	1.0E-05	0%
gamma-Chlordane	0.014	1E-06	2300	1	0.01	48	6	15	25550	2.4E-10	7.0E-01	1.7E-10	0%	2190	2.8E-09	2.5E-04	1.1E-05	0%
Aluminum	11500.000	1E-06	2300	1	0.001	48	6	15	25550	2.0E-05	0.0E+00	0.0E+00	0%	2190	2.3E-04	5.0E-01	4.6E-04	4%
Arsenic	4.200	1E-06	2300	1	0.001	48	6	15	25550	7.3E-09	7.5E+00	5.4E-08	22%	2190	8.5E-08	6.0E-05	1.4E-03	11%
Barium	28.100	1E-06	2300	1	0.001	48	6	15	25550	4.9E-08	0.0E+00	0.0E+00	0%	2190	5.7E-07	1.4E-02	4.0E-05	0%
Cadmium (soil)	*3.960*	*1E-06*	*2300*	*1*	*0.001*	*48*	*6*	*15*	*25550*	*6.8E-09*	*0.0E+00*	*0.0E+00*	*0%*	*2190*	*8.0E-08*	*2.0E-04*	*4.0E-04*	*3%*
Chromium	12.600	1E-06	2300	1	0.001	48	6	15	25550	2.2E-08	0.0E+00	0.0E+00	0%	2190	2.5E-07	1.0E-03	2.5E-04	2%
Cobalt	6.300	1E-06	2300	1	0.001	48	6	15	25550	1.1E-08	0.0E+00	0.0E+00	0%	2190	1.3E-07	1.2E-02	1.1E-05	0%
Copper	14.900	1E-06	2300	1	0.001	48	6	15	25550	2.6E-08	0.0E+00	0.0E+00	0%	2190	3.0E-07	8.0E-03	3.8E-05	0%
Iron	16300.000	1E-06	2300	1	0.001	48	6	15	25550	2.8E-05	0.0E+00	0.0E+00	0%	2190	3.3E-04	6.0E-02	5.5E-03	42%
Lead	73.000	1E-06	2300	1	0.001	48	6	15	25550	1.3E-07	0.0E+00	0.0E+00	0%	2190	1.5E-06	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	2300	1	0.001	48	6	15	25550	2.2E-07	0.0E+00	0.0E+00	0%	2190	2.6E-06	4.6E-03	5.6E-04	4%
Mercury	0.270	1E-06	2300	1	0.001	48	6	15	25550	4.7E-10	0.0E+00	0.0E+00	0%	2190	5.4E-09	8.0E-05	9.1E-05	1%
Nickel	9.700	1E-06	2300	1	0.001	48	6	15	25550	1.7E-08	0.0E+00	0.0E+00	0%	2190	2.0E-07	4.0E-03	4.9E-05	0%
Selenium	1.200	1E-06	2300	1	0.001	48	6	15	25550	2.1E-09	0.0E+00	0.0E+00	0%	2190	2.4E-08	1.0E-03	2.4E-05	0%
Vanadium	26.600	1E-06	2300	1	0.001	48	6	15	25550	4.6E-08	0.0E+00	0.0E+00	0%	2190	5.4E-07	1.4E-03	3.8E-04	3%
Zinc	86.500	1E-06	2300	1	0.001	48	6	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	2190	1.7E-06	6.0E-02	2.9E-05	0%
TOTAL												2.5E-07					1.3E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	6641.00	1E-06	5800	1	0.001	350	4	70	25550	3.0E-05	0.0E+00	0.00E+00	0%	1460	5.3E-04	2.0E-01	2.6E-03	32%
Arsenic	0.99	1E-06	5800	1	0.001	350	4	70	25550	4.5E-09	7.5E+00	3.37E-08	100%	1460	7.9E-08	6.0E-05	1.3E-03	16%
Iron	3276.19	1E-06	5800	1	0.001	350	4	70	25550	1.5E-05	0.0E+00	0.00E+00	0%	1460	2.6E-04	6.0E-02	4.3E-03	52%
TOTAL												3.4E-08					8.3E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	6641.00	1E-06	2300	1	0.001	350	4	15	25550	5.8E-05	0.0E+00	0.00E+00	0%	1460	9.8E-04	2.0E-01	4.9E-03	32%
Arsenic	0.99	1E-06	2300	1	0.001	350	4	15	25550	8.3E-09	7.5E+00	6.24E-08	100%	1460	1.5E-07	6.0E-05	2.4E-03	16%
Iron	3276.19	1E-06	2300	1	0.001	350	4	15	25550	2.8E-05	0.0E+00	0.00E+00	0%	1460	4.8E-04	6.0E-02	8.0E-03	52%
TOTAL												6.2E-08					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	6841.00	1E-06	5800	1	0.001	350	30	70	25550	2.3E-04	0.0E+00	0.00E+00	0%	10950	5.3E-04	2.0E-01	2.6E-03	32%
Arsenic	0.99	1E-06	5800	1	0.001	350	30	70	25550	3.4E-08	7.5E+00	2.53E-07	100%	10950	7.9E-08	6.0E-05	1.3E-03	16%
Iron	3276.19	1E-06	5800	1	0.001	350	30	70	25550	1.1E-04	0.0E+00	0.00E+00	0%	10950	2.6E-04	6.0E-02	4.3E-03	52%
TOTAL												2.5E-07					8.3E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	6641.00	1E-06	2300	1	0.001	350	6	15	25550	8.4E-05	0.0E+00	0.00E+00	0%	2190	9.8E-04	2.0E-01	4.9E-03	32%
Arsenic	0.99	1E-06	2300	1	0.001	350	6	15	25550	1.2E-08	7.5E+00	9.36E-08	100%	2190	1.5E-07	6.0E-05	2.4E-03	16%
Iron	3276.19	1E-06	2300	1	0.001	350	6	15	25550	4.1E-05	0.0E+00	0.00E+00	0%	2190	4.8E-04	6.0E-02	8.0E-03	52%
TOTAL												9.4E-08					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.80	1E-06	5800	1	0.001	350	4	70	25550	3.6E-09	7.5E+00	2.72E-08	100%	1460	6.4E-08	6.0E-05	1.1E-03	19%
Iron	3500.77	1E-06	5800	1	0.001	350	4	70	25550	1.6E-05	0.0E+00	0.00E+00	0%	1460	2.8E-04	6.0E-02	4.6E-03	81%
TOTAL												2.7E-08					5.7E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.80	1E-06	2300	1	0.001	350	4	15	25550	6.7E-09	7.5E+00	5.04E-08	100%	1460	1.2E-07	6.0E-05	2.0E-03	19%
Iron	3500.77	1E-06	2300	1	0.001	350	4	15	25550	2.9E-05	0.0E+00	0.00E+00	0%	1460	5.1E-04	6.0E-02	8.6E-03	81%
TOTAL												5.0E-08					1.1E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 78 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.80	1E-06	5800	1	0.001	350	30	70	25550	2.7E-08	7.5E+00	2.04E-07	100%	10950	6.4E-08	6.0E-05	1.1E-03	19%
Iron	3500.77	1E-06	5800	1	0.001	350	30	70	25550	1.2E-04	0.0E+00	0.00E+00	0%	10950	2.8E-04	6.0E-02	4.6E-03	81%
TOTAL												2.0E-07					5.7E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.60	1E-06	2300	1	0.001	350	6	15	25550	1.0E-08	7.5E+00	7.56E-08	100%	2190	1.2E-07	6.0E-05	2.0E-03	19%
Iron	3500.77	1E-06	2300	1	0.001	350	6	15	25550	4.4E-05	0.0E+00	0.00E+00	0%	2190	5.1E-04	6.0E-02	8.6E-03	81%
TOTAL												7.6E-08					1.1E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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
Aroclor-1260	123.52	1E-06	4300	1	0.01	250	4	70	25550	3.0E-06	4.00E+00	1.19E-05	100%	1460	5.2E-05	0.00E+00	0.00E+00	0%
TOTAL												1.2E-05					0.0E+00	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	4300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aroclor-1248	2.800	1E-06	4300	1	0.01	48	4	70	25550	1.3E-08	4.0E+00	5.2E-08	7%	1460	2.3E-07	0.0E+00	0.0E+00	0%
Aroclor-1260	40.000	1E-06	4300	1	0.01	48	4	70	25550	1.8E-07	4.0E+00	7.4E-07	93%	1460	3.2E-06	0.0E+00	0.0E+00	0%
TOTAL												7.9E-07					0.0E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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
Arsenic	76.80	1E-06	4300	1	0.001	250	4	70	25550	1.8E-07	7.50E+00	1.38E-06	100%	1460	3.2E-08	6.00E-05	5.39E-02	2%
Cadmium (soil)	47.10	1E-06	4300	1	0.001	250	4	70	25550	1.1E-07	0.00E+00	0.00E+00	0%	1460	2.0E-06	2.00E-04	9.91E-03	0%
Chromium	147.00	1E-06	4300	1	0.001	250	4	70	25550	3.5E-07	0.00E+00	0.00E+00	0%	1460	6.2E-06	1.00E-03	6.18E-03	0%
Copper	1870.00	1E-06	4300	1	0.001	250	4	70	25550	4.5E-06	0.00E+00	0.00E+00	0%	1460	7.9E-05	8.00E-03	9.83E-03	0%
Iron	339000.00	1E-06	4300	1	0.001	250	4	70	25550	8.2E-04	0.00E+00	0.00E+00	0%	1460	1.4E-02	6.00E-02	2.38E-01	11%
Lead	3030.00	1E-06	4300	1	0.001	250	4	70	25550	7.3E-06	0.00E+00	0.00E+00	0%	1460	1.3E-04	0.00E+00	0.00E+00	0%
Manganese	197000.00	1E-06	4300	1	0.001	250	4	70	25550	4.7E-04	0.00E+00	0.00E+00	0%	1460	8.3E-03	4.60E-03	1.80E+00	81%
Mercury	70.70	1E-06	4300	1	0.001	250	4	70	25550	1.7E-07	0.00E+00	0.00E+00	0%	1460	3.0E-06	6.00E-05	4.96E-02	2%
Zinc	63900.00	1E-06	4300	1	0.001	250	4	70	25550	1.5E-04	0.00E+00	0.00E+00	0%	1460	2.7E-03	6.00E-02	4.48E-02	2%
TOTAL												1.4E-06					2.2E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	76.80	1E-06	5800	1	0.001	350	30	70	25550	2.6E-06	7.5E+00	1.96E-05	100%	10950	6.1E-06	6.0E-05	1.0E-01	2%
Cadmium (soil)	47.10	1E-06	5800	1	0.001	350	30	70	25550	1.6E-06	0.0E+00	0.00E+00	0%	10950	3.7E-06	2.0E-04	1.9E-02	0%
Chromium	147.00	1E-06	5800	1	0.001	350	30	70	25550	5.0E-06	0.0E+00	0.00E+00	0%	10950	1.2E-05	1.0E-03	1.2E-02	0%
Copper	1870.00	1E-06	5800	1	0.001	350	30	70	25550	6.4E-05	0.0E+00	0.00E+00	0%	10950	1.5E-04	8.0E-03	1.9E-02	0%
Iron	339000.00	1E-06	5800	1	0.001	350	30	70	25550	1.2E-02	0.0E+00	0.00E+00	0%	10950	2.7E-02	6.0E-02	4.5E-01	11%
Lead	3030.00	1E-06	5800	1	0.001	350	30	70	25550	1.0E-04	0.0E+00	0.00E+00	0%	10950	2.4E-04	0.0E+00	0.0E+00	0%
Manganese	197000.00	1E-06	5800	1	0.001	350	30	70	25550	6.7E-03	0.0E+00	0.00E+00	0%	10950	1.6E-02	4.6E-03	3.4E+00	81%
Mercury	70.70	1E-06	5800	1	0.001	350	30	70	25550	2.4E-06	0.0E+00	0.00E+00	0%	10950	5.6E-06	6.0E-05	9.4E-02	2%
Zinc	63900.00	1E-06	5800	1	0.001	350	30	70	25550	2.2E-03	0.0E+00	0.00E+00	0%	10950	5.1E-03	6.0E-02	8.5E-02	2%
TOTAL												2.0E-05					4.2E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	76.80	1E-06	2300	1	0.001	350	6	15	25550	9.7E-07	7.5E+00	7.26E-06	100%	2190	1.1E-05	6.0E-05	1.9E-01	2%
Cadmium (soil)	47.10	1E-06	2300	1	0.001	350	6	15	25550	5.9E-07	0.0E+00	0.00E+00	0%	2190	8.9E-06	2.0E-04	3.5E-02	0%
Chromium	147.00	1E-06	2300	1	0.001	350	6	15	25550	1.9E-06	0.0E+00	0.00E+00	0%	2190	2.2E-05	1.0E-03	2.2E-02	0%
Copper	1870.00	1E-06	2300	1	0.001	350	6	15	25550	2.4E-05	0.0E+00	0.00E+00	0%	2190	2.7E-04	8.0E-03	3.4E-02	0%
Iron	339000.00	1E-06	2300	1	0.001	350	6	15	25550	4.3E-03	0.0E+00	0.00E+00	0%	2190	5.0E-02	6.0E-02	8.3E-01	11%
Lead	3030.00	1E-06	2300	1	0.001	350	6	15	25550	3.8E-05	0.0E+00	0.00E+00	0%	2190	4.5E-04	0.0E+00	0.0E+00	0%
Manganese	107000.00	1E-06	2300	1	0.001	350	6	15	25550	2.5E-03	0.0E+00	0.00E+00	0%	2190	2.9E-02	4.6E-03	6.3E+00	81%
Mercury	70.70	1E-06	2300	1	0.001	350	6	15	25550	8.9E-07	0.0E+00	0.00E+00	0%	2190	1.0E-05	6.0E-05	1.7E-01	2%
Zinc	63900.00	1E-06	2300	1	0.001	350	6	15	25550	8.1E-04	0.0E+00	0.00E+00	0%	2190	9.4E-03	6.0E-02	1.6E-01	2%
TOTAL												7.3E-06					7.7E+00	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	10200.00	1E-06	4300	1	0.001	250	4	70	25550	2.5E-05	0.0E+00	0.0E+00	0%	1460	4.3E-04	2.0E-01	2.1E-03	21%
Arsenic	2.41	1E-06	4300	1	0.001	250	4	70	25550	5.8E-09	7.5E+00	4.3E-08	100%	1460	1.0E-07	6.0E-05	1.7E-03	16%
Iron	9176.27	1E-06	4300	1	0.001	250	4	70	25550	2.2E-05	0.0E+00	0.0E+00	0%	1460	3.9E-04	6.0E-02	6.4E-03	63%
TOTAL												4.3E-08					1.0E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Carbazole	0.04	1E-06	5800	1	0.01	350	4	70	25550	1.9E-09	4.0E-02	7.63E-11	0%	1460	3.3E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1E-06	5800	1	0.01	350	4	70	25550	1.7E-08	1.5E+00	2.42E-08	4%	1460	2.9E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	1E-06	5800	1	0.01	350	4	70	25550	1.8E-08	1.5E-02	2.65E-10	0%	1460	3.2E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1E-06	5800	1	0.01	350	4	70	25550	1.7E-08	1.5E+00	2.52E-08	5%	1460	3.0E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1E-06	5800	1	0.01	350	4	70	25550	1.7E-08	1.5E-01	2.46E-09	0%	1460	3.0E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1E-06	5800	1	0.01	350	4	70	25550	1.1E-08	1.5E+00	1.66E-08	3%	1460	2.0E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1E-06	5800	1	0.01	350	4	70	25550	1.7E-08	1.5E+01	2.52E-07	46%	1460	3.0E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	5800	1	0.01	350	4	70	25550	4.5E-09	1.5E+01	6.63E-08	12%	1460	7.9E-08	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	5800	1	0.001	350	4	70	25550	2.1E-08	7.5E+00	1.57E-07	29%	1460	3.7E-07	6.0E-05	6.1E-03	41%
Iron	*8530.00*	*1E-06*	*5800*	*1*	*0.001*	*350*	*4*	*70*	*25550*	*3.0E-05*	*0.0E+00*	*0.00E+00*	*0%*	*1460*	*5.2E-04*	*6.0E-02*	*8.6E-03*	*59%*
TOTAL												5.4E-07					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Carbazole	0.04	1E-06	2300	1	0.01	350	4	15	25550	3.5E-09	4.0E-02	1.41E-10	0%	1460	6.2E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1E-06	2300	1	0.01	350	4	15	25550	3.1E-08	1.5E+00	4.48E-08	4%	1460	5.4E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	1E-06	2300	1	0.01	350	4	15	25550	3.4E-08	1.5E-02	4.91E-10	0%	1460	5.9E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1E-06	2300	1	0.01	350	4	15	25550	3.2E-08	1.5E+00	4.66E-08	5%	1460	5.6E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1E-06	2300	1	0.01	350	4	15	25550	3.1E-08	1.5E-01	4.56E-09	0%	1460	5.5E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1E-06	2300	1	0.01	350	4	15	25550	2.1E-08	1.5E+00	3.08E-08	3%	1460	3.7E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1E-06	2300	1	0.01	350	4	15	25550	3.2E-08	1.5E+01	4.66E-07	46%	1460	5.6E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	2300	1	0.01	350	4	15	25550	8.4E-09	1.5E+01	1.23E-07	12%	1460	1.5E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	2300	1	0.001	350	4	15	25550	3.9E-08	7.5E+00	2.90E-07	29%	1460	6.8E-07	6.0E-05	1.1E-02	41%
Iron	6530.00	1E-06	2300	1	0.001	350	4	15	25550	5.5E-05	0.0E+00	0.00E+00	0%	1460	9.6E-04	6.0E-02	1.6E-02	59%
TOTAL												1.0E-06					2.7E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Carbazole	0.04	1E-06	5800	1	0.01	350	30	70	25550	1.4E-08	4.0E-02	5.72E-10	0%	10950	3.3E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1E-06	5800	1	0.01	350	30	70	25550	1.2E-07	1.5E+00	1.82E-07	4%	10950	2.9E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	1E-06	5800	1	0.01	350	30	70	25550	1.4E-07	1.5E-02	1.99E-09	0%	10950	3.2E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1E-06	5800	1	0.01	350	30	70	25550	1.3E-07	1.5E+00	1.89E-07	5%	10950	3.0E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1E-06	5800	1	0.01	350	30	70	25550	1.3E-07	1.5E-01	1.85E-08	0%	10950	3.0E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1E-06	5800	1	0.01	350	30	70	25550	8.5E-08	1.5E+00	1.25E-07	3%	10950	2.0E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1E-06	5800	1	0.01	350	30	70	25550	1.3E-07	1.5E+01	1.89E-06	46%	10950	3.0E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	5800	1	0.01	350	30	70	25550	3.4E-08	1.5E+01	4.97E-07	12%	10950	7.9E-08	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	5800	1	0.001	350	30	70	25550	1.6E-07	7.5E+00	1.17E-06	29%	10950	3.7E-07	6.0E-05	6.1E-03	41%
Iron	6530.00	1E-06	5800	1	0.001	350	30	70	25550	2.2E-04	0.0E+00	0.00E+00	0%	10950	5.2E-04	6.0E-02	8.6E-03	59%
TOTAL												4.1E-06					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Carbazole	0.04	1E-06	2300	1	0.01	350	6	15	25550	5.3E-09	4.0E-02	2.12E-10	0%	2190	6.2E-08	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1E-06	2300	1	0.01	350	6	15	25550	4.6E-08	1.5E+00	6.72E-08	4%	2190	5.4E-07	0.0E+00	0.0E+00	0%
Chrysene	0.40	1E-06	2300	1	0.01	350	6	15	25550	5.0E-08	1.5E-02	7.36E-10	0%	2190	5.9E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1E-06	2300	1	0.01	350	6	15	25550	4.8E-08	1.5E+00	6.99E-08	5%	2190	5.6E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1E-06	2300	1	0.01	350	6	15	25550	4.7E-08	1.5E-01	6.84E-09	0%	2190	5.5E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1E-06	2300	1	0.01	350	6	15	25550	3.2E-08	1.5E+00	4.61E-08	3%	2190	3.7E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1E-06	2300	1	0.01	350	6	15	25550	4.8E-08	1.5E+01	6.99E-07	46%	2190	5.6E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	2300	1	0.01	350	6	15	25550	1.3E-08	1.5E+01	1.84E-07	12%	2190	1.5E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	2300	1	0.001	350	6	15	25550	5.8E-08	7.5E+00	4.35E-07	29%	2190	6.8E-07	6.0E-05	1.1E-02	41%
Iron	6530.00	1E-06	2300	1	0.001	350	6	15	25550	8.2E-05	0.0E+00	0.00E+00	0%	2190	9.6E-04	6.0E-02	1.6E-02	59%
TOTAL												1.5E-06					2.7E-02	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	1E-06	5800	1	0.01	48	4	70	25550	3.7E-11	0.0E+00	0.0E+00	0%	1460	6.5E-10	1.0E-01	6.5E-09	0%
Fluoranthene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	0.0E+00	0.0E+00	0%	1460	2.6E-09	2.0E-02	1.3E-07	0%
Pyrene	0.028	1E-06	5800	1	0.01	48	4	70	25550	1.7E-10	0.0E+00	0.0E+00	0%	1460	3.1E-09	1.5E-02	2.0E-07	0%
Benzo(a)anthracene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	1.5E+00	2.2E-10	5%	1460	2.6E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	1.5E-02	2.9E-12	0%	1460	3.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	5800	1	0.01	48	4	70	25550	1.7E-10	2.8E-02	4.7E-12	0%	1460	2.9E-09	1.0E-02	2.9E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	5800	1	0.01	48	4	70	25550	1.6E-10	1.5E+00	2.3E-10	5%	1460	2.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	1.5E-01	2.9E-11	1%	1460	3.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	5800	1	0.01	48	4	70	25550	2.6E-10	1.5E+01	3.7E-09	84%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	1.5E+00	2.2E-10	5%	1460	2.6E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	0.0E+00	0.0E+00	0%	1460	3.5E-09	6.0E-03	5.8E-07	0%
Aluminum	1060.000	1E-06	5800	1	0.001	48	4	70	25550	6.6E-07	0.0E+00	0.0E+00	0%	1460	1.2E-05	2.0E-01	5.8E-05	4%
Barium	35.000	1E-06	5800	1	0.001	48	4	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	1460	3.8E-07	1.4E-02	2.7E-05	2%
Chromium	11.500	1E-06	5800	1	0.001	48	4	70	25550	7.2E-09	0.0E+00	0.0E+00	0%	1460	1.3E-07	1.0E-03	1.3E-04	8%
Copper	38.400	1E-06	5800	1	0.001	48	4	70	25550	2.4E-08	0.0E+00	0.0E+00	0%	1460	4.2E-07	8.0E-03	5.2E-05	3%
Iron	6040.000	1E-06	5800	1	0.001	48	4	70	25550	3.8E-06	0.0E+00	0.0E+00	0%	1460	6.6E-05	6.0E-02	1.1E-03	71%
Lead	6.100	1E-06	5800	1	0.001	48	4	70	25550	3.8E-09	0.0E+00	0.0E+00	0%	1460	6.6E-08	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	5800	1	0.001	48	4	70	25550	2.8E-08	0.0E+00	0.0E+00	0%	1460	4.9E-07	4.6E-03	1.1E-04	7%
Nickel	7.200	1E-06	5800	1	0.001	48	4	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.8E-08	4.0E-03	2.0E-05	1%
Selenium	0.670	1E-06	5800	1	0.001	48	4	70	25550	4.2E-10	0.0E+00	0.0E+00	0%	1460	7.3E-09	1.0E-03	7.3E-06	0%
Silver	2.100	1E-06	5800	1	0.001	48	4	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	1460	2.3E-08	1.0E-03	2.3E-05	1%
Vanadium	2.500	1E-06	5800	1	0.001	48	4	70	25550	1.6E-09	0.0E+00	0.0E+00	0%	1460	2.7E-08	1.4E-03	1.9E-05	1%
Zinc	11.000	1E-06	5800	1	0.001	48	4	70	25550	6.8E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	6.0E-02	2.0E-06	0%
TOTAL												4.4E-09					1.5E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from dermal contact to sediment 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)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
ED = child expsosure duration (years)	4
BW = child body weight (kg)	15
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) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Acetone	0.006	1E-06	2300	1	0.01	48	4	15	25550	6.9E-11	0.0E+00	0.0E+00	0%	1460	1.2E-09	5.0E-02	2.4E-08	0%
Fluoranthene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	0.0E+00	0.0E+00	0%	1460	4.8E-09	2.0E-02	2.4E-07	0%
Pyrene	0.028	1E-06	2300	1	0.01	48	4	15	25550	3.2E-10	0.0E+00	0.0E+00	0%	1460	5.6E-09	1.5E-02	3.8E-07	0%
Benzo(a)anthracene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	1.5E+00	4.0E-10	5%	1460	4.8E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	1.5E-02	5.4E-12	0%	1460	6.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	2300	1	0.01	48	4	15	25550	3.1E-10	2.8E-02	8.7E-12	0%	1460	5.4E-09	1.0E-02	5.4E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	2300	1	0.01	48	4	15	25550	2.9E-10	1.5E+00	4.2E-10	5%	1460	5.0E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	1.5E-01	5.4E-11	1%	1460	6.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	2300	1	0.01	48	4	15	25550	4.7E-10	1.5E+01	6.9E-09	84%	1460	8.3E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	1.5E+00	4.0E-10	5%	1460	4.8E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	0.0E+00	0.0E+00	0%	1460	6.5E-09	6.0E-03	1.1E-06	0%
Aluminum	1060.000	1E-06	2300	1	0.001	48	4	15	25550	1.2E-06	0.0E+00	0.0E+00	0%	1460	2.1E-05	2.0E-01	1.1E-04	4%
Barium	35.000	1E-06	2300	1	0.001	48	4	15	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.1E-07	1.4E-02	5.0E-05	2%
Chromium	11.500	1E-06	2300	1	0.001	48	4	15	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	1.0E-03	2.3E-04	8%
Copper	38.400	1E-06	2300	1	0.001	48	4	15	25550	4.4E-08	0.0E+00	0.0E+00	0%	1460	7.7E-07	8.0E-03	9.7E-05	3%
Iron	6040.000	1E-06	2300	1	0.001	48	4	15	25550	7.0E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	6.0E-02	2.0E-03	71%
Lead	6.100	1E-06	2300	1	0.001	48	4	15	25550	7.0E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	2300	1	0.001	48	4	15	25550	5.2E-08	0.0E+00	0.0E+00	0%	1460	9.1E-07	4.6E-03	2.0E-04	7%
Nickel	7.200	1E-06	2300	1	0.001	48	4	15	25550	8.3E-09	0.0E+00	0.0E+00	0%	1460	1.5E-07	4.0E-03	3.6E-05	1%
Selenium	0.670	1E-06	2300	1	0.001	48	4	15	25550	7.7E-10	0.0E+00	0.0E+00	0%	1460	1.4E-08	1.0E-03	1.4E-05	0%
Silver	2.100	1E-06	2300	1	0.001	48	4	15	25550	2.4E-09	0.0E+00	0.0E+00	0%	1460	4.2E-08	1.0E-03	4.2E-05	1%
Vanadium	2.500	1E-06	2300	1	0.001	48	4	15	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.0E-08	1.4E-03	3.6E-05	1%
Zinc	11.000	1E-06	2300	1	0.001	48	4	15	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.2E-07	6.0E-02	3.7E-06	0%
TOTAL												8.2E-09					2.8E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	30
BW = 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)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	1E-06	5800	1	0.01	48	30	70	25550	2.8E-10	0.0E+00	0.0E+00	0%	10950	6.5E-10	1.0E-01	6.5E-09	0%
Fluoranthene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	0.0E+00	0.0E+00	0%	10950	2.6E-09	2.0E-02	1.3E-07	0%
Pyrene	0.028	1E-06	5800	1	0.01	48	30	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	10950	3.1E-09	1.5E-02	2.0E-07	0%
Benzo(a)anthracene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	1.5E+00	1.6E-09	5%	10950	2.6E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	5800	1	0.01	48	30	70	25550	1.5E-09	1.5E-02	2.2E-11	0%	10950	3.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	5800	1	0.01	48	30	70	25550	1.3E-09	2.8E-02	3.5E-11	0%	10950	2.9E-09	1.0E-02	2.9E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	5800	1	0.01	48	30	70	25550	1.2E-09	1.5E+00	1.7E-09	5%	10950	2.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	5800	1	0.01	48	30	70	25550	1.5E-09	1.5E-01	2.2E-10	1%	10950	3.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	5800	1	0.01	48	30	70	25550	1.9E-09	1.5E+01	2.8E-08	84%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	1.5E+00	1.6E-09	5%	10950	2.6E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	5800	1	0.01	48	30	70	25550	1.5E-09	0.0E+00	0.0E+00	0%	10950	3.5E-09	6.0E-03	5.8E-07	0%
Aluminum	1060.000	1E-06	5800	1	0.001	48	30	70	25550	5.0E-06	0.0E+00	0.0E+00	0%	10950	1.2E-05	2.0E-01	5.8E-05	4%
Barium	35.000	1E-06	5800	1	0.001	48	30	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	10950	3.8E-07	1.4E-02	2.7E-05	2%
Chromium	11.500	1E-06	5800	1	0.001	48	30	70	25550	5.4E-08	0.0E+00	0.0E+00	0%	10950	1.3E-07	1.0E-03	1.3E-04	8%
Copper	38.400	1E-06	5800	1	0.001	48	30	70	25550	1.8E-07	0.0E+00	0.0E+00	0%	10950	4.2E-07	8.0E-03	5.2E-05	3%
Iron	6040.000	1E-06	5800	1	0.001	48	30	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.6E-05	6.0E-02	1.1E-03	71%
Lead	6.100	1E-06	5800	1	0.001	48	30	70	25550	2.8E-08	0.0E+00	0.0E+00	0%	10950	6.6E-08	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	5800	1	0.001	48	30	70	25550	2.1E-07	0.0E+00	0.0E+00	0%	10950	4.9E-07	4.6E-03	1.1E-04	7%
Nickel	7.200	1E-06	5800	1	0.001	48	30	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	10950	7.8E-08	4.0E-03	2.0E-05	1%
Selenium	0.670	1E-06	5800	1	0.001	48	30	70	25550	3.1E-09	0.0E+00	0.0E+00	0%	10950	7.3E-09	1.0E-03	7.3E-06	0%
Silver	2.100	1E-06	5800	1	0.001	48	30	70	25550	9.8E-09	0.0E+00	0.0E+00	0%	10950	2.3E-08	1.0E-03	2.3E-05	1%
Vanadium	2.500	1E-06	5800	1	0.001	48	30	70	25550	1.2E-08	0.0E+00	0.0E+00	0%	10950	2.7E-08	1.4E-03	1.9E-05	1%
Zinc	11.000	1E-06	5800	1	0.001	48	30	70	25550	5.1E-08	0.0E+00	0.0E+00	0%	10950	1.2E-07	6.0E-02	2.0E-06	0%
TOTAL												3.3E-08					1.5E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

The intake from dermal contact to sediment 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)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
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 Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Acetone	0.006	1E-06	2300	1	0.01	48	6	15	25550	1.0E-10	0.0E+00	0.0E+00	0%	2190	1.2E-09	5.0E-02	2.4E-08	0%
Fluoranthene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	0.0E+00	0.0E+00	0%	2190	4.8E-09	2.0E-02	2.4E-07	0%
Pyrene	0.028	1E-06	2300	1	0.01	48	6	15	25550	4.8E-10	0.0E+00	0.0E+00	0%	2190	5.6E-09	1.5E-02	3.8E-07	0%
Benzo(a)anthracene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	1.5E+00	6.1E-10	5%	2190	4.8E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	2300	1	0.01	48	6	15	25550	5.5E-10	1.5E-02	8.1E-12	0%	2190	6.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	2300	1	0.01	48	6	15	25550	4.7E-10	2.8E-02	1.3E-11	0%	2190	5.4E-09	1.0E-02	5.4E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	2300	1	0.01	48	6	15	25550	4.3E-10	1.5E+00	6.3E-10	5%	2190	5.0E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	2300	1	0.01	48	6	15	25550	5.5E-10	1.5E-01	8.1E-11	1%	2190	6.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	2300	1	0.01	48	6	15	25550	7.1E-10	1.5E+01	1.0E-08	84%	2190	8.3E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	1.5E+00	6.1E-10	5%	2190	4.8E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	2300	1	0.01	48	0	15	25550	5.5E-10	0.0E+00	0.0E+00	0%	2190	6.5E-09	6.0E-03	1.1E-06	0%
Aluminum	1060.000	1E-06	2300	1	0.001	48	6	15	25550	1.8E-06	0.0E+00	0.0E+00	0%	2190	2.1E-05	2.0E-01	1.1E-04	4%
Barium	35.000	1E-06	2300	1	0.001	48	6	15	25550	6.0E-08	0.0E+00	0.0E+00	0%	2190	7.1E-07	1.4E-02	5.0E-05	2%
Chromium	11.500	1E-06	2300	1	0.001	48	6	15	25550	2.0E-06	0.0E+00	0.0E+00	0%	2190	2.3E-07	1.0E-03	2.3E-04	8%
Copper	38.400	1E-06	2300	1	0.001	48	6	15	25550	6.6E-08	0.0E+00	0.0E+00	0%	2190	7.7E-07	8.0E-03	9.7E-05	3%
Iron	6040.000	1E-06	2300	1	0.001	48	6	15	25550	1.0E-05	0.0E+00	0.0E+00	0%	2190	1.2E-04	6.0E-02	2.0E-03	71%
Lead	6.100	1E-06	2300	1	0.001	48	6	15	25550	1.1E-08	0.0E+00	0.0E+00	0%	2190	1.2E-07	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	2300	1	0.001	48	6	15	25550	7.8E-08	0.0E+00	0.0E+00	0%	2190	9.1E-07	4.6E-03	2.0E-04	7%
Nickel	7.200	1E-06	2300	1	0.001	48	6	15	25550	1.2E-08	0.0E+00	0.0E+00	0%	2190	1.5E-07	4.0E-03	3.6E-05	1%
Selenium	0.870	1E-06	2300	1	0.001	48	6	15	25550	1.4E-09	0.0E+00	0.0E+00	0%	2190	1.4E-08	1.0E-03	1.4E-05	0%
Silver	2.100	1E-06	2300	1	0.001	48	6	15	25550	3.6E-09	0.0E+00	0.0E+00	0%	2190	4.2E-08	1.0E-03	4.2E-05	1%
Vanadium	2.500	1E-06	2300	1	0.001	48	6	15	25550	4.3E-09	0.0E+00	0.0E+00	0%	2190	5.0E-08	1.4E-03	3.6E-05	1%
Zinc	11.000	1E-06	2300	1	0.001	48	6	15	25550	1.9E-08	0.0E+00	0.0E+00	0%	2190	2.2E-07	6.0E-02	3.7E-06	0%
TOTAL												1.2E-08					2.8E-03	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE INHALATION OF PARTICULATES CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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·day)$^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 20\ m^3/day \times 350\ days/yr \times 30\ yrs \times 1/1.32E{+}09\ m^3/kg}{70\ kg \times 25{,}550\ days}$$

$$= 5.5E\text{-}11$$

Risk = 5.5E-11 mg/kg·day x 15.1 mg/kg·day^{-1} = 8.3E-10

Example Noncarcinogen: Manganese

$$Intake\ (mg/kg{\cdot}day) = \frac{197{,}000\ mg/kg \times 20\ m^3/day \times 350\ days/yr \times 30\ yrs \times 1/1.32E{+}09\ m^3/kg}{70\ kg \times 10{,}950\ days}$$

$$= 4.1E\text{-}05$$

$$Risk = \frac{4.1E{-}05\ mg/kg{\cdot}day}{1.4E{-}05\ mg/kg{\cdot}day} = 2.9$$

Re: Carcinogen: Site 68 Future Residential Adult
Noncarcinogen: Site 85 Future Residential Adult

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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
Arsenic	0.62	1.3E+09	250	20	4	70	25550	5.3E-12	1.5E+01	7.9E-11	100%	1460	9.2E-11	0.0E+00	0.0E+00	0%
Iron	1547.41	1.3E+09	250	20	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	0.0E+00	0.0E+00	0%
Manganese	108.01	1.3E+09	250	20	4	70	25550	9.2E-10	0.0E+00	0.0E+00	0%	1460	1.6E-08	1.4E-05	1.1E-03	100%
TOTAL										7.9E-11					1.1E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	0.62	1.3E+09	350	20	30	70	25550	5.5E-11	1.5E+01	8.3E-10	100%	10950	1.3E-10	0.0E+00	0.0E+00	0%
Iron	1547.41	1.3E+09	350	20	30	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	10950	3.2E-07	0.0E+00	0.0E+00	0%
Manganese	108.01	1.3E+09	350	20	30	70	25550	9.6E-09	0.0E+00	0.0E+00	0%	10950	2.2E-08	1.4E-05	1.6E-03	0%
TOTAL										8.3E-10					1.6E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Arsenic	0.62	1.3E+09	350	15	6	15	25550	3.9E-11	1.5E+01	5.8E-10	100%	2190	4.5E-10	0.0E+00	0.0E+00	0%
Iron	1547.41	1.3E+09	350	15	6	15	25550	9.6E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	0.0E+00	0.0E+00	0%
Manganese	108.01	1.3E+09	350	15	6	15	25550	6.7E-09	0.0E+00	0.0E+00	0%	2190	7.8E-08	1.4E-05	5.5E-03	100%
TOTAL										5.8E-10					5.5E-03	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 (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 Noncarcinogenic Risk
Aluminum	13200.000	1.3E+09	250	20	4	70	25550	1.1E-07	0.0E+00	0.0E+00	0%	1460	2.0E-06	1.0E-03	2.0E-03	79%
Arsenic	7.600	1.3E+09	250	20	4	70	25550	6.4E-11	1.5E+01	9.7E-10	100%	1460	1.1E-09	0.0E+00	0.0E+00	0%
Iron	18600.000	1.3E+09	250	20	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	0.0E+00	0.0E+00	0%
Manganese	49.010	1.3E+09	250	20	4	70	25550	4.2E-10	0.0E+00	0.0E+00	0%	1460	7.3E-09	1.4E-05	5.1E-04	21%
TOTAL										9.7E-10					2.5E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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	6641.00	1.3E+09	350	20	4	70	25550	7.9E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	1.0E-03	1.4E-03	0%
Arsenic	0.99	1.3E+09	350	20	4	70	25550	1.2E-11	1.5E+01	1.8E-10	100%	1460	2.1E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	20	4	70	25550	3.9E-08	0.0E+00	0.0E+00	0%	1460	6.8E-07	0.0E+00	0.0E+00	0%
TOTAL										1.8E-10					1.4E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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
Aluminum	6641.00	1.3E+09	350	15	4	15	25550	2.8E-07	0.0E+00	0.0E+00	0%	1460	4.8E-06	1.0E-03	4.8E-03	100%
Arsenic	0.99	1.3E+09	350	15	4	15	25550	4.1E-11	1.5E+01	6.2E-10	100%	1460	7.2E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	15	4	15	25550	1.4E-07	0.0E+00	0.0E+00	0%	1460	2.4E-06	0.0E+00	0.0E+00	0%
TOTAL										6.2E-10					4.8E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aluminum	6641.00	1.3E+09	350	20	30	70	25550	5.9E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	1.0E-03	1.4E-03	0%
Arsenic	0.99	1.3E+09	350	20	30	70	25550	8.8E-11	1.5E+01	1.3E-09	100%	10950	2.1E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	20	30	70	25550	2.9E-07	0.0E+00	0.0E+00	0%	10950	6.8E-07	0.0E+00	0.0E+00	0%
TOTAL										1.3E-09					1.4E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	6641.00	1.3E+09	350	15	6	15	25550	4.1E-07	0.0E+00	0.0E+00	0%	2190	4.8E-06	1.0E-03	4.8E-03	100%
Arsenic	0.99	1.3E+09	350	15	6	15	25550	6.2E-11	1.5E+01	9.3E-10	100%	2190	7.2E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	15	6	15	25550	2.0E-07	0.0E+00	0.0E+00	0%	2190	2.4E-06	0.0E+00	0.0E+00	0%
TOTAL										9.3E-10					4.8E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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
Arsenic	0.80	1.3E+09	350	20	4	70	25550	9.5E-12	1.5E+01	1.4E-10	100%	1460	1.7E-10	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	20	4	70	25550	4.2E-08	0.0E+00	0.0E+00	0%	1460	7.3E-07	0.0E+00	0.0E+00	0%
TOTAL										1.4E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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
Arsenic	0.80	1.3E+09	350	15	4	15	25550	3.3E-11	1.5E+01	5.0E-10	100%	1460	5.8E-10	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	15	4	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	1460	2.5E-06	0.0E+00	0.0E+00	0%
TOTAL										5.0E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	0.80	1.3E+09	350	20	30	70	25550	7.1E-11	1.5E+01	1.1E-09	100%	10950	1.7E-10	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	20	30	70	25550	3.1E-07	0.0E+00	0.0E+00	0%	10950	7.3E-07	0.0E+00	0.0E+00	0%
TOTAL										1.1E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.80	1.3E+09	350	15	6	15	25550	5.0E-11	1.5E+01	7.5E-10	100%	2190	5.8E-10	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	15	6	15	25550	2.2E-07	0.0E+00	0.0E+00	0%	2190	2.5E-06	0.0E+00	0.0E+00	0%
TOTAL										7.5E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 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
Aroclor-1260	123.52	1.3E+09	250	20	4	70	25550	1.0E-09	0.0E+00	0.0E+00	0%	1460	1.8E-08	0.0E+00	0.0E+00	0%
TOTAL										0.0E+00					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 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
Arsenic	76.80	1.3E+09	250	20	4	70	25550	6.5E-10	1.5E+01	9.8E-09	16%	1460	1.1E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	250	20	4	70	25550	4.0E-10	0.0E+00	0.0E+00	0%	1460	7.0E-09	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	250	20	4	70	25550	1.2E-09	4.2E+01	5.2E-08	84%	1460	2.2E-08	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	250	20	4	70	25550	1.6E-08	0.0E+00	0.0E+00	0%	1460	2.8E-07	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	250	20	4	70	25550	2.9E-06	0.0E+00	0.0E+00	0%	1460	5.0E-05	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	250	20	4	70	25550	2.6E-08	0.0E+00	0.0E+00	0%	1460	4.5E-07	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	250	20	4	70	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	2.9E-05	1.4E-05	2.0E+00	100%
Mercury	70.70	1.3E+09	250	20	4	70	25550	6.0E-10	0.0E+00	0.0E+00	0%	1460	1.0E-08	8.6E-05	1.2E-04	0%
Zinc	63900.00	1.3E+09	250	20	4	70	25550	5.4E-07	0.0E+00	0.0E+00	0%	1460	9.5E-06	0.0E+00	0.0E+00	0%
TOTAL										6.2E-08					2.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	76.80	1.3E+09	350	20	30	70	25550	6.8E-09	1.5E+01	1.0E-07	16%	10950	1.6E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	350	20	30	70	25550	4.2E-09	0.0E+00	0.0E+00	0%	10950	9.8E-09	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	350	20	30	70	25550	1.3E-08	4.2E+01	5.5E-07	84%	10950	3.1E-08	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	350	20	30	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	350	20	30	70	25550	3.0E-05	0.0E+00	0.0E+00	0%	10950	7.0E-05	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	350	20	30	70	25550	2.7E-07	0.0E+00	0.0E+00	0%	10950	6.3E-07	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	350	20	30	70	25550	1.8E-05	0.0E+00	0.0E+00	0%	10950	4.1E-05	1.4E-05	2.9E+00	0%
Mercury	70.70	1.3E+09	350	20	30	70	25550	6.3E-09	0.0E+00	0.0E+00	0%	10950	1.5E-08	8.6E-05	1.7E-04	0%
Zinc	63900.00	1.3E+09	350	20	30	70	25550	5.7E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	0.0E+00	0.0E+00	0%
TOTAL										6.5E-07					2.9E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Arsenic	76.80	1.3E+09	350	15	6	15	25550	4.8E-09	1.5E+01	7.2E-08	16%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	350	15	6	15	25550	2.9E-09	0.0E+00	0.0E+00	0%	2190	3.4E-08	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	350	15	6	15	25550	9.2E-09	4.2E+01	3.8E-07	84%	2190	1.1E-07	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	350	15	6	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	350	15	6	15	25550	2.1E-05	0.0E+00	0.0E+00	0%	2190	2.5E-04	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	350	15	6	15	25550	1.9E-07	0.0E+00	0.0E+00	0%	2190	2.2E-06	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	350	15	6	15	25550	1.2E-05	0.0E+00	0.0E+00	0%	2190	1.4E-04	1.4E-05	1.0E+01	100%
Mercury	70.70	1.3E+09	350	15	6	15	25550	4.4E-09	0.0E+00	0.0E+00	0%	2190	5.1E-08	8.6E-05	6.0E-04	0%
Zinc	63900.00	1.3E+09	350	15	6	15	25550	4.0E-06	0.0E+00	0.0E+00	0%	2190	4.6E-05	0.0E+00	0.0E+00	0%
TOTAL										4.6E-07					1.0E+01	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 (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
Aluminum	10200.000	1.3E+09	250	20	4	70	25550	8.6E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	1.0E-03	1.5E-03	100%
Arsenic	2.410	1.3E+09	250	20	4	70	25550	2.0E-11	1.5E+01	3.1E-10	100%	1460	3.6E-10	0.0E+00	0.0E+00	0%
Iron	9176.270	1.3E+09	250	20	4	70	25550	7.8E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	0.0E+00	0.0E+00	0%
TOTAL										3.1E-10					1.5E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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	Porcent Conrtribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Carbazole	0.04	1.3E+09	350	20	4	70	25550	5.0E-13	0.0E+00	0.0E+00	0%	1460	8.7E-12	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1.3E+09	350	20	4	70	25550	4.3E-12	3.1E-01	1.3E-12	0%	1460	7.6E-11	0.0E+00	0.0E+00	0%
Chrysene	0.40	1.3E+09	350	20	4	70	25550	4.7E-12	3.1E-03	1.5E-14	0%	1460	8.3E-11	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1.3E+09	350	20	4	70	25550	4.5E-12	3.1E-01	1.4E-12	0%	1460	7.9E-11	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1.3E+09	350	20	4	70	25550	4.4E-12	3.1E-02	1.4E-13	0%	1460	7.7E-11	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1.3E+09	350	20	4	70	25550	3.0E-12	3.1E-01	9.2E-13	0%	1460	5.2E-11	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1.3E+09	350	20	4	70	25550	4.5E-12	3.1E+00	1.4E-11	2%	1460	7.9E-11	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	20	4	70	25550	1.2E-12	3.1E+00	3.7E-12	0%	1460	2.1E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	20	4	70	25550	5.5E-11	1.5E+01	8.2E-10	97%	1460	9.5E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	20	4	70	25550	7.7E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	0.0E+00	0.0E+00	0%
TOTAL										8.5E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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
Carbazole	0.04	1.3E+09	350	15	4	15	25550	1.7E-12	0.0E+00	0.0E+00	0%	1460	3.1E-11	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1.3E+09	350	15	4	15	25550	1.5E-11	3.1E-01	4.7E-12	0%	1460	2.7E-10	0.0E+00	0.0E+00	0%
Chrysene	0.40	1.3E+09	350	15	4	15	25550	1.7E-11	3.1E-03	5.1E-14	0%	1460	2.9E-10	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1.3E+09	350	15	4	15	25550	1.6E-11	3.1E-01	4.9E-12	0%	1460	2.8E-10	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1.3E+09	350	15	4	15	25550	1.5E-11	3.1E-02	4.8E-13	0%	1460	2.7E-10	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1.3E+09	350	15	4	15	25550	1.0E-11	3.1E-01	3.2E-12	0%	1460	1.8E-10	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1.3E+09	350	15	4	15	25550	1.6E-11	3.1E+00	4.9E-11	2%	1460	2.8E-10	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	15	4	15	25550	4.2E-12	3.1E+00	1.3E-11	0%	1460	7.3E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	15	4	15	25550	1.9E-10	1.5E+01	2.9E-09	97%	1460	3.3E-09	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	15	4	15	25550	2.7E-07	0.0E+00	0.0E+00	0%	1460	4.7E-06	0.0E+00	0.0E+00	0%
TOTAL										3.0E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Carbazole	0.04	1.3E+09	350	20	30	70	25550	3.7E-12	0.0E+00	0.0E+00	0%	10950	8.7E-12	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1.3E+09	350	20	30	70	25550	3.2E-11	3.1E-01	1.0E-11	0%	10950	7.6E-11	0.0E+00	0.0E+00	0%
Chrysene	0.40	1.3E+09	350	20	30	70	25550	3.6E-11	3.1E-03	1.1E-13	0%	10950	8.3E-11	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1.3E+09	350	20	30	70	25550	3.4E-11	3.1E-01	1.0E-11	0%	10950	7.9E-11	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1.3E+09	350	20	30	70	25550	3.3E-11	3.1E-02	1.0E-12	0%	10950	7.7E-11	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1.3E+09	350	20	30	70	25550	2.2E-11	3.1E-01	6.9E-12	0%	10950	5.2E-11	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1.3E+09	350	20	30	70	25550	3.4E-11	3.1E+00	1.0E-10	2%	10950	7.9E-11	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	20	30	70	25550	8.9E-12	3.1E+00	2.8E-11	0%	10950	2.1E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	20	30	70	25550	4.1E-10	1.5E+01	6.2E-09	97%	10950	9.5E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	20	30	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	0.0E+00	0.0E+00	0%
TOTAL										6.3E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Carbazole	0.04	1.3E+09	350	15	6	15	25550	2.6E-12	0.0E+00	0.0E+00	0%	2190	3.1E-11	0.0E+00	0.0E+00	0%
Benzo(a)anthracene	0.37	1.3E+09	350	15	6	15	25550	2.3E-11	3.1E-01	7.0E-12	0%	2190	2.7E-10	0.0E+00	0.0E+00	0%
Chrysene	0.40	1.3E+09	350	15	6	15	25550	2.5E-11	3.1E-03	7.7E-14	0%	2190	2.9E-10	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.38	1.3E+09	350	15	6	15	25550	2.4E-11	3.1E-01	7.3E-12	0%	2190	2.8E-10	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.37	1.3E+09	350	15	6	15	25550	2.3E-11	3.1E-02	7.2E-13	0%	2190	2.7E-10	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.25	1.3E+09	350	15	6	15	25550	1.6E-11	3.1E-01	4.8E-12	0%	2190	1.8E-10	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.38	1.3E+09	350	15	6	15	25550	2.4E-11	3.1E+00	7.3E-11	2%	2190	2.8E-10	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	15	6	15	25550	6.2E-12	3.1E+00	1.9E-11	0%	2190	7.3E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	15	6	15	25550	2.9E-10	1.5E+01	4.3E-09	97%	2190	3.3E-09	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	15	6	15	25550	4.1E-07	0.0E+00	0.0E+00	0%	2190	4.7E-06	0.0E+00	0.0E+00	0%
TOTAL										4.4E-09					0.0E+00	

GROUNDWATER

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE GROUNDWATER INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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·day)$^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.001\ mg/L \times 2\ L/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 7.2E\text{-}06$$

Risk = 7.2E-06 mg/kg·day x 1.5 mg/kg·day^{-1} = 1.1E-05

Example Noncarcinogen: Antimony

$$Intake\ (mg/kg{\cdot}day) = \frac{0.016\ mg/L \times 2\ L/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 4.3E\text{-}04$$

$$Risk = \frac{4.3E\text{-}04\ mg/kg{\cdot}day}{4.0E\text{-}04\ mg/kg{\cdot}day} = 1.1$$

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		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 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 Time (days)	Carc Dose (mg/kg-day) Adult	Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Antimony	0.021	2	350	30	70	25550	2.5E-04	0.0E+00	0.0E+00	0%	10950	5.8E-04	4.0E-04	1.4E+00	24%
Arsenic	0.001	2	350	30	70	25550	1.1E-05	1.5E+00	1.7E-05	100%	10950	2.6E-05	3.0E-04	8.8E-02	1%
Cadmium (water)	0.003	2	350	30	70	25550	3.0E-05	0.0E+00	0.0E+00	0%	10950	7.0E-05	5.0E-04	1.4E-01	2%
Manganese	1.390	2	350	30	70	25550	1.6E-02	0.0E+00	0.0E+00	0%	10950	3.8E-02	2.3E-02	1.7E+00	28%
Thallium	0.007	2	350	30	70	25550	7.7E-05	0.0E+00	0.0E+00	0%	10950	1.8E-04	7.0E-05	2.6E+00	44%
TOTAL									1.69E-05					5.91	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Antimony	0.021	1	350	6	15	25550	1.2E-04	0.0E+00	0.0E+00	0%	2190	1.3E-03	4.0E-04	3.4E+00	24%
Arsenic	0.001	1	350	6	15	25550	5.3E-06	1.5E+00	7.9E-06	100%	2190	6.1E-05	3.0E-04	2.0E-01	1%
Cadmium (water)	0.003	1	350	6	15	25550	1.4E-05	0.0E+00	0.0E+00	0%	2190	1.6E-04	5.0E-04	3.3E-01	2%
Manganese	1.390	1	350	6	15	25550	7.6E-03	0.0E+00	0.0E+00	0%	2190	8.9E-02	2.3E-02	3.9E+00	28%
Thallium	0.007	1	350	6	15	25550	3.6E-05	0.0E+00	0.0E+00	0%	2190	4.2E-04	7.0E-05	6.0E+00	44%
TOTAL									7.9E-06					13.8	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Arsenic	0.008	2	350	30	70	25550	9.2E-05	1.5E+00	1.4E-04	100%	10950	2.1E-04	3.0E-04	7.1E-01	11%
Iron	1.860	2	350	30	70	25550	2.2E-02	0.0E+00	0.0E+00	0%	10950	5.1E-02	3.0E-01	1.7E-01	3%
Thallium	0.013	2	350	30	70	25550	1.5E-04	0.0E+00	0.0E+00	0%	10950	3.5E-04	7.0E-05	5.0E+00	79%
Vanadium	0.105	2	350	30	70	25550	1.2E-03	0.0E+00	0.0E+00	0%	10950	2.9E-03	7.0E-03	4.1E-01	7%
TOTAL									1.37E-04					6.30	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Arsenic	0.008	1	350	6	15	25550	4.3E-05	1.5E+00	6.4E-05	100%	2190	5.0E-04	3.0E-04	1.7E+00	11%
Iron	1.860	1	350	6	15	25550	1.0E-02	0.0E+00	0.0E+00	0%	2190	1.2E-01	3.0E-01	4.0E-01	3%
Thallium	0.013	1	350	6	15	25550	7.0E-05	0.0E+00	0.0E+00	0%	2190	8.2E-04	7.0E-05	1.2E+01	79%
Vanadium	0.105	1	350	6	15	25550	5.8E-04	0.0E+00	0.0E+00	0%	2190	6.7E-03	7.0E-03	9.6E-01	7%
TOTAL									6.4E-05					14.7	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Aluminum	429.000	2	350	30	70	25550	5.0E+00	0.0E+00	0.0E+00	0%	10950	1.2E+01	1.0E+00	1.2E+01	15%
Arsenic	0.020	2	350	30	70	25550	2.3E-04	1.5E+00	3.5E-04	100%	10950	5.5E-04	3.0E-04	1.8E+00	2%
Barium	0.548	2	350	30	70	25550	6.4E-03	0.0E+00	0.0E+00	0%	10950	1.5E-02	7.0E-02	2.1E-01	0%
Cadmium (water)	0.025	2	350	30	70	25550	2.9E-04	0.0E+00	0.0E+00	0%	10950	6.7E-04	5.0E-04	1.3E+00	2%
Chromium	0.821	2	350	30	70	25550	9.6E-03	0.0E+00	0.0E+00	0%	10950	2.2E-02	5.0E-03	4.5E+00	6%
Copper	0.173	2	350	30	70	25550	2.0E-03	0.0E+00	0.0E+00	0%	10950	4.7E-03	4.0E-02	1.2E-01	0%
Iron	498.000	2	350	30	70	25550	5.8E+00	0.0E+00	0.0E+00	0%	10950	1.4E+01	3.0E-01	4.5E+01	59%
Lead	0.512	2	350	30	70	25550	6.0E-03	0.0E+00	0.0E+00	0%	10950	1.4E-02	0.0E+00	0.0E+00	0%
Manganese	1.270	2	350	30	70	25550	1.5E-02	0.0E+00	0.0E+00	0%	10950	3.5E-02	2.3E-02	1.5E+00	2%
Mercury	0.002	2	350	30	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.6E-05	3.0E-04	2.2E-01	0%
Nickel	4.550	2	350	30	70	25550	5.3E-02	0.0E+00	0.0E+00	0%	10950	1.2E-01	2.0E-02	6.2E+00	8%
Vanadium	0.908	2	350	30	70	25550	1.1E-02	0.0E+00	0.0E+00	0%	10950	2.5E-02	7.0E-03	3.6E+00	5%
Zinc	3.970	2	350	30	70	25550	4.7E-02	0.0E+00	0.0E+00	0%	10950	1.1E-01	3.0E-01	3.6E-01	0%
TOTAL									3.52E-04					77.12	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Aluminum	429.000	1	350	6	15	25550	2.4E+00	0.0E+00	0.0E+00	0%	2190	2.7E+01	1.0E+00	2.7E+01	15%
Arsenic	0.020	1	350	6	15	25550	1.1E-04	1.5E+00	1.6E-04	100%	2190	1.3E-03	3.0E-04	4.3E+00	2%
Barium	0.548	1	350	6	15	25550	3.0E-03	0.0E+00	0.0E+00	0%	2190	3.5E-02	7.0E-02	5.0E-01	0%
Cadmium (water)	0.025	1	350	6	15	25550	1.3E-04	0.0E+00	0.0E+00	0%	2190	1.6E-03	5.0E-04	3.1E+00	2%
Chromium	0.821	1	350	6	15	25550	4.5E-03	0.0E+00	0.0E+00	0%	2190	5.2E-02	5.0E-03	1.0E+01	6%
Copper	0.173	1	350	6	15	25550	9.5E-04	0.0E+00	0.0E+00	0%	2190	1.1E-02	4.0E-02	2.8E-01	0%
Iron	498.000	1	350	6	15	25550	2.7E+00	0.0E+00	0.0E+00	0%	2190	3.2E+01	3.0E-01	1.1E+02	59%
Lead	0.512	1	350	6	15	25550	2.8E-03	0.0E+00	0.0E+00	0%	2190	3.3E-02	0.0E+00	0.0E+00	0%
Manganese	1.270	1	350	6	15	25550	7.0E-03	0.0E+00	0.0E+00	0%	2190	8.1E-02	2.3E-02	3.5E+00	2%
Mercury	0.002	1	350	6	15	25550	1.3E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	3.0E-04	5.1E-01	0%
Nickel	4.550	1	350	6	15	25550	2.5E-02	0.0E+00	0.0E+00	0%	2190	2.9E-01	2.0E-02	1.5E+01	8%
Vanadium	0.908	1	350	6	15	25550	5.0E-03	0.0E+00	0.0E+00	0%	2190	5.8E-02	7.0E-03	8.3E+00	5%
Zinc	3.970	1	350	6	15	25550	2.2E-02	0.0E+00	0.0E+00	0%	2190	2.5E-01	3.0E-01	8.5E-01	0%
TOTAL									1.6E-04					179.9	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Pentachlorophenol	0.001	2	350	30	70	25550	9.4E-06	1.2E-01	1.1E-06	100%	10950	2.2E-05	3.0E-02	7.3E-04	0%
Aluminum	3.770	2	350	30	70	25550	4.4E-02	0.0E+00	0.0E+00	0%	10950	1.0E-01	1.0E+00	1.0E-01	16%
Iron	3.130	2	350	30	70	25550	3.7E-02	0.0E+00	0.0E+00	0%	10950	8.6E-02	3.0E-01	2.9E-01	44%
Manganese	0.224	2	350	30	70	25550	2.6E-03	0.0E+00	0.0E+00	0%	10950	6.1E-03	2.3E-02	2.7E-01	41%
TOTAL									1.13E-06					0.66	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Pentachlorophenol	0.001	1	350	6	15	25550	4.4E-06	1.2E-01	5.3E-07	100%	2190	5.1E-05	3.0E-02	1.7E-03	0%
Aluminum	3.770	1	350	6	15	25550	2.1E-02	0.0E+00	0.0E+00	0%	2190	2.4E-01	1.0E+00	2.4E-01	16%
Iron	3.130	1	350	6	15	25550	1.7E-02	0.0E+00	0.0E+00	0%	2190	2.0E-01	3.0E-01	6.7E-01	44%
Manganese	0.224	1	350	6	15	25550	1.2E-03	0.0E+00	0.0E+00	0%	2190	1.4E-02	2.3E-02	6.2E-01	41%
TOTAL									5.3E-07					1.5	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE DERMAL CONTACT WITH GROUNDWATER CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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)
	IR	=	Ingestion rate (L/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

$$Intake\ (mg/kgday) = \frac{0.001\ mg/L \times 1.0E\text{-}03\ L/cm^3 \times 23{,}000\ cm^2/event \times 1.0E\text{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 2.1E\text{-}08$$

Risk = 2.1E-08 mg/kg·day x 7.5 $mg/kg{\cdot}day^{-1}$ = 1.5E-07

Example Noncarcinogen: Antimony

$$Intake\ (mg/kg{\cdot}day) = \frac{0.016\ mg/L \times 1.0E\text{-}03\ L/cm^3 \times 23{,}000\ cm^2/event \times 1.0E\text{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E\text{-}06$$

$$Risk = \frac{1.2E\text{-}06\ mg/kg{\cdot}day}{8.0E\text{-}05\ mg/kg{\cdot}day} = 1.5E\text{-}02$$

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: *Inputs are site and scenario specific*

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 Carcinogeni 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
Antimony	0.021	23000	1.00E-03	0.25	350	30	0.001	70	25550	7.1E-07	0.0E+00	0.0E+00	0%	10950	1.7E-06	8.0E-05	2.1E-02	24%
Arsenic	0.001	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.2E-08	7.5E+00	2.4E-07	100%	10950	7.6E-08	6.0E-05	1.3E-03	1%
Cadmium (water)	0.003	23000	1.00E-03	0.25	350	30	0.001	70	25550	8.6E-08	0.0E+00	0.0E+00	0%	10950	2.0E-07	1.0E-04	2.0E-03	2%
Manganese	1.390	23000	1.00E-03	0.25	350	30	0.001	70	25550	4.7E-05	0.0E+00	0.0E+00	0%	10950	1.1E-04	4.6E-03	2.4E-02	28%
Thallium	0.007	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.2E-07	0.0E+00	0.0E+00	0%	10950	5.2E-07	1.4E-05	3.7E-02	44%
TOTAL												2.4E-07					8.5E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Antimony	0.021	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.9E-07	0.0E+00	0.0E+00	0%	2190	3.4E-06	8.0E-05	4.2E-02	24%
Arsenic	0.001	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.3E-08	7.5E+00	9.9E-08	100%	2190	1.5E-07	6.0E-05	2.6E-03	1%
Cadmium (water)	0.003	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.5E-08	0.0E+00	0.0E+00	0%	2190	4.1E-07	1.0E-04	4.1E-03	2%
Manganese	1.390	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.9E-05	0.0E+00	0.0E+00	0%	2190	2.2E-04	4.6E-03	4.8E-02	28%
Thallium	0.007	10000	1.00E-03	0.25	350	6	0.001	15	25550	9.0E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	1.4E-05	7.5E-02	44%
TOTAL												9.9E-08					1.7E-01	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Arsenic	0.008	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.6E-07	7.5E+00	2.0E-06	100%	10950	6.1E-07	6.0E-05	1.0E-02	11%
Iron	1.860	23000	1.00E-03	0.25	350	30	0.001	70	25550	6.3E-05	0.0E+00	0.0E+00	0%	10950	1.5E-04	6.0E-02	2.4E-03	3%
Thallium	0.013	23000	1.00E-03	0.25	350	30	0.001	70	25550	4.3E-07	0.0E+00	0.0E+00	0%	10950	1.0E-06	1.4E-05	7.2E-02	79%
Vanadium	0.105	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.5E-06	0.0E+00	0.0E+00	0%	10950	8.3E-06	1.4E-03	5.9E-03	7%
TOTAL												2.0E-06					9.1E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Arsenic	0.008	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.1E-07	7.5E+00	8.0E-07	100%	2190	1.2E-06	6.0E-05	2.1E-02	11%
Iron	1.860	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.5E-05	0.0E+00	0.0E+00	0%	2190	3.0E-04	8.0E-02	5.0E-03	3%
Thallium	0.013	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.8E-07	0.0E+00	0.0E+00	0%	2190	2.0E-06	1.4E-05	1.5E-01	79%
Vanadium	0.105	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.4E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	1.4E-03	1.2E-02	7%
TOTAL												8.0E-07					1.8E-01	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Aluminum	429.000	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.4E-02	0.0E+00	0.0E+00	0%	10950	3.4E-02	2.0E-01	1.7E-01	16%
Arsenic	0.020	23000	1.00E-03	0.25	350	30	0.001	70	25550	6.8E-07	7.5E+00	5.1E-06	100%	10950	1.6E-06	6.0E-05	2.6E-02	3%
Barium	0.548	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.8E-05	0.0E+00	0.0E+00	0%	10950	4.3E-05	1.4E-02	3.1E-03	0%
Cadmium (water)	0.025	23000	1.00E-03	0.25	350	30	0.001	70	25550	8.3E-07	0.0E+00	0.0E+00	0%	10950	1.9E-06	1.0E-04	1.9E-02	2%
Chromium	0.821	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.5E-05	1.0E-03	6.5E-02	6%
Copper	0.173	23000	1.00E-03	0.25	350	30	0.001	70	25550	5.8E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	8.0E-03	1.7E-03	0%
Iron	498.000	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.7E-02	0.0E+00	0.0E+00	0%	10950	3.9E-02	6.0E-02	6.5E-01	64%
Lead	0.512	23000	4.00E-06	0.25	350	30	0.001	70	25550	6.9E-08	0.0E+00	0.0E+00	0%	10950	1.6E-07	0.0E+00	0.0E+00	0%
Manganese	1.270	23000	1.00E-03	0.25	350	30	0.001	70	25550	4.3E-05	0.0E+00	0.0E+00	0%	10950	1.0E-04	4.0E-03	2.2E-02	2%
Mercury	0.002	23000	1.00E-03	0.25	350	30	0.001	70	25550	8.1E-08	0.0E+00	0.0E+00	0%	10950	1.9E-07	6.0E-05	3.2E-03	0%
Nickel	4.550	23000	1.00E-04	0.25	350	30	0.001	70	25550	1.5E-05	0.0E+00	0.0E+00	0%	10950	3.6E-05	4.0E-03	9.0E-03	1%
Vanadium	0.908	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.1E-05	0.0E+00	0.0E+00	0%	10950	7.2E-05	1.4E-03	5.1E-02	5%
Zinc	3.970	23000	6.00E-04	0.25	350	30	0.001	70	25550	8.0E-05	0.0E+00	0.0E+00	0%	10950	1.9E-04	6.0E-02	3.1E-03	0%
TOTAL												5.1E-06					1.0E+00	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Aluminum	429.000	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.9E-03	0.0E+00	0.0E+00	0%	2190	6.9E-02	2.0E-01	3.4E-01	16%
Arsenic	0.020	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.7E-07	7.5E+00	2.1E-06	100%	2190	3.2E-06	6.0E-05	5.3E-02	3%
Barium	0.548	10000	1.00E-03	0.25	350	6	0.001	15	25550	7.5E-06	0.0E+00	0.0E+00	0%	2190	8.8E-05	1.4E-02	6.3E-03	0%
Cadmium (water)	0.025	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.4E-07	0.0E+00	0.0E+00	0%	2190	3.9E-06	1.0E-04	3.9E-02	2%
Chromium	0.821	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.1E-05	0.0E+00	0.0E+00	0%	2190	1.3E-04	1.0E-03	1.3E-01	6%
Copper	0.173	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.4E-06	0.0E+00	0.0E+00	0%	2190	2.8E-05	8.0E-03	3.5E-03	0%
Iron	498.000	10000	1.00E-03	0.25	350	6	0.001	15	25550	6.8E-03	0.0E+00	0.0E+00	0%	2190	8.0E-02	6.0E-02	1.3E+00	64%
Lead	0.512	10000	4.00E-06	0.25	350	6	0.001	15	25550	2.8E-08	0.0E+00	0.0E+00	0%	2190	3.3E-07	0.0E+00	0.0E+00	0%
Manganese	1.270	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.7E-05	0.0E+00	0.0E+00	0%	2190	2.0E-04	4.6E-03	4.4E-02	2%
Mercury	0.002	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.3E-08	0.0E+00	0.0E+00	0%	2190	3.8E-07	6.0E-05	6.4E-03	0%
Nickel	4.550	10000	1.00E-04	0.25	350	6	0.001	15	25550	6.2E-06	0.0E+00	0.0E+00	0%	2190	7.3E-05	4.0E-03	1.8E-02	1%
Vanadium	0.908	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.2E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	1.4E-03	1.0E-01	5%
Zinc	3.970	10000	6.00E-04	0.25	350	6	0.001	15	25550	3.3E-05	0.0E+00	0.0E+00	0%	2190	3.8E-04	6.0E-02	6.3E-03	0%
TOTAL												2.1E-06					2.1E+00	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Pentachlorophenol	0.001	23000	4.90E-01	0.25	350	30	0.001	70	25550	1.3E-05	2.4E-01	3.2E-06	100%	10950	3.1E-05	1.5E-02	2.1E-03	18%
Aluminum	3.770	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.3E-04	0.0E+00	0.0E+00	0%	10950	3.0E-04	2.0E-01	1.5E-03	13%
Iron	3.130	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.1E-04	0.0E+00	0.0E+00	0%	10950	2.5E-04	6.0E-02	4.1E-03	36%
Manganese	0.224	23000	1.00E-03	0.25	350	30	0.001	70	25550	7.6E-06	0.0E+00	0.0E+00	0%	10950	1.8E-05	4.6E-03	3.8E-03	33%
TOTAL												3.2E-06					1.1E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Pentachlorophenol	0.001	10000	4.90E-01	0.25	350	6	0.001	15	25550	5.4E-06	2.4E-01	1.3E-06	100%	2190	6.3E-05	1.5E-02	4.2E-03	18%
Aluminum	3.770	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.2E-05	0.0E+00	0.0E+00	0%	2190	6.0E-04	2.0E-01	3.0E-03	13%
Iron	3.130	10000	1.00E-03	0.25	350	6	0.001	15	25550	4.3E-05	0.0E+00	0.0E+00	0%	2190	5.0E-04	6.0E-02	8.3E-03	36%
Manganese	0.224	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.1E-06	0.0E+00	0.0E+00	0%	2190	3.6E-05	4.6E-03	7.8E-03	33%
TOTAL												1.3E-06					2.3E-02	

SURFACE WATER

EXAMPLE SURFACE WATER INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

Purpose: Estimate intake/risk from ingestion of surface water

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times IR \times EF \times ED\ ET}{BW \times AT}$$

Where:	C	=	Contaminant concentration in surface water (mg/L)
	IR	=	Daily intake ingestion rate (kg/meal)
	EF	=	Exposure frequency (meal/year)
	ED	=	Exposure duration (years)
	ET	=	Exposure time (hrs/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: No Carcinogenic COPCs in Surface Water

Example Noncarcinogen: Aluminum

$$Intake\ (mg/kg{\cdot}day) = \frac{0.422\ mg/L \times 0.05\ L/day \times 48\ days/yr \times 30\ yrs \times 2.6\ hrs/day}{70\ kg \times 10{,}950\ days}$$

$$= 1.0E\text{-}04$$

$$Risk = \frac{1.0E{-}04\ mg/kg{\cdot}day}{1.0E{+}00\ mg/kg{\cdot}day} = 1.0E{-}04$$

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	4
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-day)	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Time Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	0.05	2.6	48	4	70	25550	1.4E-08	0.0E+00	0.0E+00	0%	1460	2.4E-07	1.0E-01	2.4E-06	0%
Aluminum	0.422	0.05	2.6	48	4	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	1460	1.0E-04	1.0E+00	1.0E-04	6%
Barium	0.015	0.05	2.6	48	4	70	25550	2.1E-07	0.0E+00	0.0E+00	0%	1460	3.6E-06	7.0E-02	5.2E-05	3%
Cadmium (water)	0.002	0.05	2.6	48	4	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	1460	3.9E-07	5.0E-04	7.8E-04	42%
Iron	0.485	0.05	2.6	48	4	70	25550	6.8E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	3.0E-01	3.9E-04	21%
Lead	0.003	0.05	2.6	48	4	70	25550	3.5E-08	0.0E+00	0.0E+00	0%	1460	6.1E-07	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	4	70	25550	5.3E-07	0.0E+00	0.0E+00	0%	1460	9.4E-06	2.3E-02	4.1E-04	22%
Selenium	0.001	0.05	2.6	48	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	5.0E-03	4.5E-05	2%
Vanadium	0.002	0.05	2.6	48	4	70	25550	2.1E-08	0.0E+00	0.0E+00	0%	1460	3.7E-07	7.0E-03	5.2E-05	3%
Zinc	0.003	0.05	2.6	48	4	70	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.1E-07	3.0E-01	2.4E-06	0%
TOTAL										0.0E+00					1.8E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	30
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-da	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Tim Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	0.05	2.6	48	30	70	25550	1.0E-07	0.0E+00	0.0E+00	0%	10950	2.4E-07	1.0E-01	2.4E-06	0%
Aluminum	0.422	0.05	2.6	48	30	70	25550	4.4E-05	0.0E+00	0.0E+00	0%	10950	1.0E-04	1.0E+00	1.0E-04	6%
Barium	0.015	0.05	2.6	48	30	70	25550	1.5E-06	0.0E+00	0.0E+00	0%	10950	3.6E-06	7.0E-02	5.2E-05	3%
Cadmium (water)	0.002	0.05	2.6	48	30	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	5.0E-04	7.8E-04	42%
Iron	0.465	0.05	2.6	48	30	70	25550	5.1E-05	0.0E+00	0.0E+00	0%	10950	1.2E-04	3.0E-01	3.9E-04	21%
Lead	0.003	0.05	2.6	48	30	70	25550	2.6E-07	0.0E+00	0.0E+00	0%	10950	6.1E-07	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	30	70	25550	4.0E-06	0.0E+00	0.0E+00	0%	10950	9.4E-06	2.3E-02	4.1E-04	22%
Selenium	0.001	0.05	2.6	48	30	70	25550	9.7E-08	0.0E+00	0.0E+00	0%	10950	2.3E-07	5.0E-03	4.5E-05	2%
Vanadium	0.002	0.05	2.6	48	30	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	10950	3.7E-07	7.0E-03	5.2E-05	3%
Zinc	0.003	0.05	2.6	48	30	70	25550	3.0E-07	0.0E+00	0.0E+00	0%	10950	7.1E-07	3.0E-01	2.4E-06	0%
TOTAL										0.0E+00					1.8E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUT
Cw = contaminant concentration in surface water (mg/l)		
CR = contact rate (Liter/hour)		0.05
ET = child exposure time (hours/event)		2.6
EF = child exposure frequency (events/yr)		48
ED = child exposure duration (yrs)		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 (days)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Di-n-butylphthalate	0.001	0.05	2.6	48	6	15	25550	9.8E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	1.0E-01	1.1E-05	0%
Aluminum	0.422	0.05	2.6	48	6	15	25550	4.1E-05	0.0E+00	0.0E+00	0%	2190	4.8E-04	1.0E+00	4.8E-04	6%
Barium	0.015	0.05	2.6	48	6	15	25550	1.4E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	7.0E-02	2.4E-04	3%
Cadmium (water)	0.002	0.05	2.6	48	6	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	2190	1.8E-06	5.0E-04	3.6E-03	42%
Iron	0.485	0.05	2.6	48	6	15	25550	4.7E-05	0.0E+00	0.0E+00	0%	2190	5.5E-04	3.0E-01	1.8E-03	21%
Lead	0.003	0.05	2.6	48	6	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.8E-06	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	6	15	25550	3.7E-06	0.0E+00	0.0E+00	0%	2190	4.4E-05	2.3E-02	1.9E-03	22%
Selenium	0.001	0.05	2.6	48	6	15	25550	9.1E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	5.0E-03	2.1E-04	2%
Vanadium	0.002	0.05	2.6	48	6	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	2190	1.7E-06	7.0E-03	2.4E-04	3%
Zinc	0.003	0.05	2.6	48	6	15	25550	2.8E-07	0.0E+00	0.0E+00	0%	2190	3.3E-06	3.0E-01	1.1E-05	0%
TOTAL										0.0E+00					8.6E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	4
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-day)	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Time Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	0.05	2.6	48	4	70	25550	6.8E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	1.0E+00	1.2E-04	0%
Antimony	0.055	0.05	2.6	48	4	70	25550	7.6E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	4.0E-04	3.3E-02	92%
Barium	0.027	0.05	2.6	48	4	70	25550	3.7E-07	0.0E+00	0.0E+00	0%	1460	6.5E-06	7.0E-02	9.3E-05	0%
Copper	0.005	0.05	2.6	48	4	70	25550	6.8E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	4.0E-02	3.0E-05	0%
Cyanide	0.053	0.05	2.6	48	4	70	25550	7.5E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	2.0E-02	6.5E-04	2%
Iron	0.326	0.05	2.6	48	4	70	25550	4.5E-06	0.0E+00	0.0E+00	0%	1460	8.0E-05	3.0E-01	2.7E-04	1%
Lead	0.008	0.05	2.6	48	4	70	25550	1.1E-07	0.0E+00	0.0E+00	0%	1460	2.0E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	4	70	25550	3.6E-07	0.0E+00	0.0E+00	0%	1460	6.4E-06	2.3E-02	2.8E-04	1%
Selenium	0.022	0.05	2.6	48	4	70	25550	3.1E-07	0.0E+00	0.0E+00	0%	1460	5.4E-06	5.0E-03	1.1E-03	3%
Vanadium	0.011	0.05	2.6	48	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.7E-06	7.0E-03	3.9E-04	1%
Zinc	0.012	0.05	2.6	48	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.9E-06	3.0E-01	9.5E-06	0%
TOTAL										0.0E+00					3.6E-02	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUT
Cw = contaminant concentration in surface water (mg/l)		
CR = contact rate (Liter/hour)		0.05
ET = child exposure time (hours/event)		2.6
EF = child exposure frequency (events/yr)		48
ED = child exposure duration (yrs)		4
BW = child body weight (kg)		15
ATc = averaging time for carcinogen (yr)		70
ATnc = averaging time for noncarcinogen (yr)		4
DY = days per year (days)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	0.488	0.05	2.6	48	4	15	25550	3.2E-05	0.0E+00	0.0E+00	0%	1460	5.6E-04	1.0E+00	5.6E-04	0%
Antimony	0.055	0.05	2.6	48	4	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.2E-05	4.0E-04	1.6E-01	92%
Barium	0.027	0.05	2.6	48	4	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	3.0E-05	7.0E-02	4.3E-04	0%
Copper	0.005	0.05	2.6	48	4	15	25550	3.2E-07	0.0E+00	0.0E+00	0%	1460	5.6E-06	4.0E-02	1.4E-04	0%
Cyanide	0.053	0.05	2.6	48	4	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.1E-05	2.0E-02	3.0E-03	2%
Iron	0.326	0.05	2.6	48	4	15	25550	2.1E-05	0.0E+00	0.0E+00	0%	1460	3.7E-04	3.0E-01	1.2E-03	1%
Lead	0.008	0.05	2.6	48	4	15	25550	5.2E-07	0.0E+00	0.0E+00	0%	1460	9.1E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	4	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	3.0E-05	2.3E-02	1.3E-03	1%
Selenium	0.022	0.05	2.6	48	4	15	25550	1.4E-06	0.0E+00	0.0E+00	0%	1460	2.5E-05	5.0E-03	5.0E-03	3%
Vanadium	0.011	0.05	2.6	48	4	15	25550	7.3E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	7.0E-03	1.8E-03	1%
Zinc	0.012	0.05	2.6	48	4	15	25550	7.6E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	3.0E-01	4.4E-05	0%
TOTAL										0.0E+00					1.7E-01	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	30
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-da	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Tim Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	0.05	2.6	48	30	70	25550	5.1E-05	0.0E+00	0.0E+00	0%	10950	1.2E-04	1.0E+00	1.2E-04	0%
Antimony	0.055	0.05	2.6	48	30	70	25550	5.7E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	4.0E-04	3.3E-02	92%
Barium	0.027	0.05	2.6	48	30	70	25550	2.8E-06	0.0E+00	0.0E+00	0%	10950	6.5E-06	7.0E-02	9.3E-05	0%
Copper	0.005	0.05	2.6	48	30	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	10950	1.2E-06	4.0E-02	3.0E-05	0%
Cyanide	0.053	0.05	2.6	48	30	70	25550	5.6E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	2.0E-02	6.5E-04	2%
Iron	0.326	0.05	2.6	48	30	70	25550	3.4E-05	0.0E+00	0.0E+00	0%	10950	8.0E-05	3.0E-01	2.7E-04	1%
Lead	0.008	0.05	2.6	48	30	70	25550	8.4E-07	0.0E+00	0.0E+00	0%	10950	2.0E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	30	70	25550	2.7E-06	0.0E+00	0.0E+00	0%	10950	6.4E-06	2.3E-02	2.8E-04	1%
Selenium	0.022	0.05	2.6	48	30	70	25550	2.3E-06	0.0E+00	0.0E+00	0%	10950	5.4E-06	5.0E-03	1.1E-03	3%
Vanadium	0.011	0.05	2.6	48	30	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.7E-06	7.0E-03	3.9E-04	1%
Zinc	0.012	0.05	2.6	48	30	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.9E-06	3.0E-01	9.5E-06	0%
TOTAL										0.0E+00					3.6E-02	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUT
Cw = contaminant concentration in surface water (mg/l)		
CR = contact rate (Liter/hour)		0.05
ET = child exposure time (hours/event)		2.6
EF = child exposure frequency (events/yr)		48
ED = child exposure duration (yrs)		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 (days)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	0.488	0.05	2.6	48	6	15	25550	4.8E-05	0.0E+00	0.0E+00	0%	2190	5.6E-04	1.0E+00	5.6E-04	0%
Antimony	0.055	0.05	2.6	48	6	15	25550	5.3E-06	0.0E+00	0.0E+00	0%	2190	6.2E-05	4.0E-04	1.6E-01	92%
Barium	0.027	0.05	2.6	48	6	15	25550	2.6E-06	0.0E+00	0.0E+00	0%	2190	3.0E-05	7.0E-02	4.3E-04	0%
Copper	0.005	0.05	2.6	48	6	15	25550	4.8E-07	0.0E+00	0.0E+00	0%	2190	5.6E-06	4.0E-02	1.4E-04	0%
Cyanide	0.053	0.05	2.6	48	6	15	25550	5.2E-06	0.0E+00	0.0E+00	0%	2190	6.1E-05	2.0E-02	3.0E-03	2%
Iron	0.326	0.05	2.6	48	6	15	25550	3.2E-05	0.0E+00	0.0E+00	0%	2190	3.7E-04	3.0E-01	1.2E-03	1%
Lead	0.008	0.05	2.6	48	6	15	25550	7.8E-07	0.0E+00	0.0E+00	0%	2190	9.1E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	6	15	25550	2.5E-06	0.0E+00	0.0E+00	0%	2190	3.0E-05	2.3E-02	1.3E-03	1%
Selenium	0.022	0.05	2.6	48	6	15	25550	2.1E-06	0.0E+00	0.0E+00	0%	2190	2.5E-05	5.0E-03	5.0E-03	3%
Vanadium	0.011	0.05	2.6	48	6	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	7.0E-03	1.8E-03	1%
Zinc	0.012	0.05	2.6	48	6	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	3.0E-01	4.4E-05	0%
TOTAL										0.0E+00					1.7E-01	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE SURFACE WATER DERMAL CONTACT CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

Purpose: Estimate intake/risk from dermal contact with surface water

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times SA \times CF \times EF \times ED \times ET \times PC}{BW \times AT}$$

Where:	C	=	Contaminant concentration in surface water (mg/L)
	SA	=	Skin surface area (cm^2)
	CF	=	Conversion factor (1 L/1,000 cm^3)
	EF	=	Exposure frequency (days/year)
	ED	=	Exposure duration (years)
	ET	=	Exposure time (hrs/day)
	PC	=	Chemical-specific dermal permeability constant (cm/hr)
	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: No Carcinogenic COPCs in Surface Water

Example Noncarcinogen: Aluminum

$$Intake\ (mg/kg{\cdot}day) = \frac{0.422\ mg/L \times 5{,}800\ cm^2 \times 48\ days/yr \times 30\ yrs \times 2.6\ hrs/day \times 1.0E\text{-}3\ L/cm^3 \times 1E\text{-}03\ cm/hr}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E\text{-}05$$

$$Risk = \frac{1.2E\text{-}05\ mg/kg{\cdot}day}{2.0E\text{-}01\ mg/kg{\cdot}day} = 6.0E\text{-}05$$

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	4300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	4
CF = volumetric conversion factor for water (1liter/1000 cm	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	*Specific*

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	4300	2.3E-06	2.6	48	4	0.001	70	25550	2.8E-12	0.0E+00	0.0E+00	0%	1460	4.8E-11	5.0E-02	9.7E-10	0%
Aluminum	0.422	4300	1.0E-03	2.6	48	4	0.001	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	1460	8.9E-06	2.0E-01	4.4E-05	6%
Barium	0.015	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	1460	3.1E-07	1.4E-02	2.2E-05	3%
Cadmium (water)	0.002	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	1460	3.4E-08	1.0E-04	3.4E-04	43%
Iron	0.485	4300	1.0E-03	2.6	48	4	0.001	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	1460	1.0E-05	6.0E-02	1.7E-04	21%
Lead	0.003	4300	4.0E-06	2.6	48	4	0.001	70	25550	1.2E-11	0.0E+00	0.0E+00	0%	1460	2.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	4300	1.0E-03	2.6	48	4	0.001	70	25550	4.6E-08	0.0E+00	0.0E+00	0%	1460	8.0E-07	4.6E-03	1.7E-04	22%
Selenium	*0.001*	*4300*	*1.0E-03*	*2.6*	48	4	*0.001*	70	*25550*	1.1E-09	*0.0E+00*	*0.0E+00*	0%	1460	2.0E-08	1.0E-03	2.0E-05	2%
Vanadium	0.002	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-09	0.0E+00	0.0E+00	0%	1460	3.2E-08	1.4E-03	2.3E-05	3%
Zinc	0.003	4300	6.0E-04	2.6	48	4	0.001	70	25550	2.1E-09	0.0E+00	0.0E+00	0%	1460	3.7E-08	6.0E-02	6.1E-07	0%
TOTAL												0.0E+00					7.9E-04	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/1000 cm	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	5800	2.3E-06	2.6	48	30	0.001	70	25550	2.8E-11	0.0E+00	0.0E+00	0%	10950	6.5E-11	5.0E-02	1.3E-09	0%
Aluminum	0.422	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.1E-06	0.0E+00	0.0E+00	0%	10950	1.2E-05	2.0E-01	6.0E-05	6%
Barium	0.015	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.8E-07	0.0E+00	0.0E+00	0%	10950	4.2E-07	1.4E-02	3.0E-05	3%
Cadmium (water)	0.002	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.9E-08	0.0E+00	0.0E+00	0%	10950	4.5E-08	1.0E-04	4.5E-04	43%
Iron	0.485	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	6.0E-02	2.3E-04	21%
Lead	0.003	5800	4.0E-06	2.6	48	30	0.001	70	25550	1.2E-10	0.0E+00	0.0E+00	0%	10950	2.8E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	5800	1.0E-03	2.6	48	30	0.001	70	25550	4.7E-07	0.0E+00	0.0E+00	0%	10950	1.1E-06	4.6E-03	2.4E-04	22%
Selenium	0.001	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.1E-08	0.0E+00	0.0E+00	0%	10950	2.6E-08	1.0E-03	2.6E-05	2%
Vanadium	0.002	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	10950	4.2E-08	1.4E-03	3.0E-05	3%
Zinc	0.003	5800	6.0E-04	2.6	48	30	0.001	70	25550	2.1E-08	0.0E+00	0.0E+00	0%	10950	4.9E-08	6.0E-02	8.2E-07	0%
TOTAL												0.0E+00					1.1E-03	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
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
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Di-n-butylphthalate	0.001	2300	2.3E-06	2.6	48	6	0.001	15	25550	1.0E-11	0.0E+00	0.0E+00	0%	2190	1.2E-10	5.0E-02	2.4E-09	0%
Aluminum	0.422	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.9E-06	0.0E+00	0.0E+00	0%	2190	2.2E-05	2.0E-01	1.1E-04	6%
Barium	0.015	2300	1.0E-03	2.6	48	6	0.001	15	25550	6.7E-08	0.0E+00	0.0E+00	0%	2190	7.8E-07	1.4E-02	5.5E-05	3%
Cadmium (water)	0.002	2300	1.0E-03	2.6	48	6	0.001	15	25550	7.2E-09	0.0E+00	0.0E+00	0%	2190	8.4E-08	1.0E-04	8.4E-04	43%
Iron	0.485	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.5E-05	6.0E-02	4.2E-04	21%
Lead	0.003	2300	4.0E-06	2.6	48	6	0.001	15	25550	4.5E-11	0.0E+00	0.0E+00	0%	2190	5.2E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.7E-07	0.0E+00	0.0E+00	0%	2190	2.0E-06	4.6E-03	4.4E-04	22%
Selenium	0.001	2300	1.0E-03	2.6	48	6	0.001	15	25550	4.2E-09	0.0E+00	0.0E+00	0%	2190	4.9E-08	1.0E-03	4.9E-05	2%
Vanadium	0.002	2300	1.0E-03	2.6	48	6	0.001	15	25550	6.7E-09	0.0E+00	0.0E+00	0%	2190	7.9E-08	1.4E-03	5.6E-05	3%
Zinc	0.003	2300	6.0E-04	2.6	48	6	0.001	15	25550	7.8E-09	0.0E+00	0.0E+00	0%	2190	9.1E-08	6.0E-02	1.5E-06	0%
TOTAL												0.0E+00					2.0E-03	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	4
CF = volumetric conversion factor for water (1liter/10	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	5800	1.0E-03	2.6	48	4	0.001	70	25550	7.9E-07	0.0E+00	0.0E+00	0%	1460	1.4E-05	2.0E-01	6.9E-05	0%
Antimony	0.055	5800	1.0E-03	2.6	48	4	0.001	70	25550	8.8E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	8.0E-05	1.9E-02	92%
Barium	0.027	5800	1.0E-03	2.6	48	4	0.001	70	25550	4.3E-08	0.0E+00	0.0E+00	0%	1460	7.6E-07	1.4E-02	5.4E-05	0%
Copper	0.005	5800	1.0E-03	2.6	48	4	0.001	70	25550	7.9E-09	0.0E+00	0.0E+00	0%	1460	1.4E-07	8.0E-03	1.7E-05	0%
Cyanide	0.053	5800	1.0E-03	2.6	48	4	0.001	70	25550	8.6E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	4.0E-03	3.8E-04	2%
Iron	0.326	5800	1.0E-03	2.6	48	4	0.001	70	25550	5.3E-07	0.0E+00	0.0E+00	0%	1460	9.2E-06	6.0E-02	1.5E-04	1%
Lead	0.008	5800	4.0E-06	2.6	48	4	0.001	70	25550	5.2E-11	0.0E+00	0.0E+00	0%	1460	9.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.026	5800	1.0E-03	2.6	48	4	0.001	70	25550	4.2E-08	0.0E+00	0.0E+00	0%	1460	7.4E-07	4.6E-03	1.6E-04	1%
Selenium	0.022	5800	1.0E-03	2.6	48	4	0.001	70	25550	3.6E-08	0.0E+00	0.0E+00	0%	1460	6.2E-07	1.0E-03	6.2E-04	3%
Vanadium	0.011	5800	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	1460	3.2E-07	1.4E-03	2.3E-04	1%
Zinc	0.012	5800	6.0E-04	2.6	48	4	0.001	70	25550	1.1E-08	0.0E+00	0.0E+00	0%	1460	2.0E-07	6.0E-02	3.3E-06	0%
TOTAL												0.0E+00					2.1E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
ED = child exposure duration (years)	4
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)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Aluminum	0.488	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	1460	2.6E-05	2.0E-01	1.3E-04	0%
Antimony	0.055	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.9E-06	8.0E-05	3.6E-02	92%
Barium	0.027	2300	1.0E-03	2.6	48	4	0.001	15	25550	8.0E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	1.4E-02	1.0E-04	0%
Copper	0.005	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.5E-08	0.0E+00	0.0E+00	0%	1460	2.6E-07	8.0E-03	3.2E-05	0%
Cyanide	0.053	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	4.0E-03	7.0E-04	2%
Iron	0.326	2300	1.0E-03	2.6	48	4	0.001	15	25550	9.8E-07	0.0E+00	0.0E+00	0%	1460	1.7E-05	6.0E-02	2.8E-04	1%
Lead	0.008	2300	4.0E-06	2.6	48	4	0.001	15	25550	9.6E-11	0.0E+00	0.0E+00	0%	1460	1.7E-09	0.0E+00	0.0E+00	0%
Manganese	0.026	2300	1.0E-03	2.6	48	4	0.001	15	25550	7.8E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	4.6E-03	3.0E-04	1%
Selenium	0.022	2300	1.0E-03	2.6	48	4	0.001	15	25550	6.6E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	1.0E-03	1.2E-03	3%
Vanadium	0.011	2300	1.0E-03	2.6	48	4	0.001	15	25550	3.4E-08	0.0E+00	0.0E+00	0%	1460	5.9E-07	1.4E-03	4.2E-04	1%
Zinc	0.012	2300	6.0E-04	2.6	48	4	0.001	15	25550	2.1E-08	0.0E+00	0.0E+00	0%	1460	3.7E-07	6.0E-02	6.1E-06	0%
TOTAL												0.0E+00					3.9E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/1000 cm3	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	2.0E-01	6.9E-05	0%
Antimony	0.055	5800	1.0E-03	2.6	48	30	0.001	70	25550	6.6E-07	0.0E+00	0.0E+00	0%	10950	1.5E-06	8.0E-05	1.9E-02	92%
Barium	0.027	5800	1.0E-03	2.6	48	30	0.001	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.6E-07	1.4E-02	5.4E-05	0%
Copper	0.005	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	10950	1.4E-07	8.0E-03	1.7E-05	0%
Cyanide	0.053	5800	1.0E-03	2.6	48	30	0.001	70	25550	6.5E-07	0.0E+00	0.0E+00	0%	10950	1.5E-06	4.0E-03	3.8E-04	2%
Iron	0.326	5800	1.0E-03	2.6	48	30	0.001	70	25550	4.0E-06	0.0E+00	0.0E+00	0%	10950	9.2E-06	6.0E-02	1.5E-04	1%
Lead	0.008	5800	4.0E-06	2.6	48	30	0.001	70	25550	3.9E-10	0.0E+00	0.0E+00	0%	10950	9.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.026	5800	1.0E-03	2.6	48	30	0.001	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.4E-07	4.6E-03	1.6E-04	1%
Selenium	0.022	5800	1.0E-03	2.6	48	30	0.001	70	25550	2.7E-07	0.0E+00	0.0E+00	0%	10950	6.2E-07	1.0E-03	6.2E-04	3%
Vanadium	0.011	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	10950	3.2E-07	1.4E-03	2.3E-04	1%
Zinc	0.012	5800	6.0E-04	2.6	48	30	0.001	70	25550	8.5E-08	0.0E+00	0.0E+00	0%	10950	2.0E-07	6.0E-02	3.3E-06	0%
TOTAL												0.0E+00					2.1E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
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
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Aluminum	0.488	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.6E-05	2.0E-01	1.3E-04	0%
Antimony	0.055	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.9E-06	8.0E-05	3.6E-02	92%
Barium	0.027	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	1.4E-02	1.0E-04	0%
Copper	0.005	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-08	0.0E+00	0.0E+00	0%	2190	2.6E-07	8.0E-03	3.2E-05	0%
Cyanide	0.053	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.8E-06	4.0E-03	7.0E-04	2%
Iron	0.326	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	6.0E-02	2.8E-04	1%
Lead	0.008	2300	4.0E-06	2.6	48	6	0.001	15	25550	1.4E-10	0.0E+00	0.0E+00	0%	2190	1.7E-09	0.0E+00	0.0E+00	0%
Manganese	0.026	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	4.6E-03	3.0E-04	1%
Selenium	0.022	2300	1.0E-03	2.6	48	6	0.001	15	25550	9.9E-08	0.0E+00	0.0E+00	0%	2190	1.2E-06	1.0E-03	1.2E-03	3%
Vanadium	0.011	2300	1.0E-03	2.6	48	6	0.001	15	25550	5.0E-08	0.0E+00	0.0E+00	0%	2190	5.9E-07	1.4E-03	4.2E-04	1%
Zinc	0.012	2300	6.0E-04	2.6	48	6	0.001	15	25550	3.2E-08	0.0E+00	0.0E+00	0%	2190	3.7E-07	6.0E-02	6.1E-06	0%
TOTAL												0.0E+00					3.9E-02	

APPENDIX M
LEAD UBK MODEL

SOIL

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE SOIL* INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 25{,}550\ days}$$

$$= 3.6E\text{-}07$$

Risk = 3.6E-07 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ =5.46E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{1547.41\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 10{,}950\ days}$$

$$= 2.1E\text{-}03$$

$$Risk = \frac{2.1E{-}03\ mg/kg{\cdot}day}{3.0E{-}01\ mg/kg{\cdot}day} = 7.1E{-}03$$

* This example calculation also is applicable for sediment ingestion.
Re: Site 68 Future Residential Adult

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Aroclor-1260	0.03	250	4	1E-06	100	70	25550	1.8E-09	7.7E+00	1.37E-08	9%	1460	3.1E-08	0.0E+00	0.00E+00	0%
Arsenic	0.62	250	4	1E-06	100	70	25550	3.5E-08	1.5E+00	5.20E-08	35%	1460	6.1E-07	3.0E-04	2.02E-03	28%
Beryllium	0.35	250	4	1E-06	100	70	25550	2.0E-08	4.3E+00	8.41E-08	56%	1460	3.4E-07	5.0E-03	6.85E-05	1%
Iron	1547.41	250	4	1E-06	100	70	25550	8.7E-05	0.0E+00	0.00E+00	0%	1460	1.5E-03	3.0E-01	5.05E-03	71%
TOTAL										1.5E-07					7.1E-03	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY, CTO-0314
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 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
Aroclor-1260	0.03	350	30	1E-06	100	70	25550	1.9E-08	7.7E+00	1.44E-07	9%	10950	4.4E-08	0.0E+00	0.0E+00	0%
Arsenic	0.62	350	30	1E-06	100	70	25550	3.6E-07	1.5E+00	5.46E-07	35%	10950	8.5E-07	3.0E-04	2.8E-03	28%
Beryllium	0.35	350	30	1E-06	100	70	25550	2.1E-07	4.3E+00	8.84E-07	56%	10950	4.8E-07	5.0E-03	9.6E-05	1%
Iron	1547.41	350	30	1E-06	100	70	25550	9.1E-04	0.0E+00	0.00E+00	0%	10950	2.1E-03	3.0E-01	7.1E-03	71%
TOTAL										1.6E-06					1.0E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Aroclor-1260	0.03	350	6	1E-06	200	15	25550	3.5E-08	7.70E+00	2.69E-07	9%	2190	4.1E-07	0.00E+00	0.0E+00	0%
Arsenic	0.62	350	6	1E-06	200	15	25550	6.8E-07	1.50E+00	1.02E-06	35%	2190	7.9E-06	3.00E-04	2.6E-02	28%
Beryllium	0.35	350	6	1E-06	200	15	25550	3.8E-07	4.30E+00	1.65E-06	56%	2190	4.5E-06	5.00E-03	8.9E-04	1%
Iron	1547.41	350	6	1E-06	200	15	25550	1.7E-03	0.00E+00	0.00E+00	0%	2190	2.0E-02	3.00E-01	6.6E-02	71%
TOTAL										2.9E-06					9.3E-02	

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	13200.00	250	4	1E-06	100	70	25550	7.4E-04	0.0E+00	0.0E+00	0%	1460	1.3E-02	1.0E+00	1.3E-02	13%
Arsenic	7.60	250	4	1E-06	100	70	25550	4.2E-07	1.5E+00	6.4E-07	85%	1460	7.4E-06	3.0E-04	2.5E-02	25%
Beryllium	0.45	250	4	1E-06	100	70	25550	2.5E-08	4.3E+00	1.1E-07	15%	1460	4.4E-07	5.0E-03	8.8E-05	0%
Iron	18600.00	250	4	1E-06	100	70	25550	1.0E-03	0.0E+00	0.0E+00	0%	1460	1.8E-02	3.0E-01	6.1E-02	62%
TOTAL										7.5E-07					9.8E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	48	4	100	1E-06	70	25550	3.0E-09	0.0E+00	0.0E+00	0%	1460	5.3E-08	3.0E-02	1.8E-06	0%
Anthracene	0.062	48	4	100	1E-06	70	25550	6.7E-10	0.0E+00	0.0E+00	0%	1460	1.2E-08	3.0E-01	3.9E-08	0%
Fluoranthene	0.420	48	4	100	1E-06	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.9E-08	4.0E-02	2.0E-06	0%
Pyrene	0.330	48	4	100	1E-06	70	25550	3.5E-09	0.0E+00	0.0E+00	0%	1460	6.2E-08	3.0E-02	2.1E-06	0%
Benzo(a)anthracene	0.190	48	4	100	1E-06	70	25550	2.0E-09	7.3E-01	1.5E-09	1%	1460	3.6E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	4	100	1E-06	70	25550	2.3E-09	7.3E-03	1.6E-11	0%	1460	3.9E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	4	100	1E-06	70	25550	2.7E-09	1.4E-02	3.8E-11	0%	1460	4.7E-08	2.0E-02	2.3E-06	0%
Benzo(b)fluoranthene	0.250	48	4	100	1E-06	70	25550	2.7E-09	7.3E-01	2.0E-09	2%	1460	4.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	4	100	1E-06	70	25550	1.0E-09	7.3E-02	7.6E-11	0%	1460	1.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	4	100	1E-06	70	25550	4.1E-09	7.3E+00	3.0E-08	23%	1460	7.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	4	100	1E-06	70	25550	1.2E-09	7.3E-01	8.6E-10	1%	1460	2.1E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	4	100	1E-06	70	25550	1.1E-09	0.0E+00	0.0E+00	0%	1460	1.8E-08	3.0E-02	6.1E-07	0%
4,4'-DDE	0.550	48	4	100	1E-06	70	25550	5.9E-09	3.4E-01	2.0E-09	2%	1460	1.0E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	4	100	1E-06	70	25550	3.1E-08	2.4E-01	7.5E-09	6%	1460	5.4E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	4	100	1E-06	70	25550	4.8E-08	3.4E-01	1.6E-08	13%	1460	8.5E-07	5.0E-04	1.7E-03	8%
alpha-Chlordane	0.013	48	4	100	1E-06	70	25550	1.4E-10	1.3E+00	1.8E-10	0%	1460	2.4E-09	6.0E-05	4.1E-05	0%
gamma-Chlordane	0.014	48	4	100	1E-06	70	25550	1.5E-10	1.3E+00	2.0E-10	0%	1460	2.6E-09	6.0E-05	4.4E-05	0%
Aluminum	11500.000	48	4	100	1E-06	70	25550	1.2E-04	0.0E+00	0.0E+00	0%	1460	2.2E-03	1.0E+00	2.2E-03	11%
Arsenic	4.200	48	4	100	1E-06	70	25550	4.5E-08	1.5E+00	6.8E-08	53%	1460	7.9E-07	3.0E-04	2.6E-03	13%
Barium	28.100	48	4	100	1E-06	70	25550	3.0E-07	0.0E+00	0.0E+00	0%	1460	5.3E-06	7.0E-02	7.5E-05	0%
Cadmium (soil)	3.960	48	4	100	1E-06	70	25550	4.3E-08	0.0E+00	0.0E+00	0%	1460	7.4E-07	1.0E-03	7.4E-04	4%
Chromium	12.600	48	4	100	1E-06	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	1460	2.4E-06	5.0E-03	4.7E-04	2%
Cobalt	6.300	48	4	100	1E-06	70	25550	6.8E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	6.0E-02	2.0E-05	0%
Copper	14.900	48	4	100	1E-06	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	4.0E-02	7.0E-05	0%
Iron	16300.000	48	4	100	1E-06	70	25550	1.7E-04	0.0E+00	0.0E+00	0%	1460	3.1E-03	3.0E-01	1.0E-02	50%
Lead	73.000	48	4	100	1E-06	70	25550	7.8E-07	0.0E+00	0.0E+00	0%	1460	1.4E-05	0.0E+00	0.0E+00	0%
Manganese	127.000	48	4	100	1E-06	70	25550	1.4E-06	0.0E+00	0.0E+00	0%	1460	2.4E-05	2.3E-02	1.0E-03	5%
Mercury	0.270	48	4	100	1E-06	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.1E-08	3.0E-04	1.7E-04	1%
Nickel	9.700	48	4	100	1E-06	70	25550	1.0E-07	0.0E+00	0.0E+00	0%	1460	1.8E-06	2.0E-02	9.1E-05	0%
Selenium	1.200	48	4	100	1E-06	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	5.0E-03	4.5E-05	0%
Vanadium	26.600	48	4	100	1E-06	70	25550	2.9E-07	0.0E+00	0.0E+00	0%	1460	5.0E-06	7.0E-03	7.1E-04	4%
Zinc	86.500	48	4	100	1E-06	70	25550	9.3E-07	0.0E+00	0.0E+00	0%	1460	1.6E-05	3.0E-01	5.4E-05	0%
TOTAL										1.3E-07					2.0E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	30
IR = soil ingestion rate (mg/day)	100
BW = 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)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	48	30	100	1E-06	70	25550	2.3E-08	0.0E+00	0.0E+00	0%	10950	5.3E-08	3.0E-02	1.8E-06	0%
Anthracene	0.062	48	30	100	1E-06	70	25550	5.0E-09	0.0E+00	0.0E+00	0%	10950	1.2E-08	3.0E-01	3.9E-08	0%
Fluoranthene	0.420	48	30	100	1E-06	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	10950	7.9E-08	4.0E-02	2.0E-06	0%
Pyrene	0.330	48	30	100	1E-06	70	25550	2.7E-08	0.0E+00	0.0E+00	0%	10950	6.2E-08	3.0E-02	2.1E-06	0%
Benzo(a)anthracene	0.190	48	30	100	1E-06	70	25550	1.5E-08	7.3E-01	1.1E-08	1%	10950	3.6E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	30	100	1E-06	70	25550	1.7E-08	7.3E-03	1.2E-10	0%	10950	3.9E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	30	100	1E-06	70	25550	2.0E-08	1.4E-02	2.8E-10	0%	10950	4.7E-08	2.0E-02	2.3E-06	0%
Benzo(b)fluoranthene	0.250	48	30	100	1E-06	70	25550	2.0E-08	7.3E-01	1.5E-08	2%	10950	4.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	30	100	1E-06	70	25550	7.8E-09	7.3E-02	5.7E-10	0%	10950	1.8E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	30	100	1E-06	70	25550	3.1E-08	7.3E+00	2.2E-07	23%	10950	7.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	30	100	1E-06	70	25550	8.9E-09	7.3E-01	6.5E-09	1%	10950	2.1E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	30	100	1E-06	70	25550	7.9E-09	0.0E+00	0.0E+00	0%	10950	1.8E-08	3.0E-02	6.1E-07	0%
4,4'-DDE	0.550	48	30	100	1E-06	70	25550	4.4E-08	3.4E-01	1.5E-08	2%	10950	1.0E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	30	100	1E-06	70	25550	2.3E-07	2.4E-01	5.6E-08	6%	10950	5.4E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	30	100	1E-06	70	25550	3.6E-07	3.4E-01	1.2E-07	13%	10950	8.5E-07	5.0E-04	1.7E-03	8%
alpha-Chlordane	0.013	48	30	100	1E-06	70	25550	1.0E-09	1.3E+00	1.4E-09	0%	10950	2.4E-09	6.0E-05	4.1E-05	0%
gamma-Chlordane	0.014	48	30	100	1E-06	70	25550	1.1E-09	1.3E+00	1.5E-09	0%	10950	2.6E-09	6.0E-05	4.4E-05	0%
Aluminum	11500.000	48	30	100	1E-06	70	25550	9.3E-04	0.0E+00	0.0E+00	0%	10950	2.2E-03	1.0E+00	2.2E-03	11%
Arsenic	4.200	48	30	100	1E-06	70	25550	3.4E-07	1.5E+00	5.1E-07	53%	10950	7.9E-07	3.0E-04	2.6E-03	13%
Barium	28.100	48	30	100	1E-06	70	25550	2.3E-06	0.0E+00	0.0E+00	0%	10950	5.3E-06	7.0E-02	7.5E-05	0%
Cadmium (soil)	3.960	48	30	100	1E-06	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.4E-07	1.0E-03	7.4E-04	4%
Chromium	12.600	48	30	100	1E-06	70	25550	1.0E-06	0.0E+00	0.0E+00	0%	10950	2.4E-06	5.0E-03	4.7E-04	2%
Cobalt	6.300	48	30	100	1E-06	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	10950	1.2E-06	6.0E-02	2.0E-05	0%
Copper	14.900	48	30	100	1E-06	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.8E-06	4.0E-02	7.0E-05	0%
Iron	16300.000	48	30	100	1E-06	70	25550	1.3E-03	0.0E+00	0.0E+00	0%	10950	3.1E-03	3.0E-01	1.0E-02	50%
Lead	73.000	48	30	100	1E-06	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	0.0E+00	0.0E+00	0%
Manganese	127.000	48	30	100	1E-06	70	25550	1.0E-05	0.0E+00	0.0E+00	0%	10950	2.4E-05	2.3E-02	1.0E-03	5%
Mercury	0.270	48	30	100	1E-06	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	10950	5.1E-08	3.0E-04	1.7E-04	1%
Nickel	9.700	48	30	100	1E-06	70	25550	7.8E-07	0.0E+00	0.0E+00	0%	10950	1.8E-06	2.0E-02	9.1E-05	0%
Selenium	1.200	48	30	100	1E-06	70	25550	9.7E-08	0.0E+00	0.0E+00	0%	10950	2.3E-07	5.0E-03	4.5E-05	0%
Vanadium	26.600	48	30	100	1E-06	70	25550	2.1E-06	0.0E+00	0.0E+00	0%	10950	5.0E-06	7.0E-03	7.1E-04	4%
Zinc	86.500	48	30	100	1E-06	70	25550	7.0E-06	0.0E+00	0.0E+00	0%	10950	1.6E-05	3.0E-01	5.4E-05	0%
TOTAL										9.6E-07					2.0E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	6
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (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	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Phenanthrene	0.280	48	6	200	1E-06	15	25550	4.2E-08	0.0E+00	0.0E+00	0%	2190	4.9E-07	3.0E-02	1.6E-05	0%
Anthracene	0.062	48	6	200	1E-06	15	25550	9.3E-09	0.0E+00	0.0E+00	0%	2190	1.1E-07	3.0E-01	3.6E-07	0%
Fluoranthene	0.420	48	6	200	1E-06	15	25550	6.3E-08	0.0E+00	0.0E+00	0%	2190	7.4E-07	4.0E-02	1.8E-05	0%
Pyrene	0.330	48	6	200	1E-06	15	25550	5.0E-08	0.0E+00	0.0E+00	0%	2190	5.8E-07	3.0E-02	1.9E-05	0%
Benzo(a)anthracene	0.190	48	6	200	1E-06	15	25550	2.9E-08	7.3E-01	2.1E-08	1%	2190	3.3E-07	0.0E+00	0.0E+00	0%
Chrysene	0.210	48	6	200	1E-06	15	25550	3.2E-08	7.3E-03	2.3E-10	0%	2190	3.7E-07	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	48	6	200	1E-06	15	25550	3.8E-08	1.4E-02	5.3E-10	0%	2190	4.4E-07	2.0E-02	2.2E-05	0%
Benzo(b)fluoranthene	0.250	48	6	200	1E-06	15	25550	3.8E-08	7.3E-01	2.7E-08	2%	2190	4.4E-07	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	48	6	200	1E-06	15	25550	1.5E-08	7.3E-02	1.1E-09	0%	2190	1.7E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	48	6	200	1E-06	15	25550	5.7E-08	7.3E+00	4.2E-07	23%	2190	6.7E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	48	6	200	1E-06	15	25550	1.7E-08	7.3E-01	1.2E-08	1%	2190	1.9E-07	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	48	6	200	1E-06	15	25550	1.5E-08	0.0E+00	0.0E+00	0%	2190	1.7E-07	3.0E-02	5.7E-06	0%
4,4'-DDE	0.550	48	6	200	1E-06	15	25550	8.3E-08	3.4E-01	2.8E-08	2%	2190	9.6E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	48	6	200	1E-06	15	25550	4.4E-07	2.4E-01	1.0E-07	6%	2190	5.1E-06	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	48	6	200	1E-06	15	25550	6.8E-07	3.4E-01	2.3E-07	13%	2190	7.9E-06	5.0E-04	1.6E-02	8%
alpha-Chlordane	0.013	48	6	200	1E-06	15	25550	2.0E-09	1.3E+00	2.5E-09	0%	2190	2.3E-08	6.0E-05	3.8E-04	0%
gamma-Chlordane	0.014	48	6	200	1E-06	15	25550	2.1E-09	1.3E+00	2.7E-09	0%	2190	2.5E-08	6.0E-05	4.1E-04	0%
Aluminum	11500.000	48	6	200	1E-06	15	25550	1.7E-03	0.0E+00	0.0E+00	0%	2190	2.0E-02	1.0E+00	2.0E-02	11%
Arsenic	4.200	48	6	200	1E-06	15	25550	6.3E-07	1.5E+00	9.5E-07	53%	2190	7.4E-06	3.0E-04	2.5E-02	13%
Barium	28.100	48	6	200	1E-06	15	25550	4.2E-06	0.0E+00	0.0E+00	0%	2190	4.9E-05	7.0E-02	7.0E-04	0%
Cadmium (soil)	3.960	48	6	200	1E-06	15	25550	6.0E-07	0.0E+00	0.0E+00	0%	2190	6.9E-06	1.0E-03	6.9E-03	4%
Chromium	12.600	48	6	200	1E-06	15	25550	1.9E-06	0.0E+00	0.0E+00	0%	2190	2.2E-05	5.0E-03	4.4E-03	2%
Cobalt	6.300	48	6	200	1E-06	15	25550	9.5E-07	0.0E+00	0.0E+00	0%	2190	1.1E-05	6.0E-02	1.8E-04	0%
Copper	14.900	48	6	200	1E-06	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.6E-05	4.0E-02	6.5E-04	0%
Iron	16300.000	48	6	200	1E-06	15	25550	2.4E-03	0.0E+00	0.0E+00	0%	2190	2.9E-02	3.0E-01	9.5E-02	50%
Lead	73.000	48	6	200	1E-06	15	25550	1.1E-05	0.0E+00	0.0E+00	0%	2190	1.3E-04	0.0E+00	0.0E+00	0%
Manganese	127.000	48	6	200	1E-06	15	25550	1.9E-05	0.0E+00	0.0E+00	0%	2190	2.2E-04	2.3E-02	9.7E-03	5%
Mercury	0.270	48	6	200	1E-06	15	25550	4.1E-08	0.0E+00	0.0E+00	0%	2190	4.7E-07	3.0E-04	1.6E-03	1%
Nickel	9.700	48	6	200	1E-06	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	2.0E-02	8.5E-04	0%
Selenium	1.200	48	6	200	1E-06	15	25550	1.8E-07	0.0E+00	0.0E+00	0%	2190	2.1E-06	5.0E-03	4.2E-04	0%
Vanadium	26.600	48	6	200	1E-06	15	25550	4.0E-06	0.0E+00	0.0E+00	0%	2190	4.7E-05	7.0E-03	6.7E-03	4%
Zinc	86.500	48	6	200	1E-06	15	25550	1.3E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	3.0E-01	5.1E-04	0%
TOTAL										1.8E-06					1.9E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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
Aluminum	6641.00	350	4	1E-06	100	70	25550	5.2E-04	0.0E+00	0.00E+00	0%	1460	9.1E-03	1.0E+00	9.1E-03	32%
Arsenic	0.99	350	4	1E-06	100	70	25550	7.7E-08	1.5E+00	1.16E-07	100%	1460	1.4E-06	3.0E-04	4.5E-03	16%
Iron	3276.19	350	4	1E-06	100	70	25550	2.6E-04	0.0E+00	0.00E+00	0%	1460	4.5E-03	3.0E-01	1.5E-02	52%
TOTAL										1.2E-07					2.9E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aluminum	6641.00	350	30	1E-06	100	70	25550	3.9E-03	0.0E+00	0.00E+00	0%	10950	9.1E-03	1.0E+00	9.1E-03	32%
Arsenic	0.99	350	30	1E-06	100	70	25550	5.8E-07	1.5E+00	8.72E-07	100%	10950	1.4E-06	3.0E-04	4.5E-03	16%
Iron	3276.19	350	30	1E-06	100	70	25550	1.9E-03	0.0E+00	0.00E+00	0%	10950	4.5E-03	3.0E-01	1.5E-02	52%
TOTAL										8.7E-07					2.9E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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 (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	6641.00	350	4	1E-06	200	15	25550	4.9E-03	0.00E+00	0.00E+00	0%	1460	8.5E-02	1.00E+00	8.5E-02	32%
Arsenic	0.99	350	4	1E-06	200	15	25550	7.2E-07	1.50E+00	1.08E-06	100%	1460	1.3E-05	3.00E-04	4.2E-02	16%
Iron	3276.19	350	4	1E-06	200	15	25550	2.4E-03	0.00E+00	0.00E+00	0%	1460	4.2E-02	3.00E-01	1.4E-01	52%
TOTAL										1.1E-06					2.7E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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	6641.00	350	6	1E-06	200	15	25550	7.3E-03	0.00E+00	0.00E+00	0%	2190	8.5E-02	1.00E+00	8.5E-02	32%
Arsenic	0.99	350	6	1E-06	200	15	25550	1.1E-06	1.50E+00	1.63E-06	100%	2190	1.3E-05	3.00E-04	4.2E-02	16%
Iron	3276.19	350	6	1E-06	200	15	25550	3.6E-03	0.00E+00	0.00E+00	0%	2190	4.2E-02	3.00E-01	1.4E-01	52%
TOTAL										1.6E-06					2.7E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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
Arsenic	0.80	350	4	1E-06	100	70	25550	6.3E-08	1.5E+00	9.39E-08	68%	1460	1.1E-06	3.0E-04	3.7E-03	19%
Beryllium	0.13	350	4	1E-06	100	70	25550	1.0E-08	4.3E+00	4.38E-08	32%	1460	1.8E-07	5.0E-03	3.6E-05	0%
Iron	3500.77	350	4	1E-06	100	70	25550	2.7E-04	0.0E+00	0.00E+00	0%	1460	4.8E-03	3.0E-01	1.6E-02	81%
TOTAL										1.4E-07					2.0E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	0.80	350	30	1E-06	100	70	25550	4.7E-07	1.5E+00	7.05E-07	68%	10950	1.1E-06	3.0E-04	3.7E-03	19%
Beryllium	0.13	350	30	1E-06	100	70	25550	7.6E-08	4.3E+00	3.28E-07	32%	10950	1.8E-07	5.0E-03	3.6E-05	0%
Iron	3500.77	350	30	1E-06	100	70	25550	2.1E-03	0.0E+00	0.00E+00	0%	10950	4.8E-03	3.0E-01	1.6E-02	81%
TOTAL										1.0E-06					2.0E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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* (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
Arsenic	0.80	350	4	1E-06	200	15	25550	5.8E-07	1.50E+00	8.77E-07	68%	1460	1.0E-05	3.00E-04	3.4E-02	19%
Beryllium	0.13	350	4	1E-06	200	15	25550	9.5E-08	4.30E+00	4.08E-07	32%	1460	1.7E-06	5.00E-03	3.3E-04	0%
Iron	3500.77	350	4	1E-06	200	15	25550	2.6E-03	0.00E+00	0.00E+00	0%	1460	4.5E-02	3.00E-01	1.5E-01	81%
TOTAL										1.3E-06					1.8E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 78 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.80	350	6	1E-06	200	15	25550	8.8E-07	1.50E+00	1.32E-06	68%	2190	1.0E-05	3.00E-04	3.4E-02	19%
Beryllium	0.13	350	6	1E-06	200	15	25550	1.4E-07	4.30E+00	6.13E-07	32%	2190	1.7E-06	5.00E-03	3.3E-04	0%
Iron	3500.77	350	6	1E-06	200	15	25550	3.8E-03	0.00E+00	0.00E+00	0%	2190	4.5E-02	3.00E-01	1.5E-01	81%
TOTAL										1.9E-06					1.8E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aroclor-1260	10.68	250	4	1E-06	100	70	25550	6.0E-07	7.7E+00	4.60E-06	100%	1460	1.0E-05	0.0E+00	0.00E+00	0%
TOTAL										4.6E-06					0.0E+00	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aroclor-1248	2.800	48	4	100	1E-06	70	25550	3.0E-08	7.7E+00	2.3E-07	12%	1460	5.3E-07	0.0E+00	0.0E+00	0%
Aroclor-1260	20.000	48	4	100	1E-06	70	25550	2.1E-07	7.7E+00	1.7E-06	88%	1460	3.8E-06	0.0E+00	0.0E+00	0%
TOTAL										1.9E-06					0.0E+00	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	76.80	250	4	1E-06	100	70	25550	4.3E-06	1.5E+00	6.44E-06	100%	1460	7.5E-05	3.0E-04	2.50E-01	2%
Cadmium (soil)	47.10	250	4	1E-06	100	70	25550	2.6E-06	0.0E+00	0.00E+00	0%	1460	4.6E-05	1.0E-03	4.61E-02	0%
Chromium	147.00	250	4	1E-06	100	70	25550	8.2E-06	0.0E+00	0.00E+00	0%	1460	1.4E-04	5.0E-03	2.88E-02	0%
Copper	1870.00	250	4	1E-06	100	70	25550	1.0E-04	0.0E+00	0.00E+00	0%	1460	1.8E-03	4.0E-02	4.57E-02	0%
Iron	339000.00	250	4	1E-06	100	70	25550	1.9E-02	0.0E+00	0.00E+00	0%	1460	3.3E-01	3.0E-01	1.11E+00	11%
Lead	3030.00	250	4	1E-06	100	70	25550	1.7E-04	0.0E+00	0.00E+00	0%	1460	3.0E-03	0.0E+00	0.00E+00	0%
Manganese	197000.00	250	4	1E-06	100	70	25550	1.1E-02	0.0E+00	0.00E+00	0%	1460	1.9E-01	2.3E-02	8.38E+00	83%
Mercury	70.70	250	4	1E-06	100	70	25550	4.0E-06	0.0E+00	0.00E+00	0%	1460	6.9E-05	3.0E-04	2.31E-01	2%
Chromium	147.00	250	4	1E-06	100	70	25550	8.2E-06	0.0E+00	0.00E+00	0%	1460	1.4E-04	5.0E-03	2.88E-02	0%
TOTAL										6.4E-06					1.0E+01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	76.80	350	30	1E-06	100	70	25550	4.5E-05	1.5E+00	6.76E-05	100%	10950	1.1E-04	3.0E-04	3.5E-01	2%
Cadmium (soil)	47.10	350	30	1E-06	100	70	25550	2.8E-05	0.0E+00	0.00E+00	0%	10950	6.5E-05	1.0E-03	6.5E-02	0%
Chromium	147.00	350	30	1E-06	100	70	25550	8.6E-05	0.0E+00	0.00E+00	0%	10950	2.0E-04	5.0E-03	4.0E-02	0%
Copper	1870.00	350	30	1E-06	100	70	25550	1.1E-03	0.0E+00	0.00E+00	0%	10950	2.6E-03	4.0E-02	6.4E-02	0%
Iron	339000.00	350	30	1E-06	100	70	25550	2.0E-01	0.0E+00	0.00E+00	0%	10950	4.6E-01	3.0E-01	1.5E+00	11%
Lead	3030.00	350	30	1E-06	100	70	25550	1.8E-03	0.0E+00	0.00E+00	0%	10950	4.2E-03	0.0E+00	0.0E+00	0%
Manganese	197000.00	350	30	1E-06	100	70	25550	1.2E-01	0.0E+00	0.00E+00	0%	10950	2.7E-01	2.3E-02	1.2E+01	81%
Mercury	70.70	350	30	1E-06	100	70	25550	4.2E-05	0.0E+00	0.00E+00	0%	10950	9.7E-05	3.0E-04	3.2E-01	2%
Zinc	63900.00	350	30	1E-06	100	70	25550	3.8E-02	0.0E+00	0.00E+00	0%	10950	8.8E-02	3.0E-01	2.9E-01	2%
TOTAL										6.8E-05					1.4E+01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	76.80	350	6	1E-06	200	15	25550	8.4E-05	1.50E+00	1.26E-04	100%	2190	9.8E-04	3.00E-04	3.3E+00	2%
Cadmium (soil)	47.10	350	6	1E-06	200	15	25550	5.2E-05	0.00E+00	0.00E+00	0%	2190	6.0E-04	1.00E-03	6.0E-01	0%
Chromium	147.00	350	6	1E-06	200	15	25550	1.6E-04	0.00E+00	0.00E+00	0%	2190	1.9E-03	5.00E-03	3.8E-01	0%
Copper	1870.00	350	6	1E-06	200	15	25550	2.0E-03	0.00E+00	0.00E+00	0%	2190	2.4E-02	4.00E-02	6.0E-01	0%
Iron	339000.00	350	6	1E-06	200	15	25550	3.7E-01	0.00E+00	0.00E+00	0%	2190	4.3E+00	3.00E-01	1.4E+01	11%
Lead	3030.00	350	6	1E-06	200	15	25550	3.3E-03	0.00E+00	0.00E+00	0%	2190	3.9E-02	0.00E+00	0.0E+00	0%
Manganese	197000.00	350	6	1E-06	200	15	25550	2.2E-01	0.00E+00	0.00E+00	0%	2190	2.5E+00	2.30E-02	1.1E+02	81%
Mercury	70.70	350	6	1E-06	200	15	25550	7.7E-05	0.00E+00	0.00E+00	0%	2190	9.0E-04	3.00E-04	3.0E+00	2%
Zinc	63900.00	350	6	1E-06	200	15	25550	7.0E-02	0.00E+00	0.00E+00	0%	2190	8.2E-01	3.00E-01	2.7E+00	2%
TOTAL										1.3E-04					1.3E+02	

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	10200.00	250	4	1E-06	100	70	25550	5.7E-04	0.0E+00	0.0E+00	0%	1460	1.0E-02	1.0E+00	1.0E-02	21%
Arsenic	2.41	250	4	1E-06	100	70	25550	1.3E-07	1.5E+00	2.0E-07	100%	1460	2.4E-06	3.0E-04	7.9E-03	16%
Iron	9176.27	250	4	1E-06	100	70	25550	5.1E-04	0.0E+00	0.0E+00	0%	1460	9.0E-03	3.0E-01	3.0E-02	63%
TOTAL										2.0E-07					4.8E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)		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 (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)pyrene	0.38	350	4	1E-06	100	70	25550	3.0E-08	7.3E+00	2.17E-07	20%	1460	5.2E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	4	1E-06	100	70	25550	7.8E-09	7.3E+00	5.71E-08	5%	1460	1.4E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	350	4	1E-06	100	70	25550	3.6E-07	1.5E+00	5.40E-07	49%	1460	6.3E-06	3.0E-04	2.1E-02	41%
Beryllium	0.87	350	4	1E-06	100	70	25550	6.8E-08	4.3E+00	2.93E-07	26%	1460	1.2E-06	5.0E-03	2.4E-04	0%
Iron	6530.00	350	4	1E-06	100	70	25550	5.1E-04	0.0E+00	0.00E+00	0%	1460	8.9E-03	3.0E-01	3.0E-02	58%
TOTAL										1.1E-06					5.1E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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)pyrene	0.38	350	30	1E-06	100	70	25550	2.2E-07	7.3E+00	1.63E-06	20%	10950	5.2E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	30	1E-06	100	70	25550	5.9E-08	7.3E+00	4.29E-07	5%	10950	1.4E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	350	30	1E-06	100	70	25550	2.7E-06	1.5E+00	4.05E-06	49%	10950	6.3E-06	3.0E-04	2.1E-02	41%
Beryllium	0.87	350	30	1E-06	100	70	25550	5.1E-07	4.3E+00	2.20E-06	26%	10950	1.2E-06	5.0E-03	2.4E-04	0%
Iron	6530.00	350	30	1E-06	100	70	25550	3.8E-03	0.0E+00	0.00E+00	0%	10950	8.9E-03	3.0E-01	3.0E-02	58%
TOTAL										8.3E-06					5.1E-02	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
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)	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 (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
Benzo(a)pyrene	0.38	350	4	1E-06	200	15	25550	2.8E-07	7.30E+00	2.03E-06	20%	1460	4.9E-06	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	4	1E-06	200	15	25550	7.3E-08	7.30E+00	5.33E-07	5%	1460	1.3E-06	0.00E+00	0.0E+00	0%
Arsenic	4.60	350	4	1E-06	200	15	25550	3.4E-06	1.50E+00	5.04E-06	49%	1460	5.9E-05	3.00E-04	2.0E-01	41%
Beryllium	0.87	350	4	1E-06	200	15	25550	6.4E-07	4.30E+00	2.73E-06	26%	1460	1.1E-05	5.00E-03	2.2E-03	0%
Iron	6530.00	350	4	1E-06	200	15	25550	4.8E-03	0.00E+00	0.00E+00	0%	1460	8.3E-02	3.00E-01	2.8E-01	58%
TOTAL										1.0E-05					4.8E-01	

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Benzo(a)pyrene	0.38	350	6	1E-06	200	15	25550	4.2E-07	7.30E+00	3.04E-06	20%	2190	4.9E-06	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	350	6	1E-06	200	15	25550	1.1E-07	7.30E+00	8.00E-07	5%	2190	1.3E-06	0.00E+00	0.0E+00	0%
Arsenic	4.60	350	6	1E-06	200	15	25550	5.0E-06	1.50E+00	7.56E-06	49%	2190	5.9E-05	3.00E-04	2.0E-01	41%
Beryllium	0.87	350	6	1E-06	200	15	25550	9.5E-07	4.30E+00	4.10E-06	26%	2190	1.1E-05	5.00E-03	2.2E-03	0%
Iron	6530.00	350	6	1E-06	200	15	25550	7.2E-03	0.00E+00	0.00E+00	0%	2190	8.3E-02	3.00E-01	2.8E-01	58%
TOTAL										1.6E-05					4.8E-01	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	4
IR = soil ingestion rate (mg/day)	100
BW = 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 (mg/kg)	Exposure Frequency (days/yr)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	48	4	100	1E-06	70	25550	6.4E-11	0.0E+00	0.0E+00	0%	1460	1.1E-09	1.0E-01	1.1E-08	0%
Fluoranthene	0.024	48	4	100	1E-06	70	25550	2.6E-10	0.0E+00	0.0E+00	0%	1460	4.5E-09	4.0E-02	1.1E-07	0%
Pyrene	0.028	48	4	100	1E-06	70	25550	3.0E-10	0.0E+00	0.0E+00	0%	1460	5.3E-09	3.0E-02	1.8E-07	0%
Benzo(a)anthracene	0.024	48	4	100	1E-06	70	25550	2.6E-10	7.3E-01	1.9E-10	5%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	4	100	1E-06	70	25550	3.4E-10	7.3E-03	2.5E-12	0%	1460	6.0E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	4	100	1E-06	70	25550	2.9E-10	1.4E-02	4.1E-12	0%	1460	5.1E-09	2.0E-02	2.5E-07	0%
Benzo(b)fluoranthene	0.025	48	4	100	1E-06	70	25550	2.7E-10	7.3E-01	2.0E-10	5%	1460	4.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	4	100	1E-06	70	25550	3.4E-10	7.3E-02	2.5E-11	1%	1460	6.0E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	4	100	1E-06	70	25550	4.4E-10	7.3E+00	3.2E-09	84%	1460	7.7E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	4	100	1E-06	70	25550	2.6E-10	7.3E-01	1.9E-10	5%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	4	100	1E-06	70	25550	3.4E-10	0.0E+00	0.0E+00	0%	1460	6.0E-09	3.0E-02	2.0E-07	0%
Aluminum	1060.000	48	4	100	1E-06	70	25550	1.1E-05	0.0E+00	0.0E+00	0%	1460	2.0E-04	1.0E+00	2.0E-04	4%
Barium	35.000	48	4	100	1E-06	70	25550	3.8E-07	0.0E+00	0.0E+00	0%	1460	6.6E-06	7.0E-02	9.4E-05	2%
Chromium	11.500	48	4	100	1E-06	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	1460	2.2E-06	5.0E-03	4.3E-04	8%
Copper	38.400	48	4	100	1E-06	70	25550	4.1E-07	0.0E+00	0.0E+00	0%	1460	7.2E-06	4.0E-02	1.8E-04	3%
Iron	6040.000	48	4	100	1E-06	70	25550	6.5E-05	0.0E+00	0.0E+00	0%	1460	1.1E-03	3.0E-01	3.8E-03	71%
Lead	6.100	48	4	100	1E-06	70	25550	6.5E-08	0.0E+00	0.0E+00	0%	1460	1.1E-06	0.0E+00	0.0E+00	0%
Manganese	45.200	48	4	100	1E-06	70	25550	4.9E-07	0.0E+00	0.0E+00	0%	1460	8.5E-06	2.3E-02	3.7E-04	7%
Nickel	7.200	48	4	100	1E-06	70	25550	7.7E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	2.0E-02	6.8E-05	1%
Selenium	0.670	48	4	100	1E-06	70	25550	7.2E-09	0.0E+00	0.0E+00	0%	1460	1.3E-07	5.0E-03	2.5E-05	0%
Silver	2.100	48	4	100	1E-06	70	25550	2.3E-08	0.0E+00	0.0E+00	0%	1460	3.9E-07	5.0E-03	7.9E-05	1%
Vanadium	2.500	48	4	100	1E-06	70	25550	2.7E-08	0.0E+00	0.0E+00	0%	1460	4.7E-07	7.0E-03	6.7E-05	1%
Zinc	11.000	48	4	100	1E-06	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	1460	2.1E-06	3.0E-01	6.9E-06	0%
TOTAL										3.8E-09					5.3E-03	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency (days/yr)	48
ED = exposure duration (yr)	30
IR = soil ingestion rate (mg/day)	100
BW = 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)	Exposure Duration (yr)	Ingestion Rate (mg/day)	Conversion Factor (kg/mg)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg/day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg/day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	48	30	100	1E-06	70	25550	4.8E-10	0.0E+00	0.0E+00	0%	10950	1.1E-09	1.0E-01	1.1E-08	0%
Fluoranthene	0.024	48	30	100	1E-06	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	10950	4.5E-09	4.0E-02	1.1E-07	0%
Pyrene	0.028	48	30	100	1E-06	70	25550	2.3E-09	0.0E+00	0.0E+00	0%	10950	5.3E-09	3.0E-02	1.8E-07	0%
Benzo(a)anthracene	0.024	48	30	100	1E-06	70	25550	1.9E-09	7.3E-01	1.4E-09	5%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	30	100	1E-06	70	25550	2.6E-09	7.3E-03	1.9E-11	0%	10950	6.0E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	30	100	1E-06	70	25550	2.2E-09	1.4E-02	3.0E-11	0%	10950	5.1E-09	2.0E-02	2.5E-07	0%
Benzo(b)fluoranthene	0.025	48	30	100	1E-06	70	25550	2.0E-09	7.3E-01	1.5E-09	5%	10950	4.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	30	100	1E-06	70	25550	2.6E-09	7.3E-02	1.9E-10	1%	10950	6.0E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	30	100	1E-06	70	25550	3.3E-09	7.3E+00	2.4E-08	84%	10950	7.7E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	30	100	1E-06	70	25550	1.9E-09	7.3E-01	1.4E-09	5%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	30	100	1E-06	70	25550	2.6E-09	0.0E+00	0.0E+00	0%	10950	6.0E-09	3.0E-02	2.0E-07	0%
Aluminum	1060.000	48	30	100	1E-06	70	25550	8.5E-05	0.0E+00	0.0E+00	0%	10950	2.0E-04	1.0E+00	2.0E-04	4%
Barium	35.000	48	30	100	1E-06	70	25550	2.8E-06	0.0E+00	0.0E+00	0%	10950	6.6E-06	7.0E-02	9.4E-05	2%
Chromium	11.500	48	30	100	1E-06	70	25550	9.3E-07	0.0E+00	0.0E+00	0%	10950	2.2E-06	5.0E-03	4.3E-04	8%
Copper	38.400	48	30	100	1E-06	70	25550	3.1E-06	0.0E+00	0.0E+00	0%	10950	7.2E-06	4.0E-02	1.8E-04	3%
Iron	6040.000	48	30	100	1E-06	70	25550	4.9E-04	0.0E+00	0.0E+00	0%	10950	1.1E-03	3.0E-01	3.8E-03	71%
Lead	6.100	48	30	100	1E-06	70	25550	4.9E-07	0.0E+00	0.0E+00	0%	10950	1.1E-06	0.0E+00	0.0E+00	0%
Manganese	45.200	48	30	100	1E-06	70	25550	3.6E-06	0.0E+00	0.0E+00	0%	10950	8.5E-06	2.3E-02	3.7E-04	7%
Nickel	7.200	48	30	100	1E-06	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	2.0E-02	6.8E-05	1%
Selenium	0.670	48	30	100	1E-06	70	25550	5.4E-08	0.0E+00	0.0E+00	0%	10950	1.3E-07	5.0E-03	2.5E-05	0%
Silver	2.100	48	30	100	1E-06	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	5.0E-03	7.9E-05	1%
Vanadium	2.500	48	30	100	1E-06	70	25550	2.0E-07	0.0E+00	0.0E+00	0%	10950	4.7E-07	7.0E-03	6.7E-05	1%
Zinc	11.000	48	30	100	1E-06	70	25550	8.9E-07	0.0E+00	0.0E+00	0%	10950	2.1E-06	3.0E-01	6.9E-06	0%
TOTAL										2.9E-08					5.3E-03	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	4
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (kg)	15
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 (mg/kg)	Exposure Frequency (days/yr) Child	Exposure Duration (yr) Child	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Acetone	0.006	48	4	200	1E-06	15	25550	6.0E-10	0.0E+00	0.0E+00	0%	1460	1.1E-08	1.0E-01	1.1E-07	0%
Fluoranthene	0.024	48	4	200	1E-06	15	25550	2.4E-09	0.0E+00	0.0E+00	0%	1460	4.2E-08	4.0E-02	1.1E-06	0%
Pyrene	0.028	48	4	200	1E-06	15	25550	2.8E-09	0.0E+00	0.0E+00	0%	1460	4.9E-08	3.0E-02	1.6E-06	0%
Benzo(a)anthracene	0.024	48	4	200	1E-06	15	25550	2.4E-09	7.3E-01	1.8E-09	5%	1460	4.2E-08	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	4	200	1E-06	15	25550	3.2E-09	7.3E-03	2.3E-11	0%	1460	5.6E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	4	200	1E-06	15	25550	2.7E-09	1.4E-02	3.8E-11	0%	1460	4.7E-08	2.0E-02	2.4E-06	0%
Benzo(b)fluoranthene	0.025	48	4	200	1E-06	15	25550	2.5E-09	7.3E-01	1.8E-09	5%	1460	4.4E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	4	200	1E-06	15	25550	3.2E-09	7.3E-02	2.3E-10	1%	1460	5.6E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	4	200	1E-06	15	25550	4.1E-09	7.3E+00	3.0E-08	84%	1460	7.2E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	4	200	1E-06	15	25550	2.4E-09	7.3E-01	1.8E-09	5%	1460	4.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	4	200	1E-06	15	25550	3.2E-09	0.0E+00	0.0E+00	0%	1460	5.6E-08	3.0E-02	1.9E-06	0%
Aluminum	1060.000	48	4	200	1E-06	15	25550	1.1E-04	0.0E+00	0.0E+00	0%	1460	1.9E-03	1.0E+00	1.9E-03	4%
Barium	35.000	48	4	200	1E-06	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.1E-05	7.0E-02	8.8E-04	2%
Chromium	11.500	48	4	200	1E-06	15	25550	1.2E-06	0.0E+00	0.0E+00	0%	1460	2.0E-05	5.0E-03	4.0E-03	8%
Copper	38.400	48	4	200	1E-06	15	25550	3.8E-06	0.0E+00	0.0E+00	0%	1460	6.7E-05	4.0E-02	1.7E-03	3%
Iron	6040.000	48	4	200	1E-06	15	25550	6.1E-04	0.0E+00	0.0E+00	0%	1460	1.1E-02	3.0E-01	3.5E-02	71%
Lead	6.100	48	4	200	1E-06	15	25550	6.1E-07	0.0E+00	0.0E+00	0%	1460	1.1E-05	0.0E+00	0.0E+00	0%
Manganese	45.200	48	4	200	1E-06	15	25550	4.5E-06	0.0E+00	0.0E+00	0%	1460	7.9E-05	2.3E-02	3.4E-03	7%
Nickel	7.200	48	4	200	1E-06	15	25550	7.2E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	2.0E-02	6.3E-04	1%
Selenium	0.670	48	4	200	1E-06	15	25550	6.7E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	5.0E-03	2.3E-04	0%
Silver	2.100	48	4	200	1E-06	15	25550	2.1E-07	0.0E+00	0.0E+00	0%	1460	3.7E-06	5.0E-03	7.4E-04	1%
Vanadium	2.500	48	4	200	1E-06	15	25550	2.5E-07	0.0E+00	0.0E+00	0%	1460	4.4E-06	7.0E-03	6.3E-04	1%
Zinc	11.000	48	4	200	1E-06	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	1460	1.9E-05	3.0E-01	6.4E-05	0%
TOTAL										3.6E-08					4.9E-02	

SEDIMENT INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from ingestion of sediment is calculated as follows:

Intake (mg/kg-day) = C * IR * CF * EF * ED/ BW * ATC or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in sediment (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = exposure frequency for child (days/yr)	48
ED = exposure duration for child (yr)	6
IR = soil ingestion rate for child (mg/day)	200
BW = body weight for child (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	Ingestion Rate (mg/day) Child	Conversion Factor (kg/mg)	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
Acetone	0.006	48	6	200	1E-06	15	25550	9.0E-10	0.0E+00	0.0E+00	0%	2190	1.1E-08	1.0E-01	1.1E-07	0%
Fluoranthene	0.024	48	6	200	1E-06	15	25550	3.6E-09	0.0E+00	0.0E+00	0%	2190	4.2E-08	4.0E-02	1.1E-06	0%
Pyrene	0.028	48	6	200	1E-06	15	25550	4.2E-09	0.0E+00	0.0E+00	0%	2190	4.9E-08	3.0E-02	1.6E-06	0%
Benzo(a)anthracene	0.024	48	6	200	1E-06	15	25550	3.6E-09	7.3E-01	2.6E-09	5%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Chrysene	0.032	48	6	200	1E-06	15	25550	4.8E-09	7.3E-03	3.5E-11	0%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	48	6	200	1E-06	15	25550	4.1E-09	1.4E-02	5.7E-11	0%	2190	4.7E-08	2.0E-02	2.4E-06	0%
Benzo(b)fluoranthene	0.025	48	6	200	1E-06	15	25550	3.8E-09	7.3E-01	2.7E-09	5%	2190	4.4E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	48	6	200	1E-06	15	25550	4.8E-09	7.3E-02	3.5E-10	1%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	48	6	200	1E-06	15	25550	6.2E-09	7.3E+00	4.5E-08	84%	2190	7.2E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	48	6	200	1E-06	15	25550	3.6E-09	7.3E-01	2.6E-09	5%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	48	6	200	1E-06	15	25550	4.8E-09	0.0E+00	0.0E+00	0%	2190	5.6E-08	3.0E-02	1.9E-06	0%
Aluminum	1060.000	48	6	200	1E-06	15	25550	1.6E-04	0.0E+00	0.0E+00	0%	2190	1.9E-03	1.0E+00	1.9E-03	4%
Barium	35.000	48	6	200	1E-06	15	25550	5.3E-06	0.0E+00	0.0E+00	0%	2190	6.1E-05	7.0E-02	8.8E-04	2%
Chromium	11.500	48	6	200	1E-06	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	2190	2.0E-05	5.0E-03	4.0E-03	8%
Copper	38.400	48	6	200	1E-06	15	25550	5.8E-06	0.0E+00	0.0E+00	0%	2190	6.7E-05	4.0E-02	1.7E-03	3%
Iron	6040.000	48	6	200	1E-06	15	25550	9.1E-04	0.0E+00	0.0E+00	0%	2190	1.1E-02	3.0E-01	3.5E-02	71%
Lead	6.100	48	6	200	1E-06	15	25550	9.2E-07	0.0E+00	0.0E+00	0%	2190	1.1E-05	0.0E+00	0.0E+00	0%
Manganese	45.200	48	6	200	1E-06	15	25550	6.8E-06	0.0E+00	0.0E+00	0%	2190	7.9E-05	2.3E-02	3.4E-03	7%
Nickel	7.200	48	6	200	1E-06	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	2.0E-02	6.3E-04	1%
Selenium	0.670	48	6	200	1E-06	15	25550	1.0E-07	0.0E+00	0.0E+00	0%	2190	1.2E-06	5.0E-03	2.3E-04	0%
Silver	2.100	48	6	200	1E-06	15	25550	3.2E-07	0.0E+00	0.0E+00	0%	2190	3.7E-06	5.0E-03	7.4E-04	1%
Vanadium	2.500	48	6	200	1E-06	15	25550	3.8E-07	0.0E+00	0.0E+00	0%	2190	4.4E-06	7.0E-03	6.3E-04	1%
Zinc	11.000	48	6	200	1E-06	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	2190	1.9E-05	3.0E-01	6.4E-05	0%
TOTAL										5.3E-08					4.9E-02	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE DERMAL CONTACT WITH SOIL* CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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)
	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 dermally - adjusted CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/ dermally - adjusted RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 0.001 \times 1\ mg/cm^2 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 2.1E\text{-}08$$

Risk = 2.1E-08 mg/kg·day x 7.5 $mg/kg{\cdot}day^{-1}$ = 1.58E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{1547.41\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 1\ mg/cm^2 \times 0.001 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E\text{-}04$$

$$Risk = \frac{1.2E\text{-}04\ mg/kg{\cdot}day}{6.0E\text{-}02\ mg/kg{\cdot}day} = 2.0E\text{-}03$$

* This example calculation also is applicable for sediment dermal contact.
Re: Site 68 Future Residential Adult

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aroclor-1260	0.03	1E-06	4300	1	0.01	250	4	70	25550	7.7E-10	1.54E+01	1.18E-08	29%	1460	1.3E-08	0.00E+00	0.00E+00	0%
Arsenic	0.62	1E-06	4300	1	0.001	250	4	70	25550	1.5E-09	7.50E+00	1.12E-08	27%	1460	2.6E-08	6.00E-05	4.35E-04	28%
Beryllium	0.35	1E-06	4300	1	0.001	250	4	70	25550	8.4E-10	2.15E+01	1.81E-08	44%	1460	1.5E-08	1.00E-03	1.47E-05	1%
Iron	1547.41	1E-06	4300	1	0.001	250	4	70	25550	3.7E-06	0.00E+00	0.00E+00	0%	1460	6.5E-05	6.00E-02	1.09E-03	71%
TOTAL												4.1E-08					1.5E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aroclor-1260	0.03	1E-06	5800	1	0.01	350	30	70	25550	1.1E-08	1.5E+01	1.67E-07	29%	10950	2.5E-08	0.0E+00	0.0E+00	0%
Arsenic	0.62	1E-06	5800	1	0.001	350	30	70	25550	2.1E-08	7.5E+00	1.58E-07	27%	10950	4.9E-08	6.0E-05	8.2E-04	28%
Beryllium	0.35	1E-06	5800	1	0.001	350	30	70	25550	1.2E-08	2.1E+01	2.58E-07	44%	10950	2.8E-08	1.0E-03	2.8E-05	1%
Iron	1547.41	1E-06	5800	1	0.001	350	30	70	25550	5.3E-05	0.0E+00	0.00E+00	0%	10950	1.2E-04	6.0E-02	2.0E-03	71%
TOTAL												5.8E-07					2.9E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aroclor-1260	0.03	1E-06	2300	1	0.01	350	6	15	25550	4.0E-09	1.5E+01	6.20E-08	29%	2190	4.7E-08	0.0E+00	0.0E+00	0%
Arsenic	0.62	1E-06	2300	1	0.001	350	6	15	25550	7.8E-09	7.5E+00	5.86E-08	27%	2190	9.1E-08	6.0E-05	1.5E-03	28%
Beryllium	0.35	1E-06	2300	1	0.001	350	6	15	25550	4.4E-09	2.1E+01	9.48E-08	44%	2190	5.1E-08	1.0E-03	5.1E-05	1%
Iron	1547.41	1E-06	2300	1	0.001	350	6	15	25550	2.0E-05	0.0E+00	0.00E+00	0%	2190	2.3E-04	6.0E-02	3.8E-03	71%
TOTAL												2.2E-07					5.4E-03	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	13200.00	1E-06	4300	1	0.001	250	4	70	25550	3.2E-05	0.0E+00	0.0E+00	0%	1460	5.6E-04	2.0E-01	2.8E-03	13%
Arsenic	7.60	1E-06	4300	1	0.001	250	4	70	25550	1.8E-08	7.5E+00	1.4E-07	85%	1460	3.2E-07	6.0E-05	5.3E-03	25%
Beryllium	0.45	1E-06	4300	1	0.001	250	4	70	25550	1.1E-09	2.1E+01	2.3E-08	15%	1460	1.9E-08	1.0E-03	1.9E-05	0%
Iron	18600.00	1E-06	4300	1	0.001	250	4	70	25550	4.5E-05	0.0E+00	0.0E+00	0%	1460	7.8E-04	6.0E-02	1.3E-02	62%
TOTAL												1.6E-07					2.1E-02	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	4300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	1E-06	4300	1	0.01	48	4	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	1460	2.3E-08	1.5E-02	1.5E-06	0%
Anthracene	0.062	1E-06	4300	1	0.01	48	4	70	25550	2.9E-10	0.0E+00	0.0E+00	0%	1460	5.0E-09	1.5E-01	3.3E-08	0%
Fluoranthene	0.420	1E-06	4300	1	0.01	48	4	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	1460	3.4E-08	2.0E-02	1.7E-06	0%
Pyrene	0.330	1E-06	4300	1	0.01	48	4	70	25550	1.5E-09	0.0E+00	0.0E+00	0%	1460	2.7E-08	1.5E-02	1.8E-06	0%
Benzo(a)anthracene	0.190	1E-06	4300	1	0.01	48	4	70	25550	8.8E-10	1.5E+00	1.3E-09	2%	1460	1.5E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	4300	1	0.01	48	4	70	25550	9.7E-10	1.5E-02	1.4E-11	0%	1460	1.7E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	4300	1	0.01	48	4	70	25550	1.2E-09	2.8E-02	3.2E-11	0%	1460	2.0E-08	1.0E-02	2.0E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	4300	1	0.01	48	4	70	25550	1.2E-09	1.5E+00	1.7E-09	3%	1460	2.0E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	4300	1	0.01	48	4	70	25550	4.5E-10	1.5E-01	6.5E-11	0%	1460	7.8E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	4300	1	0.01	48	4	70	25550	1.8E-09	1.5E+01	2.6E-08	38%	1460	3.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	4300	1	0.01	48	4	70	25550	5.1E-10	1.5E+00	7.4E-10	1%	1460	8.9E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	4300	1	0.01	48	4	70	25550	4.5E-10	0.0E+00	0.0E+00	0%	1460	7.9E-09	1.5E-02	5.3E-07	0%
4,4'-DDE	0.550	1E-06	4300	1	0.01	48	4	70	25550	2.5E-09	6.8E-01	1.7E-09	3%	1460	4.4E-08	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	4300	1	0.01	48	4	70	25550	1.3E-08	4.8E-01	6.4E-09	10%	1460	2.3E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	4300	1	0.01	48	4	70	25550	2.1E-08	6.8E-01	1.4E-08	21%	1460	3.6E-07	2.5E-04	1.5E-03	26%
alpha-Chlordane	0.013	1E-06	4300	1	0.01	48	4	70	25550	6.0E-11	2.6E+00	1.6E-10	0%	1460	1.1E-09	3.0E-05	3.5E-05	1%
gamma-Chlordane	0.014	1E-06	4300	1	0.01	48	4	70	25550	6.5E-11	2.6E+00	1.7E-10	0%	1460	1.1E-09	3.0E-05	3.8E-05	1%
Aluminum	11500.000	1E-06	4300	1	0.001	48	4	70	25550	5.3E-06	0.0E+00	0.0E+00	0%	1460	9.3E-05	2.0E-01	4.6E-04	8%
Arsenic	4.200	1E-06	4300	1	0.001	48	4	70	25550	1.9E-09	7.5E+00	1.5E-08	22%	1460	3.4E-08	6.0E-05	5.7E-04	10%
Barium	28.100	1E-06	4300	1	0.001	48	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	1.4E-02	1.6E-05	0%
Cadmium (soil)	3.960	1E-06	4300	1	0.001	48	4	70	25550	1.8E-09	0.0E+00	0.0E+00	0%	1460	3.2E-08	2.0E-04	1.6E-04	3%
Chromium	12.600	1E-06	4300	1	0.001	48	4	70	25550	5.8E-09	0.0E+00	0.0E+00	0%	1460	1.0E-07	1.0E-03	1.0E-04	2%
Cobalt	6.300	1E-06	4300	1	0.001	48	4	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.1E-08	1.2E-02	4.2E-06	0%
Copper	14.900	1E-06	4300	1	0.001	48	4	70	25550	6.9E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	8.0E-03	1.5E-05	0%
Iron	16300.000	1E-06	4300	1	0.001	48	4	70	25550	7.5E-06	0.0E+00	0.0E+00	0%	1460	1.3E-04	6.0E-02	2.2E-03	40%
Lead	73.000	1E-06	4300	1	0.001	48	4	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	1460	5.9E-07	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	4300	1	0.001	48	4	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	1460	1.0E-06	4.6E-03	2.2E-04	4%
Mercury	0.270	1E-06	4300	1	0.001	48	4	70	25550	1.2E-10	0.0E+00	0.0E+00	0%	1460	2.2E-09	6.0E-05	3.6E-05	1%
Nickel	9.700	1E-06	4300	1	0.001	48	4	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.8E-08	4.0E-03	2.0E-05	0%
Selenium	1.200	1E-06	4300	1	0.001	48	4	70	25550	5.5E-10	0.0E+00	0.0E+00	0%	1460	9.7E-09	1.0E-03	9.7E-06	0%
Vanadium	26.600	1E-06	4300	1	0.001	48	4	70	25550	1.2E-08	0.0E+00	0.0E+00	0%	1460	2.1E-07	1.4E-03	1.5E-04	3%
Zinc	86.500	1E-06	4300	1	0.001	48	4	70	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.0E-07	6.0E-02	1.2E-05	0%
TOTAL												6.7E-08					5.5E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	30
BW = 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)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Phenanthrene	0.280	1E-06	5800	1	0.01	48	30	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	10950	3.1E-08	1.5E-02	2.0E-06	0%
Anthracene	0.062	1E-06	5800	1	0.01	48	30	70	25550	2.9E-09	0.0E+00	0.0E+00	0%	10950	6.8E-09	1.5E-01	4.5E-08	0%
Fluoranthene	0.420	1E-06	5800	1	0.01	48	30	70	25550	2.0E-08	0.0E+00	0.0E+00	0%	10950	4.6E-08	2.0E-02	2.3E-06	0%
Pyrene	0.330	1E-06	5800	1	0.01	48	30	70	25550	1.5E-08	0.0E+00	0.0E+00	0%	10950	3.6E-08	1.5E-02	2.4E-06	0%
Benzo(a)anthracene	0.190	1E-06	5800	1	0.01	48	30	70	25550	8.9E-09	1.5E+00	1.3E-08	2%	10950	2.1E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	5800	1	0.01	48	30	70	25550	9.8E-09	1.5E-02	1.4E-10	0%	10950	2.3E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	5800	1	0.01	48	30	70	25550	1.2E-08	2.8E-02	3.3E-10	0%	10950	2.7E-08	1.0E-02	2.7E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	5800	1	0.01	48	30	70	25550	1.2E-08	1.5E+00	1.7E-08	3%	10950	2.7E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	5800	1	0.01	48	30	70	25550	4.5E-09	1.5E-01	6.6E-10	0%	10950	1.1E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	5800	1	0.01	48	30	70	25550	1.8E-08	1.5E+01	2.6E-07	38%	10950	4.1E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	5800	1	0.01	48	30	70	25550	5.1E-09	1.5E+00	7.5E-09	1%	10950	1.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	5800	1	0.01	48	30	70	25550	4.6E-09	0.0E+00	0.0E+00	0%	10950	1.1E-08	1.5E-02	7.1E-07	0%
4,4'-DDE	0.550	1E-06	5800	1	0.01	48	30	70	25550	2.6E-08	6.8E-01	1.7E-08	3%	10950	6.0E-08	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	5800	1	0.01	48	30	70	25550	1.4E-07	4.8E-01	6.5E-08	10%	10950	3.2E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	5800	1	0.01	48	30	70	25550	2.1E-07	6.8E-01	1.4E-07	21%	10950	4.9E-07	2.5E-04	2.0E-03	26%
alpha-Chlordane	0.013	1E-06	5800	1	0.01	48	30	70	25550	6.1E-10	2.6E+00	1.6E-09	0%	10950	1.4E-09	3.0E-05	4.7E-05	1%
gamma-Chlordane	0.014	1E-06	5800	1	0.01	48	30	70	25550	6.5E-10	2.6E+00	1.7E-09	0%	10950	1.5E-09	3.0E-05	5.1E-05	1%
Aluminum	11500.000	1E-06	5800	1	0.001	48	30	70	25550	5.4E-05	0.0E+00	0.0E+00	0%	10950	1.3E-04	2.0E-01	6.3E-04	8%
Arsenic	4.200	1E-06	5800	1	0.001	48	30	70	25550	2.0E-08	7.5E+00	1.5E-07	22%	10950	4.6E-08	6.0E-05	7.6E-04	10%
Barium	28.100	1E-06	5800	1	0.001	48	30	70	25550	1.3E-07	0.0E+00	0.0E+00	0%	10950	3.1E-07	1.4E-02	2.2E-05	0%
Cadmium (soil)	3.980	1E-06	5800	1	0.001	48	30	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	10950	4.3E-08	2.0E-04	2.2E-04	3%
Chromium	12.600	1E-06	5800	1	0.001	48	30	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	10950	1.4E-07	1.0E-03	1.4E-04	2%
Cobalt	6.300	1E-06	5800	1	0.001	48	30	70	25550	2.9E-08	0.0E+00	0.0E+00	0%	10950	6.9E-08	1.2E-02	5.7E-06	0%
Copper	14.900	1E-06	5800	1	0.001	48	30	70	25550	7.0E-08	0.0E+00	0.0E+00	0%	10950	1.6E-07	8.0E-03	2.0E-05	0%
Iron	16300.000	1E-06	5800	1	0.001	48	30	70	25550	7.6E-05	0.0E+00	0.0E+00	0%	10950	1.8E-04	6.0E-02	3.0E-03	40%
Lead	73.000	1E-06	5800	1	0.001	48	30	70	25550	3.4E-07	0.0E+00	0.0E+00	0%	10950	8.0E-07	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	5800	1	0.001	48	30	70	25550	5.9E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	4.6E-03	3.0E-04	4%
Mercury	0.270	1E-06	5800	1	0.001	48	30	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	10950	2.9E-09	6.0E-05	4.9E-05	1%
Nickel	9.700	1E-06	5800	1	0.001	48	30	70	25550	4.5E-08	0.0E+00	0.0E+00	0%	10950	1.1E-07	4.0E-03	2.6E-05	0%
Selenium	1.200	1E-06	5800	1	0.001	48	30	70	25550	5.6E-09	0.0E+00	0.0E+00	0%	10950	1.3E-08	1.0E-03	1.3E-05	0%
Vanadium	26.600	1E-06	5800	1	0.001	48	30	70	25550	1.2E-07	0.0E+00	0.0E+00	0%	10950	2.9E-07	1.4E-03	2.1E-04	3%
Zinc	86.500	1E-06	5800	1	0.001	48	30	70	25550	4.0E-07	0.0E+00	0.0E+00	0%	10950	9.4E-07	6.0E-02	1.6E-05	0%
TOTAL												6.7E-07					7.4E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

The intake from dermal contact to sediment 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)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
ED = child expsosure 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 Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Phenanthrene	0.280	1E-06	2300	1	0.01	48	6	15	25550	4.8E-09	0.0E+00	0.0E+00	0%	2190	5.6E-08	1.5E-02	3.8E-06	0%
Anthracene	0.062	1E-06	2300	1	0.01	48	6	15	25550	1.1E-09	0.0E+00	0.0E+00	0%	2190	1.3E-08	1.5E-01	8.3E-08	0%
Fluoranthene	0.420	1E-06	2300	1	0.01	48	6	15	25550	7.3E-09	0.0E+00	0.0E+00	0%	2190	8.5E-08	2.0E-02	4.2E-06	0%
Pyrene	0.330	1E-06	2300	1	0.01	48	6	15	25550	5.7E-09	0.0E+00	0.0E+00	0%	2190	6.7E-08	1.5E-02	4.4E-06	0%
Benzo(a)anthracene	0.190	1E-06	2300	1	0.01	48	6	15	25550	3.3E-09	1.5E+00	4.8E-09	2%	2190	3.8E-08	0.0E+00	0.0E+00	0%
Chrysene	0.210	1E-06	2300	1	0.01	48	6	15	25550	3.6E-09	1.5E-02	5.3E-11	0%	2190	4.2E-08	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.250	1E-06	2300	1	0.01	48	6	15	25550	4.3E-09	2.8E-02	1.2E-10	0%	2190	5.0E-08	1.0E-02	5.0E-06	0%
Benzo(b)fluoranthene	0.250	1E-06	2300	1	0.01	48	6	15	25550	4.3E-09	1.5E+00	6.3E-09	3%	2190	5.0E-08	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.097	1E-06	2300	1	0.01	48	6	15	25550	1.7E-09	1.5E-01	2.4E-10	0%	2190	2.0E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.380	1E-06	2300	1	0.01	48	6	15	25550	6.6E-09	1.5E+01	9.8E-08	38%	2190	7.7E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.110	1E-06	2300	1	0.01	48	6	15	25550	1.9E-09	1.5E+00	2.8E-09	1%	2190	2.2E-08	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.098	1E-06	2300	1	0.01	48	6	15	25550	1.7E-09	0.0E+00	0.0E+00	0%	2190	2.0E-08	1.5E-02	1.3E-06	0%
4,4'-DDE	0.550	1E-06	2300	1	0.01	48	6	15	25550	9.5E-09	6.8E-01	6.5E-09	3%	2190	1.1E-07	0.0E+00	0.0E+00	0%
4,4'-DDD	2.900	1E-06	2300	1	0.01	48	6	15	25550	5.0E-08	4.8E-01	2.4E-08	10%	2190	5.8E-07	0.0E+00	0.0E+00	0%
4,4'-DDT	4.500	1E-06	2300	1	0.01	48	6	15	25550	7.8E-08	6.8E-01	5.3E-08	21%	2190	9.1E-07	2.5E-04	3.6E-03	26%
alpha-Chlordane	0.013	1E-06	2300	1	0.01	48	6	15	25550	2.2E-10	2.6E+00	5.8E-10	0%	2190	2.6E-09	3.0E-05	8.7E-05	1%
gamma-Chlordane	0.014	1E-06	2300	1	0.01	48	6	15	25550	2.4E-10	2.6E+00	6.3E-10	0%	2190	2.8E-09	3.0E-05	9.4E-05	1%
Aluminum	11500.000	1E-06	2300	1	0.001	48	6	15	25550	2.0E-05	0.0E+00	0.0E+00	0%	2190	2.3E-04	5.0E-01	4.6E-04	4%
Arsenic	4.200	1E-06	2300	1	0.001	48	6	15	25550	7.3E-09	7.5E+00	5.4E-08	22%	2190	8.5E-08	6.0E-05	1.4E-03	11%
Barium	28.100	1E-06	2300	1	0.001	48	6	15	25550	4.9E-08	0.0E+00	0.0E+00	0%	2190	5.7E-07	1.4E-02	4.0E-05	0%
Cadmium (soil)	3.960	1E-06	2300	1	0.001	48	6	15	25550	6.8E-09	0.0E+00	0.0E+00	0%	2190	8.0E-08	2.0E-04	4.0E-04	3%
Chromium	12.600	1E-06	2300	1	0.001	48	6	15	25550	2.2E-08	0.0E+00	0.0E+00	0%	2190	2.5E-07	1.0E-03	2.5E-04	2%
Cobalt	6.300	1E-06	2300	1	0.001	48	6	15	25550	1.1E-08	0.0E+00	0.0E+00	0%	2190	1.3E-07	1.2E-02	1.1E-05	0%
Copper	14.900	1E-06	2300	1	0.001	48	6	15	25550	2.6E-08	0.0E+00	0.0E+00	0%	2190	3.0E-07	8.0E-03	3.8E-05	0%
Iron	16300.000	1E-06	2300	1	0.001	48	6	15	25550	2.8E-05	0.0E+00	0.0E+00	0%	2190	3.3E-04	6.0E-02	5.5E-03	42%
Lead	73.000	1E-06	2300	1	0.001	48	6	15	25550	1.3E-07	0.0E+00	0.0E+00	0%	2190	1.5E-06	0.0E+00	0.0E+00	0%
Manganese	127.000	1E-06	2300	1	0.001	48	6	15	25550	2.2E-07	0.0E+00	0.0E+00	0%	2190	2.6E-06	4.6E-03	5.6E-04	4%
Mercury	0.270	1E-06	2300	1	0.001	48	6	15	25550	4.7E-10	0.0E+00	0.0E+00	0%	2190	5.4E-09	6.0E-05	9.1E-05	1%
Nickel	9.700	1E-06	2300	1	0.001	48	6	15	25550	1.7E-08	0.0E+00	0.0E+00	0%	2190	2.0E-07	4.0E-03	4.9E-05	0%
Selenium	1.200	1E-06	2300	1	0.001	48	6	15	25550	2.1E-09	0.0E+00	0.0E+00	0%	2190	2.4E-08	1.0E-03	2.4E-05	0%
Vanadium	26.600	1E-06	2300	1	0.001	48	6	15	25550	4.6E-08	0.0E+00	0.0E+00	0%	2190	5.4E-07	1.4E-03	3.8E-04	3%
Zinc	86.500	1E-06	2300	1	0.001	48	6	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	2190	1.7E-06	6.0E-02	2.9E-05	0%
TOTAL												2.5E-07					1.3E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	6641.00	1E-06	5800	1	0.001	350	4	70	25550	3.0E-05	0.0E+00	0.00E+00	0%	1460	5.3E-04	2.0E-01	2.6E-03	32%
Arsenic	0.99	1E-06	5800	1	0.001	350	4	70	25550	4.5E-09	7.5E+00	3.37E-08	100%	1460	7.9E-08	6.0E-05	1.3E-03	16%
Iron	3276.19	1E-06	5800	1	0.001	350	4	70	25550	1.5E-05	0.0E+00	0.00E+00	0%	1460	2.6E-04	6.0E-02	4.3E-03	52%
TOTAL												3.4E-08					8.3E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	6641.00	1E-06	5800	1	0.001	350	30	70	25550	2.3E-04	0.0E+00	0.00E+00	0%	10950	5.3E-04	2.0E-01	2.6E-03	32%
Arsenic	0.99	1E-06	5800	1	0.001	350	30	70	25550	3.4E-08	7.5E+00	2.53E-07	100%	10950	7.9E-08	6.0E-05	1.3E-03	16%
Iron	3276.19	1E-06	5800	1	0.001	350	30	70	25550	1.1E-04	0.0E+00	0.00E+00	0%	10950	2.6E-04	6.0E-02	4.3E-03	52%
TOTAL												2.5E-07					8.3E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	6641.00	1E-06	2300	1	0.001	350	4	15	25550	5.6E-05	0.0E+00	0.00E+00	0%	1460	9.8E-04	2.0E-01	4.9E-03	32%
Arsenic	0.99	1E-06	2300	1	0.001	350	4	15	25550	8.3E-09	7.5E+00	6.24E-08	100%	1460	1.5E-07	6.0E-05	2.4E-03	16%
Iron	3278.19	1E-06	2300	1	0.001	350	4	15	25550	2.8E-05	0.0E+00	0.00E+00	0%	1460	4.8E-04	6.0E-02	8.0E-03	52%
TOTAL												6.2E-08					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	6641.00	1E-06	2300	1	0.001	350	6	15	25550	8.4E-05	0.0E+00	0.00E+00	0%	2190	9.8E-04	2.0E-01	4.9E-03	32%
Arsenic	0.99	1E-06	2300	1	0.001	350	6	15	25550	1.2E-08	7.5E+00	9.36E-08	100%	2190	1.5E-07	6.0E-05	2.4E-03	16%
Iron	3276.19	1E-06	2300	1	0.001	350	6	15	25550	4.1E-05	0.0E+00	0.00E+00	0%	2190	4.8E-04	6.0E-02	8.0E-03	52%
TOTAL												9.4E-08					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose *(mg/kg/day)* Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.80	1E-06	5800	1	0.001	350	4	70	25550	3.6E-09	7.5E+00	2.72E-08	68%	1460	6.4E-08	6.0E-05	1.1E-03	19%
Beryllium	0.13	1E-06	5800	1	0.001	350	4	70	25550	5.9E-10	2.1E+01	1.27E-08	32%	1460	1.0E-08	1.0E-03	1.0E-05	0%
Iron	3500.77	1E-06	5800	1	0.001	350	4	70	25550	1.6E-05	0.0E+00	0.00E+00	0%	1460	2.8E-04	6.0E-02	4.6E-03	81%
TOTAL												4.0E-08					5.7E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.80	1E-06	5800	1	0.001	350	30	70	25550	2.7E-08	7.5E+00	2.04E-07	68%	10950	6.4E-08	6.0E-05	1.1E-03	19%
Beryllium	0.13	1E-06	5800	1	0.001	350	30	70	25550	4.4E-09	2.1E+01	9.52E-08	32%	10950	1.0E-08	1.0E-03	1.0E-05	0%
Iron	3500.77	1E-06	5800	1	0.001	350	30	70	25550	1.2E-04	0.0E+00	0.00E+00	0%	10950	2.8E-04	6.0E-02	4.6E-03	81%
TOTAL												3.0E-07					5.7E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.80	1E-06	2300	1	0.001	350	4	15	25550	6.7E-09	7.5E+00	5.04E-08	68%	1460	1.2E-07	6.0E-05	2.0E-03	19%
Beryllium	0.13	1E-06	2300	1	0.001	350	4	15	25550	1.1E-09	2.1E+01	2.35E-08	32%	1460	1.9E-08	1.0E-03	1.9E-05	0%
Iron	3500.77	1E-06	2300	1	0.001	350	4	15	25550	2.9E-05	0.0E+00	0.00E+00	0%	1460	5.1E-04	6.0E-02	8.6E-03	81%
TOTAL												7.4E-08					1.1E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.80	1E-06	2300	1	0.001	350	6	15	25550	1.0E-08	7.5E+00	7.56E-08	68%	2190	1.2E-07	6.0E-05	2.0E-03	19%
Beryllium	0.13	1E-06	2300	1	0.001	350	6	15	25550	1.6E-09	2.1E+01	3.52E-08	32%	2190	1.9E-08	1.0E-03	1.9E-05	0%
Iron	3500.77	1E-06	2300	1	0.001	350	6	15	25550	4.4E-05	0.0E+00	0.00E+00	0%	2190	5.1E-04	6.0E-02	8.6E-03	81%
TOTAL												1.1E-07					1.1E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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
Aroclor-1260	10.68	1E-06	4300	1	0.01	250	4	70	25550	2.6E-07	1.54E+01	3.98E-06	100%	1460	4.5E-06	0.00E+00	0.00E+00	0%
TOTAL												4.0E-06					0.0E+00	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	4300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aroclor-1248	2.800	1E-06	4300	1	0.01	48	4	70	25550	1.3E-08	1.5E+01	2.0E-07	12%	1460	2.3E-07	0.0E+00	0.0E+00	0%
Aroclor-1260	20.000	1E-06	4300	1	0.01	48	4	70	25550	9.2E-08	1.5E+01	1.4E-06	88%	1460	1.6E-06	0.0E+00	0.0E+00	0%
TOTAL												1.6E-06					0.0E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

Note: Inputs are scenario and site 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
Arsenic	76.80	1E-06	4300	1	0.001	250	4	70	25550	1.8E-07	7.50E+00	1.38E-06	100%	1460	3.2E-06	8.00E-05	5.39E-02	2%
Cadmium (soil)	47.10	1E-06	4300	1	0.001	250	4	70	25550	1.1E-07	0.00E+00	0.00E+00	0%	1460	2.0E-06	2.00E-04	9.91E-03	0%
Chromium	147.00	1E-06	4300	1	0.001	250	4	70	25550	3.5E-07	0.00E+00	0.00E+00	0%	1460	6.2E-06	1.00E-03	8.18E-03	0%
Copper	1870.00	1E-06	4300	1	0.001	250	4	70	25550	4.5E-06	0.00E+00	0.00E+00	0%	1460	7.9E-05	8.00E-03	9.83E-03	0%
Iron	339000.00	1E-06	4300	1	0.001	250	4	70	25550	8.2E-04	0.00E+00	0.00E+00	0%	1460	1.4E-02	6.00E-02	2.38E-01	11%
Lead	3030.00	1E-06	4300	1	0.001	250	4	70	25550	7.3E-06	0.00E+00	0.00E+00	0%	1460	1.3E-04	0.00E+00	0.00E+00	0%
Manganese	197000.00	1E-06	4300	1	0.001	250	4	70	25550	4.7E-04	0.00E+00	0.00E+00	0%	1460	8.3E-03	4.60E-03	1.80E+00	81%
Mercury	70.70	1E-06	4300	1	0.001	250	4	70	25550	1.7E-07	0.00E+00	0.00E+00	0%	1460	3.0E-06	6.00E-05	4.96E-02	2%
Zinc	63900.00	1E-06	4300	1	0.001	250	4	70	25550	1.5E-04	0.00E+00	0.00E+00	0%	1460	2.7E-03	6.00E-02	4.48E-02	2%
TOTAL												1.4E-06					2.2E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	76.80	1E-06	5800	1	0.001	350	30	70	25550	2.6E-06	7.5E+00	1.96E-05	100%	10950	6.1E-06	6.0E-05	1.0E-01	2%
Cadmium (soil)	47.10	1E-06	5800	1	0.001	350	30	70	25550	1.6E-06	0.0E+00	0.00E+00	0%	10950	3.7E-06	2.0E-04	1.9E-02	0%
Chromium	147.00	1E-06	5800	1	0.001	350	30	70	25550	5.0E-06	0.0E+00	0.00E+00	0%	10950	1.2E-05	1.0E-03	1.2E-02	0%
Copper	1870.00	1E-06	5800	1	0.001	350	30	70	25550	6.4E-05	0.0E+00	0.00E+00	0%	10950	1.5E-04	8.0E-03	1.9E-02	0%
Iron	339000.00	1E-06	5800	1	0.001	350	30	70	25550	1.2E-02	0.0E+00	0.00E+00	0%	10950	2.7E-02	6.0E-02	4.5E-01	11%
Lead	3030.00	1E-06	5800	1	0.001	350	30	70	25550	1.0E-04	0.0E+00	0.00E+00	0%	10950	2.4E-04	0.0E+00	0.0E+00	0%
Manganese	197000.00	1E-06	5800	1	0.001	350	30	70	25550	6.7E-03	0.0E+00	0.00E+00	0%	10950	1.6E-02	4.6E-03	3.4E+00	81%
Mercury	70.70	1E-06	5800	1	0.001	350	30	70	25550	2.4E-06	0.0E+00	0.00E+00	0%	10950	5.6E-06	6.0E-05	9.4E-02	2%
Zinc	63900.00	1E-06	5800	1	0.001	350	30	70	25550	2.2E-03	0.0E+00	0.00E+00	0%	10950	5.1E-03	6.0E-02	8.5E-02	2%
TOTAL												2.0E-05					4.2E+00	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	76.80	1E-06	2300	1	0.001	350	6	15	25550	9.7E-07	7.5E+00	7.26E-06	100%	2190	1.1E-05	6.0E-05	1.9E-01	2%
Cadmium (soil)	47.10	1E-06	2300	1	0.001	350	6	15	25550	5.9E-07	0.0E+00	0.00E+00	0%	2190	6.9E-06	2.0E-04	3.5E-02	0%
Chromium	147.00	1E-06	2300	1	0.001	350	6	15	25550	1.9E-06	0.0E+00	0.00E+00	0%	2190	2.2E-05	1.0E-03	2.2E-02	0%
Copper	1870.00	1E-06	2300	1	0.001	350	6	15	25550	2.4E-05	0.0E+00	0.00E+00	0%	2190	2.7E-04	8.0E-03	3.4E-02	0%
Iron	339000.00	1E-06	2300	1	0.001	350	6	15	25550	4.3E-03	0.0E+00	0.00E+00	0%	2190	5.0E-02	6.0E-02	8.3E-01	11%
Lead	3030.00	1E-06	2300	1	0.001	350	6	15	25550	3.8E-05	0.0E+00	0.00E+00	0%	2190	4.5E-04	0.0E+00	0.0E+00	0%
Manganese	197000.00	1E-06	2300	1	0.001	350	6	15	25550	2.5E-03	0.0E+00	0.00E+00	0%	2190	2.9E-02	4.6E-03	6.3E+00	81%
Mercury	70.70	1E-06	2300	1	0.001	350	6	15	25550	8.9E-07	0.0E+00	0.00E+00	0%	2190	1.0E-05	6.0E-05	1.7E-01	2%
Zinc	63900.00	1E-06	2300	1	0.001	350	6	15	25550	8.1E-04	0.0E+00	0.00E+00	0%	2190	9.4E-03	6.0E-02	1.6E-01	2%
TOTAL												7.3E-06					7.7E+00	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (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	10200.00	1E-06	4300	1	0.001	250	4	70	25550	2.5E-05	0.0E+00	0.0E+00	0%	1460	4.3E-04	2.0E-01	2.1E-03	21%
Arsenic	2.41	1E-06	4300	1	0.001	250	4	70	25550	5.8E-09	7.5E+00	4.3E-08	100%	1460	1.0E-07	6.0E-05	1.7E-03	16%
Iron	9176.27	1E-06	4300	1	0.001	250	4	70	25550	2.2E-05	0.0E+00	0.0E+00	0%	1460	3.9E-04	6.0E-02	6.4E-03	63%
TOTAL												4.3E-08					1.0E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)pyrene	0.38	1E-06	5800	1	0.01	350	4	70	25550	1.7E-08	1.5E+01	2.52E-07	45%	1460	3.0E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	5800	1	0.01	350	4	70	25550	4.5E-09	1.5E+01	6.63E-08	12%	1460	7.9E-08	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	5800	1	0.001	350	4	70	25550	2.1E-08	7.5E+00	1.57E-07	28%	1460	3.7E-07	6.0E-05	6.1E-03	41%
Beryllium	0.87	1E-06	5800	1	0.001	350	4	70	25550	3.9E-09	2.1E+01	8.49E-08	15%	1460	6.9E-08	1.0E-03	6.9E-05	0%
Iron	6530.00	1E-06	5800	1	0.001	350	4	70	25550	3.0E-05	0.0E+00	0.00E+00	0%	1460	5.2E-04	6.0E-02	8.6E-03	58%
TOTAL												5.6E-07					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Tim (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)pyrene	0.38	1E-06	5800	1	0.01	350	30	70	25550	1.3E-07	1.5E+01	1.89E-06	45%	10950	3.0E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	5800	1	0.01	350	30	70	25550	3.4E-08	1.5E+01	4.97E-07	12%	10950	7.9E-08	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	5800	1	0.001	350	30	70	25550	1.6E-07	7.5E+00	1.17E-06	28%	10950	3.7E-07	6.0E-05	6.1E-03	41%
Beryllium	0.87	1E-06	5800	1	0.001	350	30	70	25550	3.0E-08	2.1E+01	6.37E-07	15%	10950	6.9E-08	1.0E-03	6.9E-05	0%
Iron	6530.00	1E-06	5800	1	0.001	350	30	70	25550	2.2E-04	0.0E+00	0.00E+00	0%	10950	5.2E-04	6.0E-02	8.6E-03	58%
TOTAL												4.2E-06					1.5E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Benzo(a)pyrene	0.38	1E-06	2300	1	0.01	350	4	15	25550	3.2E-08	1.5E+01	4.66E-07	45%	1460	5.6E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	2300	1	0.01	350	4	15	25550	8.4E-09	1.5E+01	1.23E-07	12%	1460	1.5E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	2300	1	0.001	350	4	15	25550	3.9E-08	7.5E+00	2.90E-07	28%	1460	6.8E-07	6.0E-05	1.1E-02	41%
Beryllium	0.87	1E-06	2300	1	0.001	350	4	15	25550	7.3E-09	2.1E+01	1.57E-07	15%	1460	1.3E-07	1.0E-03	1.3E-04	0%
Iron	6530.00	1E-06	2300	1	0.001	350	4	15	25550	5.5E-05	0.0E+00	0.00E+00	0%	1460	9.6E-04	6.0E-02	1.6E-02	58%
TOTAL												1.0E-06					2.7E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Benzo(a)pyrene	0.38	1E-06	2300	1	0.01	350	6	15	25550	4.8E-08	1.5E+01	6.99E-07	45%	2190	5.6E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1E-06	2300	1	0.01	350	6	15	25550	1.3E-08	1.5E+01	1.84E-07	12%	2190	1.5E-07	0.0E+00	0.0E+00	0%
Arsenic	4.60	1E-06	2300	1	0.001	350	6	15	25550	5.8E-08	7.5E+00	4.35E-07	28%	2190	6.8E-07	6.0E-05	1.1E-02	41%
Beryllium	0.87	1E-06	2300	1	0.001	350	6	15	25550	1.1E-08	2.1E+01	2.36E-07	15%	2190	1.3E-07	1.0E-03	1.3E-04	0%
Iron	6530.00	1E-06	2300	1	0.001	350	6	15	25550	8.2E-05	0.0E+00	0.00E+00	0%	2190	9.6E-04	6.0E-02	1.6E-02	58%
TOTAL												1.6E-06					2.7E-02	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	4
BW = 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 (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	1E-06	5800	1	0.01	48	4	70	25550	3.7E-11	0.0E+00	0.0E+00	0%	1460	6.5E-10	1.0E-01	6.5E-09	0%
Fluoranthene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	0.0E+00	0.0E+00	0%	1460	2.6E-09	2.0E-02	1.3E-07	0%
Pyrene	0.028	1E-06	5800	1	0.01	48	4	70	25550	1.7E-10	0.0E+00	0.0E+00	0%	1460	3.1E-09	1.5E-02	2.0E-07	0%
Benzo(a)anthracene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	1.5E+00	2.2E-10	5%	1460	2.6E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	1.5E-02	2.9E-12	0%	1460	3.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	5800	1	0.01	48	4	70	25550	1.7E-10	2.8E-02	4.7E-12	0%	1460	2.9E-09	1.0E-02	2.9E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	5800	1	0.01	48	4	70	25550	1.6E-10	1.5E+00	2.3E-10	5%	1460	2.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	1.5E-01	2.9E-11	1%	1460	3.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	5800	1	0.01	48	4	70	25550	2.6E-10	1.5E+01	3.7E-09	84%	1460	4.5E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	5800	1	0.01	48	4	70	25550	1.5E-10	1.5E+00	2.2E-10	5%	1460	2.6E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	5800	1	0.01	48	4	70	25550	2.0E-10	0.0E+00	0.0E+00	0%	1460	3.5E-09	6.0E-03	5.8E-07	0%
Aluminum	1060.000	1E-06	5800	1	0.001	48	4	70	25550	6.6E-07	0.0E+00	0.0E+00	0%	1460	1.2E-05	2.0E-01	5.8E-05	4%
Barium	35.000	1E-06	5800	1	0.001	48	4	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	1460	3.8E-07	1.4E-02	2.7E-05	2%
Chromium	11.500	1E-06	5800	1	0.001	48	4	70	25550	7.2E-09	0.0E+00	0.0E+00	0%	1460	1.3E-07	1.0E-03	1.3E-04	8%
Copper	38.400	1E-06	5800	1	0.001	48	4	70	25550	2.4E-08	0.0E+00	0.0E+00	0%	1460	4.2E-07	8.0E-03	5.2E-05	3%
Iron	6040.000	1E-06	5800	1	0.001	48	4	70	25550	3.8E-06	0.0E+00	0.0E+00	0%	1460	6.6E-05	6.0E-02	1.1E-03	71%
Lead	6.100	1E-06	5800	1	0.001	48	4	70	25550	3.8E-09	0.0E+00	0.0E+00	0%	1460	6.6E-08	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	5800	1	0.001	48	4	70	25550	2.8E-08	0.0E+00	0.0E+00	0%	1460	4.9E-07	4.6E-03	1.1E-04	7%
Nickel	7.200	1E-06	5800	1	0.001	48	4	70	25550	4.5E-09	0.0E+00	0.0E+00	0%	1460	7.8E-08	4.0E-03	2.0E-05	1%
Selenium	0.670	1E-06	5800	1	0.001	48	4	70	25550	4.2E-10	0.0E+00	0.0E+00	0%	1460	7.3E-09	1.0E-03	7.3E-06	0%
Silver	2.100	1E-06	5800	1	0.001	48	4	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	1460	2.3E-08	1.0E-03	2.3E-05	1%
Vanadium	2.500	1E-06	5800	1	0.001	48	4	70	25550	1.6E-09	0.0E+00	0.0E+00	0%	1460	2.7E-08	1.4E-03	1.9E-05	1%
Zinc	11.000	1E-06	5800	1	0.001	48	4	70	25550	6.8E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	6.0E-02	2.0E-06	0%
TOTAL												4.4E-09					1.5E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

The intake from dermal contact to sediment 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)	1.00E-06
SA = exposed skin surface area (cm2)	5800
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = exposure frequency (events/yr)	48
ED = exposure duration (years)	30
BW = 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)	Adherence Factor (mg/cm2)	ABS Factor (%)	Exposure Frequency (events/yr)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Acetone	0.006	1E-06	5800	1	0.01	48	30	70	25550	2.8E-10	0.0E+00	0.0E+00	0%	10950	6.5E-10	1.0E-01	6.5E-09	0%
Fluoranthene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	0.0E+00	0.0E+00	0%	10950	2.6E-09	2.0E-02	1.3E-07	0%
Pyrene	0.028	1E-06	5800	1	0.01	48	30	70	25550	1.3E-09	0.0E+00	0.0E+00	0%	10950	3.1E-09	1.5E-02	2.0E-07	0%
Benzo(a)anthracene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	1.5E+00	1.6E-08	5%	10950	2.6E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	5800	1	0.01	48	30	70	25550	1.5E-09	1.5E-02	2.2E-11	0%	10950	3.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	5800	1	0.01	48	30	70	25550	1.3E-09	2.8E-02	3.5E-11	0%	10950	2.9E-09	1.0E-02	2.9E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	5800	1	0.01	48	30	70	25550	1.2E-09	1.5E+00	1.7E-09	5%	10950	2.7E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	5800	1	0.01	48	30	70	25550	1.5E-09	1.5E-01	2.2E-10	1%	10950	3.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	5800	1	0.01	48	30	70	25550	1.9E-09	1.5E+01	2.8E-08	84%	10950	4.5E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	5800	1	0.01	48	30	70	25550	1.1E-09	1.5E+00	1.6E-09	5%	10950	2.6E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	5800	1	0.001	48	30	70	25550	1.5E-10	0.0E+00	0.0E+00	0%	10950	3.5E-10	6.0E-03	5.8E-08	0%
Aluminum	1060.000	1E-06	5800	1	0.001	48	30	70	25550	5.0E-06	0.0E+00	0.0E+00	0%	10950	1.2E-05	2.0E-01	5.8E-05	4%
Barium	35.000	1E-06	5800	1	0.001	48	30	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	10950	3.8E-07	1.4E-02	2.7E-05	2%
Chromium	11.500	1E-06	5800	1	0.001	48	30	70	25550	5.4E-08	0.0E+00	0.0E+00	0%	10950	1.3E-07	1.0E-03	1.3E-04	8%
Copper	38.400	1E-06	5800	1	0.001	48	30	70	25550	1.8E-07	0.0E+00	0.0E+00	0%	10950	4.2E-07	8.0E-03	5.2E-05	3%
Iron	6040.000	1E-06	5800	1	0.001	48	30	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.6E-05	6.0E-02	1.1E-03	71%
Lead	6.100	1E-06	5800	1	0.001	48	30	70	25550	2.8E-08	0.0E+00	0.0E+00	0%	10950	6.6E-08	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	5800	1	0.001	48	30	70	25550	2.1E-07	0.0E+00	0.0E+00	0%	10950	4.9E-07	4.6E-03	1.1E-04	7%
Nickel	7.200	1E-06	5800	1	0.001	48	30	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	10950	7.8E-08	4.0E-03	2.0E-05	1%
Selenium	0.670	1E-06	5800	1	0.001	48	30	70	25550	3.1E-09	0.0E+00	0.0E+00	0%	10950	7.3E-09	1.0E-03	7.3E-06	0%
Silver	2.100	1E-06	5800	1	0.001	48	30	70	25550	9.8E-09	0.0E+00	0.0E+00	0%	10950	2.3E-08	1.0E-03	2.3E-05	1%
Vanadium	2.500	1E-06	5800	1	0.001	48	30	70	25550	1.2E-08	0.0E+00	0.0E+00	0%	10950	2.7E-08	1.4E-03	1.9E-05	1%
Zinc	11.000	1E-06	5800	1	0.001	48	30	70	25550	5.1E-08	0.0E+00	0.0E+00	0%	10950	1.2E-07	6.0E-02	2.0E-06	0%
TOTAL												3.3E-08					1.5E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from dermal contact to sediment 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)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
ED = child expsosure duration (years)	4
BW = child body weight (kg)	15
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) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Acetone	0.006	1E-06	2300	1	0.01	48	4	15	25550	6.9E-11	0.0E+00	0.0E+00	0%	1460	1.2E-09	5.0E-02	2.4E-08	0%
Fluoranthene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	0.0E+00	0.0E+00	0%	1460	4.8E-09	2.0E-02	2.4E-07	0%
Pyrene	0.028	1E-06	2300	1	0.01	48	4	15	25550	3.2E-10	0.0E+00	0.0E+00	0%	1460	5.6E-09	1.5E-02	3.8E-07	0%
Benzo(a)anthracene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	1.5E+00	4.0E-10	5%	1460	4.8E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	1.5E-02	5.4E-12	0%	1460	6.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	2300	1	0.01	48	4	15	25550	3.1E-10	2.8E-02	8.7E-12	0%	1460	5.4E-09	1.0E-02	5.4E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	2300	1	0.01	48	4	15	25550	2.9E-10	1.5E+00	4.2E-10	5%	1460	5.0E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	1.5E-01	5.4E-11	1%	1460	6.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	2300	1	0.01	48	4	15	25550	4.7E-10	1.5E+01	6.9E-09	84%	1460	8.3E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	2300	1	0.01	48	4	15	25550	2.8E-10	1.5E+00	4.0E-10	5%	1460	4.8E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	2300	1	0.01	48	4	15	25550	3.7E-10	0.0E+00	0.0E+00	0%	1460	6.5E-09	6.0E-03	1.1E-06	0%
Aluminum	1060.000	1E-06	2300	1	0.001	48	4	15	25550	1.2E-06	0.0E+00	0.0E+00	0%	1460	2.1E-05	2.0E-01	1.1E-04	4%
Barium	35.000	1E-06	2300	1	0.001	48	4	15	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.1E-07	1.4E-02	5.0E-05	2%
Chromium	11.500	1E-06	2300	1	0.001	48	4	15	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	1.0E-03	2.3E-04	8%
Copper	38.400	1E-06	2300	1	0.001	48	4	15	25550	4.4E-08	0.0E+00	0.0E+00	0%	1460	7.7E-07	8.0E-03	9.7E-05	3%
Iron	6040.000	1E-06	2300	1	0.001	48	4	15	25550	7.0E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	6.0E-02	2.0E-03	71%
Lead	6.100	1E-06	2300	1	0.001	48	4	15	25550	7.0E-09	0.0E+00	0.0E+00	0%	1460	1.2E-07	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	2300	1	0.001	48	4	15	25550	5.2E-08	0.0E+00	0.0E+00	0%	1460	9.1E-07	4.6E-03	2.0E-04	7%
Nickel	7.200	1E-06	2300	1	0.001	48	4	15	25550	8.3E-09	0.0E+00	0.0E+00	0%	1460	1.5E-07	4.0E-03	3.6E-05	1%
Selenium	0.670	1E-06	2300	1	0.001	48	4	15	25550	7.7E-10	0.0E+00	0.0E+00	0%	1460	1.4E-08	1.0E-03	1.4E-05	0%
Silver	2.100	1E-06	2300	1	0.001	48	4	15	25550	2.4E-09	0.0E+00	0.0E+00	0%	1460	4.2E-08	1.0E-03	4.2E-05	1%
Vanadium	2.500	1E-06	2300	1	0.001	48	4	15	25550	2.9E-09	0.0E+00	0.0E+00	0%	1460	5.0E-08	1.4E-03	3.6E-05	1%
Zinc	11.000	1E-06	2300	1	0.001	48	4	15	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.2E-07	6.0E-02	3.7E-06	0%
TOTAL												8.2E-09					2.8E-03	

SEDIMENT DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

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Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
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CF = conversion factor (kg/mg)	1.00E-06
SA = child exposed skin surface area (cm2)	2300
AF = sediment to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless) (contaminant specific)	Specific
EF = child exposure frequency (events/yr)	48
ED = child expsosure 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 Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	ABS Factor (%)	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 Time (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Acetone	0.006	1E-06	2300	1	0.01	48	6	15	25550	1.0E-10	0.0E+00	0.0E+00	0%	2190	1.2E-09	5.0E-02	2.4E-08	0%
Fluoranthene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	0.0E+00	0.0E+00	0%	2190	4.8E-09	2.0E-02	2.4E-07	0%
Pyrene	0.028	1E-06	2300	1	0.01	48	6	15	25550	4.8E-10	0.0E+00	0.0E+00	0%	2190	5.6E-09	1.5E-02	3.8E-07	0%
Benzo(a)anthracene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	1.5E+00	6.1E-10	5%	2190	4.8E-09	0.0E+00	0.0E+00	0%
Chrysene	0.032	1E-06	2300	1	0.01	48	6	15	25550	5.5E-10	1.5E-02	8.1E-12	0%	2190	6.5E-09	0.0E+00	0.0E+00	0%
Bis(2-ethylhexyl)phthalate	0.027	1E-06	2300	1	0.01	48	6	15	25550	4.7E-10	2.8E-02	1.3E-11	0%	2190	5.4E-09	1.0E-02	5.4E-07	0%
Benzo(b)fluoranthene	0.025	1E-06	2300	1	0.01	48	6	15	25550	4.3E-10	1.5E+00	6.3E-10	5%	2190	5.0E-09	0.0E+00	0.0E+00	0%
Benzo(k)fluoranthene	0.032	1E-06	2300	1	0.01	48	6	15	25550	5.5E-10	1.5E-01	8.1E-11	1%	2190	6.5E-09	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.041	1E-06	2300	1	0.01	48	6	15	25550	7.1E-10	1.5E+01	1.0E-08	84%	2190	8.3E-09	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.024	1E-06	2300	1	0.01	48	6	15	25550	4.1E-10	1.5E+00	6.1E-10	5%	2190	4.8E-09	0.0E+00	0.0E+00	0%
Benzo(g,h,i)perylene	0.032	1E-06	2300	1	0.01	48	6	15	25550	5.5E-10	0.0E+00	0.0E+00	0%	2190	6.5E-09	6.0E-03	1.1E-06	0%
Aluminum	1060.000	1E-06	2300	1	0.001	48	6	15	25550	1.8E-06	0.0E+00	0.0E+00	0%	2190	2.1E-05	2.0E-01	1.1E-04	4%
Barium	35.000	1E-06	2300	1	0.001	48	6	15	25550	6.0E-08	0.0E+00	0.0E+00	0%	2190	7.1E-07	1.4E-02	5.0E-05	2%
Chromium	11.500	1E-06	2300	1	0.001	48	6	15	25550	2.0E-08	0.0E+00	0.0E+00	0%	2190	2.3E-07	1.0E-03	2.3E-04	8%
Copper	38.400	1E-06	2300	1	0.001	48	6	15	25550	6.6E-08	0.0E+00	0.0E+00	0%	2190	7.7E-07	8.0E-03	9.7E-05	3%
Iron	6040.000	1E-06	2300	1	0.001	48	6	15	25550	1.0E-05	0.0E+00	0.0E+00	0%	2190	1.2E-04	6.0E-02	2.0E-03	71%
Lead	6.100	1E-06	2300	1	0.001	48	6	15	25550	1.1E-08	0.0E+00	0.0E+00	0%	2190	1.2E-07	0.0E+00	0.0E+00	0%
Manganese	45.200	1E-06	2300	1	0.001	48	6	15	25550	7.8E-08	0.0E+00	0.0E+00	0%	2190	9.1E-07	4.6E-03	2.0E-04	7%
Nickel	7.200	1E-06	2300	1	0.001	48	6	15	25550	1.2E-08	0.0E+00	0.0E+00	0%	2190	1.5E-07	4.0E-03	3.6E-05	1%
Selenium	0.670	1E-06	2300	1	0.001	48	6	15	25550	1.2E-09	0.0E+00	0.0E+00	0%	2190	1.4E-08	1.0E-03	1.4E-05	0%
Silver	2.100	1E-06	2300	1	0.001	48	6	15	25550	3.6E-09	0.0E+00	0.0E+00	0%	2190	4.2E-08	1.0E-03	4.2E-05	1%
Vanadium	2.500	1E-06	2300	1	0.001	48	6	15	25550	4.3E-09	0.0E+00	0.0E+00	0%	2190	5.0E-08	1.4E-03	3.6E-05	1%
Zinc	11.000	1E-06	2300	1	0.001	48	6	15	25550	1.9E-08	0.0E+00	0.0E+00	0%	2190	2.2E-07	6.0E-02	3.7E-06	0%
TOTAL												1.2E-08					2.8E-03	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE INHALATION OF PARTICULATES CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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·day)$^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.62\ mg/kg \times 20\ m^3/day \times 350\ days/yr \times 30\ yrs \times 1/1.32E{+}09\ m^3/kg}{70\ kg \times 25{,}550\ days}$$

$$= 5.5E\text{-}11$$

Risk = 5.5E-11 mg/kg·day x 15.1 mg/kg·day^{-1} = 8.3E-10

Example Noncarcinogen: Manganese

$$Intake\ (mg/kg{\cdot}day) = \frac{197{,}000\ mg/kg \times 20\ m^3/day \times 350\ days/yr \times 30\ yrs \times 1/1.32E{+}09\ m^3/kg}{70\ kg \times 10{,}950\ days}$$

$$= 4.1E\text{-}05$$

$$Risk = \frac{4.1E{-}05\ mg/kg{\cdot}day}{1.4E{-}05\ mg/kg{\cdot}day} = 2.9$$

Re: Carcinogen: Site 68 Future Residential Adult
Noncarcinogen: Site 85 Future Residential Adult

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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
Aroclor-1260	0.03	1.3E+09	250	20	4	70	25550	2.7E-13	0.0E+00	0.0E+00	0%	1460	4.7E-12	0.0E+00	0.0E+00	0%
Arsenic	0.62	1.3E+09	250	20	4	70	25550	5.3E-12	1.5E+01	7.9E-11	76%	1460	9.2E-11	0.0E+00	0.0E+00	0%
Beryllium	0.35	1.3E+09	250	20	4	70	25550	3.0E-12	8.4E+00	2.5E-11	24%	1460	5.2E-11	0.0E+00	0.0E+00	0%
Iron	1547.41	1.3E+09	250	20	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	0.0E+00	0.0E+00	0%
TOTAL										1.0E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aroclor-1260	0.03	1.3E+09	350	20	30	70	25550	2.8E-12	0.0E+00	0.0E+00	0%	10950	6.6E-12	0.0E+00	0.0E+00	0%
Arsenic	0.62	1.3E+09	350	20	30	70	25550	5.5E-11	1.5E+01	8.3E-10	76%	10950	1.3E-10	0.0E+00	0.0E+00	0%
Beryllium	0.35	1.3E+09	350	20	30	70	25550	3.1E-11	8.4E+00	2.6E-10	24%	10950	7.3E-11	0.0E+00	0.0E+00	0%
Iron	1647.41	1.3E+09	350	20	30	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	10950	3.2E-07	0.0E+00	0.0E+00	0%
TOTAL										1.1E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aroclor-1260	0.03	1.3E+09	350	15	6	15	25550	2.0E-12	0.0E+00	0.0E+00	0%	2190	2.3E-11	0.0E+00	0.0E+00	0%
Arsenic	0.62	1.3E+09	350	15	6	15	25550	3.9E-11	1.5E+01	5.8E-10	76%	2190	4.5E-10	0.0E+00	0.0E+00	0%
Beryllium	0.35	1.3E+09	350	15	6	15	25550	2.2E-11	8.4E+00	1.8E-10	24%	2190	2.5E-10	0.0E+00	0.0E+00	0%
Iron	1547.41	1.3E+09	350	15	6	15	25550	9.6E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	0.0E+00	0.0E+00	0%
TOTAL										7.7E-10					0.0E+00	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 (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	13200.000	1.3E+09	250	20	4	70	25550	1.1E-07	0.0E+00	0.0E+00	0%	1460	2.0E-06	0.0E+00	0.0E+00	0%
Arsenic	7.600	1.3E+09	250	20	4	70	25550	6.4E-11	1.5E+01	9.7E-10	97%	1460	1.1E-09	0.0E+00	0.0E+00	0%
Beryllium	0.450	1.3E+09	250	20	4	70	25550	3.8E-12	8.4E+00	3.2E-11	3%	1460	6.7E-11	0.0E+00	0.0E+00	0%
Iron	18600.000	1.3E+09	250	20	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	0.0E+00	0.0E+00	0%
TOTAL										1.0E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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
Aluminum	6641.00	1.3E+09	350	20	4	70	25550	7.9E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	0.0E+00	0.0E+00	0%
Arsenic	0.99	1.3E+09	350	20	4	70	25550	1.2E-11	1.5E+01	1.8E-10	100%	1460	2.1E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	20	4	70	25550	3.9E-08	0.0E+00	0.0E+00	0%	1460	6.8E-07	0.0E+00	0.0E+00	0%
TOTAL										1.8E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Aluminum	6641.00	1.3E+09	350	20	30	70	25550	5.9E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	0.0E+00	0.0E+00	0%
Arsenic	0.99	1.3E+09	350	20	30	70	25550	8.8E-11	1.5E+01	1.3E-09	100%	10950	2.1E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	20	30	70	25550	2.9E-07	0.0E+00	0.0E+00	0%	10950	6.8E-07	0.0E+00	0.0E+00	0%
TOTAL										1.3E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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
Aluminum	6841.00	1.3E+09	350	15	4	15	25550	2.8E-07	0.0E+00	0.0E+00	0%	1460	4.8E-06	0.0E+00	0.0E+00	0%
Arsenic	0.89	1.3E+09	350	15	4	15	25550	4.1E-11	1.5E+01	6.2E-10	100%	1460	7.2E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	15	4	15	25550	1.4E-07	0.0E+00	0.0E+00	0%	1460	2.4E-06	0.0E+00	0.0E+00	0%
TOTAL										6.2E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 75 - MCAS BASKETBALL COURT
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	6641.00	1.3E+09	350	15	6	15	25550	4.1E-07	0.0E+00	0.0E+00	0%	2190	4.8E-06	0.0E+00	0.0E+00	0%
Arsenic	0.99	1.3E+09	350	15	6	15	25550	6.2E-11	1.5E+01	9.3E-10	100%	2190	7.2E-10	0.0E+00	0.0E+00	0%
Iron	3276.19	1.3E+09	350	15	6	15	25550	2.0E-07	0.0E+00	0.0E+00	0%	2190	2.4E-06	0.0E+00	0.0E+00	0%
TOTAL										9.3E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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
Arsenic	0.80	1.3E+09	350	20	4	70	25550	9.5E-12	1.5E+01	1.4E-10	92%	1460	1.7E-10	0.0E+00	0.0E+00	0%
Beryllium	0.13	1.3E+09	350	20	4	70	25550	1.5E-12	8.4E+00	1.3E-11	8%	1460	2.7E-11	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	20	4	70	25550	4.2E-08	0.0E+00	0.0E+00	0%	1460	7.3E-07	0.0E+00	0.0E+00	0%
TOTAL										1.6E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	0.80	1.3E+09	350	20	30	70	25550	7.1E-11	1.5E+01	1.1E-09	92%	10950	1.7E-10	0.0E+00	0.0E+00	0%
Beryllium	0.13	1.3E+09	350	20	30	70	25550	1.2E-11	8.4E+00	9.7E-11	8%	10950	2.7E-11	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	20	30	70	25550	3.1E-07	0.0E+00	0.0E+00	0%	10950	7.3E-07	0.0E+00	0.0E+00	0%
TOTAL										1.2E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 78 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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
Arsenic	0.80	1.3E+09	350	15	4	15	25550	3.3E-11	1.5E+01	5.0E-10	92%	1460	5.8E-10	0.0E+00	0.0E+00	0%
Beryllium	0.13	1.3E+09	350	15	4	15	25550	5.4E-12	8.4E+00	4.5E-11	8%	1460	9.4E-11	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	15	4	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	1460	2.5E-06	0.0E+00	0.0E+00	0%
TOTAL										5.5E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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
Arsenic	0.80	1.3E+09	350	15	6	15	25550	5.0E-11	1.5E+01	7.5E-10	92%	2190	5.8E-10	0.0E+00	0.0E+00	0%
Beryllium	0.13	1.3E+09	350	15	6	15	25550	8.1E-12	8.4E+00	6.8E-11	8%	2190	9.4E-11	0.0E+00	0.0E+00	0%
Iron	3500.77	1.3E+09	350	15	6	15	25550	2.2E-07	0.0E+00	0.0E+00	0%	2190	2.5E-06	0.0E+00	0.0E+00	0%
TOTAL										8.2E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 84-BUILDING 45 AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 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
Aroclor-1260	10.68	1.3E+09	250	20	4	70	25550	9.1E-11	0.0E+00	0.0E+00	0%	1460	1.6E-09	0.0E+00	0.0E+00	0%
TOTAL										0.0E+00					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 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
Arsenic	76.80	1.3E+09	250	20	4	70	25550	6.5E-10	1.5E+01	9.8E-09	16%	1460	1.1E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	250	20	4	70	25550	4.0E-10	0.0E+00	0.0E+00	0%	1460	7.0E-09	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	250	20	4	70	25550	1.2E-09	4.2E+01	5.2E-08	84%	1460	2.2E-08	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	250	20	4	70	25550	1.6E-08	0.0E+00	0.0E+00	0%	1460	2.8E-07	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	250	20	4	70	25550	2.9E-06	0.0E+00	0.0E+00	0%	1460	5.0E-05	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	250	20	4	70	25550	2.6E-08	0.0E+00	0.0E+00	0%	1460	4.5E-07	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	250	20	4	70	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	2.9E-05	1.4E-05	2.0E+00	100%
Mercury	70.70	1.3E+09	250	20	4	70	25550	6.0E-10	0.0E+00	0.0E+00	0%	1460	1.0E-08	8.6E-05	1.2E-04	0%
Zinc	63900.00	1.3E+09	250	20	4	70	25550	5.4E-07	0.0E+00	0.0E+00	0%	1460	9.5E-06	0.0E+00	0.0E+00	0%
TOTAL										6.2E-08					2.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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
Arsenic	76.80	1.3E+09	350	20	30	70	25550	6.8E-09	1.5E+01	1.0E-07	16%	10950	1.6E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	350	20	30	70	25550	4.2E-09	0.0E+00	0.0E+00	0%	10950	9.8E-09	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	350	20	30	70	25550	1.3E-08	4.2E+01	5.5E-07	84%	10950	3.1E-08	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	350	20	30	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	350	20	30	70	25550	3.0E-05	0.0E+00	0.0E+00	0%	10950	7.0E-05	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	350	20	30	70	25550	2.7E-07	0.0E+00	0.0E+00	0%	10950	6.3E-07	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	350	20	30	70	25550	1.8E-05	0.0E+00	0.0E+00	0%	10950	4.1E-05	1.4E-05	2.9E+00	0%
Mercury	70.70	1.3E+09	350	20	30	70	25550	6.3E-09	0.0E+00	0.0E+00	0%	10950	1.5E-08	8.6E-05	1.7E-04	0%
Zinc	63900.00	1.3E+09	350	20	30	70	25550	5.7E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	0.0E+00	0.0E+00	0%
TOTAL										6.5E-07					2.9E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Arsenic	76.80	1.3E+09	350	15	6	15	25550	4.8E-09	1.5E+01	7.2E-08	16%	2190	5.6E-08	0.0E+00	0.0E+00	0%
Cadmium (soil)	47.10	1.3E+09	350	15	6	15	25550	2.9E-09	0.0E+00	0.0E+00	0%	2190	3.4E-08	0.0E+00	0.0E+00	0%
Chromium	147.00	1.3E+09	350	15	6	15	25550	9.2E-09	4.2E+01	3.8E-07	84%	2190	1.1E-07	0.0E+00	0.0E+00	0%
Copper	1870.00	1.3E+09	350	15	6	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	0.0E+00	0.0E+00	0%
Iron	339000.00	1.3E+09	350	15	6	15	25550	2.1E-05	0.0E+00	0.0E+00	0%	2190	2.5E-04	0.0E+00	0.0E+00	0%
Lead	3030.00	1.3E+09	350	15	6	15	25550	1.9E-07	0.0E+00	0.0E+00	0%	2190	2.2E-06	0.0E+00	0.0E+00	0%
Manganese	197000.00	1.3E+09	350	15	6	15	25550	1.2E-05	0.0E+00	0.0E+00	0%	2190	1.4E-04	1.4E-05	1.0E+01	100%
Mercury	70.70	1.3E+09	350	15	6	15	25550	4.4E-09	0.0E+00	0.0E+00	0%	2190	5.1E-08	8.6E-05	6.0E-04	0%
Zinc	63900.00	1.3E+09	350	15	6	15	25550	4.0E-06	0.0E+00	0.0E+00	0%	2190	4.6E-05	0.0E+00	0.0E+00	0%
TOTAL										4.6E-07					1.0E+01	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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)	20
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 (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	10200.000	1.3E+09	250	20	4	70	25550	8.6E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	0.0E+00	0.0E+00	0%
Arsenic	2.410	1.3E+09	250	20	4	70	25550	2.0E-11	1.5E+01	3.1E-10	100%	1460	3.6E-10	0.0E+00	0.0E+00	0%
Iron	9176.270	1.3E+09	250	20	4	70	25550	7.8E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	0.0E+00	0.0E+00	0%
TOTAL										3.1E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	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 (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)pyrene	0.38	1.3E+09	350	20	4	70	25550	4.5E-12	6.1E+00	2.7E-11	3%	1460	7.9E-11	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	20	4	70	25550	1.2E-12	6.1E+00	7.2E-12	1%	1460	2.1E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	20	4	70	25550	5.5E-11	1.5E+01	8.2E-10	87%	1460	9.5E-10	0.0E+00	0.0E+00	0%
Beryllium	0.87	1.3E+09	350	20	4	70	25550	1.0E-11	8.4E+00	8.7E-11	9%	1460	1.8E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	20	4	70	25550	7.7E-08	0.0E+00	0.0E+00	0%	1460	1.4E-08	0.0E+00	0.0E+00	0%
TOTAL										9.5E-10					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 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)pyrene	0.38	1.3E+09	350	20	30	70	25550	3.4E-11	6.1E+00	2.1E-10	3%	10950	7.9E-11	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	20	30	70	25550	8.9E-12	6.1E+00	5.4E-11	1%	10950	2.1E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	20	30	70	25550	4.1E-10	1.5E+01	6.2E-09	87%	10950	9.5E-10	0.0E+00	0.0E+00	0%
Beryllium	0.87	1.3E+09	350	20	30	70	25550	7.7E-11	8.4E+00	6.5E-10	9%	10950	1.8E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	20	30	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	10950	1.4E-06	0.0E+00	0.0E+00	0%
TOTAL										7.1E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE 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)	4
BW = child body weight (kg)	15
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 (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)pyrene	0.38	1.3E+09	350	15	4	15	25550	1.6E-11	6.1E+00	9.6E-11	3%	1460	2.8E-10	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	15	4	15	25550	4.2E-12	6.1E+00	2.5E-11	1%	1460	7.3E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	15	4	15	25550	1.9E-10	1.5E+01	2.9E-09	87%	1460	3.3E-09	0.0E+00	0.0E+00	0%
Beryllium	0.87	1.3E+09	350	15	4	15	25550	3.6E-11	8.4E+00	3.0E-10	9%	1460	6.3E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	15	4	15	25550	2.7E-07	0.0E+00	0.0E+00	0%	1460	4.7E-06	0.0E+00	0.0E+00	0%
TOTAL										3.3E-09					0.0E+00	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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 Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Benzo(a)pyrene	0.38	1.3E+09	350	15	6	15	25550	2.4E-11	6.1E+00	1.4E-10	3%	2190	2.8E-10	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.10	1.3E+09	350	15	6	15	25550	6.2E-12	6.1E+00	3.8E-11	1%	2190	7.3E-11	0.0E+00	0.0E+00	0%
Arsenic	4.60	1.3E+09	350	15	6	15	25550	2.9E-10	1.5E+01	4.3E-09	87%	2190	3.3E-09	0.0E+00	0.0E+00	0%
Beryllium	0.87	1.3E+09	350	15	6	15	25550	5.4E-11	8.4E+00	4.6E-10	9%	2190	6.3E-10	0.0E+00	0.0E+00	0%
Iron	6530.00	1.3E+09	350	15	6	15	25550	4.1E-07	0.0E+00	0.0E+00	0%	2190	4.7E-06	0.0E+00	0.0E+00	0%
TOTAL										5.0E-09					0.0E+00	

GROUNDWATER

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE GROUNDWATER INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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

$$Intake\ (mg/kg{\cdot}day) = \frac{0.001\ mg/L \times 2\ L/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 7.2E\text{-}06$$

Risk = 7.2E-06 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ = 1.1E-05

Example Noncarcinogen: Antimony

$$Intake\ (mg/kg{\cdot}day) = \frac{0.016\ mg/L \times 2\ L/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 4.3E\text{-}04$$

$$Risk = \frac{4.3E\text{-}04\ mg/kg{\cdot}day}{4.0E\text{-}04\ mg/kg{\cdot}day} = 1.1$$

Re: Site 63 Future Residential Adult

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		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 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 Time (days)	Carc Dose (mg/kg-day) Adult	Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Antimony	0.016	2	350	30	70	25550	1.8E-04	0.0E+00	0.0E+00	0%	10950	4.3E-04	4.0E-04	1.1E+00	62%
Arsenic	0.001	2	350	30	70	25550	7.2E-06	1.5E+00	1.1E-05	100%	10950	1.7E-05	3.0E-04	5.6E-02	3%
Cadmium (water)	0.002	2	350	30	70	25550	2.6E-05	0.0E+00	0.0E+00	0%	10950	6.0E-05	5.0E-04	1.2E-01	7%
Manganese	0.401	2	350	30	70	25550	4.7E-03	0.0E+00	0.0E+00	0%	10950	1.1E-02	2.3E-02	4.8E-01	28%
TOTAL									1.07E-05					1.73	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Antimony	0.016	1	350	6	15	25550	8.6E-05	0.0E+00	0.0E+00	0%	2190	1.0E-03	4.0E-04	2.5E+00	62%
Arsenic	0.001	1	350	6	15	25550	3.3E-06	1.5E+00	5.0E-06	100%	2190	3.9E-05	3.0E-04	1.3E-01	3%
Cadmium (water)	0.002	1	350	6	15	25550	1.2E-05	0.0E+00	0.0E+00	0%	2190	1.4E-04	5.0E-04	2.8E-01	7%
Manganese	0.401	1	350	6	15	25550	2.2E-03	0.0E+00	0.0E+00	0%	2190	2.6E-02	2.3E-02	1.1E+00	28%
TOTAL									5.0E-06					4.0	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Arsenic	0.008	2	350	30	70	25550	9.2E-05	1.5E+00	1.4E-04	100%	10950	2.1E-04	3.0E-04	7.1E-01	81%
Iron	1.860	2	350	30	70	25550	2.2E-02	0.0E+00	0.0E+00	0%	10950	5.1E-02	3.0E-01	1.7E-01	19%
TOTAL									1.37E-04					0.88	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Arsenic	0.008	1	350	6	15	25550	4.3E-05	1.5E+00	6.4E-05	100%	2190	5.0E-04	3.0E-04	1.7E+00	81%
Iron	1.860	1	350	6	15	25550	1.0E-02	0.0E+00	0.0E+00	0%	2190	1.2E-01	3.0E-01	4.0E-01	19%
TOTAL									6.4E-05					2.1	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Aluminum	429.000	2	350	30	70	25550	5.0E+00	0.0E+00	0.0E+00	0%	10950	1.2E+01	1.0E+00	1.2E+01	15%
Arsenic	0.020	2	350	30	70	25550	2.3E-04	1.5E+00	3.5E-04	68%	10950	5.5E-04	3.0E-04	1.8E+00	2%
Barium	0.548	2	350	30	70	25550	6.4E-03	0.0E+00	0.0E+00	0%	10950	1.5E-02	7.0E-02	2.1E-01	0%
Beryllium	0.003	2	350	30	70	25550	3.9E-05	4.3E+00	1.7E-04	32%	10950	9.0E-05	5.0E-03	1.8E-02	0%
Cadmium (water)	0.025	2	350	30	70	25550	2.9E-04	0.0E+00	0.0E+00	0%	10950	6.7E-04	5.0E-04	1.3E+00	2%
Chromium	0.821	2	350	30	70	25550	9.6E-03	0.0E+00	0.0E+00	0%	10950	2.2E-02	5.0E-03	4.5E+00	6%
Copper	0.173	2	350	30	70	25550	2.0E-03	0.0E+00	0.0E+00	0%	10950	4.7E-03	4.0E-02	1.2E-01	0%
Iron	498.000	2	350	30	70	25550	5.8E+00	0.0E+00	0.0E+00	0%	10950	1.4E+01	3.0E-01	4.5E+01	59%
Lead	0.512	2	350	30	70	25550	6.0E-03	0.0E+00	0.0E+00	0%	10950	1.4E-02	0.0E+00	0.0E+00	0%
Manganese	1.270	2	350	30	70	25550	1.5E-02	0.0E+00	0.0E+00	0%	10950	3.5E-02	2.3E-02	1.5E+00	2%
Mercury	0.002	2	350	30	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.6E-05	3.0E-04	2.2E-01	0%
Nickel	4.550	2	350	30	70	25550	5.3E-02	0.0E+00	0.0E+00	0%	10950	1.2E-01	2.0E-02	6.2E+00	8%
Vanadium	0.908	2	350	30	70	25550	1.1E-02	0.0E+00	0.0E+00	0%	10950	2.5E-02	7.0E-03	3.6E+00	5%
Zinc	3.970	2	350	30	70	25550	4.7E-02	0.0E+00	0.0E+00	0%	10950	1.1E-01	3.0E-01	3.6E-01	0%
TOTAL									5.19E-04					77.14	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Aluminum	429.000	1	350	6	15	25550	2.4E+00	0.0E+00	0.0E+00	0%	2190	2.7E+01	1.0E+00	2.7E+01	15%
Arsenic	0.020	1	350	6	15	25550	1.1E-04	1.5E+00	1.6E-04	68%	2190	1.3E-03	3.0E-04	4.3E+00	2%
Barium	0.548	1	350	6	15	25550	3.0E-03	0.0E+00	0.0E+00	0%	2190	3.5E-02	7.0E-02	5.0E-01	0%
Beryllium	0.003	1	350	6	15	25550	1.8E-05	4.3E+00	7.8E-05	32%	2190	2.1E-04	5.0E-03	4.2E-02	0%
Cadmium (water)	0.025	1	350	6	15	25550	1.3E-04	0.0E+00	0.0E+00	0%	2190	1.6E-03	5.0E-04	3.1E+00	2%
Chromium	0.821	1	350	6	15	25550	4.5E-03	0.0E+00	0.0E+00	0%	2190	5.2E-02	5.0E-03	1.0E+01	6%
Copper	0.173	1	350	6	15	25550	9.5E-04	0.0E+00	0.0E+00	0%	2190	1.1E-02	4.0E-02	2.8E-01	0%
Iron	498.000	1	350	6	15	25550	2.7E+00	0.0E+00	0.0E+00	0%	2190	3.2E+01	3.0E-01	1.1E+02	59%
Lead	0.512	1	350	6	15	25550	2.8E-03	0.0E+00	0.0E+00	0%	2190	3.3E-02	0.0E+00	0.0E+00	0%
Manganese	1.270	1	350	6	15	25550	7.0E-03	0.0E+00	0.0E+00	0%	2190	8.1E-02	2.3E-02	3.5E+00	2%
Mercury	0.002	1	350	6	15	25550	1.3E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	3.0E-04	5.1E-01	0%
Nickel	4.550	1	350	6	15	25550	2.5E-02	0.0E+00	0.0E+00	0%	2190	2.9E-01	2.0E-02	1.5E+01	8%
Vanadium	0.908	1	350	6	15	25550	5.0E-03	0.0E+00	0.0E+00	0%	2190	5.8E-02	7.0E-03	8.3E+00	5%
Zinc	3.970	1	350	6	15	25550	2.2E-02	0.0E+00	0.0E+00	0%	2190	2.5E-01	3.0E-01	8.5E-01	0%
TOTAL									2.4E-04					180.0	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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/Day)		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 (yr)		30
DY = days per year (day/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) 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 Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
Pentachlorophenol	0.001	2	350	30	70	25550	9.4E-06	1.2E-01	1.1E-06	100%	10950	2.2E-05	3.0E-02	7.3E-04	0%
Aluminum	3.770	2	350	30	70	25550	4.4E-02	0.0E+00	0.0E+00	0%	10950	1.0E-01	1.0E+00	1.0E-01	16%
Iron	3.130	2	350	30	70	25550	3.7E-02	0.0E+00	0.0E+00	0%	10950	8.6E-02	3.0E-01	2.9E-01	44%
Manganese	0.224	2	350	30	70	25550	2.6E-03	0.0E+00	0.0E+00	0%	10950	6.1E-03	2.3E-02	2.7E-01	41%
TOTAL									1.13E-06					0.66	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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
Pentachlorophenol	0.001	1	350	6	15	25550	4.4E-06	1.2E-01	5.3E-07	100%	2190	5.1E-05	3.0E-02	1.7E-03	0%
Aluminum	3.770	1	350	6	15	25550	2.1E-02	0.0E+00	0.0E+00	0%	2190	2.4E-01	1.0E+00	2.4E-01	16%
Iron	3.130	1	350	6	15	25550	1.7E-02	0.0E+00	0.0E+00	0%	2190	2.0E-01	3.0E-01	6.7E-01	44%
Manganese	0.224	1	350	6	15	25550	1.2E-03	0.0E+00	0.0E+00	0%	2190	1.4E-02	2.3E-02	6.2E-01	41%
TOTAL									5.3E-07					1.5	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE DERMAL CONTACT WITH GROUNDWATER CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

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)
	IR	=	Ingestion rate (L/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

$$Intake\ (mg/kgday) = \frac{0.001\ mg/L \times 1.0E{-}03\ L/cm^3 \times 23{,}000\ cm^2/event \times 1.0E{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 2.1E{-}08$$

Risk = 2.1E-08 mg/kg·day x 7.5 $mg/kg{\cdot}day^{-1}$ = 1.5E-07

Example Noncarcinogen: Antimony

$$Intake\ (mg/kg{\cdot}day) = \frac{0.016\ mg/L \times 1.0E{-}03\ L/cm^3 \times 23{,}000\ cm^2/event \times 1.0E{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E{-}06$$

$$Risk = \frac{1.2E{-}06\ mg/kg{\cdot}day}{8.0E{-}05\ mg/kg{\cdot}day} = 1.5E{-}02$$

Re: Site 68 Future Residential Adult

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Antimony	0.016	23000	1.00E-03	0.25	350	30	0.001	70	25550	5.3E-07	0.0E+00	0.0E+00	0%	10950	1.2E-06	8.0E-05	1.5E-02	62%
Arsenic	0.001	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.1E-08	7.5E+00	1.5E-07	100%	10950	4.8E-08	8.0E-05	8.0E-04	3%
Cadmium (water)	0.002	23000	1.00E-03	0.25	350	30	0.001	70	25550	7.4E-08	0.0E+00	0.0E+00	0%	10950	1.7E-07	1.0E-04	1.7E-03	7%
Manganese	0.401	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.4E-05	0.0E+00	0.0E+00	0%	10950	3.2E-05	4.6E-03	6.9E-03	28%
TOTAL												1.5E-07					2.5E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Antimony	0.016	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.2E-07	0.0E+00	0.0E+00	0%	2190	2.5E-06	8.0E-05	3.1E-02	62%
Arsenic	0.001	10000	1.00E-03	0.25	350	6	0.001	15	25550	8.4E-09	7.5E+00	6.3E-08	100%	2190	9.7E-08	6.0E-05	1.6E-03	3%
Cadmium (water)	0.002	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.0E-08	0.0E+00	0.0E+00	0%	2190	3.5E-07	1.0E-04	3.5E-03	7%
Manganese	0.401	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.5E-06	0.0E+00	0.0E+00	0%	2190	6.4E-05	4.6E-03	1.4E-02	28%
TOTAL												6.3E-08					5.0E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Arsenic	0.008	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.6E-07	7.5E+00	2.0E-06	100%	10950	6.1E-07	6.0E-05	1.0E-02	81%
Iron	1.860	23000	1.00E-03	0.25	350	30	0.001	70	25550	6.3E-05	0.0E+00	0.0E+00	0%	10950	1.5E-04	6.0E-02	2.4E-03	19%
TOTAL												2.0E-06					1.3E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 76 - CURTIS ROAD
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Arsenic	0.008	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.1E-07	7.5E+00	8.0E-07	100%	2190	1.2E-06	6.0E-05	2.1E-02	81%
Iron	1.860	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.5E-05	0.0E+00	0.0E+00	0%	2190	3.0E-04	6.0E-02	5.0E-03	19%
TOTAL												8.0E-07					2.6E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Aluminum	429.000	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.4E-02	0.0E+00	0.0E+00	0%	10950	3.4E-02	2.0E-01	1.7E-01	16%
Arsenic	0.020	23000	1.00E-03	0.25	350	30	0.001	70	25550	6.8E-07	7.5E+00	5.1E-06	68%	10950	1.6E-06	8.0E-05	2.6E-02	3%
Barium	0.548	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.8E-05	0.0E+00	0.0E+00	0%	10950	4.3E-05	1.4E-02	3.1E-03	0%
Beryllium	0.003	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.1E-07	2.1E+01	2.4E-06	32%	10950	2.6E-07	1.0E-03	2.6E-04	0%
Cadmium (water)	0.025	23000	1.00E-03	0.25	350	30	0.001	70	25550	8.3E-07	0.0E+00	0.0E+00	0%	10950	1.9E-06	1.0E-04	1.9E-02	2%
Chromium	0.821	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.8E-05	0.0E+00	0.0E+00	0%	10950	6.5E-05	1.0E-03	6.5E-02	6%
Copper	0.173	23000	1.00E-03	0.25	350	30	0.001	70	25550	5.8E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	8.0E-03	1.7E-03	0%
Iron	498.000	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.7E-02	0.0E+00	0.0E+00	0%	10950	3.9E-02	6.0E-02	6.5E-01	64%
Lead	0.512	23000	4.00E-06	0.25	350	30	0.001	70	25550	6.9E-08	0.0E+00	0.0E+00	0%	10950	1.6E-07	0.0E+00	0.0E+00	0%
Manganese	1.270	23000	1.00E-03	0.25	350	30	0.001	70	25550	4.3E-05	0.0E+00	0.0E+00	0%	10950	1.0E-04	4.6E-03	2.2E-02	2%
Mercury	0.002	23000	1.00E-03	0.25	350	30	0.001	70	25550	8.1E-08	0.0E+00	0.0E+00	0%	10950	1.9E-07	8.0E-05	3.2E-03	0%
Nickel	4.550	23000	1.00E-04	0.25	350	30	0.001	70	25550	1.5E-05	0.0E+00	0.0E+00	0%	10950	3.6E-05	4.0E-03	9.0E-03	1%
Vanadium	0.908	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.1E-05	0.0E+00	0.0E+00	0%	10950	7.2E-05	1.4E-03	5.1E-02	5%
Zinc	3.970	23000	6.00E-04	0.25	350	30	0.001	70	25550	8.0E-05	0.0E+00	0.0E+00	0%	10950	1.9E-04	6.0E-02	3.1E-03	0%
TOTAL												7.5E-06					1.0E+00	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 85-CAMP JOHNSON BATTERY DUMP
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Aluminum	429.000	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.9E-03	0.0E+00	0.0E+00	0%	2190	6.9E-02	2.0E-01	3.4E-01	16%
Arsenic	0.020	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.7E-07	7.5E+00	2.1E-06	68%	2190	3.2E-06	6.0E-05	5.3E-02	3%
Barium	0.548	10000	1.00E-03	0.25	350	6	0.001	15	25550	7.5E-06	0.0E+00	0.0E+00	0%	2190	8.8E-05	1.4E-02	6.3E-03	0%
Beryllium	0.003	10000	1.00E-03	0.25	350	6	0.001	15	25550	4.5E-08	2.1E+01	9.7E-07	32%	2190	5.3E-07	1.0E-03	5.3E-04	0%
Cadmium (water)	0.025	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.4E-07	0.0E+00	0.0E+00	0%	2190	3.9E-06	1.0E-04	3.9E-02	2%
Chromium	0.821	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.1E-05	0.0E+00	0.0E+00	0%	2190	1.3E-04	1.0E-03	1.3E-01	6%
Copper	0.173	10000	1.00E-03	0.25	350	6	0.001	15	25550	2.4E-06	0.0E+00	0.0E+00	0%	2190	2.8E-05	8.0E-03	3.5E-03	0%
Iron	498.000	10000	1.00E-03	0.25	350	6	0.001	15	25550	6.8E-03	0.0E+00	0.0E+00	0%	2190	8.0E-02	6.0E-02	1.3E+00	64%
Lead	0.512	10000	4.00E-06	0.25	350	6	0.001	15	25550	2.8E-08	0.0E+00	0.0E+00	0%	2190	3.3E-07	0.0E+00	0.0E+00	0%
Manganese	1.270	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.7E-05	0.0E+00	0.0E+00	0%	2190	2.0E-04	4.6E-03	4.4E-02	2%
Mercury	0.002	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.3E-08	0.0E+00	0.0E+00	0%	2190	3.8E-07	6.0E-05	6.4E-03	0%
Nickel	4.550	10000	1.00E-04	0.25	350	6	0.001	15	25550	6.2E-06	0.0E+00	0.0E+00	0%	2190	7.3E-05	4.0E-03	1.8E-02	1%
Vanadium	0.908	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.2E-05	0.0E+00	0.0E+00	0%	2190	1.5E-04	1.4E-03	1.0E-01	5%
Zinc	3.970	10000	6.00E-04	0.25	350	6	0.001	15	25550	3.3E-05	0.0E+00	0.0E+00	0%	2190	3.8E-04	6.0E-02	6.3E-03	0%
TOTAL												3.0E-06					2.1E+00	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

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 = 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

Note: Inputs are site and scenario specific

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 Carcinogeni 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
Pentachlorophenol	0.001	23000	4.90E-01	0.25	350	30	0.001	70	25550	1.3E-05	2.4E-01	3.2E-06	100%	10950	3.1E-05	1.5E-02	2.1E-03	18%
Aluminum	3.770	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.3E-04	0.0E+00	0.0E+00	0%	10950	3.0E-04	2.0E-01	1.5E-03	13%
Iron	3.130	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.1E-04	0.0E+00	0.0E+00	0%	10950	2.5E-04	6.0E-02	4.1E-03	36%
Manganese	0.224	23000	1.00E-03	0.25	350	30	0.001	70	25550	7.6E-06	0.0E+00	0.0E+00	0%	10950	1.8E-05	4.6E-03	3.8E-03	33%
TOTAL												3.2E-06					1.1E-02	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
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

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 Noncarcinogeni Risk Child
Pentachlorophenol	0.001	10000	4.90E-01	0.25	350	6	0.001	15	25550	5.4E-06	2.4E-01	1.3E-06	100%	2190	6.3E-05	1.5E-02	4.2E-03	18%
Aluminum	3.770	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.2E-05	0.0E+00	0.0E+00	0%	2190	6.0E-04	2.0E-01	3.0E-03	13%
Iron	3.130	10000	1.00E-03	0.25	350	6	0.001	15	25550	4.3E-05	0.0E+00	0.0E+00	0%	2190	5.0E-04	6.0E-02	8.3E-03	36%
Manganese	0.224	10000	1.00E-03	0.25	350	6	0.001	15	25550	3.1E-06	0.0E+00	0.0E+00	0%	2190	3.6E-05	4.6E-03	7.8E-03	33%
TOTAL												1.3E-06					2.3E-02	

SURFACE WATER

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE SURFACE WATER INGESTION CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

Purpose: Estimate intake/risk from ingestion of surface water

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times IR \times EF \times ED\ ET}{BW \times AT}$$

Where:	C	=	Contaminant concentration in surface water (mg/L)
	IR	=	Daily intake ingestion rate (kg/meal)
	EF	=	Exposure frequency (meal/year)
	ED	=	Exposure duration (years)
	ET	=	Exposure time (hrs/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: No Carcinogenic COPCs in Surface Water

Example Noncarcinogen: Aluminum

$$Intake\ (mg/kg{\cdot}day) = \frac{0.422\ mg/L \times 0.05\ L/day \times 48\ days/yr \times 30\ yrs \times 2.6\ hrs/day}{70\ kg \times 10{,}950\ days}$$

$$= 1.0E\text{-}04$$

$$Risk = \frac{1.0E{-}04\ mg/kg{\cdot}day}{1.0E{+}00\ mg/kg{\cdot}day} = 1.0E{-}04$$

Re: Site 68 Future Residential Adult

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	4
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-day)	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Time Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	0.05	2.6	48	4	70	25550	1.4E-08	0.0E+00	0.0E+00	0%	1460	2.4E-07	1.0E-01	2.4E-06	0%
Aluminum	0.422	0.05	2.6	48	4	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	1460	1.0E-04	1.0E+00	1.0E-04	6%
Barium	0.015	0.05	2.6	48	4	70	25550	2.1E-07	0.0E+00	0.0E+00	0%	1460	3.6E-06	7.0E-02	5.2E-05	3%
Cadmium (water)	0.002	0.05	2.6	48	4	70	25550	2.2E-08	0.0E+00	0.0E+00	0%	1460	3.9E-07	5.0E-04	7.8E-04	42%
Iron	0.485	0.05	2.6	48	4	70	25550	6.8E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	3.0E-01	3.9E-04	21%
Lead	0.003	0.05	2.6	48	4	70	25550	3.5E-08	0.0E+00	0.0E+00	0%	1460	6.1E-07	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	4	70	25550	5.3E-07	0.0E+00	0.0E+00	0%	1460	9.4E-06	2.3E-02	4.1E-04	22%
Selenium	0.001	0.05	2.6	48	4	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	1460	2.3E-07	5.0E-03	4.5E-05	2%
Vanadium	0.002	0.05	2.6	48	4	70	25550	2.1E-08	0.0E+00	0.0E+00	0%	1460	3.7E-07	7.0E-03	5.2E-05	3%
Zinc	0.003	0.05	2.6	48	4	70	25550	4.0E-08	0.0E+00	0.0E+00	0%	1460	7.1E-07	3.0E-01	2.4E-06	0%
TOTAL										0.0E+00					1.8E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	30
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-da	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Tim Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	0.05	2.6	48	30	70	25550	1.0E-07	0.0E+00	0.0E+00	0%	10950	2.4E-07	1.0E-01	2.4E-06	0%
Aluminum	0.422	0.05	2.6	48	30	70	25550	4.4E-05	0.0E+00	0.0E+00	0%	10950	1.0E-04	1.0E+00	1.0E-04	6%
Barium	0.015	0.05	2.6	48	30	70	25550	1.5E-06	0.0E+00	0.0E+00	0%	10950	3.6E-06	7.0E-02	5.2E-05	3%
Cadmium (water)	0.002	0.05	2.6	48	30	70	25550	1.7E-07	0.0E+00	0.0E+00	0%	10950	3.9E-07	5.0E-04	7.8E-04	42%
Iron	0.485	0.05	2.6	48	30	70	25550	5.1E-05	0.0E+00	0.0E+00	0%	10950	1.2E-04	3.0E-01	3.9E-04	21%
Lead	0.003	0.05	2.6	48	30	70	25550	2.6E-07	0.0E+00	0.0E+00	0%	10950	6.1E-07	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	30	70	25550	4.0E-06	0.0E+00	0.0E+00	0%	10950	9.4E-06	2.3E-02	4.1E-04	22%
Selenium	0.001	0.05	2.6	48	30	70	25550	9.7E-08	0.0E+00	0.0E+00	0%	10950	2.3E-07	5.0E-03	4.5E-05	2%
Vanadium	0.002	0.05	2.6	48	30	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	10950	3.7E-07	7.0E-03	5.2E-05	3%
Zinc	0.003	0.05	2.6	48	30	70	25550	3.0E-07	0.0E+00	0.0E+00	0%	10950	7.1E-07	3.0E-01	2.4E-06	0%
TOTAL										0.0E+00					1.8E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = contact rate (Liter/hour)	0.05
ET = child exposure time (hours/event)	2.6
EF = child exposure frequency (events/yr)	48
ED = child exposure duration (yrs)	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 (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Di-n-butylphthalate	0.001	0.05	2.6	48	6	15	25550	9.8E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	1.0E-01	1.1E-05	0%
Aluminum	0.422	0.05	2.6	48	6	15	25550	4.1E-05	0.0E+00	0.0E+00	0%	2190	4.8E-04	1.0E+00	4.8E-04	6%
Barium	0.015	0.05	2.6	48	6	15	25550	1.4E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	7.0E-02	2.4E-04	3%
Cadmium (water)	0.002	0.05	2.6	48	6	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	2190	1.8E-06	5.0E-04	3.6E-03	42%
Iron	0.485	0.05	2.6	48	6	15	25550	4.7E-05	0.0E+00	0.0E+00	0%	2190	5.5E-04	3.0E-01	1.8E-03	21%
Lead	0.003	0.05	2.6	48	6	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.8E-06	0.0E+00	0.0E+00	0%
Manganese	0.038	0.05	2.6	48	6	15	25550	3.7E-06	0.0E+00	0.0E+00	0%	2190	4.4E-05	2.3E-02	1.9E-03	22%
Selenium	0.001	0.05	2.6	48	6	15	25550	9.1E-08	0.0E+00	0.0E+00	0%	2190	1.1E-06	5.0E-03	2.1E-04	2%
Vanadium	0.002	0.05	2.6	48	6	15	25550	1.5E-07	0.0E+00	0.0E+00	0%	2190	1.7E-06	7.0E-03	2.4E-04	3%
Zinc	0.003	0.05	2.6	48	6	15	25550	2.8E-07	0.0E+00	0.0E+00	0%	2190	3.3E-06	3.0E-01	1.1E-05	0%
TOTAL										0.0E+00					8.6E-03	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	4
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-da	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Time Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	0.05	2.6	48	4	70	25550	6.8E-06	0.0E+00	0.0E+00	0%	1460	1.2E-04	1.0E+00	1.2E-04	0%
Antimony	0.055	0.05	2.6	48	4	70	25550	7.6E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	4.0E-04	3.3E-02	92%
Barium	0.027	0.05	2.6	48	4	70	25550	3.7E-07	0.0E+00	0.0E+00	0%	1460	6.5E-06	7.0E-02	9.3E-05	0%
Copper	0.005	0.05	2.6	48	4	70	25550	6.8E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	4.0E-02	3.0E-05	0%
Cyanide	0.053	0.05	2.6	48	4	70	25550	7.5E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	2.0E-02	6.5E-04	2%
Iron	0.326	0.05	2.6	48	4	70	25550	4.5E-06	0.0E+00	0.0E+00	0%	1460	8.0E-05	3.0E-01	2.7E-04	1%
Lead	0.008	0.05	2.6	48	4	70	25550	1.1E-07	0.0E+00	0.0E+00	0%	1460	2.0E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	4	70	25550	3.6E-07	0.0E+00	0.0E+00	0%	1460	6.4E-06	2.3E-02	2.8E-04	1%
Selenium	0.022	0.05	2.6	48	4	70	25550	3.1E-07	0.0E+00	0.0E+00	0%	1460	5.4E-06	5.0E-03	1.1E-03	3%
Vanadium	0.011	0.05	2.6	48	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.7E-06	7.0E-03	3.9E-04	1%
Zinc	0.012	0.05	2.6	48	4	70	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.9E-06	3.0E-01	9.5E-06	0%
TOTAL										0.0E+00					3.8E-02	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUT
Cw = contaminant concentration in surface water (mg/l)	
CR = ingestion rate (Liter/hour)	0.05
ET = exposure time (hours/event)	2.6
EF = exposure frequency (events/yr)	48
ED = exposure duration (yrs)	30
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (l/hour)	Exposure Time (hrs/event)	Exposure Frequency (events/yr)	Exposure Duration (years)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg-da	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Averaging Time Noncarc. (days)	Noncarc Dose (mg/kg-day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	0.05	2.6	48	30	70	25550	5.1E-05	0.0E+00	0.0E+00	0%	10950	1.2E-04	1.0E+00	1.2E-04	0%
Antimony	0.055	0.05	2.6	48	30	70	25550	5.7E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	4.0E-04	3.3E-02	92%
Barium	0.027	0.05	2.6	48	30	70	25550	2.8E-06	0.0E+00	0.0E+00	0%	10950	6.5E-06	7.0E-02	9.3E-05	0%
Copper	0.005	0.05	2.6	48	30	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	10950	1.2E-06	4.0E-02	3.0E-05	0%
Cyanide	0.053	0.05	2.6	48	30	70	25550	5.6E-06	0.0E+00	0.0E+00	0%	10950	1.3E-05	2.0E-02	6.5E-04	2%
Iron	0.326	0.05	2.6	48	30	70	25550	3.4E-05	0.0E+00	0.0E+00	0%	10950	8.0E-05	3.0E-01	2.7E-04	1%
Lead	0.008	0.05	2.6	48	30	70	25550	8.4E-07	0.0E+00	0.0E+00	0%	10950	2.0E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	30	70	25550	2.7E-06	0.0E+00	0.0E+00	0%	10950	6.4E-06	2.3E-02	2.8E-04	1%
Selenium	0.022	0.05	2.6	48	30	70	25550	2.3E-06	0.0E+00	0.0E+00	0%	10950	5.4E-06	5.0E-03	1.1E-03	3%
Vanadium	0.011	0.05	2.6	48	30	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.7E-06	7.0E-03	3.9E-04	1%
Zinc	0.012	0.05	2.6	48	30	70	25550	1.2E-06	0.0E+00	0.0E+00	0%	10950	2.9E-06	3.0E-01	9.5E-06	0%
TOTAL										0.0E+00					3.6E-02	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUT
Cw = contaminant concentration in surface water (mg/l)		
CR = contact rate (Liter/hour)		0.05
ET = child exposure time (hours/event)		2.6
EF = child exposure frequency (events/yr)		48
ED = child exposure duration (yrs)		4
BW = child body weight (kg)		15
ATc = averaging time for carcinogen (yr)		70
ATnc = averaging time for noncarcinogen (yr)		4
DY = days per year (days)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	0.488	0.05	2.6	48	4	15	25550	3.2E-05	0.0E+00	0.0E+00	0%	1460	5.6E-04	1.0E+00	5.6E-04	0%
Antimony	0.055	0.05	2.6	48	4	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.2E-05	4.0E-04	1.6E-01	92%
Barium	0.027	0.05	2.6	48	4	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	3.0E-05	7.0E-02	4.3E-04	0%
Copper	0.005	0.05	2.6	48	4	15	25550	3.2E-07	0.0E+00	0.0E+00	0%	1460	5.6E-06	4.0E-02	1.4E-04	0%
Cyanide	0.053	0.05	2.6	48	4	15	25550	3.5E-06	0.0E+00	0.0E+00	0%	1460	6.1E-05	2.0E-02	3.0E-03	2%
Iron	0.326	0.05	2.6	48	4	15	25550	2.1E-05	0.0E+00	0.0E+00	0%	1460	3.7E-04	3.0E-01	1.2E-03	1%
Lead	0.008	0.05	2.6	48	4	15	25550	5.2E-07	0.0E+00	0.0E+00	0%	1460	9.1E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	4	15	25550	1.7E-06	0.0E+00	0.0E+00	0%	1460	3.0E-05	2.3E-02	1.3E-03	1%
Selenium	0.022	0.05	2.6	48	4	15	25550	1.4E-06	0.0E+00	0.0E+00	0%	1460	2.5E-05	5.0E-03	5.0E-03	3%
Vanadium	0.011	0.05	2.6	48	4	15	25550	7.3E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	7.0E-03	1.8E-03	1%
Zinc	0.012	0.05	2.6	48	4	15	25550	7.6E-07	0.0E+00	0.0E+00	0%	1460	1.3E-05	3.0E-01	4.4E-05	0%
TOTAL										0.0E+00					1.7E-01	

SURFACE WATER INGESTION EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from the ingestion of surface water is calculated as follows:

Intake (mg/kg-day) = Cw * CR * ET * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUT
Cw = contaminant concentration in surface water (mg/l)		
CR = contact rate (Liter/hour)		0.05
ET = child exposure time (hours/event)		2.6
EF = child exposure frequency (events/yr)		48
ED = child exposure duration (yrs)		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 (days)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration Carcinogen (mg/l)	Contact Rate (l/hour)	Exposure Time (hrs/event) Child	Exposure Frequency (events/yr) Child	Exposure Duration (years) Child	Body Weight (kg) Child	Averaging Carc. Time (days)	Carc Dose (mg/kg-day) Child	Cancer Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Averaging Time Noncarc (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	0.488	0.05	2.6	48	6	15	25550	4.8E-05	0.0E+00	0.0E+00	0%	2190	5.6E-04	1.0E+00	5.6E-04	0%
Antimony	0.055	0.05	2.6	48	6	15	25550	5.3E-06	0.0E+00	0.0E+00	0%	2190	6.2E-05	4.0E-04	1.6E-01	92%
Barium	0.027	0.05	2.6	48	6	15	25550	2.6E-06	0.0E+00	0.0E+00	0%	2190	3.0E-05	7.0E-02	4.3E-04	0%
Copper	0.005	0.05	2.6	48	6	15	25550	4.8E-07	0.0E+00	0.0E+00	0%	2190	5.6E-06	4.0E-02	1.4E-04	0%
Cyanide	0.053	0.05	2.6	48	6	15	25550	5.2E-06	0.0E+00	0.0E+00	0%	2190	6.1E-05	2.0E-02	3.0E-03	2%
Iron	0.328	0.05	2.6	48	6	15	25550	3.2E-05	0.0E+00	0.0E+00	0%	2190	3.7E-04	3.0E-01	1.2E-03	1%
Lead	0.008	0.05	2.6	48	6	15	25550	7.8E-07	0.0E+00	0.0E+00	0%	2190	9.1E-06	0.0E+00	0.0E+00	0%
Manganese	0.026	0.05	2.6	48	6	15	25550	2.5E-06	0.0E+00	0.0E+00	0%	2190	3.0E-05	2.3E-02	1.3E-03	1%
Selenium	0.022	0.05	2.6	48	6	15	25550	2.1E-06	0.0E+00	0.0E+00	0%	2190	2.5E-05	5.0E-03	5.0E-03	3%
Vanadium	0.011	0.05	2.6	48	6	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	7.0E-03	1.8E-03	1%
Zinc	0.012	0.05	2.6	48	6	15	25550	1.1E-06	0.0E+00	0.0E+00	0%	2190	1.3E-05	3.0E-01	4.4E-05	0%
TOTAL										0.0E+00					1.7E-01	

Computed by: KTW Checked by: MAS Date: 7/96

EXAMPLE SURFACE WATER DERMAL CONTACT CALCULATIONS
PRE-RI SCREENING STUDY
CONTRACT TASK ORDER 0314

Purpose: Estimate intake/risk from dermal contact with surface water

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times SA \times CF \times EF \times ED \times ET \times PC}{BW \times AT}$$

Where:

C	=	Contaminant concentration in surface water (mg/L)
SA	=	Skin surface area (cm^2)
CF	=	Conversion factor (1 L/1,000 cm^3)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
ET	=	Exposure time (hrs/day)
PC	=	Chemical-specific dermal permeability constant (cm/hr)
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: No Carcinogenic COPCs in Surface Water

Example Noncarcinogen: Aluminum

$$Intake\ (mg/kg{\cdot}day) = \frac{0.422\ mg/L \times 5{,}800\ cm^2 \times 48\ days/yr \times 30\ yrs \times 2.6\ hrs/day \times 1.0E\text{-}3\ L/cm^3 \times 1E\text{-}03\ cm/hr}{70\ kg \times 10{,}950\ days}$$

$$= 1.2E\text{-}05$$

$$Risk = \frac{1.2E\text{-}05\ mg/kg{\cdot}day}{2.0E\text{-}01\ mg/kg{\cdot}day} = 6.0E\text{-}05$$

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	4300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	4
CF = volumetric conversion factor for water (1liter/1000 cm	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	4300	2.3E-06	2.6	48	4	0.001	70	25550	2.8E-12	0.0E+00	0.0E+00	0%	1460	4.8E-11	5.0E-02	9.7E-10	0%
Aluminum	0.422	4300	1.0E-03	2.6	48	4	0.001	70	25550	5.1E-07	0.0E+00	0.0E+00	0%	1460	8.9E-06	2.0E-01	4.4E-05	6%
Barium	0.015	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	1460	3.1E-07	1.4E-02	2.2E-05	3%
Cadmium (water)	0.002	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.9E-09	0.0E+00	0.0E+00	0%	1460	3.4E-08	1.0E-04	3.4E-04	43%
Iron	0.485	4300	1.0E-03	2.6	48	4	0.001	70	25550	5.8E-07	0.0E+00	0.0E+00	0%	1460	1.0E-05	6.0E-02	1.7E-04	21%
Lead	0.003	4300	4.0E-06	2.6	48	4	0.001	70	25550	1.2E-11	0.0E+00	0.0E+00	0%	1460	2.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	4300	1.0E-03	2.6	48	4	0.001	70	25550	4.6E-08	0.0E+00	0.0E+00	0%	1460	8.0E-07	4.6E-03	1.7E-04	22%
Selenium	0.001	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.1E-09	0.0E+00	0.0E+00	0%	1460	2.0E-08	1.0E-03	2.0E-05	2%
Vanadium	0.002	4300	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-09	0.0E+00	0.0E+00	0%	1460	3.2E-08	1.4E-03	2.3E-05	3%
Zinc	0.003	4300	6.0E-04	2.6	48	4	0.001	70	25550	2.1E-09	0.0E+00	0.0E+00	0%	1460	3.7E-08	6.0E-02	6.1E-07	0%
TOTAL												0.0E+00					7.9E-04	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68 - RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/1000 cm	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Di-n-butylphthalate	0.001	5800	2.3E-06	2.6	48	30	0.001	70	25550	2.8E-11	0.0E+00	0.0E+00	0%	10950	6.5E-11	5.0E-02	1.3E-09	0%
Aluminum	0.422	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.1E-06	0.0E+00	0.0E+00	0%	10950	1.2E-05	2.0E-01	6.0E-05	6%
Barium	0.015	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.8E-07	0.0E+00	0.0E+00	0%	10950	4.2E-07	1.4E-02	3.0E-05	3%
Cadmium (water)	0.002	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.9E-08	0.0E+00	0.0E+00	0%	10950	4.5E-08	1.0E-04	4.5E-04	43%
Iron	0.485	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-06	0.0E+00	0.0E+00	0%	10950	1.4E-05	6.0E-02	2.3E-04	21%
Lead	0.003	5800	4.0E-06	2.6	48	30	0.001	70	25550	1.2E-10	0.0E+00	0.0E+00	0%	10950	2.8E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	5800	1.0E-03	2.6	48	30	0.001	70	25550	4.7E-07	0.0E+00	0.0E+00	0%	10950	1.1E-06	4.6E-03	2.4E-04	22%
Selenium	0.001	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.1E-08	0.0E+00	0.0E+00	0%	10950	2.6E-08	1.0E-03	2.6E-05	2%
Vanadium	0.002	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	10950	4.2E-08	1.4E-03	3.0E-05	3%
Zinc	0.003	5800	6.0E-04	2.6	48	30	0.001	70	25550	2.1E-08	0.0E+00	0.0E+00	0%	10950	4.9E-08	6.0E-02	8.2E-07	0%
TOTAL												0.0E+00					1.1E-03	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 68-RIFLE RANGE
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
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
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Di-n-butylphthalate	0.001	2300	2.3E-06	2.6	48	6	0.001	15	25550	1.0E-11	0.0E+00	0.0E+00	0%	2190	1.2E-10	5.0E-02	2.4E-09	0%
Aluminum	0.422	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.9E-06	0.0E+00	0.0E+00	0%	2190	2.2E-05	2.0E-01	1.1E-04	6%
Barium	0.015	2300	1.0E-03	2.6	48	6	0.001	15	25550	6.7E-08	0.0E+00	0.0E+00	0%	2190	7.8E-07	1.4E-02	5.5E-05	3%
Cadmium (water)	0.002	2300	1.0E-03	2.6	48	6	0.001	15	25550	7.2E-09	0.0E+00	0.0E+00	0%	2190	8.4E-08	1.0E-04	8.4E-04	43%
Iron	0.485	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.5E-05	6.0E-02	4.2E-04	21%
Lead	0.003	2300	4.0E-06	2.6	48	6	0.001	15	25550	4.5E-11	0.0E+00	0.0E+00	0%	2190	5.2E-10	0.0E+00	0.0E+00	0%
Manganese	0.038	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.7E-07	0.0E+00	0.0E+00	0%	2190	2.0E-06	4.6E-03	4.4E-04	22%
Selenium	0.001	2300	1.0E-03	2.6	48	6	0.001	15	25550	4.2E-09	0.0E+00	0.0E+00	0%	2190	4.9E-08	1.0E-03	4.9E-05	2%
Vanadium	0.002	2300	1.0E-03	2.6	48	6	0.001	15	25550	6.7E-09	0.0E+00	0.0E+00	0%	2190	7.9E-08	1.4E-03	5.6E-05	3%
Zinc	0.003	2300	6.0E-04	2.6	48	6	0.001	15	25550	7.8E-09	0.0E+00	0.0E+00	0%	2190	9.1E-08	6.0E-02	1.5E-06	0%
TOTAL												0.0E+00					2.0E-03	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL ADULT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	4
CF = volumetric conversion factor for water (1liter/100	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	5800	1.0E-03	2.6	48	4	0.001	70	25550	7.9E-07	0.0E+00	0.0E+00	0%	1460	1.4E-05	2.0E-01	6.9E-05	0%
Antimony	0.055	5800	1.0E-03	2.6	48	4	0.001	70	25550	8.8E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	8.0E-05	1.9E-02	92%
Barium	0.027	5800	1.0E-03	2.6	48	4	0.001	70	25550	4.3E-08	0.0E+00	0.0E+00	0%	1460	7.6E-07	1.4E-02	5.4E-05	0%
Copper	0.005	5800	1.0E-03	2.6	48	4	0.001	70	25550	7.9E-09	0.0E+00	0.0E+00	0%	1460	1.4E-07	8.0E-03	1.7E-05	0%
Cyanide	0.053	5800	1.0E-03	2.6	48	4	0.001	70	25550	8.6E-08	0.0E+00	0.0E+00	0%	1460	1.5E-06	4.0E-03	3.8E-04	2%
Iron	0.326	5800	1.0E-03	2.6	48	4	0.001	70	25550	5.3E-07	0.0E+00	0.0E+00	0%	1460	9.2E-06	6.0E-02	1.5E-04	1%
Lead	0.008	5800	4.0E-06	2.6	48	4	0.001	70	25550	5.2E-11	0.0E+00	0.0E+00	0%	1460	9.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.026	5800	1.0E-03	2.6	48	4	0.001	70	25550	4.2E-08	0.0E+00	0.0E+00	0%	1460	7.4E-07	4.6E-03	1.6E-04	1%
Selenium	0.022	5800	1.0E-03	2.6	48	4	0.001	70	25550	3.6E-08	0.0E+00	0.0E+00	0%	1460	6.2E-07	1.0E-03	6.2E-04	3%
Vanadium	0.011	5800	1.0E-03	2.6	48	4	0.001	70	25550	1.8E-08	0.0E+00	0.0E+00	0%	1460	3.2E-07	1.4E-03	2.3E-04	1%
Zinc	0.012	5800	6.0E-04	2.6	48	4	0.001	70	25550	1.1E-08	0.0E+00	0.0E+00	0%	1460	2.0E-07	6.0E-02	3.3E-06	0%
TOTAL												0.0E+00					2.1E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE ADULT RESIDENT

The intake from dermal contact with surface water 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 = skin surface available for contact (cm2)	5800
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = exposure time (hours/day)	2.6
EF = exposure frequency (days/yr)	48
ED = exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/100	0.001
BW = body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

COPC	Concentration (mg/l)	Surface Area (cm2)	Dermal Permeability (cm/hr)	Exposure Time (hours/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Volumetric Conversion (L/m3)	Body Weight (kg)	Averaging Carc Time (days)	Carc Dose (mg/kg-day)	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Carcinogenic Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day)	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk	Percent Noncarcinogenic Risk
Aluminum	0.488	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	10950	1.4E-05	2.0E-01	6.9E-05	0%
Antimony	0.055	5800	1.0E-03	2.6	48	30	0.001	70	25550	6.6E-07	0.0E+00	0.0E+00	0%	10950	1.5E-06	8.0E-05	1.9E-02	92%
Barium	0.027	5800	1.0E-03	2.6	48	30	0.001	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.6E-07	1.4E-02	5.4E-05	0%
Copper	0.005	5800	1.0E-03	2.6	48	30	0.001	70	25550	5.9E-08	0.0E+00	0.0E+00	0%	10950	1.4E-07	8.0E-03	1.7E-05	0%
Cyanide	0.053	5800	1.0E-03	2.6	48	30	0.001	70	25550	6.5E-07	0.0E+00	0.0E+00	0%	10950	1.5E-06	4.0E-03	3.8E-04	2%
Iron	0.326	5800	1.0E-03	2.6	48	30	0.001	70	25550	4.0E-06	0.0E+00	0.0E+00	0%	10950	9.2E-06	6.0E-02	1.5E-04	1%
Lead	0.008	5800	4.0E-06	2.6	48	30	0.001	70	25550	3.9E-10	0.0E+00	0.0E+00	0%	10950	9.1E-10	0.0E+00	0.0E+00	0%
Manganese	0.026	5800	1.0E-03	2.6	48	30	0.001	70	25550	3.2E-07	0.0E+00	0.0E+00	0%	10950	7.4E-07	4.6E-03	1.6E-04	1%
Selenium	0.022	5800	1.0E-03	2.6	48	30	0.001	70	25550	2.7E-07	0.0E+00	0.0E+00	0%	10950	6.2E-07	1.0E-03	6.2E-04	3%
Vanadium	0.011	5800	1.0E-03	2.6	48	30	0.001	70	25550	1.4E-07	0.0E+00	0.0E+00	0%	10950	3.2E-07	1.4E-03	2.3E-04	1%
Zinc	0.012	5800	6.0E-04	2.6	48	30	0.001	70	25550	8.5E-08	0.0E+00	0.0E+00	0%	10950	2.0E-07	6.0E-02	3.3E-06	0%
TOTAL												0.0E+00					2.1E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT BASE RESIDENTIAL CHILD

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
ED = child exposure duration (years)	4
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)	4
DY = days per year (days)	365
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Aluminum	0.488	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	1460	2.6E-05	2.0E-01	1.3E-04	0%
Antimony	0.055	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.9E-06	8.0E-05	3.6E-02	92%
Barium	0.027	2300	1.0E-03	2.6	48	4	0.001	15	25550	8.0E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	1.4E-02	1.0E-04	0%
Copper	0.005	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.5E-08	0.0E+00	0.0E+00	0%	1460	2.6E-07	8.0E-03	3.2E-05	0%
Cyanide	0.053	2300	1.0E-03	2.6	48	4	0.001	15	25550	1.6E-07	0.0E+00	0.0E+00	0%	1460	2.8E-06	4.0E-03	7.0E-04	2%
Iron	0.326	2300	1.0E-03	2.6	48	4	0.001	15	25550	9.8E-07	0.0E+00	0.0E+00	0%	1460	1.7E-05	6.0E-02	2.8E-04	1%
Lead	0.008	2300	4.0E-06	2.6	48	4	0.001	15	25550	9.6E-11	0.0E+00	0.0E+00	0%	1460	1.7E-09	0.0E+00	0.0E+00	0%
Manganese	0.026	2300	1.0E-03	2.6	48	4	0.001	15	25550	7.8E-08	0.0E+00	0.0E+00	0%	1460	1.4E-06	4.6E-03	3.0E-04	1%
Selenium	0.022	2300	1.0E-03	2.6	48	4	0.001	15	25550	6.6E-08	0.0E+00	0.0E+00	0%	1460	1.2E-06	1.0E-03	1.2E-03	3%
Vanadium	0.011	2300	1.0E-03	2.6	48	4	0.001	15	25550	3.4E-08	0.0E+00	0.0E+00	0%	1460	5.9E-07	1.4E-03	4.2E-04	1%
Zinc	0.012	2300	6.0E-04	2.6	48	4	0.001	15	25550	2.1E-08	0.0E+00	0.0E+00	0%	1460	3.7E-07	6.0E-02	6.1E-06	0%
TOTAL												0.0E+00					3.9E-02	

SURFACE WATER DERMAL CONTACT EXPOSURE ASSESSMENT
SITE 87 - MCAS OFFICER'S HOUSING AREA
PRE-RI INVESTIGATION SCREENING STUDY CTO-0314
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CHILD RESIDENT

The intake from dermal contact with surface water 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 = child skin surface available for contact (cm2)	2300
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	2.6
EF = child exposure frequency (days/yr)	48
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
CSF = cancer slope factor (mg/kg-day)-1	Specific
RfD = reference dose (mg/kg-day)	Specific

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
Aluminum	0.488	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-06	0.0E+00	0.0E+00	0%	2190	2.6E-05	2.0E-01	1.3E-04	0%
Antimony	0.055	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.9E-06	8.0E-05	3.6E-02	92%
Barium	0.027	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	1.4E-02	1.0E-04	0%
Copper	0.005	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.2E-08	0.0E+00	0.0E+00	0%	2190	2.6E-07	8.0E-03	3.2E-05	0%
Cyanide	0.053	2300	1.0E-03	2.6	48	6	0.001	15	25550	2.4E-07	0.0E+00	0.0E+00	0%	2190	2.8E-06	4.0E-03	7.0E-04	2%
Iron	0.326	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.5E-06	0.0E+00	0.0E+00	0%	2190	1.7E-05	6.0E-02	2.8E-04	1%
Lead	0.008	2300	4.0E-06	2.6	48	6	0.001	15	25550	1.4E-10	0.0E+00	0.0E+00	0%	2190	1.7E-09	0.0E+00	0.0E+00	0%
Manganese	0.026	2300	1.0E-03	2.6	48	6	0.001	15	25550	1.2E-07	0.0E+00	0.0E+00	0%	2190	1.4E-06	4.6E-03	3.0E-04	1%
Selenium	0.022	2300	1.0E-03	2.6	48	6	0.001	15	25550	9.9E-08	0.0E+00	0.0E+00	0%	2190	1.2E-06	1.0E-03	1.2E-03	3%
Vanadium	0.011	2300	1.0E-03	2.6	48	6	0.001	15	25550	5.0E-08	0.0E+00	0.0E+00	0%	2190	5.9E-07	1.4E-03	4.2E-04	1%
Zinc	0.012	2300	6.0E-04	2.6	48	6	0.001	15	25550	3.2E-08	0.0E+00	0.0E+00	0%	2190	3.7E-07	6.0E-02	6.1E-06	0%
TOTAL												0.0E+00					3.9E-02	

APPENDIX N
LEAD UBK MODEL

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 H. 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 P-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 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

Davis, et. al., 1990. Davis, S., P. Waller, R. Buschborn, J. Ballou and P. White. Quantitative Estimates of Soil Ingestion in Normal Children Between the Ages of 2 and 7 years: Population-Based Estimates Using Aluminum, Silicon, and Titanium as Soil Tracer Elements. Arch. Environ. Health. 1990.

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.