CAFB-01-006

DEPARTMENT OF THE AIR FORCE
27TH CIVIL ENGINEER SQUADRON (ACC)
CANNON AIR FORCE BASE NEW MEXICO

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Mr. James Bearzi
Chief, Hazardous Waste Bureau
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Dear Mr. Bearzi

Attached for your review and approval is the Cannon Air Force Base (AFB) *Revised Final Corrective Measures Study Report, SWMU 101-Sewage Lagoons, April 2001.* This report is being submitted in partial fulfillment of the base restoration program under the Cannon AFB RCRA Part B Permit, Hazardous and Solid Waste Amendments Section.

If you or your staff have any questions regarding this report, please contact Mr. John S. Pike at (505) 784-1092 or Mr. Don White at (505) 784-2739.

Sincerely

ROBERT S. PYEATT

Attachment:
Revised Final CMS Report SWMU 101, April 2001 (2)

cc:
NMED HWB (G. von Gonten) wo Atch
NMED GWB (J. Jacobs)
EPA Region VI (B. Sturdivant)

Report File Log

Files ending in .doc are MS Word 97 files.
Files ending in .xls are MS Excel 97 files.
Files ending in .ppt are MS PowerPoint 97 files.
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Revised Final Corrective Measures Study Report for SWMU 101–Sewage Lagoons Cannon Air Force Base, New Mexico

April 2001

***Prepared for*:**

27 CE/CEV
Cannon Air Force Base
New Mexico

Project Number: CZQZ979361Z1

Table C-83. Summary of Uncertainties in the SLERA

Uncertainty Element	Effect on Risk Estimate: Potential for Overestimation	Effect on Risk Estimate: Potential for Underestimation	Effect on Risk Estimate: Potential for Over- or Underestimation
Ecological Receptors			
Selection of receptors		Moderate	
Environmental Data			
Use of maximum values as exposure point concentrations for soil and sludge	High		
Use of current exposure concentrations to represent future site conditions	High		
Insufficient data to fully characterize all media being evaluated			Low
Elimination of chemicals from quantitative analysis based on background levels		Low	
Fate and Transport Parameters			
Use of literature-based BCFs			Moderate
Use of literature-based toxicity values			Moderate
Exposure Assumptions			
Assumption of area use factor	High		
Assumption on the 100% bioavailability of COPECs in the environmental media and diet	Moderate to High		
Assumptions regarding the complexities of the ecosystem			High

Notes:
COPEC – chemical of potential ecological concern
SWMU – solid waste management unit
BCF – bioconcentration factor
SLERA – screening-level ecological risk assessment

Table C-36. Prey and Food Item Tissue Concentration Estimates for Sludge at the North Lagoon

COPEC	Soil EPC (mg/kg DW)	Soil-to-Plant Bioaccumulation Factor (unitless)		Concentration of COPEC in Plant Tissue[a] (mg/kg WW)	Soil-to-Invertebrate Bioaccumulation Factor (unitless)		Concentration of the COPEC in Invertebrate Tissue (mg/kg DW)	Soil-to-Deer Mouse Bioaccumulation Factor (unitless)	
VOCs									
m/p-Xylenes	0.11	0.58	(b)	0.0076	28	(b)	3.0	0.000000052	
PCBs									
PCB-1260	0.38	0.01	(c)	0.00046	1.13	(d)	0.43	0.000058	(d)
Pesticides									
alpha-BHC	0.032	0.13	(b)	0.00051	220	(b)	7.0	0.00000066	(b)
beta-BHC	0.10	0.13	(b)	0.0016	220	(b)	22	0.00000066	(b)
gamma-Chlordane	0.066	0.013	(b)	0.00010	5861	(b)	390	0.000036	(b)
4,4'-DDE	0.12	0.00937		0.00013	1.26		0.15	0.000065	
4,4'-DDT	0.17	0.00937	(d)	0.00019	1.26	(d)	0.21	0.000065	(d)
Dieldrin	0.089	0.054	(b)	0.00057	803	(b)	71	0.0000032	(b)
Endrin Aldehyde	0.020	0.13	(b)	0.00031	226	(b)	4.5	0.00000068	(b)
Heptachlor Epoxide	0.059	0.0489	(e)	0.00035	1.40	(e)	0.083	0.0000037	(e)
Inorganics									
Arsenic	5.3	0.036		0.023	0.11		0.58	0.00000288	
Barium	381	0.15		6.9	0.22		84	0.000000216	
Cadmium	4.93	0.364		0.22	0.96		4.7	0.000000173	
Chromium	34.2	0.0075		0.031	0.01		0.34	0.00000791	(g)
Lead	83.4	0.045		0.45	0.03		2.5	0.000000432	
Mercury	3.89	0.137	(h)	0.064	8.50	(h)	33	0.00000112	(h)
Nitrate/Nitrite-N	121	1.0	(f)	15	0.64	(f)	77	1.0	(f)
Selenium	10	0.016		0.019	0.22		2.2	0.00000327	
Silver	54.3	0.40		2.6	0.22		12	0.00000432	

Table C-36. Prey and Food Item Tissue Concentration Estimates for Sludge at the North Lagoon

COPEC	Food-to-Deer Mouse Bioaccumulation Factor (unitless)		Concentration of the COPEC in Deer Mouse Tissue (mg/kg WW)	Soil-to-Mourning Dove Bioaccumulation Factor (unitless)		Terrestrial Plant-to-Mourning Dove Bioaccumulation Factor (unitless)		Concentration of the COPEC in Mourning Dove Tissue (mg/kg WW)
VOCs								
m/p-Xylenes	0.000021748		0.000025	0.000000204		0.000010137		0.00000010
PCBs								
PCB-1260	0.0243	(b)	0.0040	0.000224	(d)	0.0111	(b)	0.000090
Pesticides								
alpha-BHC	0.00027	(b)	0.00073	0.0000026	(b)	0.00013	(b)	0.00000015
beta-BHC	0.00027	(b)	0.0023	0.0000026	(b)	0.00013	(b)	0.00000046
gamma-Chlordane	0.015	(b)	2.2	0.000141	(b)	0.0070	(b)	0.000010
4,4'-DDE	0.0272		0.0016	0.000251		0.013		0.000032
4,4'-DDT	0.0272	(d)	0.0022	0.000251	(d)	0.013	(d)	0.000045
Dieldrin	0.001	(b)	0.036	0.0000124	(b)	0.00062	(b)	0.0000015
Endrin Aldehyde	0.0003	(b)	0.00049	0.00000265	(b)	0.00013	(b)	0.000000094
Heptachlor Epoxide	0.00156	(e)	0.000050	0.0000144	(e)	0.00072	(e)	0.0000011
Inorganics								
Arsenic	0.0012		0.00030	1.0	(f)	1.0	(f)	5.3
Barium	0.0000899		0.0033	1.0	(f)	1.0	(f)	390
Cadmium	0.0000719		0.00014	0.000743		0.037		0.012
Chromium	0.0033	(g)	0.00076	1.0	(f)	1.0	(f)	34
Lead	0.00018		0.00026	1.0	(f)	1.0	(f)	84
Mercury	0.000468	(h)	0.0059	1.0	(f)	1.0	(f)	4.0
Nitrate/Nitrite-N	1.0	(f)	160	1.0	(f)	1.0	(f)	140
Selenium	0.00136		0.0012	0.00792		0.395		0.087
Silver	0.0018		0.011	1.0	(f)	1.0	(f)	57

Notes:
(a) Concentration estimate includes a dry weight to wet weight conversion factor of 0.12 (Taiz et al. 1991).
(b) Derived based on methodology provided in NMED 2000d, refer to Table C-34.
(c) BCF for PCB-1254 was used as a surrogate.
(d) BCF for 4,4'-DDE was used as a surrogate.
(e) BCF for heptachlor was used as a surrogate.
(f) A default value of 1.0 was used when literature-derived values were not available.
(g) BCF for hexavalent chromium was used as a surrogate.
(h) BCF for methylmercury was used as a surrogate.

BCF - bioconcentration factor
BHC - hexachlorocyclohexane
COPEC - chemical of potential ecological concern
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
EPC - exposure point concentration
mg/kg DW - milligrams per kilogram dry weight
mg/kg WW - milligrams per kilogram wet weight
PCBs - polychlorinated biphenyls
VOC - volatile organic chemical

Table 4-1 Summary of Investigations at SWMU 101, Sewage Lagoons

Investigation	Media Sampled	Constituents Detected
Hydrogeologic Investigation (William Matotan and Associates, 1985)	Groundwater	Sampled for field parameters only (temperature, specific conductivity, pH)
Remedial Investigation (Woodward-Clyde Consultants, 1992)	Sludge	Acetone; 2-butanone; bis(2-ethylhexyl)phthalate; calcium; barium; cadmium; chromium; copper; selenium; silver; vanadium; zinc; 4,4-DDD; 4,4-DDE; chlordane; PCBs; 2,4,5-trichlorophenol; 3-methylphenol, 4-methylphenol
	Groundwater	Barium, nickel, selenium, vanadium, zinc
	Surface Water	Barium, lead, copper, mercury, silver, vanadium, zinc
Supplemental Sludge Sampling (E & E, 1998)	Sludge	Nitrogen, arsenic, cadmium, chromium, copper, lead, mercury, , nickel, selenium, zinc, fecal coliform
Corrective Measures Study (Foster Wheeler, 2000)	Soil	Heptachlor, alpha-BHC, arsenic, barium, cadmium, chromium, lead, selenium, nitrate/nitrite
	Sludge	4,4-DDE; 4,4-DDT; alpha-chlordane; heptachlor; heptachlor epoxide; arsenic; barium; cadmium; chromium; lead; mercury; selenium; silver; nitrate/nitrite

Table 3-1. Analytical Results for Soil and Sludge at Sewage Lagoons, April 2000

Location	Depth Interval	VOCs (ug/kg) m-/p-Xylenes	Pesticides (ug/kg) 4, 4' - DDE	4, 4 - DDT	alpha-BHC	gamma-BHC	alpha-Chlordane	beta-BHC	Dieldrin	Endrin aldehyde	gamma-Chlordane	Heptachlor	Heptachlor epoxide
North Lagoon													
SB01	Sludge	ND	**87**	**26 J**	ND	ND	**25**	ND	**45**	ND	**44**	**0.00033 J**	ND
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB02	0-1 ft	**110 J**	**37 J**	ND	ND	ND	**14 J**	ND	ND	ND	**25**	**0.00054**	ND
	0-1.5 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB03	Sludge	ND	**100**	**170**	ND	ND	ND	**100**	**89**	**20 J**	**14 J**	**0.00043 J**	**59**
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB04	Sludge	ND	**120**	**120**	ND	ND	**32**	ND	**63**	ND	**66**	ND	ND
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB05	Sludge	ND	**8.6 J**	ND	ND	ND	ND	ND	ND	ND	ND	**0.00023 J**	ND
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-5.5 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
South Lagoon													
SB06	Sludge	ND	**87**	ND	ND	ND	**16 J**	ND	**62**	ND	**19 J**	**0.00024 J**	ND
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB07	Sludge	ND	**62 J**	ND	ND	**52 J**	ND	ND	ND	ND	ND	ND	ND
	0-2 ft	**95 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.2**	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.8**	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.2**	ND
SB08	Sludge	ND	**15 J**	ND	ND	ND	ND	ND	ND	ND	ND	**0.00021 J**	ND
	0-2 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4-6 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	ND
SB09	Sludge	ND	**43 J**	ND	ND	ND	**18 J**	ND	**32 J**	ND	ND	**0.00035 J**	**0.0002 J**
	0-1.5 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.4**	ND
	4-6 ft	ND	ND	ND	**2.2**	ND	ND	ND	ND	ND	ND	**2.5**	ND
	8-10 ft	ND	ND	ND	**1.1 J**	ND	ND	ND	ND	ND	ND	**2.5**	ND
SB10	Sludge	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0-2 ft	ND	ND	ND	**1.3 J**	**1.3 J**	ND	ND	ND	ND	ND	**3.2**	ND
	4-5.5 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8-10 ft	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.6**	ND

ft - feet
J - Detection estimated below the certified reporting limit
mg/kg - Milligrams per kilogram
ND - Analyte not detected
ug/kg - Micrograms per kilogram

Table 3-1. Analytical Results for Soil and Sludge at Sewage Lagoons, April 2000

Location	Depth Interval	PCBs (ug/kg)	Metals (mg/kg)								Nitrate/ nitrite (mg/kg)	Total organic carbon (mg/kg)
		PCB-1260	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
North Lagoon												
SB01	Sludge	ND	3.43	189	3.95	19.4	32.9	2.13	5.11	24	36.2	33100
	0-2 ft	ND	3.31	73.4	0.103 J	14.3	7.04	ND	0.932 J	ND	5.96	2010
	4-6 ft	ND	3.92	134	0.148 J	9.28	4.75	ND	ND	ND	31.2	2290
	8-10 ft	ND	1.63	283	0.0994 J	6.88	3.77	ND	0.604 J	ND	1.7 J	3300
SB02	0-1 ft	ND	3.23	173	1.44	18.9	33	1.32	3.17	16.6	ND	26900
	0-1.5 ft	ND	1.87	75.4	0.111 J	12.6	6.45	ND	0.755 J	ND	ND	627
	4-6 ft	ND	2.92	575	0.171 J	9.74	4.71	ND	0.508 J	ND	ND	1590
	8-10 ft	ND	1.84	94.09	0.125 J	6.69	2.88	ND	0.6 J	ND	16.2	1290
SB03	Sludge	380 J	3.71	189	ND	21.9	62	1.74	4.07	25.6	ND	34600
	0-2 ft	ND	2.54	84.8	0.231 J	17.9	9.31	ND	1.31	ND	ND	729
	4-6 ft	ND	2.97	147	0.166 J	9.27	4.07	ND	0.565 J	ND	ND	1730
	8-10 ft	ND	1.93	517	0.144 J	3.81	1.29	ND	ND	ND	30.7	1220
SB04	Sludge	ND	5.3	381	4.93	34.2	83.4	3.89	10	54.3	121	60700
	0-2 ft	ND	2.18	87.3	0.424 J	16.8	9.98	ND	0.699 J	ND	35.3	3220
	4-6 ft	ND	3.03	175	0.29 J	19.1	13.7	ND	0.779 J	ND	17.5	2800
	8-10 ft	ND	2	87.7	ND	13.1	6.6	ND	ND	ND	1.24 J	1230
SB05	Sludge	ND	2.18	54.8	0.229 J	11.3	9.57	0.269	ND	1.94	12.7	5800
	0-2 ft	ND	5.3	114	0.207 J	17.4	8.83	ND	1.0 J	ND	18.4	2450
	4-5.5 ft	ND	3.07	850	0.164 J	8.45	4.46	ND	ND	ND	5.75	2350
	8-10 ft	ND	1.66	265	0.114 J	ND	1.66	ND	ND	ND	0.636 J	1210
South Lagoon												
SB06	Sludge	ND	7.39	501	7.66	34.7	86.2	2.7	19.3	77.5	303	71800
	0-2 ft	ND	3.11	357	0.161 J	13.8	7.04	ND	0.906 J	ND	122	1950
	4-6 ft	ND	2.53	ND	0.137 J	11.6	5.69	ND	ND	ND	125	1280
	8-10 ft	ND	2.05	268	0.163 J	5.72	3.59	ND	ND	ND	50.6	1280
SB07	Sludge	ND	13.9	923	12.8	57.4	108	3.35	33.2	105	486	193000
	0-2 ft	ND	13.9	104	0.225 J	17.2	8.56	ND	ND	ND	0.957 J	695
	4-6 ft	ND	4.19	99	0.18 J	13.3	6.97	ND	ND	ND	0.45 J	1180
	8-10 ft	ND	3.22	125	ND	10.1	5.65	ND	ND	ND	ND	2040
SB08	Sludge	ND	5.78	302	4.01	23.6	33.8	0.371	12.8	30.3	82.8	52000
	0-2 ft	ND	3.05	78.7	ND	15.4	7.92	ND	ND	ND	41.6	889
	4-6 ft	ND	3.02	71.9	ND	10.7	5.92	ND	ND	ND	7.89	1430
	8-10 ft	ND	2.87	2040	0.157 J	10.1	5.83	ND	ND	ND	0.484 J	876
SB09	Sludge	ND	4.92	361	4.24	25.7	62.5	1.8	10.7	40.9	309	66600
	0-1.5 ft	ND	6.95	114	1.07	19.9	10.2	ND	0.733 J	ND	3.38 J	3080
	4-6 ft	ND	4.42	88.9	0.621	12.7	6.79	ND	0.543 J	ND	18	1410
	8-10 ft	ND	2.95	331	ND	10.9	5.49	ND	ND	ND	4.58 J	773
SB10	Sludge	ND	2.46	66.3	0.161 J	16.5	12.4	ND	1.78	5.12	7.41	7170
	0-2 ft	ND	2.46	63.3	ND	14.6	6.28	ND	ND	ND	15.2	1230
	4-5.5 ft	ND	3.59	116	0.101 J	11.8	5.41	ND	ND	ND	18.3	1790
	8-10 ft	ND	3.07	76.7	0.129 J	10.2	5.71	ND	ND	ND	41.6	889

ft - feet
J - Detection estimated below the certified reporting limit
mg/kg - Milligrams per kilogram
ND - Analyte not detected
ug/kg - Micrograms per kilogram

Table B-1 Summary of Investigations at SWMU 101, Sewage Lagoons

Investigation	Media Sampled	Constituents Detected
Hydrogeologic Investigation (William Matotan and Associates, 1985)	Groundwater	Sampled for field parameters only (temperature, specific conductivity, pH)
Remedial Investigation (Woodward-Clyde Consultants, 1992)	Sludge	Acetone; 2-butanone; bis(2-ethylhexyl)phthalate; calcium; barium; cadmium; chromium; copper; selenium; silver; vanadium; zinc; 4,4-DDD; 4,4-DDE; chlordane; PCBs; 2,4,5-trichlorophenol; 3-methylphenol, 4-methylphenol
	Groundwater	Barium, nickel, selenium, vanadium, zinc
	Surface Water	Barium, lead, copper, mercury, silver, vanadium, zinc
Supplemental Sludge Sampling (E & E, 1998)	Sludge	Nitrogen, arsenic, cadmium, chromium, copper, lead, mercury, , nickel, selenium, zinc, fecal coliform
Corrective Measures Study (Foster Wheeler, 2000)	Soil	Heptachlor, alpha-BHC, arsenic, barium, cadmium, chromium, lead, selenium, nitrate/nitrite
	Sludge	4,4-DDE; 4,4-DDT; alpha-chlordane; heptachlor; heptachlor epoxide; arsenic; barium; cadmium; chromium; lead; mercury; selenium; silver; nitrate/nitrite

Table A-1. Cannon AFB Sewage Lagoons CMS Sample Collection Plan Summary

Site/ Borehole ID	Sample Number	Sample Type	Field Duplicate Sample Number	CQAB Sample Number	Sample Depth Interval	VOCs	RCRA Metals	Mercury	Nitrate	Pesticides	PCBs	Total Organic Carbon	TCLP	Soil Classification	Grain Size to No.200 sieve	Atterberg Limits	Moisture Content	Hydraulic Conductivity	Comments
						3 x 40-ml septa w/methanol	1 x 8-ounce jar for all inorganic analyses			1 x 8-ounce jar for all organic analyses					1-gallon bag/bucket			Shelby tube	
						SW-846 Methods 5035/8260B	SW-846 Method 6010B Trace	SW-846 Method 7471A	EPA Method 300.0	SW-846 Method 8081A	SW-846 Method 8082	SW-846 Method 9060	SW-846 Method 1311	ASTM D 2487	ASTM D 422	ASTM D 4318	ASTM D 2216	ASTM D 5084	
North Lagoon																			
SB01N	C101SS010001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB01N	C101SB010001	Chem.	C101SB010002		0-2 ft	■	■	■	■	■	■	■							
SB01N	C101SB010401	Chem.		C101SB010403	4-6 ft	■	■	■	■	■	■	■							
SB01N	C101SB010801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB02N	C101SB0202GS	Dist. Geot.			2-2.5 ft									■	■	■	■		
SB02N	C101SB0208GS	Dist. Geot.			8-10 ft									■	■	■	■		
SB02N	C101SB0200GS	Undist. Geot.			0-30 inches									■	■	■		■	
SB02N	C101SS020001	Chem.			0-1 ft	■	■	■	■	■	■	■	■						
SB02N	C101SB020001	Chem.			0-1.5 ft	■	■	■	■	■	■	■							
SB02N	C101SB020401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB02N	C101SB020801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB03N	C101SB0300GS	Dist. Geot.			0-2 ft									■	■	■	■		
SB03N	C101SS030001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB03N	C101BS030001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SB03N	C101SB030401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB03N	C101SB030801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB04N	C101SB0407GS	Dist. Geot.			7.5-8 ft									■	■	■	■		
SB04N	C101SS040001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB04N	C101SB040001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SB04N	C101SB040401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB04N	C101SB040801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB05N	C101SB0508GS	Dist. Geot.			6-8 ft									■	■	■	■		
SB05N	C101SS050001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB05N	C101SB050001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SB05N	C101SB050401	Chem.			4-5.5 ft	■	■	■	■	■	■	■							
SB05N	C101SB050801	Chem.			8-10 ft	■	■	■	■	■	■	■							
South Lagoon																			
SB06S	C101SB0608GS	Dist. Geot.			8-10 ft									■	■	■	■		
SB06S	C101SS060001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB06S	C101SB060001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SBO6S	C101SB060401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB06S	C101SB060801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB07S	C101SB0700GS	Undist. Geot.			0-30 inches									■	■	■		■	
SB07S	C101SB0730GS	Undist. Geot.			30-60 in									■	■	■		■	
SB07S	C101SS070001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB07S	C101SB070001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SB07S	C101SB070401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB07S	C101SB070801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB08S	C101SB0804GS	Dist. Geot.			4-6 ft									■	■	■	■		
SB08S	C101SS080001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB08S	C101SB080001	Chem.			0-2 ft	■	■	■	■	■	■	■							
SB08S	C101SB080401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB08S	C101SB080801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB08S	C101SS080001	Chem.			Sludge	■	■	■	■	■	■	■	■						
SB09S	C101SB090001	Chem.			0-1.5 ft	■	■	■	■	■	■	■							
SB09S	C101SB090401	Chem.			4-6 ft	■	■	■	■	■	■	■							
SB09S	C101SB090801	Chem.			8-10 ft	■	■	■	■	■	■	■							
SB10S	C101SB1000GS	Undist. Geot.			0-30 inches									■	■	■		■	
SB10S	C101SS100001	Chem.	C101SS100002	C101SS100003	Sludge	■	■	■	■	■	■	■	■						
SB10S	C101SB100001	Chem.	C101SB100002		0-2 ft	■	■	■	■	■	■	■							
SB10S	C101SB100401	Chem.		C101SB100403	4-5.5 ft	■	■	■	■	■	■	■							
SB10S	C101SB100801	Chem.			8-10 ft	■	■	■	■	■	■	■							

Table 7-2. Sludge Consolidation and Cover Alternative Detailed Cost Estimate

Item	Estimate Source	Task	Unit	Quantity	Unit Cost (dollars)	Total Cost
1	**Predesign Sampling**					
1a	N/A	Sludge sampling - completed	LS	N/A	N/A	$0.00
1b	Engineer's Estimate	Soil sampling beneath North lagoon	LS	1	$12,000.00	$12,000.00
					Item Subtotal	**$12,000.00**
2	**Permits**					
	Engineer's Estimate	Sewage sludge permit application	LS	1	$1,000.00	$1,000.00
					Item Subtotal	**$1,000.00**
3	**Reporting**					
	Engineer's Estimate	Preperation of Closure Plan per Part 503 requirements	1	LS	$10,000.00	$10,000.00
					Item Subtotal	**$10,000.00**
4	**Sudge Aeration and Tilling Operations**					
4a	Engineer's Estimate	Contractor mobilization/demobilization	LS	1	$5,000.00	$5,000.00
4b	Means 029.204.6100 Modified for 2-foot depth	Sludge aeration and tilling	SY	160,000	$0.20	$32,000.00
					Item Subtotal	**$37,000.00**
5	**Excavation/hauling/grading**					
5a	Means 022.238.0260, 022.238.0020, and 022.266.1150	Excavate, load,and haul north lagoon sludges	CY	43,890	$4.70	$206,300.00
5b	Means 022.238.0260, 022.238.0020, and 022.266.1150	Excavate, load,and haul 1 foot of north lagoon native soil	CY	25,810	$4.70	$121,300.00
5c	Means 022.262.0190	Dump north sludge and grade with dozers	CY	43,890	$2.87	$126,000.00
5d	Vendor quote	Temporary daily cover at south lagoon	SF	740,520	$0.06	$44,500.00
5e	Means 022.226.5620 (assume 3 passes)	Compaction of sludge from both lagoons; 12-inch lifts	CY	90,510	$0.32	$29,000.00
5f	Means 022.262.0150 (fill from stockpile, assume 300' haul or less)	Dump and grade additional fill material (crushed concrete debris) from Cannon AFB source	CY	30,000	$2.39	$71,700.00
					Item Subtotal	**$598,800.00**
6	**Final cover at south lagoon**					
6a	Means* 17.03.0423 and 022.266.5620	18-inches off-site soil, spread and compacted	CY	41,140	$7.61	$313,100.00
6b	Means 022.262.0150 (fill from stockpile, assume 300' haul or less)	12-inches crushed concrete debris from Cannon AFB site; dumped and graded	CY	27,430	$2.39	$65,600.00
6c	Means* 17.03.0423	6-inches of off-site soil, spread	CY	13,720	$7.40	$101,500.00
6d	Means* 17.03.0108	Fine grading	SF	82,280	$0.22	$18,100.00
6e	Means 029.308.5400	Hydroseeding of native grasses	MSF	741	$51.50	$38,200.00
					Item Subtotal	**$536,500.00**

Table 7-2. Sludge Consolidation and Cover Alternative Detailed Cost Estimate

Item	Estimate Source	Task	Unit	Quantity	Unit Cost (dollars)	Total Cost
7	**North Lagoon Restoration**					
7a	E&E 1998 Report, Appendix Cost Estimate	Mechanical work (includes blind flanges, submerssible pump, pressure line, etc.)	LS	1	$17,200.00	$17,200.00
7b	Means* 17.03.0423	Place 1 foot of native off-site soils	CY	25,810	$7.40	$191,000.00
					Item Subtotal	**$208,200.00**
					Corrective Action Subtotal	$1,403,500.00
					Engineering, Legal and administration fees (10%)	$140,400.00
					Total	**$1,544,000.00**

Volume Estimates Used for Cost Estimate

South Lagoon Surface Area	17	acre	740520	SF
North Lagoon Surface Area	16	acre	696960	SF
Sludge Depth	2	feet		
	Before Dewatering		After Dewatering***	
South Lagoon Sludge Volume	54850	CY	46620	CY
North Lagoon Sludge Volume	51630	CY	43890	CY
Total Sludge Volume	106480	CY	90510	CY

***Assume a 15% reduction in volume during dewatering.

CY - Cubic yard
LS - Lump sum cost
MSF - Mean square feet
N/A - Not applicable
SF - Square feet

Notes: Most estimates from Means Heavy Construction Cost Data, 1999
All estimates from Means include O & P
* From Means Environmental Remediation Cost Data, 1998
** Adjustments done using Means Historical Cost index information

Table 7-2. Sludge Consolidation and Cover Alternative Detailed Cost Estimate

Item	Estimate Source	Task	Unit	Quantity	Unit Cost (dollars)	Total Cost
1	**Predesign Sampling**					
1a	N/A	Sludge sampling - completed	LS	N/A	N/A	$0.00
1b	Engineer's Estimate	Soil sampling beneath North lagoon	LS	1	$12,000.00	$12,000.00
					Item Subtotal	**$12,000.00**
2	**Permits**					
	Engineer's Estimate	Sewage sludge permit application	LS	1	$1,000.00	$1,000.00
					Item Subtotal	**$1,000.00**
3	**Reporting**					
	Engineer's Estimate	Preperation of Closure Plan per Part 503 requirements	1	LS	$10,000.00	$10,000.00
					Item Subtotal	**$10,000.00**
4	**Dewatering Operations**					
4a	Engineer's Estimate	Contractor mobilization/demobilization	LS	1	$5,000.00	$5,000.00
4b	Means 029.204.6100 Modified for 2-foot depth	Sludge dewatering for both lagoons	SY	160,000	$0.20	$32,000.00
					Item Subtotal	**$37,000.00**
5	**Excavation/hauling/grading**					
5a	Means 022.238.0260, 022.238.0020, and 022.266.1150	Excavate, load,and haul north lagoon sludges	CY	43,890	$4.70	$206,300.00
5b	Means 022.238.0260, 022.238.0020, and 022.266.1150	Excavate, load,and haul 1 foot of north lagoon native soil	CY	25,810	$4.70	$121,300.00
5c	Means 022.262.0190	Dump north sludge and grade with dozers	CY	43,890	$2.87	$126,000.00
5d	Vendor quote	Temporary daily cover at south lagoon	SF	740,520	$0.06	$44,500.00
5e	Means 022.226.5620 (assume 3 passes)	Compaction of sludge from both lagoons; 12-inch lifts	CY	90,510	$0.32	$29,000.00
5f	Means 022.262.0150 (fill from stockpile, assume 300' haul or less)	Dump and grade additional fill material (crushed concrete debris) from Cannon AFB source	CY	30,000	$2.39	$71,700.00
					Item Subtotal	**$598,800.00**
6	**Final cover at south lagoon**					
6a	Means* 17.03.0423 and 022.266.5620	18-inches off-site soil, spread and compacted	CY	41,140	$7.61	$313,100.00
6b	Means 022.262.0150 (fill from stockpile, assume 300' haul or less)	12-inches crushed concrete debris from Cannon AFB site; dumped and graded	CY	27,430	$2.39	$65,600.00
6c	Means* 17.03.0423	6-inches of off-site soil, spread	CY	13,720	$7.40	$101,500.00
6d	Means* 17.03.0108	Fine grading	SF	82,280	$0.22	$18,100.00
6e	Means 029.308.5400	Hydroseeding of native grasses	MSF	741	$51.50	$38,200.00
					Item Subtotal	**$536,500.00**

Table 7-2. Sludge Consolidation and Cover Alternative Detailed Cost Estimate

Item	Estimate Source	Task	Unit	Quantity	Unit Cost (dollars)	Total Cost
7	**North Lagoon Restoration**					
7a	E&E 1998 Report, Appendix Cost Estimate	Mechanical work (includes blind flanges, submerssible pump, pressure line, etc.)	LS	1	$17,200.00	$17,200.00
7b	Means* 17.03.0423	Place 1 foot of native off-site soils	CY	25,810	$7.40	$191,000.00
7c	Adjusted from Parsons-ES, 1994**	Gravel perimeter road	CY	1,000	$33.40	$33,400.00
7d	Means 029.308.5400	Hydroseeding of native grasses	MSF	697	$51.50	$35,900.00
					Item Subtotal	**$277,500.00**
					Corrective Action Subtotal	$1,472,800.00
					Engineering, Legal and administration fees (10%)	$147,300.00
					Total	**$1,620,000.00**

Volume Estimates Used for Cost Estimate

South Lagoon Surface Area	17	acre	740520	SF
North Lagoon Surface Area	16	acre	696960	SF
Sludge Depth	2	feet		
	Before Dewatering		After Dewatering***	
South Lagoon Sludge Volume	54850	CY	46620	CY
North Lagoon Sludge Volume	51630	CY	43890	CY
Total Sludge Volume	106480	CY	90510	CY

***Assume a 15% reduction in volume during dewatering.

CY - Cubic yard
LS - Lump sum cost
MSF - Mean square feet
N/A - Not applicable
SF - Square feet
Notes: Most estimates from Means Heavy Construction Cost Data, 1999
All estimates from Means include O & P

* From Means Environmental Remediation Cost Data, 1998
** Adjustments done using Means Historical Cost index information

Table 4-2. Summary of Risk to Ecological Receptors at SWMU 101 [(a)]

COPEC	Terrestrial Invertebrates	Plants	Deer Mouse	Mourning Dove	Least Shrew	Red-Tailed Hawk
North Lagoon Soil						
Pesticides						
Heptachlor	NA	< 1	< 1	< 1	< 1	< 1
Inorganics						
Arsenic	21	5.3	< 1	< 1	< 1	< 1
Barium	NA	170	97	< 1	220	1.6
Cadmium	< 1	1.5	2.7	< 1	5.9	< 1
Chromium	96	1100	< 1	< 1	< 1	< 1
Lead	< 1	3.0	3.8	4.9	11	21
Nitrate/Nitrite	NA	NA	< 1	NA	< 1	NA
Selenium	< 1	26	< 1	3.5	2.2	< 1
North Lagoon Sludge						
VOCs						
m-/p-Xylenes	NA	< 1	< 1	NA	< 1	NA
PCBs						
PCB-1260	< 1	< 1	480	< 1	1100	< 1
Pesticides						
alpha-BHC	NA	NA	1	< 1	2.3	< 1
beta-BHC	NA	NA	13	< 1	28	< 1
gamma-Chlordane	NA	NA	19	< 1	43	< 1
4,4'-DDE	NA	NA	< 1	< 1	< 1	< 1
4,4'-DDT	NA	NA	< 1	< 1	< 1	< 1
Dieldrin	NA	NA	810	< 1	1800	< 1
Endrin Aldehyde	NA	NA	11	< 1	25	< 1
Heptachlor Epoxide	NA	< 1	7.6	< 1	17	< 1
Inorganics						
Arsenic	21	5.3	< 1	< 1	< 1	< 1
Cadmium	< 1	25	46	< 1	100	< 1
Chromium	170	1900	< 1	< 1	< 1	1.3
Lead	< 1	18	23	30	66	130
Mercury	1.6	11	240	7.7	530	23
Nitrate/nitrite	NA	NA	< 1	NA	< 1	NA
Selenium	1.3	200	6.9	< 1	17	< 1
Silver	NA	2700	10	< 1	19	< 1

Table 4-2. Summary of Risk to Ecological Receptors at SWMU 101 [(a)]

COPEC	Terrestrial Invertebrates	Plants	Deer Mouse	Mourning Dove	Least Shrew	Red-Tailed Hawk
South Lagoon Soil						
VOCs						
m-/p-Xylenes	NA	< 1	< 1	NA	< 1	NA
Pesticides						
alpha-BHC	NA	NA	530	< 1	< 1	< 1
gamma-BHC (Lindane)	NA	NA	< 1	< 1	< 1	< 1
Heptachlor	NA	< 1	< 1	< 1	1	< 1
Inorganics						
Arsenic	28	7	< 1	< 1	< 1	< 1
Cadmium	< 1	5.4	10	< 1	22	< 1
Chromium	100	1100	< 1	< 1	< 1	< 1
Lead	< 1	2.2	2.8	3.6	8.1	15
Nitrate/nitrite	NA	NA	< 1	NA	< 1	NA
South Lagoon Sludge						
Pesticides						
gamma-BHC (Lindane)	NA	NA	< 1	< 1	< 1	< 1
alpha-Chlordane	NA	NA	5.2	< 1	12	< 1
gamma-Chlordane	NA	NA	5.5	< 1	12	< 1
4,4'-DDE	NA	NA	< 1	< 1	< 1	< 1
Dieldrin	NA	NA	570	< 1	1300	< 1
Inorganics						
Arsenic	56	14	< 1	< 1	< 1	< 1
Barium	NA	190	110	< 1	230	1.7
Cadmium	1.3	64	120	< 1	260	< 1
Chromium	290	3200	< 1	< 1	< 1	2.2
Lead	1.1	23	29	38	85	160
Mercury	1.3	10	200	6.7	460	5.3
Nitrate/nitrite	NA	NA	< 1	NA	< 1	NA
Selenium	4.3	660	23	< 1	55	< 1
Silver	NA	5300	19	< 1	37	< 1

Notes:
(a) risk estimates are represented to two significant figures.

BHC - hexachlorocyclohexane
COPEC - chemical of potential ecological concern
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
NA - not available; risk was not quantitatively evaluated due to lack of toxicity value.
PCB - polychlorinated biphenyl
VOC - volatile organic chemical

Table 3-4. Summary of Detections in Soil and Sludge at the Sewage Lagoons

Analyte	Location of Detected Constituents				Sample Location	Range of Detected Concentrations (mg/kg unless specified differently)
	Sludge 0 to 0.5 ft	Soil 0 to 2 ft	Soil 4 to 6 ft	Soil 8 to 10 ft		
VOCs (µg/kg)						
m-/p-Xylenes	■	■			SB-02, SB-07	95 - 110
Pesticides (µg/kg)						
4, 4 - DDE	■				SB-01through SB-09	8.6 - 120
4, 4 - DDT	■				SB-02, SB-03, SB-04	26 - 170
alpha-BHC			■	■	SB-09, SB-10	1.1 - 2.2
alpha-Chlordane	■				SB-01, SB-02, SB-04, SB-06, SB-08	14 - 32
beta-BHC	■				SB-03	100
gamma-BHC (lindane)	■	■			SB-01, SB-07	1.3 - 52
Dieldrin	■				SB-01, SB-03, SB-04, SB-06, SB-09	32 - 89
Endrin aldehyde	■				SB-03	20
gamma-Chlordane	■				SB-01 through SB-04, SB-06, SB-10	14 - 66
Heptachlor	■	■	■	■	SB-01 through SB-03, SB-05 through SB-10	2.3 - 3.4
Heptachlor epoxide	■				SB-03, SB-09	59
PCBs (µg/kg)						
PCB-1260	■				SB-03	380
Inorganics						
Arsenic	■	■	■	■	All locations	1.63 - 13.9
Barium	■	■	■	■	All locations	54.8 - 2040
Cadmium	■	■	■	■	All locations	0.0994 - 12.8
Chromium	■	■	■	■	All locations	3.81 - 57.4
Lead	■	■	■	■	All locations	1.29 - 108

Analyte	Location of Detected Constituents				Sample Location	Range of Detected Concentrations (mg/kg unless specified differently)
	Sludge 0 to 0.5 ft	Soil 0 to 2 ft	Soil 4 to 6 ft	Soil 8 to 10 ft		
Mercury	■				SB-01 through SB-09	0.269 - 3.89
Selenium	■	■	■	■	SB-01 through SB-04, SB-06 through SB-10	0.508 - 33.2
Silver	■				All locations	1.94 - 105
Nitrate/Nitrite	■	■	■	■	All locations	0.45 - 486
TOC	■	■	■	■	All locations	627 - 193,000

ft - Feet
mg/kg - Milligams per kilogram
PCBs - Polychlorinated biphenyls
VOCs - Volatile organic compounds
µg/kg - Micrograms per kilogram

Table C-30. Summary of Analytical Results for PCOPECs in South Lagoon Soil (0-6 ft)

PCOPEC	Frequency of Detections	Minimum Detected Concentration (mg/kg)		Maximum Detected Concentration (mg/kg)		Location of Maximum Detection	Range of Detection Limits (mg/kg)	Arithmetic Mean of Samples (mg/kg)	Maximum Background Concentration[(a)] (mg/kg)	Maximum Detection Greater Than Background?
VOCs										
m/p-Xylenes	1/10	0.095	J	0.095	J	C101SB070001	0.015-0.021	0.017	NA	NA
Pesticides										
alpha-BHC	2/10	0.0013	J	0.0022		C101SB090401	0.00060-0.00074	0.00062	NA	NA
gamma-BHC (Lindane)	1/10	0.0011	J	0.0011	J	C101SB100001	0.00034-0.0016	0.00050	NA	NA
Heptachlor	5/10	0.0025		0.0035		C101SB100002	0.00067-0.00087	0.0017	NA	NA
Inorganics										
Arsenic	10/10	2.46		6.95		C101SB090001	0.236-0.252	3.6	3.6	Yes
Barium	10/10	63.3		357		C101SB060001	0.0394-0.0421	120	805	No
Cadmium	6/10	0.101	J	1.07		C101SB090001	0.0994-0.1	0.25	NA	NA
Chromium	10/10	10.7		19.9		C101SB090001	0.434-0.463	14	11	Yes
Lead	10/10	5.41		10.2		C101SB090001	0.191-0.204	7.1	10	Yes
Nitrate/Nitrite-N	10/10	0.45	J	125		C101SB060401	0.43-4.35	35	NA	NA
Selenium	3/10	0.543		0.906	J	C101SB060001	0.434-0.463	0.37	1.1	No

Notes:
(a) Cannon AFB 1997

BHC - hexachlorocyclohexane
ft - feet
J - estimated value based on independent data validation
mg/kg - milligrams per kilogram
NA - not available
PCOPEC - preliminary chemical of potential ecological concern
VOCs - volatile organic chemicals

Table C-40. Estimate of Daily Dose of COPECs Ingested by the Deer Mouse through North Lagoon Soil

COPEC	COPEC Concentration in Soil (mg/kg DW)	Soil Ingestion Rate (kg DW/kg BW-day)	Ratio of Contaminated to Total Ingested Soil (unitless)	COPEC Concentration in Plants (mg/kg WW)	COPEC Concentration in Terrestrial Invertebrates (mg/kg WW)	Food Ingestion Rate (kg WW/kg BW-day)
Pesticides						
Heptachlor	0.0023	0.00144	1:1	0.000013	0.0032	0.599
Inorganics						
Arsenic	5.3	0.00144	1:1	0.023	0.58	0.599
Barium	850	0.00144	1:1	15	187	0.599
Cadmium	0.29	0.00144	1:1	0.013	0.28	0.599
Chromium	19.1	0.00144	1:1	0.017	0.19	0.599
Lead	13.7	0.00144	1:1	0.074	0.41	0.599
Nitrate/Nitrite-N	35.3	0.00144	1:1	4.2	23	0.599
Selenium	1.31	0.00144	1:1	0.0025	0.29	0.599

Table C-40. Estimate of Daily Dose of COPECs Ingested by the Deer Mouse through North Lagoon Soil

COPEC	Fraction of Diet Comprised of Terrestial Plants (unitless)	Fraction of Diet Comprised of Terrestial Invertebrates (unitless)	Ratio of Contaminated to Total Plants in Diet (unitless)	Daily Dose of COPEC Ingested (mg/kg BW-day)
Pesticides				
Heptachlor	0.62	0.38	1:1	0.00074
Inorganics				
Arsenic	0.62	0.38	1:1	0.15
Barium	0.62	0.38	1:1	49
Cadmium	0.62	0.38	1:1	0.068
Chromium	0.62	0.38	1:1	0.077
Lead	0.62	0.38	1:1	0.14
Nitrate/Nitrite-N	0.62	0.38	1:1	6.8
Selenium	0.62	0.38	1:1	0.068

Notes:

COPEC - chemical of potential ecological concern

kg DW/kg BW-day - kilograms dry weight per kilogram body weight per day

kg WW/kg BW-day - kilograms wet weight per kilogram body weight per day

mg/kg BW-day - milligrams per kilogram body weight per day

mg/kg DW - milligrams per kilogram dry weight

mg/kg WW - milligrams per kilogram wet weight

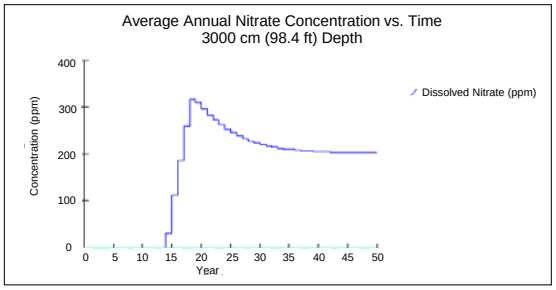
Location	TCLP Pesticides (mg/L)			TCLP Metals (mg/L)			
	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Arsenic	Barium	Mercury	Silver
North Lagoon							
SB01	ND	**0.00033 J**	ND	**0.46 J**	**0.22 J**	ND	ND
SB02	ND	**0.00054**	ND	**0.52 J**	**0.33 J**	**0.015 J**	ND
SB03	ND	**0.00043**	ND	**0.40 J**	**0.75 J**	ND	ND
SB04	ND	ND	ND	**0.60 J**	**0.56 J**	ND	ND
SB05	ND	**0.00023 J**	ND	**0.48 J**	**0.44 J**	ND	ND
South Lagoon							
SB06	**0.0003 J**	**0.00024 J**	ND	**0.53 J**	**0.85 J**	ND	**0.029 J**
SB07	ND	ND	ND	**0.47 J**	**1.1**	ND	**0.03 J**
SB08	ND	**0.00021 J**	ND	**0.55 J**	**0.54 J**	ND	ND
SB09	ND	**0.00035 J**	**0.0002 J**	**0.42 J**	**0.70 J**	ND	ND
SB10	**0.00016 J**	ND	ND	**0.46 J**	**0.13 J**	ND	ND
TCLP Limit	0.03	0.008	0.008	5.0	100.0	0.2	5

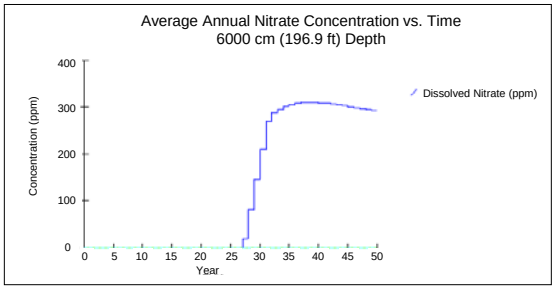
Note: No

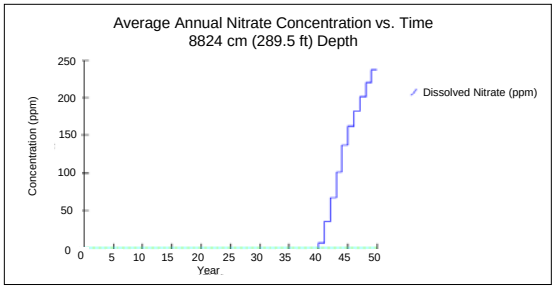
J - Detected at a concentration below the certified reporting limit
mg/kg - Milligrams per kilogram
ND - Not detected
SVOCs - Semivolatile organic compounds

Result Plots from SESOIL Modeling
Simulation 22
Total Pollution Depths for Nitrate
Clovis 3 SSW Climate data used from SESOIL Database
with addition of 100 yr - 6 hour storm in the months of Oct. - Mar.

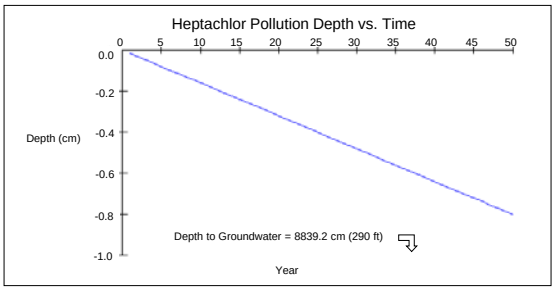
Nitrate Concentrations

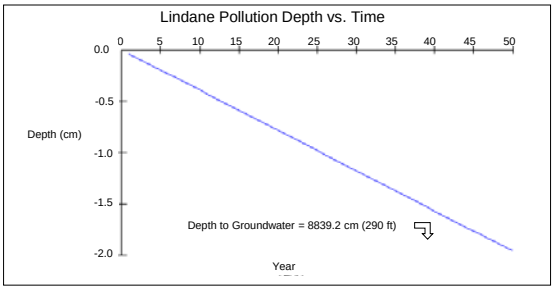


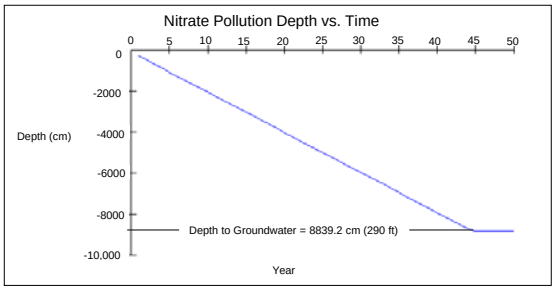




Result Plots from SESOIL Modeling
Simulation 22
Clovis 3 SSW Climate data used from SESOIL Database
with addition of 100 yr - 6 hour storm in the months of Oct. - Mar.







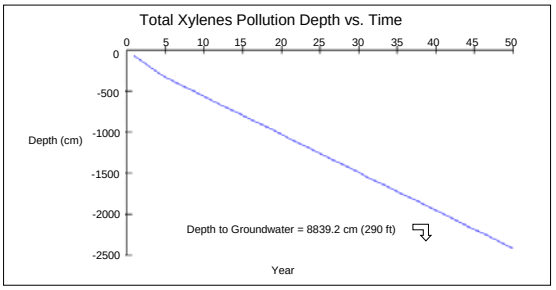


Figure D-10. Cannon AFB Sewage Lagoons
Simulation 3

Table C-13. Summary of COPC Selection Process for SWMU 101

PCOPC	COPC in North Lagoon Soil?	Reason Code	COPC in North Lagoon Sludge?	Reason Code	COPC in South Lagoon Soil?	Reason Code	COPC in South Lagoon Sludge?	Reason Code
VOCs								
Acetone	No	ND	No	ND	No	ND	No	ND
Benzene	No	ND	No	ND	No	ND	No	ND
2-Butanone	No	ND	No	ND	No	ND	No	ND
Bromodichloromethane	No	ND	No	ND	No	ND	No	ND
Bromoform	No	ND	No	ND	No	ND	No	ND
Bromomethane	No	ND	No	ND	No	ND	No	ND
Carbon Disulfide	No	ND	No	ND	No	ND	No	ND
Carbon Tetrachloride	No	ND	No	ND	No	ND	No	ND
Chlorobenzene	No	ND	No	ND	No	ND	No	ND
Chloroethane	No	ND	No	ND	No	ND	No	ND
Chloroform	No	ND	No	ND	No	ND	No	ND
Chloromethane	No	ND	No	ND	No	ND	No	ND
cis-1,2-Dichloroethene	No	ND	No	ND	No	ND	No	ND
cis-1,3-Dichloropropene	No	ND	No	ND	No	ND	No	ND
Dibromochloromethane	No	ND	No	ND	No	ND	No	ND
Dichlorodifluoromethane	No	ND	No	ND	No	ND	No	ND
1,1-Dichloroethane	No	ND	No	ND	No	ND	No	ND
1,2-Dichloroethane	No	ND	No	ND	No	ND	No	ND
1,1-Dichloroethene	No	ND	No	ND	No	ND	No	ND
1,2-Dichloropropane	No	ND	No	ND	No	ND	No	ND
Ethylbenzene	No	ND	No	ND	No	ND	No	ND
2-Hexanone	No	ND	No	ND	No	ND	No	ND
Methylene Chloride	No	LC	No	LC	No	LC	No	LC
4-Methyl-2-Pentanone	No	ND	No	ND	No	ND	No	ND
Styrene	No	ND	No	ND	No	ND	No	ND
1,1,2,2-Tetrachloroethane	No	ND	No	ND	No	ND	No	ND
Tetrachloroethene	No	ND	No	ND	No	ND	No	ND
Toluene	No	ND	No	ND	No	ND	No	ND
trans-1,2-Dichloroethene	No	ND	No	ND	No	ND	No	ND
trans-1,3-Dichloropropene	No	ND	No	ND	No	ND	No	ND
1,1,1-Trichloroethane	No	ND	No	ND	No	ND	No	ND
1,1,2-Trichloroethane	No	ND	No	ND	No	ND	No	ND
Trichloroethene	No	ND	No	ND	No	ND	No	ND

Table C-13. Summary of COPC Selection Process for SWMU 101

PCOPC	COPC in North Lagoon Soil?	Reason Code	COPC in North Lagoon Sludge?	Reason Code	COPC in South Lagoon Soil?	Reason Code	COPC in South Lagoon Sludge?	Reason Code
Trichlorofluoromethane	No	ND	No	ND	No	ND	No	ND
Vinyl Chloride	No	ND	No	ND	No	ND	No	ND
m/p-Xylenes	No	ND	No	BHHSL	No	BHHSL	No	ND
o-Xylene	No	ND	No	ND	No	ND	No	ND
PCBs								
PCB-1016	No	ND	No	ND	No	ND	No	ND
PCB-1221	No	ND	No	ND	No	ND	No	ND
PCB-1232	No	ND	No	ND	No	ND	No	ND
PCB-1242	No	ND	No	ND	No	ND	No	ND
PCB-1248	No	ND	No	ND	No	ND	No	ND
PCB-1254	No	ND	No	ND	No	ND	No	ND
PCB-1260	No	ND	Yes	AD/AHHSL	No	ND	No	ND
Pesticides								
Aldrin	No	ND	No	ND	No	ND	No	ND
alpha-BHC	No	ND	No	BHHSL	No	BHHSL	No	ND
beta-BHC	No	ND	No	BHHSL	No	ND	No	ND
delta-BHC	No	ND	No	ND	No	ND	No	ND
gamma-BHC (Lindane)	No	ND	No	ND	No	BHHSL	No	BHHSL
alpha-Chlordane	No	ND	No	ND	No	ND	No	BHHSL
gamma-Chlordane	No	ND	No	BHHSL	No	ND	No	BHHSL
4,4'-DDD	No	ND	No	ND	No	ND	No	ND
4,4'-DDE	No	ND	No	BHHSL	No	ND	No	BHHSL
4,4'-DDT	No	ND	No	BHHSL	No	ND	No	ND
Dieldrin	No	ND	Yes	AD/AHHSL	No	ND	Yes	AD/AHHSL
Endosulfan I	No	ND	No	ND	No	ND	No	ND
Endosulfan II	No	ND	No	ND	No	ND	No	ND
Endosulfan Sulfate	No	ND	No	ND	No	ND	No	ND
Endrin	No	ND	No	ND	No	ND	No	ND
Endrin Aldehyde	No	ND	No	BHHSL	No	ND	No	ND
Endrin Ketone	No	ND	No	ND	No	ND	No	ND
Heptachlor	No	ND	No	ND	No	BHHSL	No	ND
Heptachlor Epoxide	No	BHHSL	Yes	AD/AHHSL	No	ND	No	ND

Table C-13. Summary of COPC Selection Process for SWMU 101

PCOPC	COPC in North Lagoon Soil?	Reason Code	COPC in North Lagoon Sludge?	Reason Code	COPC in South Lagoon Soil?	Reason Code	COPC in South Lagoon Sludge?	Reason Code
Methoxychlor	No	ND	No	ND	No	ND	No	ND
Toxaphene	No	ND	No	ND	No	ND	No	ND
Inorganics								
Arsenic	Yes	AD/AB/ AHHSL	Yes	AD/AB/ AHHSL	Yes	AD/AB/ AHHSL	Yes	AD/AB/ AHHSL
Barium	No	BHHSL	No	BB	No	BHHSL	No	BHHSL
Cadmium	No	BHHSL	No	BHHSL	No	BHHSL	No	BHHSL
Chromium	No	BHHSL	No	BHHSL	No	BHHSL	No	BHHSL
Lead	No	BHHSL	No	BHHSL	No	BHHSL	No	BHHSL
Mercury	No	ND	No	BHHSL	No	ND	No	BHHSL
Nitrate/Nitrite-N	No	BHHSL	No	BHHSL	No	BHHSL	No	BHHSL
Selenium	No	BHHSL	No	BHHSL	No	BB	No	BHHSL
Silver	No	ND	No	BHHSL	No	ND	No	BHHSL

Notes:

AB - detected above background levels
AD - detected above method detection limit
AHHSL - above residential HHSL
BB - detected below background levels
BHC - hexachlorocyclohexane
BHHSL - below residential HHSL
COPC - chemical of potential concern
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
EPA - U.S. Environmental Protection Agency
HHSL - human health screening level (EPA 1999a)
LC - detection in site sample determined to be due to laboratory contamination
ND - not detected above method detection limit
PCBs - polychlorinated biphenyls
PCOPC - preliminary chemical of potential concern
SWMU - solid waste management unit
VOCs - volatile organic chemicals

POLYCHLORINATED BIPHENYLS

Polychlorinated biphenyls (PCBs) are produced by the progressive chlorination of biphenyls with anhydrous chlorine in the presence of a catalyst such as iron filings or ferric chloride. The degree of chlorination is controlled by the contact time of the anhydrous chlorine in the reactor. A total of 209 different biphenyl combinations are possible. PCB mixtures are thermally and chemically stable. After 1974, use of PCBs in the United States was limited to closed systems. As of January 1, 1979, manufacture and importation of PCBs in the United States was banned (ATSDR1995; EPA 2013).

The persistence of PCBs makes them pervasive environmental contaminants, and they are found in body tissues and fluids of the general population. Results from the National Human Adipose Tissue Survey show that in 1981 greater than 99 percent of the U.S. population had measurable levels of PCBs (USAF 1989). Ambient atmospheric concentrations of PCBs (measured in 1981) ranged from 0.1 nanograms per cubic meter (ng/m^3) in rural areas to a high of 30 ng/m^3 in urban areas. Concentrations in waters of the open oceans ranged from 0.02 to 0.59 nanograms per liter (ng/L). The low water solubility of PCBs generally precludes them from reaching high concentrations in drinking water, and studies conducted by the EPA from 1975 to 1977 found PCBs in only 5 of 133 samples of finished surface water supplies at concentrations ranging from 0.1 to 1.4 parts per billion (ppb). Measured soil concentrations in the U.S. range from <1 to 33 ppb. An average Aroclor 1260 concentration of 120 nanograms per gram (ng/g) has been detected in sediment samples from eight locations along the coast of Maine (ATSDR 1995).

TOXICOKINETICS

Inhalation and dermal absorption are the primary routes of occupational exposure to PCBs. The primary exposure route to humans not occupationally exposed is via the consumption of contaminated fish. Studies of 19 PCB congeners have shown >90 percent absorption by the gastrointestinal tract in rats. Similar results were observed with a single administered dose of Aroclor 1248 in monkeys. One study, however, indicated that 59 percent to 87 percent of a single oral dose of hexachlorobiphenyl passed unabsorbed through the intestine of monkeys. European ferrets absorbed 85 percent of a single dose administered in food. There is no information regarding the extent of gastrointestinal absorption in humans. While PCBs appear to be readily absorbed by the lungs in both animals and humans, quantitative data are not available. Dermal absorption rates in animals range from 15 percent to 59 percent (ATSDR1995).

Following absorption, PCBs are readily cleared from the blood and initially partition in the liver and muscles. PCBs are highly lipophilic and bioconcentrate in adipose tissue and breast milk in humans. PCBs have also been detected in the brain and skin, are transported across the placental barrier, and are found in the placental tissues and fetus.

PCBs appear to undergo minimal metabolism in humans. Results of *in vitro* metabolism studies with human liver microsomes show little metabolism of 2,2',4,4',5,5'-hexachlorobiphenyl. Animal metabolism studies show that phenolic products are the primary metabolites, with

methylsulfones, trans-dihydrodiols, polyhydroxylated-PCBs, and methyl ether derivatives also identified. As the rate of chlorination increases, the rate of metabolism decreases. The occurrence of *trans*-dihyrodiol metabolites suggests that metabolism of PCBs is via formation of arene oxide intermediates, which have been implicated in mutagenicity and carcinogenicity. While the toxicological significance of PCB metabolism is not known, evidence suggests that the parent compound is responsible for most of the toxic responses (ATSDR 1995). Excretion of PCBs and metabolites is slow. Most metabolites are excreted in the feces, and to a lesser extent in the urine.

TOXICITY

Non-Carcinogenic Effects

Although there is considerable species variability in sensitivity to PCB toxicity, the most common pathological effects observed in mammalian species are pathological changes in the liver. Liver enlargement has been observed even where actual liver lesions were minimal or absent, and at doses below other effects (USAF 1989). Reversible degenerative lesions of the liver were observed in rats and mice exposed to 1.9 milligrams per cubic meter (mg/m^3; 0.11 ppm) Aroclor 1254 vapor 7 hours per day, 5 days per week over a 213-day period (ATSDR 1995).

Epidemiological studies of persons occupationally exposed to Aroclor vapors ranging from 0.007 to 11.0 mg/m^3 for 8-hour periods provide inconsistent findings, with some increase in liver enzyme activity (ATSDR 1995). Histological effects in the liver (fatty degeneration) occurred in rats exposed to ≥20 ppm Aroclor 1254 or 1260 for as few as 28 days. Increased hepatic enzyme activity has been observed in workers occupationally exposed to PCBs (Emmett 1988).

Exposure to Aroclor 1254 produced facial edema, alopecia, and a condition known as chloracne in rhesus monkeys fed 2.5 ppm in the diet for 1 to 6 months. Chloracne, skin rashes, and burning eyes and skin have been associated with human occupational exposure to PCBs at unspecified concentrations. Immunosuppression was observed in monkeys receiving Aroclor 1248 in the diet at doses as low as 5 ppm (USAF 1989). Another noncarcinogenic effect noted was reduced thyroid activity in rats fed 5 ppm Aroclor 1254 in the diet for 4 weeks (ATSDR 1995). Exposure to PCBs is associated with depressed reproductive capacity in animals. Exposure to high levels of PCBs was associated with reduced birth weight in children born to women employed at facilities engaged in producing capacitors using Aroclor 1016, 1254, and 1242 (USAF 1989).

EPA has not established reference doses (RfDs) for PCBs as a class, but has established oral RfDs for Aroclor 1016 of 7.0×10^{-5} mg/kg-day, and Aroclor 1254 of 2.0×10^{-5} mg/kg-day (EPA 2013). These RfDs are based on reduced birth weights in a monkey reproductive bioassay for Aroclor 1016 and ocular exudate, distorted growth of nails and decreased antibody response in monkeys for Aroclor 1254. No inhalation RfDs have been established to date (EPA 2013).

Carcinogenicity

PCBs have generally tested negative using *in vitro* and *in vivo* systems; however, the results are inconclusive. Aroclor 1254 induced DNA breaks in freshly perfused rat hepatocytes treated for 3 hours at 0.3 mM, and Aroclor 1248 and Aroclor 1254 inhibited DNA and protein synthesis in CHO cells. Aroclor 1254 tested negative for mutagenicity in various *Salmonella typhimurium* strains and *Eschercia coli*, and did not show an increase in chromosomal abnormalities in rats fed 50 mg/kg for 7 days, or after a single dose of 5,000 mg/kg of Aroclor 1242. No dominant lethal effects were observed after male rats were exposed to single oral doses of Aroclor 1254 of up to 2,500 mg/kg or 250 mg/kg/day for 5 days.

Both Aroclor 1254 and Aroclor 1260 have been found to induce liver neoplasms in test animals (rats and mice). The primary evidence for carcinogenicity of Aroclor 1260 comes from a study by Kimbrough *et al*. (1975), where the incidence of hepatocellular carcinomas in female Sherman rats showed a clear dose-response relationship to levels of Aroclor 1260 in the diet for 630 days. Additional animal studies have led to the conclusion that Aroclor 1260 is a complete liver carcinogen, acting as both an initiator and a promotor (USAF 1989; EPA 2013). Kimbrough and Linder (1974) observed hepatomas in 41 percent of mice fed Aroclor 1254 in the diet for 11 months versus no hepatomas in control mice.

Brunner *et al*. (1996) compared carcinogenicity across different Aroclors, dose levels, and sexes. Following a complete histopathologic evaluation, statistically significant increased incidences of liver adenomas or carcinomas were found in female rats for all Aroclors and in male rats for Aroclor 1260. Some of these tumors were hepatocholangiomas, a rare bile duct tumor seldom seen in control rats (EPA 2013). In a study by Norback and Weltman (1985), male and female Sprague-Dawley rats were fed Aroclor 1260 for 16 months and 24 months. Examinations demonstrated progression of liver lesions to carcinomas (EPA 2013).

Evidence in humans based on available epidemiological data do not indicate a consistent carcinogenic effect. Although there are many studies, EPA considers the data to be inadequate due to confounding exposures to known carcinogens or lack of exposure quantification. Occupational studies of workers exposed to PCBs in a New Jersey petrochemical plant and of employees in a capacitor-making plant in northern Italy are suggestive of carcinogenicity via the inhalation and dermal routes, although the results were not statistically significant (USAF 1989; EPA 2013). Both the Yusho and Ye-Cheng studies, where rice oil contaminated by PCBs was consumed by residents, are cited as suggestive of carcinogenicity in humans via the oral route. In both cases however, the contaminated oils also contained polychlorinated dibenzofurans, which are known human carcinogens (USAF 1989; EPA 2013). Based on the suggestive evidence of excess risk of liver cancer in humans by ingestion, inhalation, or dermal contact to PCBs, along with adequate evidence of carcinogenicity in animals, EPA has concluded that PCBs are probable human carcinogens, and has listed the weight-of-evidence classification as B2, (probable human carcinogen; EPA 2013).

EPA has established a tiered approach for determining the cancer potency of PCB mixtures depending on the information available. For the ingestion of soil or sediments, dust or aerosol inhalation, and dermal and food chain exposures, an upper-bound slope factor of 2.0 per

milligram per kilogram per day $(mg/kg\text{-}d)^{-1}$ and a central-estimate slope factor of 1.0 $(mg/kg\text{-}d)^{-1}$ have been established (EPA 2013). For the ingestion of water-soluble congeners, inhalation of evaporated congeners, or dermal contact when no absorption factor has been applied, an upper-bound slope factor of 0.4 $(mg/kg\text{-}d)^{-1}$ and a central-estimate slope factor of 0.3 $(mg/kg\text{-}d)^{-1}$ have been established (EPA 2013). Where analysis verifies that congeners with more than 4 chlorines comprise less than 1/2% of total PCBs, an upper-bound slope factor of 0.07 $(mg/kg\text{-}d)^{-1}$ and a central-estimate slope factor of 0.04 $(mg/kg\text{-}d)^{-1}$ have been established (EPA 2013).

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APPENDIX A
Analytical Data
CMS Field Program at the Sewage Lagoons

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	-	2	C101SB010001C032	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	5.96000003	=	MG/KG	0.42899999	4.46000003
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	3.30999994	=	MG/KG	0.23499999	1.11000001
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	73.4000015	=	MG/KG	0.0394	0.55699998
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.103	J	MG/KG	0.09920000	0.55699998
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	14.3000001	=	MG/KG	0.43299999	1.11000001
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	7.03999996	=	MG/KG	0.191	1.11000001
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.93199998	J	MG/KG	0.43299999	1.11000001
SB01	0		2	C101SB010001C032	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.46599999	1.11000001
SB01	0		2	C101SB010001C032	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0217	0.11100000
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.80000001	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.98000001	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.21999999	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.52999997	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.66000002	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.62999999	1.89999997
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB01	0		2	C101SB010001C032	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	89
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB01	0		2	C101SB010001C032	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.10000038	37
SB01	0		2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB01	0		2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB01	0		2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.30000019	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	520
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	520
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	520
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	520
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.39999961	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.60000038	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.90000009	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.30000019	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.5	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	51	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.30000019	260
SB01	0	2	C101SB010001C032	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB01	0	2	C101SB010001C032	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2010	=	MG/KG	90.3000030	111
SB01	0	2	C101SB010001C032DU	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	6.01000022	=	MG/KG	0.42899999	4.46000003
SB01	0	2	C101SB010002C034	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	5.09999990	=	MG/KG	0.43299999	4.5
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.95000004	=	MG/KG	0.23700000	1.12000000
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	93.6999969	=	MG/KG	0.03970000	0.56199997
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.162	J	MG/KG	0.10000000	0.56199997

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	16.2000007	=	MG/KG	0.43599999	1.12000000
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	8.27999973	=	MG/KG	0.19200000	1.12000000
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.68999999	J	MG/KG	0.43599999	1.12000000
SB01	0	2	C101SB010002C034	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.46999999	1.12000000
SB01	0	2	C101SB010002C034	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0219	0.11200000
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.93000000	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB01	0	2	C101SB010002C034	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	74
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB01	0	2	C101SB010002C034	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.39999961	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.09999990	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	530
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	530
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	530
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	530
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.5	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.69999980	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.90000009	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.39999961	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.60000038	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	52	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.10000038	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.39999961	260
SB01	0	2	C101SB010002C034	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB01	0	2	C101SB010002C034	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2980	=	MG/KG	91.0999984	112
SB01	4	6	C101SB010401C033	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	31.2000007	=	MG/KG	0.43900001	4.57000017
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	3.92000007	=	MG/KG	0.24099999	1.13999998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	134	=	MG/KG	0.0403	0.57099998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.14800000	J	MG/KG	0.10199999	0.57099998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	9.27999973	=	MG/KG	0.44299998	1.13999998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	4.75	=	MG/KG	0.19499999	1.13999998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44299998	1.13999998
SB01	4	6	C101SB010401C033	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47699999	1.13999998
SB01	4	6	C101SB010401C033	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02229999	0.114

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81999999	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.69999998	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.93999999	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81999999	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	19
SB01	4	6	C101SB010401C033	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	38
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	91
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB01	4	6	C101SB010401C033	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.30000019	38
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.60000038	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	89	540
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	59	540
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	54	540
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	540
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.80000019	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.89999961	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.09999990	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.60000038	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	33	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.89999961	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.80000019	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.69999980	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	53	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.30000019	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.69999980	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.60000038	270
SB01	4	6	C101SB010401C033	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB01	4	6	C101SB010401C033	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2290	=	MG/KG	92.5	114
SB01	8	10	C101SB010801C036	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	1.70000004	J	MG/KG	0.43000000	4.46000003
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	1.62999999	=	MG/KG	0.23499999	1.12000000
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	283	=	MG/KG	0.0394	0.55800002
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.09939999	J	MG/KG	0.09929999	0.55800002
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	6.88000011	=	MG/KG	0.43299999	1.12000000
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	3.76999998	=	MG/KG	0.191	1.12000000
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.60399997	J	MG/KG	0.43299999	1.12000000
SB01	8	10	C101SB010801C036	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.46700000	1.12000000
SB01	8	10	C101SB010801C036	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB01	8	10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB01	8	10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.80000001	3.70000004
SB01	8	10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.98000001	3.70000004
SB01	8	10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB01	8	10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.21999999	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.47999998	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.62999999	1.89999997
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB01	8		10	C101SB010801C036	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	89
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB01	8		10	C101SB010801C036	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.10000038	37
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.10000038	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.80000019	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.89999961	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	83	510
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	55	510
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	50	510
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.19999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.30000019	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.69999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	250

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	30	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.30000019	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.30000019	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.80000019	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.19999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	50	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.69999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.19999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	9.69999980	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.10000038	250
SB01	8		10	C101SB010801C036	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB01	8		10	C101SB010801C036	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	3300	=	MG/KG	90.4000015	112
SB02	0		2	C101SB020001C047	E300.0	NONE	04/06/2000	SOIL	NITRATE/NITRITE-N	0	ND	MG/KG	0.43099999	4.48000001
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	ARSENIC	1.87000000	=	MG/KG	0.23600000	1.12000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	BARIUM	75.4000015	=	MG/KG	0.03950000	0.56000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	CADMIUM	0.11100000	J	MG/KG	0.09969999	0.56000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	CHROMIUM	12.6000003	=	MG/KG	0.43399998	1.12000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	LEAD	6.44999980	=	MG/KG	0.191	1.12000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	SELENIUM	0.75499999	J	MG/KG	0.43399998	1.12000000
SB02	0		2	C101SB020001C047	SW6010B	SW3050B	04/06/2000	SOIL	SILVER	0	ND	MG/KG	0.46799999	1.12000000
SB02	0		2	C101SB020001C047	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB02	0		2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.81999999	1.89999997
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB02	0	2	C101SB020001C047	SW8081A	SW3550B	04/06/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB02	0	2	C101SB020001C047	SW8082	SW3550B	04/06/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.39999961	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.09999990	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	530
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	530
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	530
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	ACETONE	0	ND	UG/KG	120	530
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	BENZENE	0	ND	UG/KG	9.5	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.69999980	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.39999961	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.69999980	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	52	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.10000038	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.39999961	260
SB02	0	2	C101SB020001C047	SW8260B	SW5035	04/06/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB02	0	2	C101SB020001C047	W-BLACK	NONE	04/06/2000	SOIL	TOTAL ORGANIC CARBON	627	=	MG/KG	90.6999969	112
SB02	4	6	C101SB020401C048	E300.0	NONE	04/06/2000	SOIL	NITRATE/NITRITE-N	0	ND	MG/KG	0.43799999	4.55000019
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	ARSENIC	2.92000007	=	MG/KG	0.23999999	1.13999998
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	BARIUM	575	=	MG/KG	0.04019999	0.56900000
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	CADMIUM	0.17100000	J	MG/KG	0.10100000	0.56900000
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	CHROMIUM	9.73999977	=	MG/KG	0.44100001	1.13999998
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	LEAD	4.71000003	=	MG/KG	0.19499999	1.13999998
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	SELENIUM	0.50800001	J	MG/KG	0.44100001	1.13999998
SB02	4	6	C101SB020401C048	SW6010B	SW3050B	04/06/2000	SOIL	SILVER	0	ND	MG/KG	0.47600001	1.13999998
SB02	4	6	C101SB020401C048	SW7471A	TOTAL	04/06/2000	SOIL	MERCURY	0	ND	MG/KG	0.0222	0.114
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81999999	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.43999999	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.69999998	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.93999999	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.79999995
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB02	4	6	C101SB020401C048	SW8081A	SW3550B	04/06/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	38
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1242	0	ND	UG/KG	34	91
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB02	4	6	C101SB020401C048	SW8082	SW3550B	04/06/2000	SOIL	PCB-1260	0	ND	UG/KG	8.30000019	38
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.39999961	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.09999990	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	530
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	530
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	530
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	ACETONE	0	ND	UG/KG	120	530
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	BENZENE	0	ND	UG/KG	9.5	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.69999980	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.39999961	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.60000038	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	DICHLORODIFLUOROMETHANE	0	ND	UG/KG	10	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	52	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.10000038	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.39999961	260
SB02	4	6	C101SB020401C048	SW8260B	SW5035	04/06/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB02	4	6	C101SB020401C048	W-BLACK	NONE	04/06/2000	SOIL	TOTAL ORGANIC CARBON	1590	=	MG/KG	92.1999969	114
SB02	8	10	C101SB020801C049	E300.0	NONE	04/06/2000	SOIL	NITRATE/NITRITE-N	16.2000007	=	MG/KG	0.463	4.80999994
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	ARSENIC	1.84000003	=	MG/KG	0.25400000	1.20000004
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	BARIUM	94.0999984	=	MG/KG	0.04239999	0.60100001
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	CADMIUM	0.125	J	MG/KG	0.10700000	0.60100001
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	CHROMIUM	6.69000005	=	MG/KG	0.46599999	1.20000004
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	LEAD	2.88000011	=	MG/KG	0.206	1.20000004
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	SELENIUM	0.60000002	J	MG/KG	0.46599999	1.20000004
SB02	8	10	C101SB020801C049	SW6010B	SW3050B	04/06/2000	SOIL	SILVER	0	ND	MG/KG	0.50199997	1.20000004
SB02	8	10	C101SB020801C049	SW7471A	TOTAL	04/06/2000	SOIL	MERCURY	0	ND	MG/KG	0.02339999	0.11999999
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.87000000	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1.10000002	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.74000001	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.79999995	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.99000001	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.86000001	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.61000001	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56999999	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62999999	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN	0	ND	UG/KG	0.51999998	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.51999998	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.61000001	4
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.37000000	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.31000000	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.72000002	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.68000000	2
SB02	8	10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.59999990	20

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	8		10	C101SB020801C049	SW8081A	SW3550B	04/06/2000	SOIL	TOXAPHENE	0	ND	UG/KG	18	200
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1016	0	ND	UG/KG	18	40
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1221	0	ND	UG/KG	20	79
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1232	0	ND	UG/KG	8.39999961	40
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1242	0	ND	UG/KG	36	96
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1248	0	ND	UG/KG	21	40
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1254	0	ND	UG/KG	17	40
SB02	8		10	C101SB020801C049	SW8082	SW3550B	04/06/2000	SOIL	PCB-1260	0	ND	UG/KG	8.80000019	40
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.89999961	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.5	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	2-BUTANONE	0	ND	UG/KG	92	560
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	2-HEXANONE	0	ND	UG/KG	61	560
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	55	560
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	ACETONE	0	ND	UG/KG	130	560
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	BENZENE	0	ND	UG/KG	10	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	23	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.30000019	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.89999961	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	34	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CHLOROFORM	0	ND	UG/KG	22	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	35	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.10000038	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9.10000038	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	20	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	55	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.60000038	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	STYRENE	0	ND	UG/KG	9.10000038	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TOLUENE	0	ND	UG/KG	11	280

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.89999961	280
SB02	8		10	C101SB020801C049	SW8260B	SW5035	04/06/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB02	8		10	C101SB020801C049	W-BLACK	NONE	04/06/2000	SOIL	TOTAL ORGANIC CARBON	1290	=	MG/KG	97.4000015	120
SB03	0		2	C101SB030001C043	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	0	ND	MG/KG	0.45199999	4.69999980
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.53999996	=	MG/KG	0.24799999	1.17999994
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	84.8000030	=	MG/KG	0.04149999	0.588
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.23100000	J	MG/KG	0.10499999	0.588
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	17.8999996	=	MG/KG	0.456	1.17999994
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	9.31000042	=	MG/KG	0.20100000	1.17999994
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	1.30999994	=	MG/KG	0.456	1.17999994
SB03	0		2	C101SB030001C043	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.49099999	1.17999994
SB03	0		2	C101SB030001C043	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0229	0.11800000
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.85000002	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.72000002	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.97000002	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.83999997	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.60000002	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56000000	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62000000	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.50999999	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.50999999	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.60000002	3.90000009
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	2.29999995	=	UG/KG	0.86000001	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.67000001	2
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.5	20
SB03	0		2	C101SB030001C043	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB03	0		2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	18	39
SB03	0		2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	78
SB03	0		2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8.19999980	39
SB03	0		2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	94

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	0	2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	21	39
SB03	0	2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	17	39
SB03	0	2	C101SB030001C043	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.60000038	39
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.19999980	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.90000009	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	84	510
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	56	510
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	51	510
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.30000019	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.5	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.80000019	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.19999980	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.39999961	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.5	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.30000019	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	51	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.89999961	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.30000019	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	9.80000019	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.19999980	260
SB03	0	2	C101SB030001C043	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	0	2	C101SB030001C043	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	729	=	MG/KG	95.1999969	118
SB03	4	6	C101SB030401C044	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	0	ND	MG/KG	0.44200000	4.59000015
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.97000002	=	MG/KG	0.24199999	1.14999997
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	147	=	MG/KG	0.0405	0.57400000
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.16599999	J	MG/KG	0.10199999	0.57400000
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	9.27000045	=	MG/KG	0.44499999	1.14999997
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	4.07000017	=	MG/KG	0.19599999	1.14999997
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.56499999	J	MG/KG	0.44499999	1.14999997
SB03	4	6	C101SB030401C044	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47999998	1.14999997
SB03	4	6	C101SB030401C044	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02239999	0.11500000
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.82999998	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.70999997	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.94999998	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81999999	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	2
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	20
SB03	4	6	C101SB030401C044	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	76
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8	38
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	92
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB03	4	6	C101SB030401C044	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.39999961	38
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	10	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	250

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.69999980	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.80000019	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	82	500
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	55	500
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	50	500
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	500
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.10000038	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	10	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.19999980	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.69999980	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	14	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.89999961	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	30	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	31	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.19999980	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.30000019	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.69999980	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.10000038	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	49	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.60000038	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.10000038	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	9.60000038	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9.89999961	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8	250
SB03	4	6	C101SB030401C044	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB03	4	6	C101SB030401C044	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1730	=	MG/KG	93	115
SB03	8	10	C101SB030801C045	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	30.7000007	=	MG/KG	0.43099999	4.48000001
SB03	8	10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	1.92999994	=	MG/KG	0.23600000	1.12000000
SB03	8	10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	517	=	MG/KG	0.03950000	0.56000000
SB03	8	10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.14399999	J	MG/KG	0.09969999	0.56000000

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	8		10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	3.80999994	=	MG/KG	0.43399998	1.12000000
SB03	8		10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	1.28999996	=	MG/KG	0.191	1.12000000
SB03	8		10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43399998	1.12000000
SB03	8		10	C101SB030801C045	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.46799999	1.12000000
SB03	8		10	C101SB030801C045	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB03	8		10	C101SB030801C045	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB03	8		10	C101SB030801C045	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.80000019	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.40000009	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	90	550
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	60	550
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	54	550
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	550
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.89999961	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.19999980	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.80000019	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	33	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.89999961	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	54	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.39999961	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.89999961	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.80000019	270
SB03	8		10	C101SB030801C045	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB03	8		10	C101SB030801C045	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1220	=	MG/KG	90.6999969	112
SB04	0		2	C101SB040001C037	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	35.2999992	=	MG/KG	0.45399999	4.71999979
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.18000006	=	MG/KG	0.24899999	1.17999994
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	87.3000030	=	MG/KG	0.0416	0.58999997
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.24199999	J	MG/KG	0.10499999	0.58999997
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	16.7999992	=	MG/KG	0.45800000	1.17999994
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	9.97999954	=	MG/KG	0.20200000	1.17999994
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.69900000	J	MG/KG	0.45800000	1.17999994
SB04	0		2	C101SB040001C037	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.49300000	1.17999994
SB04	0		2	C101SB040001C037	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.023	0.11800000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.85000002	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.73000001	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.54000002	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.97000002	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.83999997	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.60000002	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56000000	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62000000	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.50999999	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.50999999	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.60000002	3.90000009
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.69999998	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.67000001	2
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.5	20
SB04	0	2	C101SB040001C037	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	18	39
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	78
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8.19999980	39
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	36	94
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	21	39
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	17	39
SB04	0	2	C101SB040001C037	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.60000038	39
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.80000019	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.30000019	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	90	550
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	60	550
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	54	550
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	550
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.89999961	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.19999980	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.69999980	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	33	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.90000009	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.89999961	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	54	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.39999961	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.89999961	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.80000019	270
SB04	0	2	C101SB040001C037	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB04	0	2	C101SB040001C037	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	3220	=	MG/KG	95.5	118
SB04	4	6	C101SB040401C038	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	17.5	=	MG/KG	0.456	4.73999977
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	3.02999997	=	MG/KG	0.25	1.17999994
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	175	=	MG/KG	0.0418	0.59200000
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.28999999	J	MG/KG	0.10499999	0.59200000
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	19.1000003	=	MG/KG	0.46000000	1.17999994
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	13.6999998	=	MG/KG	0.20299999	1.17999994
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.77899998	J	MG/KG	0.46000000	1.17999994
SB04	4	6	C101SB040401C038	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.49500000	1.17999994
SB04	4	6	C101SB040401C038	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0231	0.11800000
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.85000002	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.46000000	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.73000001	2

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.98000001	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.85000002	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.60000002	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56000000	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62000000	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.50999999	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.50999999	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.60000002	3.90000009
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.70999997	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.67000001	2
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.5	20
SB04	4	6	C101SB040401C038	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	18	39
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	20	78
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8.19999980	39
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	36	95
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	21	39
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	17	39
SB04	4	6	C101SB040401C038	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.60000038	39
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.10000038	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.59999990	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	15	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	93	570
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	62	570
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	56	570
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	570
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	10	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	23	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.40000009	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	10	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	34	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	22	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	36	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	14	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.19999980	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9.19999980	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	20	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	56	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.69999980	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	9.19999980	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	13	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	11	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.10000038	280
SB04	4	6	C101SB040401C038	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB04	4	6	C101SB040401C038	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2800	=	MG/KG	96	118
SB04	8	10	C101SB040801C039	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	1.24000001	J	MG/KG	0.456	4.73000001
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2	=	MG/KG	0.25	1.17999994
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	87.6999969	=	MG/KG	0.0418	0.59200000
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0	ND	MG/KG	0.10499999	0.59200000
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	13.1000003	=	MG/KG	0.45899999	1.17999994
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	6.59999990	=	MG/KG	0.20200000	1.17999994
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.45899999	1.17999994
SB04	8	10	C101SB040801C039	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.49500000	1.17999994
SB04	8	10	C101SB040801C039	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0231	0.11800000
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.85000002	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.73000001	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.98000001	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.85000002	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.60000002	2

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56000000	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62000000	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.50999999	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.50999999	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.60000002	3.90000009
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.70999997	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.67000001	2
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.5	20
SB04	8	10	C101SB040801C039	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	18	39
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	20	78
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8.19999980	39
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	36	95
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	21	39
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	17	39
SB04	8	10	C101SB040801C039	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.60000038	39
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.69999980	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	89	540
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	59	540
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	54	540
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	540
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.80000019	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.09999990	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.60000038	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	33	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.89999961	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.80000019	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.80000019	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	53	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.30000019	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.80000019	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.69999980	270
SB04	8	10	C101SB040801C039	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB04	8	10	C101SB040801C039	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1230	=	MG/KG	95.9000015	118
SB05	0	2	C101SB050001C040	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	18.3999996	=	MG/KG	0.44200000	4.59000015
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	5.30000019	=	MG/KG	0.24199999	1.14999997
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	114	=	MG/KG	0.0405	0.57300001
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.20700000	J	MG/KG	0.10199999	0.57300001
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	17.3999996	=	MG/KG	0.44499999	1.14999997
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	8.82999992	=	MG/KG	0.19599999	1.14999997
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	1	J	MG/KG	0.44499999	1.14999997
SB05	0	2	C101SB050001C040	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47900000	1.14999997
SB05	0	2	C101SB050001C040	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02239999	0.11500000
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.82999998	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.70999997	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.94999998	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81999999	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	19
SB05	0	2	C101SB050001C040	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	76
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8	38
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	92
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB05	0	2	C101SB050001C040	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.39999961	38
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.19999980	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.90000009	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	84	510
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	56	510
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	51	510
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.30000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.39999961	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.80000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.10000038	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.39999961	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.40000009	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.89999961	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.30000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	51	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.80000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.30000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	9.80000019	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.19999980	260
SB05	0	2	C101SB050001C040	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	260
SB05	0	2	C101SB050001C040	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2450	=	MG/KG	92.9000015	115
SB05	0	2	C101SB050001C040DU	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2350	=	MG/KG	92.9000015	115
SB05	4	6	C101SB050401C041	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	5.75	=	MG/KG	0.44200000	4.59000015
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	3.06999993	=	MG/KG	0.24199999	1.14999997
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	850	=	MG/KG	0.0405	0.57300001
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.16400000	J	MG/KG	0.10199999	0.57300001
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	8.44999980	=	MG/KG	0.44499999	1.14999997
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	4.46000003	=	MG/KG	0.19599999	1.14999997
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44499999	1.14999997
SB05	4	6	C101SB050401C041	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47900000	1.14999997
SB05	4	6	C101SB050401C041	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02239999	0.11500000
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.82999998	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.70999997	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.94999998	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81999999	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	1.89999997
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	19
SB05	4	6	C101SB050401C041	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	76
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8	38
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	92
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB05	4	6	C101SB050401C041	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.39999961	38
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.60000038	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	88	530
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	58	530
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	53	530
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	530
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.69999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.80000019	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.5	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.80000019	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.69999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.69999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	53	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.19999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.69999980	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.60000038	270
SB05	4	6	C101SB050401C041	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB05	4	6	C101SB050401C041	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	2350	=	MG/KG	92.9000015	115
SB05	8	10	C101SB050801C042	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	0.63599997	J	MG/KG	0.44800001	4.65999984
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	1.65999996	=	MG/KG	0.24600000	1.15999996
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	265	=	MG/KG	0.04109999	0.58200001
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.114	J	MG/KG	0.10400000	0.58200001
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	3.93000006	=	MG/KG	0.45199999	1.15999996
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	1.65999996	=	MG/KG	0.19900000	1.15999996
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.45199999	1.15999996
SB05	8	10	C101SB050801C042	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.48699998	1.15999996
SB05	8	10	C101SB050801C042	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02270000	0.11599999
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.83999997	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.72000002	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.95999997	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.82999998	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.58999997	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.61000001	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.50999999	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.58999997	3.79999995
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68999999	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.66000002	2
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	20
SB05	8	10	C101SB050801C042	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB05	8	10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB05	8	10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	77
SB05	8	10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8.10000038	38

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	8		10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	93
SB05	8		10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB05	8		10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	17	38
SB05	8		10	C101SB050801C042	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.5	38
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.89999961	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.5	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	91	560
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	61	560
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	55	560
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	130	560
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	10	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.30000019	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.89999961	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	33	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	35	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.10000038	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	55	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.60000038	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	9	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	11	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB05	8		10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.89999961	280

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	8	10	C101SB050801C042	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB05	8	10	C101SB050801C042	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1210	=	MG/KG	94.3000030	116
SB06	0	2	C101SB060001C029	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	122	=	MG/KG	4.34999990	45.0999984
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	3.10999989	=	MG/KG	0.23800000	1.12999999
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	357	=	MG/KG	0.03979999	0.56400001
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.16099999	J	MG/KG	0.10000000	0.56400001
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	13.8000001	=	MG/KG	0.43799999	1.12999999
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	7.03999996	=	MG/KG	0.19300000	1.12999999
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0.90600001	J	MG/KG	0.43799999	1.12999999
SB06	0	2	C101SB060001C029	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47200000	1.12999999
SB06	0	2	C101SB060001C029	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.022	0.11299999
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.60000002	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.93000000	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB06	0	2	C101SB060001C029	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	74
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	37
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB06	0	2	C101SB060001C029	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.39999961	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	520
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	520
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	520
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	520
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.5	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.60000038	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.90000009	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.30000019	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.60000038	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	52	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.39999961	260
SB06	0	2	C101SB060001C029	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB06	0	2	C101SB060001C029	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1950	=	MG/KG	91.4000015	113
SB06	4	6	C101SB060401C030	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	125	=	MG/KG	4.30999994	44.7999992
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.52999997	=	MG/KG	0.23600000	1.12000000
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	146	=	MG/KG	0.03950000	0.56000000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.13699999	J	MG/KG	0.09969999	0.56000000
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	11.6000003	=	MG/KG	0.43399998	1.12000000
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	5.69999980	=	MG/KG	0.191	1.12000000
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43399998	1.12000000
SB06	4	6	C101SB060401C030	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.46799999	1.12000000
SB06	4	6	C101SB060401C030	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB06	4	6	C101SB060401C030	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB06	4	6	C101SB060401C030	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.60000038	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	88	540
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	58	540
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	53	540
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	540
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.69999980	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.89999961	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.09999990	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.5	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	34	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.80000019	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.80000019	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.69999980	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	53	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.19999980	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.69999980	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.60000038	270
SB06	4	6	C101SB060401C030	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB06	4	6	C101SB060401C030	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1280	=	MG/KG	90.6999969	112
SB06	8	10	C101SB060801C031	E300.0	NONE	04/05/2000	SOIL	NITRATE/NITRITE-N	50.5999984	=	MG/KG	0.44100001	4.57999992
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	ARSENIC	2.04999995	=	MG/KG	0.24199999	1.14999997
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	BARIUM	268	=	MG/KG	0.04039999	0.57300001
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	CADMIUM	0.16300000	J	MG/KG	0.10199999	0.57300001
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	CHROMIUM	5.71999979	=	MG/KG	0.44400000	1.14999997
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	LEAD	3.58999991	=	MG/KG	0.19599999	1.14999997
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44400000	1.14999997
SB06	8	10	C101SB060801C031	SW6010B	SW3050B	04/05/2000	SOIL	SILVER	0	ND	MG/KG	0.47900000	1.14999997

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	8		10	C101SB060801C031	SW7471A	TOTAL	04/05/2000	SOIL	MERCURY	0	ND	MG/KG	0.02229999	0.11500000
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81999999	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.70999997	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.94999998	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81999999	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68000000	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	19
SB06	8		10	C101SB060801C031	SW8081A	SW3550B	04/05/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1221	0	ND	UG/KG	19	76
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1232	0	ND	UG/KG	8	38
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1242	0	ND	UG/KG	35	92
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB06	8		10	C101SB060801C031	SW8082	SW3550B	04/05/2000	SOIL	PCB-1260	0	ND	UG/KG	8.39999961	38
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.39999961	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	2-BUTANONE	0	ND	UG/KG	86	520
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	2-HEXANONE	0	ND	UG/KG	57	520
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	52	520
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	ACETONE	0	ND	UG/KG	120	520

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	BENZENE	0	ND	UG/KG	9.5	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.69999980	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.90000009	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.30000019	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.60000038	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.59999990	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.5	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	52	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	O-XYLENE	0	ND	UG/KG	9	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	STYRENE	0	ND	UG/KG	8.5	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TOLUENE	0	ND	UG/KG	10	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.39999961	260
SB06	8		10	C101SB060801C031	SW8260B	SW5035	04/05/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	260
SB06	8		10	C101SB060801C031	W-BLACK	NONE	04/05/2000	SOIL	TOTAL ORGANIC CARBON	1280	=	MG/KG	90.6999969	112
SB07	0		2	C101SB070001 C024	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	0.95700001	J	MG/KG	0.43799999	4.55999994
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.05999994	=	MG/KG	0.23999999	1.13999998
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	104	=	MG/KG	0.04019999	0.56900000
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.22499999	J	MG/KG	0.10100000	0.56900000
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	17.2000007	=	MG/KG	0.44200000	1.13999998
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	8.56000042	=	MG/KG	0.19499999	1.13999998
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44200000	1.13999998
SB07	0		2	C101SB070001 C024	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.47600001	1.13999998
SB07	0		2	C101SB070001 C024	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0222	0.114
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81999999	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.69999998	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.51999998	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.89999997	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.55000001	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	3.20000004	=	UG/KG	0.82999998	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	19
SB07	0		2	C101SB070001 C024	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	38
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	91
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB07	0		2	C101SB070001 C024	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.30000019	38
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	13	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	13	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.69999980	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	8.10000038	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	20	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	12	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	16	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	99	600
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	66	600
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	60	600
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	140	600
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	11	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	13	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	11	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	24	300
SB07	0		2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.80000019	300

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	17	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	11	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	36	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	23	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	38	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	11	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	15	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.80000019	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	12	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9.80000019	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	95	J	UG/KG	21	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	60	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	10	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	9.80000019	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	13	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	12	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	18	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	16	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	12	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.69999980	300
SB07	0	2	C101SB070001 C024	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	19	300
SB07	0	2	C101SB070001 C024	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	695	=	MG/KG	92.3000030	114
SB07	4	6	C101SB070401 C025	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	0.44999998	J	MG/KG	0.43000000	4.46999979
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	4.19000005	=	MG/KG	0.23600000	1.12000000
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	99	=	MG/KG	0.0394	0.55900001
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.09939999	0.55900001
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	13.3000001	=	MG/KG	0.43399998	1.12000000
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	6.96999979	=	MG/KG	0.191	1.12000000
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43399998	1.12000000
SB07	4	6	C101SB070401 C025	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46700000	1.12000000
SB07	4	6	C101SB070401 C025	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.80000001	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.98000001	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.21999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.50999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.87999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	2.79999995	=	UG/KG	0.81999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.62999999	1.89999997
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB07	4	6	C101SB070401 C025	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	89
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB07	4	6	C101SB070401 C025	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.10000038	37
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.10000038	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.80000019	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.80000019	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	83	510
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	55	510
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	50	510
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9.10000038	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.30000019	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.69999980	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	30	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	250

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.19999980	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.30000019	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.80000019	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.19999980	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	0	ND	UG/KG	50	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.69999980	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8.19999980	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.60000038	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.10000038	250
SB07	4	6	C101SB070401 C025	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB07	4	6	C101SB070401 C025	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1180	=	MG/KG	90.5	112
SB07	8	10	C101SB070801 C026	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	0	ND	MG/KG	0.43599999	4.51999998
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.22000002	=	MG/KG	0.23899999	1.12999999
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	125	=	MG/KG	0.03990000	0.56599998
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.18000000	J	MG/KG	0.10100000	0.56599998
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	10.1000003	=	MG/KG	0.43900001	1.12999999
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.65000009	=	MG/KG	0.19300000	1.12999999
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43900001	1.12999999
SB07	8	10	C101SB070801 C026	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.47299999	1.12999999
SB07	8	10	C101SB070801 C026	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0221	0.11299999
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.69999998	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.51999998	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.88999998	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB07	8	10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.70000004

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	3.20000004	=	UG/KG	0.82999998	1.89999997
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB07	8		10	C101SB070801 C026	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	37
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB07	8		10	C101SB070801 C026	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.89999961	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.5	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	18	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	91	560
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	61	560
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	55	560
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	130	560
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	10	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	22	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.30000019	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.89999961	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	34	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	35	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.10000038	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9	280

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	55	J	UG/KG	55	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.60000038	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	9	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	11	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.89999961	280
SB07	8		10	C101SB070801 C026	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB07	8		10	C101SB070801 C026	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	2040	=	MG/KG	91.5999984	113
SB08	0		2	C101SB080001 C021	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	41.5999984	=	MG/KG	0.43299999	4.5
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.04999995	=	MG/KG	0.24600000	1.16999995
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	78.6999969	=	MG/KG	0.04109999	0.58300000
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.10400000	0.58300000
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	15.3999996	=	MG/KG	0.45199999	1.16999995
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	7.92000007	=	MG/KG	0.19900000	1.16999995
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.45199999	1.16999995
SB08	0		2	C101SB080001 C021	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.48699998	1.16999995
SB08	0		2	C101SB080001 C021	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.02270000	0.11699999
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.83999997	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.72000002	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.95999997	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.82999998	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.58999997	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.61000001	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.56000000	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.58999997	3.79999995
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.36000001	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.85000002	2
SB08	0		2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.66000002	2

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	0	2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.5	20
SB08	0	2	C101SB080001 C021	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	77
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	8.10000038	38
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	35	93
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	21	38
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	17	38
SB08	0	2	C101SB080001 C021	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.5	38
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	9.5	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	9.60000038	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	7.30000019	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.09999990	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	15	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	8.89999961	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	12	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	75	460
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	50	460
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	45	460
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	110	460
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	8.19999980	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	9.5	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	8.39999961	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	18	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.09999990	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	13	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.10000038	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	27	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	18	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	29	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	8.30000019	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	11	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	6.59999990	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	8.80000019	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	7.40000009	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	16	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	71	J	UG/KG	45	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	7.80000019	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	7.40000009	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	10	230

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	8.69999980	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	14	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	12	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	7.30000019	230
SB08	0	2	C101SB080001 C021	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	14	230
SB08	0	2	C101SB080001 C021	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	889	=	MG/KG	91.0999984	112
SB08	4	6	C101SB080401 C022	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	7.88999986	=	MG/KG	0.44499999	4.61999988
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.01999998	=	MG/KG	0.24400000	1.14999997
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	71.9000015	=	MG/KG	0.04080000	0.57700002
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.103	0.57700002
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	10.6999998	=	MG/KG	0.44800001	1.14999997
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.92000007	=	MG/KG	0.19699999	1.14999997
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44800001	1.14999997
SB08	4	6	C101SB080401 C022	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.48300001	1.14999997
SB08	4	6	C101SB080401 C022	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.02250000	0.11500000
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.82999998	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.44999998	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.70999997	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.94999998	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.82999998	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.58999997	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.61000001	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.5	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.55000001	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.58999997	3.79999995
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.68999999	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.66000002	2
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.40000009	20
SB08	4	6	C101SB080401 C022	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	76
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	8	38

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	35	92
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB08	4	6	C101SB080401 C022	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.39999961	38
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.5	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.09999990	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	10	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	87	530
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	58	530
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	53	530
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	530
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9.60000038	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.80000019	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	21	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9.5	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	32	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	21	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	33	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.69999980	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.69999980	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.60000038	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	19	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	84	J	UG/KG	52	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.10000038	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8.60000038	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	10	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.5	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	4	6	C101SB080401 C022	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB08	4	6	C101SB080401 C022	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1430	=	MG/KG	93.5	115
SB08	8	10	C101SB080801 C023	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	0.48399999	J	MG/KG	0.43799999	4.55000019
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	2.86999988	=	MG/KG	0.23999999	1.13999998
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	2040	=	MG/KG	0.04019999	0.56900000
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.15700000	J	MG/KG	0.10100000	0.56900000
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	10.1000003	=	MG/KG	0.44100001	1.13999998
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.82999992	=	MG/KG	0.19499999	1.13999998
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.44100001	1.13999998
SB08	8	10	C101SB080801 C023	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.47600001	1.13999998
SB08	8	10	C101SB080801 C023	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0222	0.114
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81999999	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.69999998	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.51999998	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.88999998	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.57999998	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.60000002	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.57999998	3.79999995
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	2.29999995	=	UG/KG	0.82999998	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.64999997	1.89999997
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB08	8	10	C101SB080801 C023	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	190
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	38
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	38
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	91
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	38
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	38
SB08	8	10	C101SB080801 C023	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.30000019	38
SB08	8	10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.10000038	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	7.59999990	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	19	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	15	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	93	570
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	62	570
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	56	570
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	130	570
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	10	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	10	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	23	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	6.40000009	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	10	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	34	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	22	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	36	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	14	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.19999980	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	9.19999980	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	20	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	80	J	UG/KG	56	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	9.80000019	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	9.19999980	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	13	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	11	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.10000038	280
SB08	8		10	C101SB080801 C023	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB08	8		10	C101SB080801 C023	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	876	=	MG/KG	92.1999969	114
SB09	0		2	C101SB090001 C013	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	3.38000011	J	MG/KG	0.45899999	4.76999998
SB09	0		2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	6.94999980	=	MG/KG	0.25200000	1.19000005
SB09	0		2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	114	=	MG/KG	0.04210000	0.59700000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	0	2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	1.07000005	=	MG/KG	0.10599999	0.59700000
SB09	0	2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	19.8999996	=	MG/KG	0.463	1.19000005
SB09	0	2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	10.1999998	=	MG/KG	0.20399999	1.19000005
SB09	0	2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0.73299998	J	MG/KG	0.463	1.19000005
SB09	0	2	C101SB090001 C013	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.49900001	1.19000005
SB09	0	2	C101SB090001 C013	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0195	0.10000000
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.86000001	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	1.10000002	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.70000004	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.74000001	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23999999	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.55000001	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.93999999	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.85000002	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.61000001	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.56999999	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.62999999	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.51999998	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.56999999	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.61000001	3.90000009
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.60000002	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.30000001	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	3.40000009	=	UG/KG	0.87000000	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.68000000	2
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.59999990	20
SB09	0	2	C101SB090001 C013	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	17	200
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	18	39
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	20	79
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	8.30000019	39
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	36	95
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	21	39
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	17	39
SB09	0	2	C101SB090001 C013	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.69999980	39
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.10000038	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.80000019	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.89999961	250

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	83	510
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	55	510
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	50	510
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9.19999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.39999961	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.69999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.30000019	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.40000009	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.89999961	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.19999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	99	JB	UG/KG	50	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.69999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8.19999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.69999980	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.10000038	250
SB09	0	2	C101SB090001 C013	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB09	0	2	C101SB090001 C013	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	3080	=	MG/KG	96.6999969	119
SB09	4	6	C101SB090401 C014	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	18	=	MG/KG	0.43500000	4.51999998
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	4.42000007	=	MG/KG	0.23800000	1.12999999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	88.9000015	=	MG/KG	0.03990000	0.56499999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.62099999	=	MG/KG	0.10100000	0.56499999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	12.6999998	=	MG/KG	0.43799999	1.12999999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	6.78999996	=	MG/KG	0.19300000	1.12999999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0.54299998	J	MG/KG	0.43799999	1.12999999
SB09	4	6	C101SB090401 C014	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.47200000	1.12999999

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	4	6	C101SB090401 C014	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.022	0.11299999
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	2.20000004	=	UG/KG	0.69999998	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.51999998	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.88999998	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.81000000	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.54000002	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	2.5	=	UG/KG	0.81999999	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB09	4	6	C101SB090401 C014	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	75
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.90000009	37
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB09	4	6	C101SB090401 C014	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	9	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	9.10000038	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	6.90000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	5.80000019	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	14	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	8.39999961	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	11	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	71	430
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	47	430
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	43	430
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	100	430

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	7.80000019	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	9	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	7.90000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	17	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	4.90000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	12	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	7.69999980	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	26	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	17	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	27	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	7.90000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	10	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	6.30000019	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	8.39999961	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	7	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	15	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	89	JB	UG/KG	43	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	7.40000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	7	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	9.60000038	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	8.19999980	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	13	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	11	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	8.5	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	6.90000009	220
SB09	4	6	C101SB090401 C014	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	14	220
SB09	4	6	C101SB090401 C014	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1410	=	MG/KG	91.5	113
SB09	8	10	C101SB090801 C015	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	4.57999992	J	MG/KG	0.42500001	4.42000007
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	2.95000004	=	MG/KG	0.23299999	1.10000002
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	331	=	MG/KG	0.03900000	0.55199998
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.09820000	0.55199998
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	10.8999996	=	MG/KG	0.42800000	1.10000002
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.48999977	=	MG/KG	0.18899999	1.10000002
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.42800000	1.10000002
SB09	8	10	C101SB090801 C015	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46099999	1.10000002
SB09	8	10	C101SB090801 C015	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.02150000	0.10999999
SB09	8	10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1	3.59999990
SB09	8	10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.79000002	3.59999990
SB09	8	10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.97000002	3.59999990
SB09	8	10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	1.10000002	J	UG/KG	0.68000000	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.21999999	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.50999999	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.87000000	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.79000002	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56000000	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.57999998	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.47999998	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56000000	3.59999990
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.39999997	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	2.5	=	UG/KG	0.81000000	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.62999999	1.89999997
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.19999980	19
SB09	8		10	C101SB090801 C015	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	16	36
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	18	73
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.69999980	36
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	33	88
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	19	36
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	36
SB09	8		10	C101SB090801 C015	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8	36
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.10000038	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.80000019	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	17	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.89999961	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	83	510
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	55	510
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	50	510
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	510
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9.19999980	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	11	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.30000019	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.69999980	250

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	15	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	9	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	31	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	20	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	32	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.30000019	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.40000009	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.80000019	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.19999980	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	18	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	120	JB	UG/KG	50	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.69999980	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8.19999980	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.69999980	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	10	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.10000038	250
SB09	8		10	C101SB090801 C015	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB09	8		10	C101SB090801 C015	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	773	=	MG/KG	89.4000015	110
SB10	0		2	C101SB100001 C016	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	15.1999998	=	MG/KG	0.43200001	4.48999977
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	2.46000003	=	MG/KG	0.23700000	1.12000000
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	63.2999992	=	MG/KG	0.0396	0.56099999
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.0999	0.56099999
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	14.6000003	=	MG/KG	0.43500000	1.12000000
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	6.28000021	=	MG/KG	0.19200000	1.12000000
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43500000	1.12000000
SB10	0		2	C101SB100001 C016	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46900001	1.12000000
SB10	0		2	C101SB100001 C016	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0219	0.11200000
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	1.29999995	J	UG/KG	0.68999999	1.89999997
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.95999997	1.89999997
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.50999999	1.89999997
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.87999999	1.89999997
SB10	0		2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	1.10000002	J	UG/KG	0.34000000	1.89999997
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	3.20000004	=	UG/KG	0.81999999	1.89999997
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB10	0	2	C101SB100001 C016	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	74
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB10	0	2	C101SB100001 C016	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	10	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	10	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.69999980	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.69999980	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	82	500
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	54	500
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	49	500
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	500
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	10	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.19999980	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.59999990	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	14	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.89999961	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	30	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	250
SB10	0	2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	31	250

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.10000038	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.19999980	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.69999980	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8.10000038	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	17	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	120	JB	UG/KG	49	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.60000038	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8.10000038	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.5	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9.89999961	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8	250
SB10	0		2	C101SB100001 C016	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB10	0		2	C101SB100001 C016	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1230	=	MG/KG	90.9000015	112
SB10	0		2	C101SB100002 C017	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	20.3999996	=	MG/KG	0.42899999	4.44999980
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.34999990	=	MG/KG	0.23499999	1.11000001
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	62.7000007	=	MG/KG	0.03929999	0.55699998
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0	ND	MG/KG	0.09910000	0.55699998
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	13.3000001	=	MG/KG	0.43200001	1.11000001
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	6.69999980	=	MG/KG	0.18999999	1.11000001
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43200001	1.11000001
SB10	0		2	C101SB100002 C017	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46500000	1.11000001
SB10	0		2	C101SB100002 C017	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0217	0.11100000
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.80000001	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.98000001	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0.94999998	J	UG/KG	0.68999999	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.21999999	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.50999999	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.87999999	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56000000	1.89999997
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.57999998	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB10	0		2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.52999997	3.70000004

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56000000	3.70000004
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28000000	1.89999997
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	3.5	=	UG/KG	0.81000000	1.89999997
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.62999999	1.89999997
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB10	0	2	C101SB100002 C017	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	18	73
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	89
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB10	0	2	C101SB100002 C017	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.10000038	37
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	10	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	10	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	7.69999980	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.5	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.39999961	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	12	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	79	480
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	53	480
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	48	480
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	110	480
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	8.69999980	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	10	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	8.89999961	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	19	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.5	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	14	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.60000038	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	29	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	30	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	8.80000019	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.39999961	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	7.80000019	240

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	17	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	96	JB	UG/KG	48	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.30000019	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	7.80000019	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.19999980	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9.60000038	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	7.69999980	240
SB10	0	2	C101SB100002 C017	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	15	240
SB10	0	2	C101SB100002 C017	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1250	=	MG/KG	90.1999969	111
SB10	0	2	C101SB100002 C017D	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	20.5	=	MG/KG	0.42899999	4.44999980
SB10	0	2	C101SB100002 C017D	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1270	=	MG/KG	90.1999969	111
SB10	4	6	C101SB100401 C018	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	18.2999992	=	MG/KG	0.43099999	4.48000001
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.58999991	=	MG/KG	0.23600000	1.12000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	116	=	MG/KG	0.03950000	0.56000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.10100000	J	MG/KG	0.09969999	0.56000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	11.8000001	=	MG/KG	0.43399998	1.12000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.40999984	=	MG/KG	0.191	1.12000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43399998	1.12000000
SB10	4	6	C101SB100401 C018	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46799999	1.12000000
SB10	4	6	C101SB100401 C018	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0218	0.11200000
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.60000002	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	1.60000002	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.92000001	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.52999997	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.47999998	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34000000	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	0	ND	UG/KG	0.67000001	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB10	4	6	C101SB100401 C018	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	18	74
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB10	4	6	C101SB100401 C018	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	10	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	10	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	7.90000009	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.59999990	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.69999980	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	13	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	81	500
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	54	500
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	49	500
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	120	500
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	9	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	10	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	9.10000038	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	20	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.59999990	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	14	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.80000019	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	30	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	31	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.10000038	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.19999980	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	9.60000038	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	8	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	17	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	100	JB	UG/KG	49	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.5	250

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	8	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.5	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9.80000019	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	7.90000009	250
SB10	4	6	C101SB100401 C018	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	16	250
SB10	4	6	C101SB100401 C018	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	1790	=	MG/KG	90.6999969	112
SB10	8	10	C101SB100801 C019	E300.0	NONE	04/04/2000	SOIL	NITRATE/NITRITE-N	41.5999984	=	MG/KG	0.43299999	4.5
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	ARSENIC	3.06999993	=	MG/KG	0.23700000	1.12000000
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	BARIUM	76.6999969	=	MG/KG	0.03970000	0.56199997
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	CADMIUM	0.12899999	J	MG/KG	0.10000000	0.56199997
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	CHROMIUM	10.1999998	=	MG/KG	0.43599999	1.12000000
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	LEAD	5.71000003	=	MG/KG	0.19200000	1.12000000
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	SELENIUM	0	ND	MG/KG	0.43599999	1.12000000
SB10	8	10	C101SB100801 C019	SW6010B	SW3050B	04/04/2000	SOIL	SILVER	0	ND	MG/KG	0.46999999	1.12000000
SB10	8	10	C101SB100801 C019	SW7471A	TOTAL	04/04/2000	SOIL	MERCURY	0	ND	MG/KG	0.0219	0.11200000
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDD	0	ND	UG/KG	1.10000002	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDE	0	ND	UG/KG	0.81000000	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	4,4'-DDT	0	ND	UG/KG	0.99000001	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ALDRIN	0	ND	UG/KG	1.60000002	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-BHC	0	ND	UG/KG	0.68999999	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	BETA-BHC	0	ND	UG/KG	0.51999998	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	DELTA-BHC	0	ND	UG/KG	0.87999999	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	DIELDRIN	0	ND	UG/KG	0.80000001	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN I	0	ND	UG/KG	0.56999999	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN II	0	ND	UG/KG	0.54000002	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDOSULFAN SULFATE	0	ND	UG/KG	0.58999997	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN	0	ND	UG/KG	0.49000001	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN ALDEHYDE	0	ND	UG/KG	0.49000001	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	ENDRIN KETONE	0	ND	UG/KG	0.56999999	3.70000004
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-BHC (LINDANE)	0	ND	UG/KG	1.5	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR	2.59999990	=	UG/KG	0.81999999	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.63999998	1.89999997
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	METHOXYCHLOR	0	ND	UG/KG	4.30000019	19
SB10	8	10	C101SB100801 C019	SW8081A	SW3550B	04/04/2000	SOIL	TOXAPHENE	0	ND	UG/KG	16	190
SB10	8	10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1016	0	ND	UG/KG	17	37

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1221	0	ND	UG/KG	19	74
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1232	0	ND	UG/KG	7.80000019	37
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1242	0	ND	UG/KG	34	90
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1248	0	ND	UG/KG	20	37
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1254	0	ND	UG/KG	16	37
SB10	8		10	C101SB100801 C019	SW8082	SW3550B	04/04/2000	SOIL	PCB-1260	0	ND	UG/KG	8.19999980	37
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	10	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	10	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	7.69999980	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHANE	0	ND	UG/KG	6.5	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,1-DICHLOROETHENE	0	ND	UG/KG	16	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROETHANE	0	ND	UG/KG	9.39999961	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	1,2-DICHLOROPROPANE	0	ND	UG/KG	12	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	2-BUTANONE	0	ND	UG/KG	79	480
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	2-HEXANONE	0	ND	UG/KG	53	480
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	4-METHYL-2-PENTANONE	0	ND	UG/KG	48	480
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	ACETONE	0	ND	UG/KG	110	480
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	BENZENE	0	ND	UG/KG	8.80000019	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	BROMODICHLOROMETHANE	0	ND	UG/KG	10	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	BROMOFORM	0	ND	UG/KG	8.89999961	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	BROMOMETHANE	0	ND	UG/KG	19	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CARBON DISULFIDE	0	ND	UG/KG	5.5	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CARBON TETRACHLORIDE	0	ND	UG/KG	14	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CHLOROBENZENE	0	ND	UG/KG	8.60000038	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CHLOROETHANE	0	ND	UG/KG	29	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CHLOROFORM	0	ND	UG/KG	19	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CHLOROMETHANE	0	ND	UG/KG	30	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	8.89999961	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	12	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	DICHLORODIFLUOROMETHANE	0	ND	UG/KG	9.39999961	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	ETHYLBENZENE	0	ND	UG/KG	7.80000019	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	M/P-XYLENES	0	ND	UG/KG	17	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	METHYLENE CHLORIDE	82	J	UG/KG	48	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	O-XYLENE	0	ND	UG/KG	8.30000019	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	STYRENE	0	ND	UG/KG	7.80000019	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TETRACHLOROETHENE	0	ND	UG/KG	11	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TOLUENE	0	ND	UG/KG	9.19999980	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	15	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	13	240

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROETHENE	0	ND	UG/KG	9.60000038	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	7.69999980	240
SB10	8		10	C101SB100801 C019	SW8260B	SW5035	04/04/2000	SOIL	VINYL CHLORIDE	0	ND	UG/KG	15	240
SB10	8		10	C101SB100801 C019	W-BLACK	NONE	04/04/2000	SOIL	TOTAL ORGANIC CARBON	889	=	MG/KG	91.0999984	112
SB01	0		0.5	C101SS010001 C011	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	36.2000007	=	MG/KG	0.45800000	4.76000022
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	3.43000006	=	MG/KG	0.25099998	1.19000005
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.46000000	J	MG/L	0.08600000	1
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.22200000	J	MG/L	0.0051	1
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	189	=	MG/KG	0.04199999	0.59500002
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	1.83000004	=	MG/KG	0.10599999	0.59500002
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	19.3999996	=	MG/KG	0.46200001	1.19000005
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	32.9000015	=	MG/KG	0.20399999	1.19000005
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	5.11000013	=	MG/KG	0.46200001	1.19000005
SB01	0		0.5	C101SS010001 C011	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	24	=	MG/KG	0.49799999	1.19000005
SB01	0		0.5	C101SS010001 C011	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB01	0		0.5	C101SS010001 C011	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB01	0		0.5	C101SS010001 C011	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	2.13000011	=	MG/KG	0.11599999	0.59500002
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	23	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	87	=	UG/KG	6	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	26	J	UG/KG	4.59999990	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	17	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	7.30000019	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	25	=	UG/KG	10	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	17	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	9.80000019	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	45	=	UG/KG	8.5	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	6	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	5.69999980	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	6.19999980	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	5.19999980	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	5.69999980	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	6	39
SB01	0		0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	16	20
SB01	0		0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	44	=	UG/KG	3	20
SB01	0	0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB01	0	0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	8.69999980	20
SB01	0	0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00033	J	MG/L	0.0002	0.0005
SB01	0	0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	6.80000019	20
SB01	0	0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB01	0	0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	45	200
SB01	0	0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB01	0	0.5	C101SS010001 C011	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	170	2000
SB01	0	0.5	C101SS010001 C011	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	180	390
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	200	790
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	83	390
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	360	950
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	210	390
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	170	390
SB01	0	0.5	C101SS010001 C011	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	87	390
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.60000038	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	17	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	10	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	88	540
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	58	540
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	53	540
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	120	540
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	9.69999980	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	9.89999961	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	22	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6.09999990	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	15	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	9.5	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	32	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	21	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	34	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.80000019	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.80000019	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	8.69999980	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	19	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	170	JB	UG/KG	53	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	9.19999980	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	8.69999980	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	10	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.60000038	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB01	0	0.5	C101SS010001 C011	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB01	0	0.5	C101SS010001 C011	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	33100	=	MG/KG	96.4000015	119
SB01	0	0.5	C101SS010001 C011DU	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	35.7999992	=	MG/KG	0.45800000	4.76000022
SB02	0	0.5	C101SS020001 C012	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	0	ND	MG/KG	0.47299999	4.90999984
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.51800000	J	MG/L	0.08600000	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	3.23000001	=	MG/KG	0.25900000	1.23000001
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	173	=	MG/KG	0.04340000	0.61400002
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.33000001	J	MG/L	0.0051	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	1.44000005	=	MG/KG	0.10899999	0.61400002
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	18.8999996	=	MG/KG	0.47699999	1.23000001
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	33	=	MG/KG	0.20999999	1.23000001
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	3.17000007	=	MG/KG	0.47699999	1.23000001

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	0	0.5	C101SS020001 C012	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB02	0	0.5	C101SS020001 C012	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	16.6000003	=	MG/KG	0.51399999	1.23000001
SB02	0	0.5	C101SS020001 C012	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0.015	J	MG/L	0.0013	0.02
SB02	0	0.5	C101SS020001 C012	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	1.32000005	=	MG/KG	0.11999999	0.61400002
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	12	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	37	J	UG/KG	8.80000019	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	4.80000019	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	18	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	7.59999990	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	14	J	UG/KG	11	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	18	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	10	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	25	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	6.19999980	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	5.80000019	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	6.40000009	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	5.30000019	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	5.90000009	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	6.19999980	41
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	3.79999995	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	25	=	UG/KG	3.09999990	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	7.30000019	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00054	=	MG/L	0.0002	0.0005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	7	21
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	47	210
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB02	0	0.5	C101SS020001 C012	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	180	2100
SB02	0	0.5	C101SS020001 C012	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	180	410
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	200	810
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	86	410
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	370	980
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	220	410
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	170	410
SB02	0	0.5	C101SS020001 C012	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	90	410

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.10000038	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.59999990	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	18	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	11	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	15	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	93	570
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	62	570
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	56	570
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	130	570
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	10	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	12	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	10	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	23	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6.40000009	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	16	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	10	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	34	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	22	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	36	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	10	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	14	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.19999980	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	9.19999980	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	110	J	UG/KG	20	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	190	JB	UG/KG	56	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	9.69999980	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	9.19999980	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	13	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	11	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	11	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.10000038	280
SB02	0	0.5	C101SS020001 C012	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB02	0	0.5	C101SS020001 C012	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	18	280
SB02	0	0.5	C101SS020001 C012	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	26900	=	MG/KG	99.5	123
SB03	0	0.5	C101SS030001 C008	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	0	ND	MG/KG	0.52899998	5.48999977
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	3.71000003	=	MG/KG	0.28999999	1.37000000
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.40299999	J	MG/L	0.08600000	1
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	189	=	MG/KG	0.04850000	0.68699997
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.74699997	J	MG/L	0.0051	1
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	3.95000004	=	MG/KG	0.12200000	0.68699997
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	21.8999996	=	MG/KG	0.53299999	1.37000000
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	61.9000015	=	MG/KG	0.23499999	1.37000000
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	4.07000017	=	MG/KG	0.53299999	1.37000000
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB03	0	0.5	C101SS030001 C008	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	25.6000003	=	MG/KG	0.57400000	1.37000000
SB03	0	0.5	C101SS030001 C008	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB03	0	0.5	C101SS030001 C008	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	1.74000001	=	MG/KG	0.13400000	0.68699997
SB03	0	0.5	C101SS030001 C008	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	13	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	100	=	UG/KG	9.89999961	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	170	=	UG/KG	12	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	20	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	7.30000019	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	12	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	100	=	UG/KG	20	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	11	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	89	=	UG/KG	28	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	7	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	6.5	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	7.19999980	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	7.40000009	45

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	20	J	UG/KG	6.59999990	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	7	45
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	4.19999980	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	14	J	UG/KG	3.5	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	8.19999980	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00043	J	MG/L	0.0002	0.0005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	59	=	UG/KG	7.80000019	23
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	49	230
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB03	0	0.5	C101SS030001 C008	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	200	2300
SB03	0	0.5	C101SS030001 C008	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	200	450
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	230	910
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	96	450
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	410	1100
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	240	450
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	200	450
SB03	0	0.5	C101SS030001 C008	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	380	J	UG/KG	220	450
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	13	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	13	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	10	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	8.5	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	21	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	16	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	100	640
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	69	640
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	63	640
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	150	640
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	13	320

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	26	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	7.19999980	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	18	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	11	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	38	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	25	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	40	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	15	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	9.19999980	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	10	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	22	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	180	JB	UG/KG	63	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	11	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	10	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	14	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	12	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	19	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	17	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	13	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	10	320
SB03	0	0.5	C101SS030001 C008	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB03	0	0.5	C101SS030001 C008	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	20	320
SB03	0	0.5	C101SS030001 C008	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	34600	=	MG/KG	111	137
SB04	0	0.5	C101SS040001 C009	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	121	=	MG/KG	1.25999999	13.1000003
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.60000002	J	MG/L	0.08600000	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	5.30000019	=	MG/KG	0.34499999	1.63999998
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.55800002	J	MG/L	0.0051	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	381	=	MG/KG	0.05779999	0.81800001
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	4.92999982	=	MG/KG	0.14599999	0.81800001
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	34.2000007	=	MG/KG	0.63499999	1.63999998

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	83.4000015	=	MG/KG	0.28000000	1.63999998
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	10	=	MG/KG	0.63499999	1.63999998
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB04	0	0.5	C101SS040001 C009	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	54.2999992	=	MG/KG	0.68400001	1.63999998
SB04	0	0.5	C101SS040001 C009	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB04	0	0.5	C101SS040001 C009	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	3.89000010	=	MG/KG	0.15999999	0.81800001
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	15	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	120	=	UG/KG	8.19999980	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	120	=	UG/KG	14	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	24	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	10	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	32	=	UG/KG	14	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	24	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	14	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	63	=	UG/KG	12	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	8.30000019	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	7.80000019	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	8.60000038	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	7.09999990	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	7.80000019	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	8.30000019	54
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	21	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	66	=	UG/KG	4.19999980	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0	ND	MG/L	0.0002	0.0005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	12	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	9.30000019	28
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	63	280
SB04	0	0.5	C101SS040001 C009	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB04	0	0.5	C101SS040001 C009	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	240	2800
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	240	540
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	270	1100
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	110	540

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	490	1300
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	290	540
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	230	540
SB04	0	0.5	C101SS040001 C009	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	120	540
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	15	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	15	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	12	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	9.69999980	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	24	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	14	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	19	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	120	730
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	79	730
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	72	730
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	170	730
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	13	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	15	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	13	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	29	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	8.19999980	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	21	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	13	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	44	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	28	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	46	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	13	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	17	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	11	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	14	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	12	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	25	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	210	JB	UG/KG	72	360

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	12	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	12	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	16	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	14	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	22	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	19	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	14	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	12	360
SB04	0	0.5	C101SS040001 C009	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB04	0	0.5	C101SS040001 C009	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	23	360
SB04	0	0.5	C101SS040001 C009	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	60700	=	MG/KG	133	164
SB05	0	0.5	C101SS050001 C010	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	12.6999998	=	MG/KG	0.44499999	4.61999988
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.48399999	J	MG/L	0.08600000	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	2.18000006	=	MG/KG	0.24400000	1.15999996
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	54.7999992	=	MG/KG	0.04080000	0.57800000
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.44100001	J	MG/L	0.0051	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	0.22900000	J	MG/KG	0.103	0.57800000
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	11.3000001	=	MG/KG	0.44900000	1.15999996
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	9.56999969	=	MG/KG	0.19799999	1.15999996
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	0	ND	MG/KG	0.44900000	1.15999996
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB05	0	0.5	C101SS050001 C010	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	1.94000005	=	MG/KG	0.48300001	1.15999996
SB05	0	0.5	C101SS050001 C010	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	0.26899999	=	MG/KG	0.02250000	0.11599999
SB05	0	0.5	C101SS050001 C010	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	11	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	8.60000038	J	UG/KG	5.80000019	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	10	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	17	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	7.09999990	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	2.29999995	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	17	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	9.5	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	8.30000019	38

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	5.90000009	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	5.5	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	6.09999990	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	5	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	5.5	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	5.90000009	38
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	3.5	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	2.90000009	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00023	J	MG/L	0.0002	0.0005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	6.90000009	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	6.59999990	20
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	44	200
SB05	0	0.5	C101SS050001 C010	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB05	0	0.5	C101SS050001 C010	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	170	2000
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	170	380
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	190	760
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	80	380
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	350	920
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	200	380
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	160	380
SB05	0	0.5	C101SS050001 C010	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	84	380
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.5	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.09999990	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	17	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	10	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	87	530
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	58	530
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	53	530

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	120	530
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	9.60000038	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	9.80000019	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	21	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	15	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	9.39999961	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	32	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	20	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	33	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.69999980	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.69999980	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	8.60000038	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	19	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	110	JB	UG/KG	52	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	9.10000038	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	8.60000038	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	10	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.5	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB05	0	0.5	C101SS050001 C010	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB05	0	0.5	C101SS050001 C010	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	5800	=	MG/KG	93.5999984	116
SB06	0	0.5	C101SS060001 C007	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	303	=	MG/KG	13.3000001	138
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	7.38999986	=	MG/KG	0.29199999	1.37999999
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.52999997	J	MG/L	0.08600000	1
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.85299998	J	MG/L	0.0051	1
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	501	=	MG/KG	0.04879999	0.69199997

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	7.65999984	=	MG/KG	0.12300000	0.69199997
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	34.7000007	=	MG/KG	0.537	1.37999999
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	86.1999969	=	MG/KG	0.23700000	1.37999999
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	19.2999992	=	MG/KG	0.537	1.37999999
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB06	0	0.5	C101SS060001 C007	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	77.5	=	MG/KG	0.57800000	1.37999999
SB06	0	0.5	C101SS060001 C007	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0.0294	J	MG/L	0.02250000	1
SB06	0	0.5	C101SS060001 C007	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	2.70000004	=	MG/KG	0.13500000	0.69199997
SB06	0	0.5	C101SS060001 C007	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	13	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	87	=	UG/KG	10	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	5.40000009	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	19	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	8.5	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	16	J	UG/KG	12	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	6.30000019	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	11	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	62	=	UG/KG	9.89999961	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	7	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	6.59999990	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	7.30000019	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	6	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	6.59999990	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	7	46
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	18	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	19	J	UG/KG	3.5	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0.0003	J	MG/L	1E-04	0.0005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00024	J	MG/L	0.0002	0.0005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	10	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	7.90000009	24
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB06	0	0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	50	240
SB06	0	0.5	C101SS060001 C007	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	0		0.5	C101SS060001 C007	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	200	2400
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	210	460
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	230	910
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	96	460
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	420	1100
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	240	460
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	200	460
SB06	0		0.5	C101SS060001 C007	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	100	460
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.39999961	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.90000009	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	19	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	11	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	15	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	96	590
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	64	590
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	58	590
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	140	590
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	11	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	12	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	11	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	24	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6.59999990	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	17	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	10	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	35	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	23	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	37	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	11	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	14	290
SB06	0		0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.5	290

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	9.5	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	21	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	180	JB	UG/KG	58	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	10	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	9.5	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	13	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	11	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	18	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	12	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.39999961	290
SB06	0	0.5	C101SS060001 C007	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB06	0	0.5	C101SS060001 C007	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	19	290
SB06	0	0.5	C101SS060001 C007	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	71800	=	MG/KG	112	138
SB07	0	0.5	C101SS070001 C006	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	486	=	MG/KG	32.5	338
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.46799999	J	MG/L	0.08600000	1
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	13.8999996	=	MG/KG	0.713	3.38000011
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	923	=	MG/KG	0.11900000	1.69000005
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	1.07000005	=	MG/L	0.0051	1
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	12.8000001	=	MG/KG	0.30099999	1.69000005
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	57.4000015	=	MG/KG	1.30999994	3.38000011
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	108	=	MG/KG	0.57800000	3.38000011
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	33.2000007	=	MG/KG	1.30999994	3.38000011
SB07	0	0.5	C101SS070001 C006	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	105	=	MG/KG	1.40999996	3.38000011
SB07	0	0.5	C101SS070001 C006	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0.02999999	J	MG/L	0.02250000	1
SB07	0	0.5	C101SS070001 C006	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB07	0	0.5	C101SS070001 C006	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	3.34999990	=	MG/KG	0.32899999	1.69000005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	32	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	62	J	UG/KG	24	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	30	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	49	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	21	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	6.80000019	57

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	15	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	28	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	69	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	17	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	16	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	18	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	15	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	16	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	17	110
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	52	J	UG/KG	44	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	8.60000038	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	20	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0	ND	MG/L	0.0002	0.0005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	19	57
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	120	570
SB07	0	0.5	C101SS070001 C006	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	490	5700
SB07	0	0.5	C101SS070001 C006	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	500	1100
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	560	2200
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	240	1100
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	1000	2700
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	590	1100
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	480	1100
SB07	0	0.5	C101SS070001 C006	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	250	1100
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	32	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	32	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	24	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	20	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	49	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	30	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	39	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	250	1500
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	170	1500
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	150	1500
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	350	1500
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	27	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	32	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	28	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	61	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	17	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	44	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	27	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	91	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	59	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	95	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	28	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	36	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	22	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	29	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	25	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	53	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	450	JB	UG/KG	150	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	26	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	25	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	34	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	29	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	46	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	40	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	30	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	24	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	48	760
SB07	0	0.5	C101SS070001 C006	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB07	0	0.5	C101SS070001 C006	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	193000	=	MG/KG	274	338
SB08	0	0.5	C101SS080001 C005	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	82.8000030	=	MG/KG	0.65499997	6.80000019

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	5.78000021	=	MG/KG	0.35899999	1.70000004
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.54500001	J	MG/L	0.08600000	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.53799998	J	MG/L	0.0051	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	302	=	MG/KG	0.05999999	0.85000002
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	4.01000022	=	MG/KG	0.15099999	0.85000002
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	23.6000003	=	MG/KG	0.66000002	1.70000004
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	33.7999992	=	MG/KG	0.29100000	1.70000004
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	12.8000001	=	MG/KG	0.66000002	1.70000004
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB08	0		0.5	C101SS080001 C005	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	30.2999992	=	MG/KG	0.71100002	1.70000004
SB08	0		0.5	C101SS080001 C005	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	0.37099999	=	MG/KG	0.03319999	0.17000000
SB08	0		0.5	C101SS080001 C005	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	16	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	15	J	UG/KG	12	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	15	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	24	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	10	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	3.40000009	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	25	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	14	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	35	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	8.60000038	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	8.10000038	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	8.89999961	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	7.40000009	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	8.10000038	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	8.60000038	56
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	5.19999980	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	4.30000019	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00021	J	MG/L	0.0002	0.0005
SB08	0		0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	10	29
SB08	0		0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	0	0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	9.69999980	29
SB08	0	0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB08	0	0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	61	290
SB08	0	0.5	C101SS080001 C005	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB08	0	0.5	C101SS080001 C005	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	250	2900
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	250	560
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	280	1100
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	120	560
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	510	1400
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	300	560
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	240	560
SB08	0	0.5	C101SS080001 C005	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	120	560
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	16	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	16	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	12	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	10	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	25	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	15	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	20	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	130	780
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	85	780
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	77	780
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	180	780
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	14	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	16	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	14	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	31	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	8.80000019	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	22	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	14	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	47	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	30	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	49	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	14	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	19	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	11	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	15	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	13	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	27	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	210	JB	UG/KG	77	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	13	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	13	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	17	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	15	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	23	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	20	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	15	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	12	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	25	390
SB08	0	0.5	C101SS080001 C005	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB08	0	0.5	C101SS080001 C005	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	52000	=	MG/KG	138	170
SB09	0	0.5	C101SS090001 C001	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	309	=	MG/KG	14.8000001	154
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.42300000	J	MG/L	0.08600000	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	4.92000007	=	MG/KG	0.32499998	1.53999996
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.70099997	J	MG/L	0.0051	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	361	=	MG/KG	0.05429999	0.76899999
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	4.23999977	=	MG/KG	0.13699999	0.76899999
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	25.7000007	=	MG/KG	0.59700000	1.53999996
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	62.5	=	MG/KG	0.26300001	1.53999996
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	10.6999998	=	MG/KG	0.59700000	1.53999996
SB09	0	0.5	C101SS090001 C001	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB09	0	0.5	C101SS090001 C001	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	40.9000015	=	MG/KG	0.64300000	1.53999996
SB09	0	0.5	C101SS090001 C001	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	1.79999995	=	MG/KG	0.15000000	0.76899999
SB09	0	0.5	C101SS090001 C001	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	15	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	43	J	UG/KG	11	51

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	14	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	22	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	9.5	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	18	J	UG/KG	13	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	22	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	13	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	32	J	UG/KG	11	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	7.80000019	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	7.30000019	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	8.10000038	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	8.30000019	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0003	0.001
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	7.40000009	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	7.80000019	51
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	20	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	3.90000009	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	9.19999980	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0.00035	J	MG/L	0.0002	0.0005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	8.69999980	26
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0.0002	J	MG/L	1E-04	0.0005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	55	260
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB09	0	0.5	C101SS090001 C001	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	220	2600
SB09	0	0.5	C101SS090001 C001	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	230	510
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	250	1000
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	110	510
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	460	1200
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	270	510
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	220	510
SB09	0	0.5	C101SS090001 C001	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	110	510
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	16	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	16	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	12	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	10	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	24	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	15	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	19	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	120	740
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	81	740
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	74	740
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	170	740
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	13	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	15	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	14	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	30	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	8.39999961	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	21	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	13	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	45	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	29	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	47	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	14	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	18	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	11	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	14	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	12	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	26	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	74	JB	UG/KG	73	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	13	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	12	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	17	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	14	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	22	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	20	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	15	370
SB09	0		0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB09	0		0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	12	370

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB09	0	0.5	C101SS090001 C001	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	24	370
SB09	0	0.5	C101SS090001 C001	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB09	0	0.5	C101SS090001 C001	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	66600	=	MG/KG	125	154
SB10	0	0.5	C101SS100001 C002	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	7.40999984	=	MG/KG	0.47099998	4.88999986
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	2.46000003	=	MG/KG	0.25799998	1.22000002
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.46200001	J	MG/L	0.08600000	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.13199999	J	MG/L	0.0051	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	66.3000030	=	MG/KG	0.04320000	0.61100000
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	0.16099999	J	MG/KG	0.10899999	0.61100000
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	16.5	=	MG/KG	0.47400000	1.22000002
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	12.3999996	=	MG/KG	0.20900000	1.22000002
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	1.77999997	=	MG/KG	0.47400000	1.22000002
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1
SB10	0	0.5	C101SS100001 C002	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	5.11999988	=	MG/KG	0.51099997	1.22000002
SB10	0	0.5	C101SS100001 C002	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB10	0	0.5	C101SS100001 C002	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	0	ND	MG/KG	0.02380000	0.12200000
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	1.20000004	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	0	ND	UG/KG	0.87999999	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	1.10000002	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	1.79999995	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	0.64999997	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	0.25	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	1.79999995	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	1	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	0.87000000	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	0.62000000	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	0.57999998	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	0.63999998	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	0.52999997	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	0.52999997	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	0.62000000	4
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.37999999	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	0.31000000	2.09999990

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0.00016	J	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	0.73000001	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0	ND	MG/L	0.0002	0.0005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.68999999	2.09999990
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	4.69999980	21
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB10	0	0.5	C101SS100001 C002	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	18	210
SB10	0	0.5	C101SS100001 C002	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	18	40
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	20	81
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	8.5	40
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	37	98
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	22	40
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	17	40
SB10	0	0.5	C101SS100001 C002	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	8.89999961	40
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	12	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	12	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	9.30000019	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.80000019	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	19	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	15	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	95	580
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	63	580
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	58	580
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	140	580
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	12	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	23	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6.59999990	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	17	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	10	290

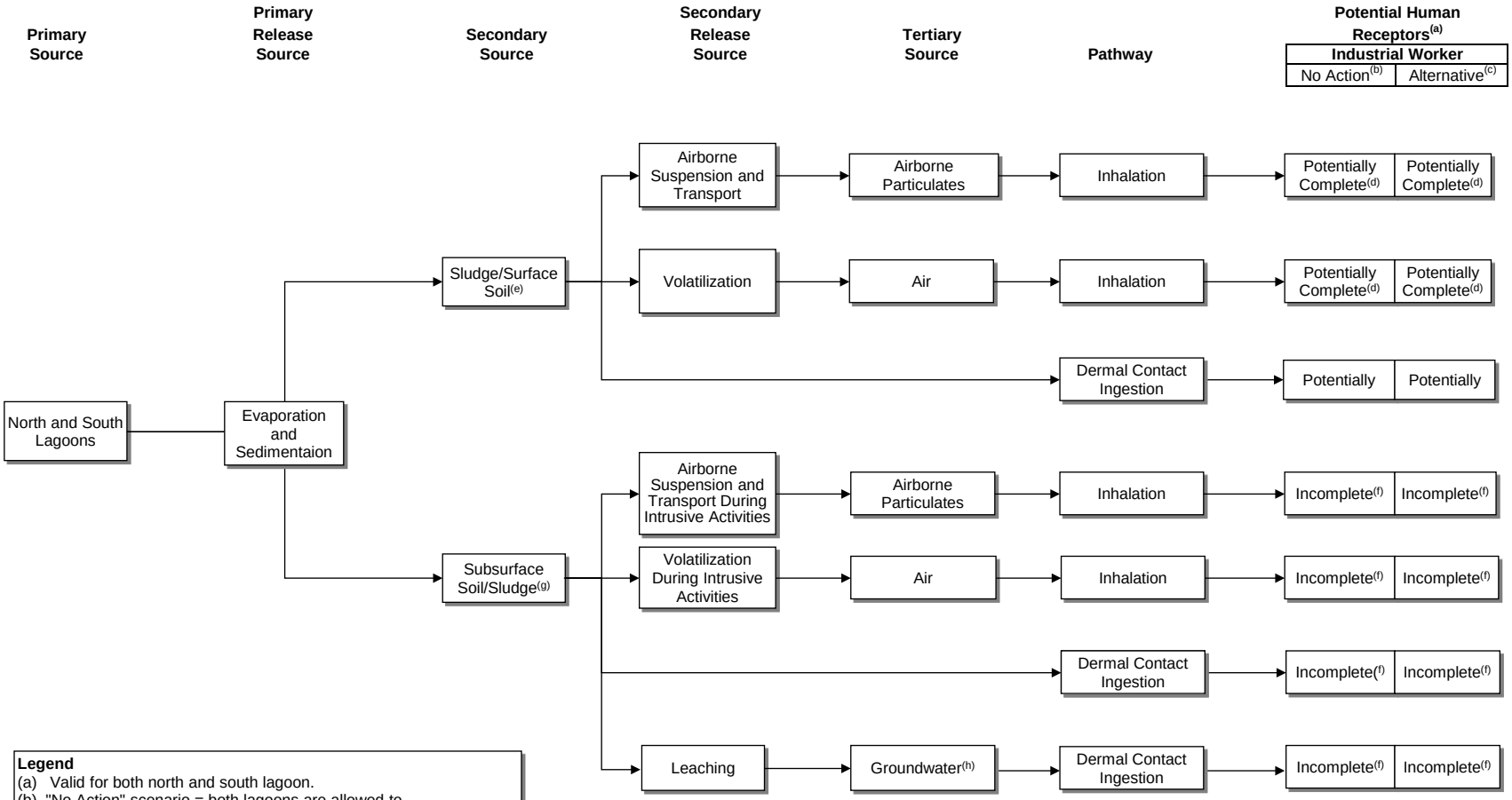
Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	35	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	22	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	36	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	14	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	8.39999961	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	9.39999961	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	20	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	80	JB	UG/KG	57	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	10	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	9.39999961	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	13	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	17	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	15	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	11	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	9.30000019	290
SB10	0	0.5	C101SS100001 C002	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB10	0	0.5	C101SS100001 C002	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	18	290
SB10	0	0.5	C101SS100001 C002	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	7170	=	MG/KG	99	122
SB10	0	0.5	C101SS100002 C003	E300.0	NONE	04/03/2000	SLUDG	NITRATE/NITRITE-N	6.51999998	=	MG/KG	0.44499999	4.61999988
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	ARSENIC	2.27999997	=	MG/KG	0.24400000	1.14999997
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	ARSENIC	0.44699999	J	MG/L	0.08600000	1
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	BARIUM	48.7999992	=	MG/KG	0.04080000	0.57700002
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	BARIUM	0.16500000	J	MG/L	0.0051	1
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	CADMIUM	0	ND	MG/KG	0.103	0.57700002
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	CADMIUM	0	ND	MG/L	0.02119999	0.5
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	CHROMIUM	9.78999996	=	MG/KG	0.44800001	1.14999997
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	CHROMIUM	0	ND	MG/L	0.02349999	1
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	LEAD	7.07999992	=	MG/KG	0.19699999	1.14999997
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	LEAD	0	ND	MG/L	0.19699999	1
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	SELENIUM	0	ND	MG/KG	0.44800001	1.14999997
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	SELENIUM	0	ND	MG/L	0.20000000	1
SB10	0	0.5	C101SS100002 C003	SW6010B	SW3050B	04/03/2000	SLUDG	SILVER	0	ND	MG/KG	0.48300001	1.14999997
SB10	0	0.5	C101SS100002 C003	SW6010B	SW1311A	04/03/2000	SLUDG	SILVER	0	ND	MG/L	0.02250000	1

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	0.5	C101SS100002 C003	SW7471A	SW1311A	04/03/2000	SLUDG	MERCURY	0	ND	MG/L	0.0013	0.02
SB10	0	0.5	C101SS100002 C003	SW7471A	TOTAL	04/03/2000	SLUDG	MERCURY	0	ND	MG/KG	0.02250000	0.11500000
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDD	0	ND	UG/KG	1.10000002	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDE	1.70000004	J	UG/KG	0.57999998	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	4,4'-DDT	0	ND	UG/KG	1	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ALDRIN	0	ND	UG/KG	1.70000004	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-BHC	0	ND	UG/KG	0.61000001	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ALPHA-CHLORDANE	0	ND	UG/KG	0.23000000	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	BETA-BHC	0	ND	UG/KG	1.70000004	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	DELTA-BHC	0	ND	UG/KG	0.94999998	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	DIELDRIN	0	ND	UG/KG	2.29999995	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN I	0	ND	UG/KG	0.58999997	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN II	0	ND	UG/KG	0.55000001	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDOSULFAN SULFATE	0	ND	UG/KG	0.61000001	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	ENDRIN	0	ND	MG/L	0.0002	0.001
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN	0	ND	UG/KG	0.62000000	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN ALDEHYDE	0	ND	UG/KG	0.5	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	ENDRIN KETONE	0	ND	UG/KG	0.58999997	3.79999995
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	MG/L	0.0002	0.0005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-BHC (LINDANE)	0	ND	UG/KG	0.34999999	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	GAMMA-CHLORDANE	0	ND	UG/KG	0.28999999	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR	0	ND	MG/L	0.0002	0.0005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR	0	ND	UG/KG	0.68999999	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	MG/L	1E-04	0.0005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	HEPTACHLOR EPOXIDE	0	ND	UG/KG	0.66000002	2
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	MG/L	0.0012	0.005
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	METHOXYCHLOR	0	ND	UG/KG	4.40000009	20
SB10	0	0.5	C101SS100002 C003	SW8081A	SW1311A	04/03/2000	SLUDG	TOXAPHENE	0	ND	MG/L	0.0059	0.01
SB10	0	0.5	C101SS100002 C003	SW8081A	SW3550B	04/03/2000	SLUDG	TOXAPHENE	0	ND	UG/KG	17	200
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1016	0	ND	UG/KG	17	38
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1221	0	ND	UG/KG	19	76
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1232	0	ND	UG/KG	8	38
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1242	0	ND	UG/KG	35	92
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1248	0	ND	UG/KG	20	38
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1254	0	ND	UG/KG	16	38
SB10	0	0.5	C101SS100002 C003	SW8082	SW3550B	04/03/2000	SLUDG	PCB-1260	0	ND	UG/KG	8.39999961	38
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,1,1-TRICHLOROETHANE	0	ND	UG/KG	11	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2,2-TETRACHLOROETHANE	0	ND	UG/KG	11	270

Location	Depth Interval (ft)		Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,1,2-TRICHLOROETHANE	0	ND	UG/KG	8.60000038	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHANE	0	ND	UG/KG	7.19999980	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	MG/L	0.0086	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,1-DICHLOROETHENE	0	ND	UG/KG	18	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	MG/L	0.0095	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROETHANE	0	ND	UG/KG	11	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	1,2-DICHLOROPROPANE	0	ND	UG/KG	14	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	1,4-DICHLOROBENZENE	0	ND	MG/L	0.01	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	2-BUTANONE	0	ND	MG/L	0.06700000	0.5
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	2-BUTANONE	0	ND	UG/KG	89	540
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	2-HEXANONE	0	ND	UG/KG	59	540
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	4-METHYL-2-PENTANONE	0	ND	UG/KG	54	540
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	ACETONE	0	ND	UG/KG	130	540
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	BENZENE	0	ND	MG/L	0.0077	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	BENZENE	0	ND	UG/KG	9.80000019	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	BROMODICHLOROMETHANE	0	ND	UG/KG	11	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	BROMOFORM	0	ND	UG/KG	9.89999961	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	BROMOMETHANE	0	ND	UG/KG	22	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CARBON DISULFIDE	0	ND	UG/KG	6.09999990	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	MG/L	0.0083	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CARBON TETRACHLORIDE	0	ND	UG/KG	16	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	MG/L	0.011	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROBENZENE	0	ND	UG/KG	9.60000038	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROETHANE	0	ND	UG/KG	33	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	CHLOROFORM	0	ND	MG/L	0.0067	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROFORM	0	ND	UG/KG	21	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CHLOROMETHANE	0	ND	UG/KG	34	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,2-DICHLOROETHENE	0	ND	UG/KG	9.89999961	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	CIS-1,3-DICHLOROPROPENE	0	ND	UG/KG	13	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	DIBROMOCHLOROMETHANE	0	ND	UG/KG	7.80000019	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	DICHLORODIFLUOROMETHAN	0	ND	UG/KG	10	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	ETHYLBENZENE	0	ND	UG/KG	8.80000019	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	M/P-XYLENES	0	ND	UG/KG	19	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	METHYLENE CHLORIDE	98	JB	UG/KG	53	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	O-XYLENE	0	ND	UG/KG	9.30000019	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	STYRENE	0	ND	UG/KG	8.80000019	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	MG/L	0.011	0.05000000
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TETRACHLOROETHENE	0	ND	UG/KG	12	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TOLUENE	0	ND	UG/KG	10	270
SB10	0	0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,2-DICHLOROETHENE	0	ND	UG/KG	16	270

APPENDIX A
Analytical Data
CMS Field Program at the Sewage Lagoons

Location	Depth Interval (ft)			Sample ID	Analytical Method	Extraction Method	Sample Date	Matrix	Parameter	Value	Boolean	Units	Reporting Limit	Dilution Factor
SB10	0		0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TRANS-1,3-DICHLOROPROPEN	0	ND	UG/KG	14	270
SB10	0		0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	UG/KG	11	270
SB10	0		0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	TRICHLOROETHENE	0	ND	MG/L	0.0089	0.05000000
SB10	0		0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	TRICHLOROFLUOROMETHANE	0	ND	UG/KG	8.60000038	270
SB10	0		0.5	C101SS100002 C003	SW8260B	SW5035	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	UG/KG	17	270
SB10	0		0.5	C101SS100002 C003	SW8260B	SW1311A	04/03/2000	SLUDG	VINYL CHLORIDE	0	ND	MG/L	0.025	0.05000000
SB10	0		0.5	C101SS100002 C003	W-BLACK	NONE	04/03/2000	SLUDG	TOTAL ORGANIC CARBON	7520	=	MG/KG	93.5	115



Legend

(a) Valid for both north and south lagoon.
(b) "No Action" scenario = both lagoons are allowed to evaporate and the sludge/soil from both lagoons are exposed.
(c) "Alternative" scenario = both lagoons are allowed to evaporate and sludge/soil from North Lagoon is transferred to the South Lagoon. South Lagoon is then capped and North Lagoon may have a liner.
(d) Potentially Complete: Pathway may be applicable to site
(e) 0 to 2 feet
(f) Incomplete: Pathway not applicable to site; no construction or intusive activities are anticipated.
(g) 2 to 10 feet
(h) A model determined contaminants in subsurface soil/sludge do not have the ability to leach to groundwater.

HHRA
SWMU 101
Cannon Air Force Base, New Mexico

Figure C-1

Human Health Conceptual Site Model for the North and South Sewage Lagoons

Foster Wheeler Environmental Corporation

HEPTACHLOR EPOXIDE

Heptachlor epoxide is not available as a commercial product in the United States, and is not typically found in commercial heptachlor. Heptachlor epoxide is formed from heptachlor in the environment (EPA 2000a).

TOXICOKINETICS

Heptachlor epoxide is readily absorbed through the skin, lungs, and through the gastrointestinal tract. Like many other chlorinated hydrocarbon pesticides, following exposure, heptachlor epoxide distributes into the fatty tissues of the body, including the adipose tissue, liver, and kidney. It has also been reported in significant concentrations in the brain and blood serum. Elimination occurs primarily through the bile, although metabolites are also excreted in the urine. Unmetabolized heptachlor epoxide is usually efficiently absorbed by the gastrointestinal tract, retarding fecal excretion of unmetabolized heptachlor epoxide (EPA 2000a).

TOXICITY

Non-Carcinogenic Effects

Heptachlor epoxide is a central nervous system stimulator that can produce apprehension, excitability, paresthesia, dizziness, headache, disorientation, tremors, ataxia, stupor, coma, and convulsions. It may enhance myocardial irritability, leading to cardiac dysrhythmia after high exposures. Other symptoms include paresthesia, anorexia, nausea, fatigue, malaise, vomiting, gastrointestinal upset, and abdominal pain. Longer-term exposures have elicited blood disorders, liver necrosis, reproductive effects, decreased fetal survival rates, and possible teratogenic effects (EPA 2000a).

USEPA has established an oral reference dose for heptachlor epoxide of 1.3×10^{-5} milligrams per kilogram per day (mg/kg-d), based on increased liver-to-body weight ratios (EPA 2000b).

Carcinogenicity

Data from experimental animals demonstrates sufficient causal relationship between exposure to heptachlor epoxide and the development of liver carcinomas in animals. However, there is insufficient evidence in humans to draw any conclusions relative to its carcinogenic potential in humans. Therefore, USEPA has classified heptachlor epoxide as a Group B2 carcinogen, and has set an oral and inhalation cancer slope factor of 9.1 $(\text{mg/kg-day})^{-1}$ and a drinking water unit risk of 2.6×10^{-4} per micrograms per liter $(\mu\text{g/L})^{-1}$ for the chemical (EPA 2000b).

REFERENCES

United States Environmental Protection Agency (EPA). 2000a. Hazardous Substances Data Base (HSDB)-Heptachlor Epoxide. On-line database, Washington, DC. February 13, 2000.

United States Environmental Protection Agency (EPA). 2000b. Integrated Risk Information System (IRIS)-Heptachlor Epoxide. On-line database, Washington, DC. February 13, 2000.

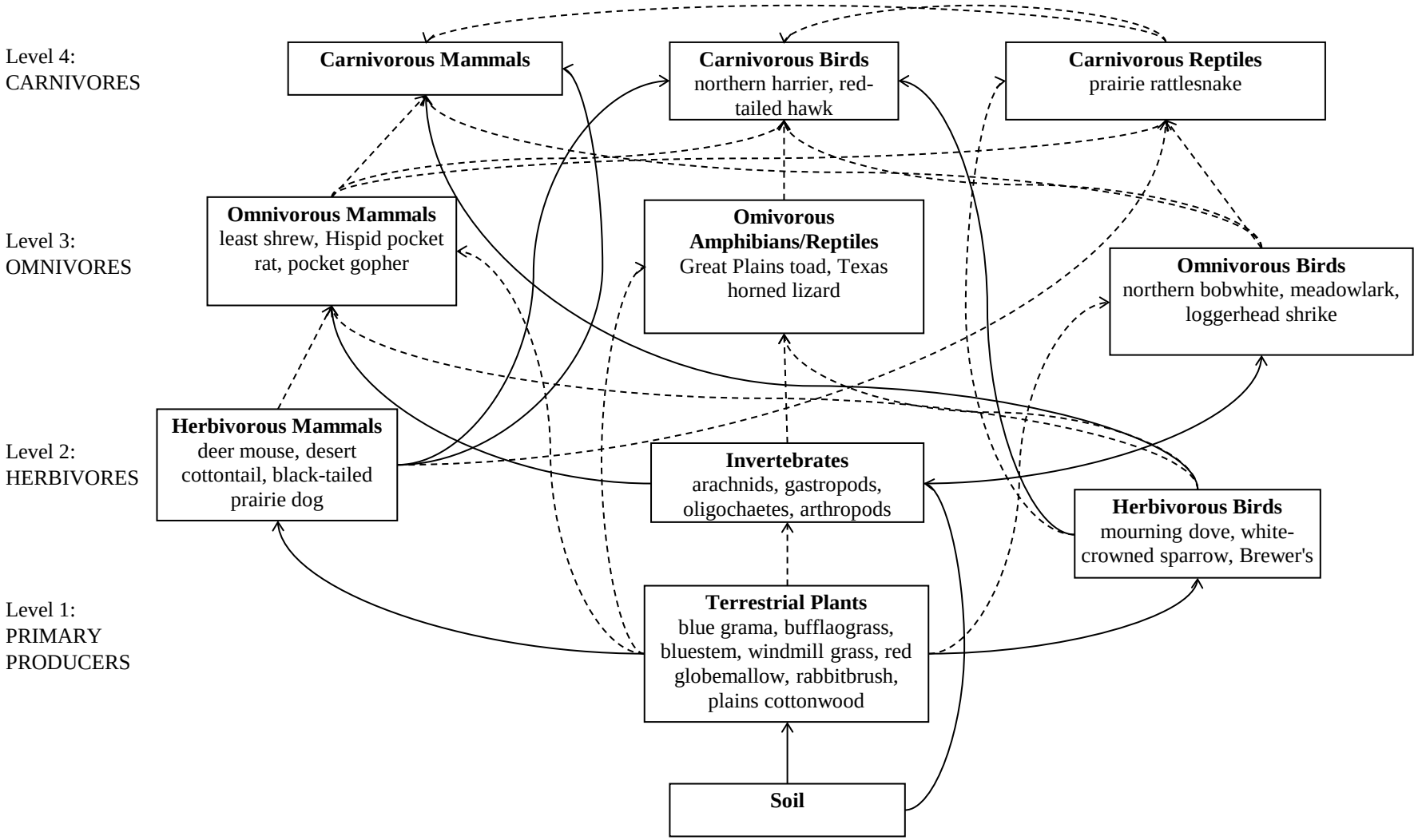


Figure C-4. Food Web for the Plains-Mesa Grassland Habitat at SWMU 101, Sewage Lagoons

Table C-21. Non-carcinogenic Hazard, North Lagoon Sludge

COPC	COPC Concentration[(a)] (mg/kg)	HQ (Unitless)
PCBs		
PCB-1260	0.38	0.026
Pesticides		
Dieldrin	0.089	0.0020
Heptachlor Epoxide	0.059	0.0052
Inorganics		
Arsenic	5.3	0.012
	TOTAL HI	**0.046**

Notes:
(a) maximum detected concentration

COPC - chemical of potential concern
HI - hazard index
HQ - hazard quotient
mg/kg - milligrams per kilogram
PCBs - polychlorinated biphenyls

Table C-33. Federal and State Endangered, Threatened, Candidate, and Rare Species Potentially Occurring on Cannon Air Force Base and Their Habitat Requirements [(a)]

Common/Scientific Name	Status Federal	Status State	Habitat Requirements
Plants			
Tall plains spurge *Euphorbia strictior*		L2	Dry plains and hills at 4,000 to 6,000 feet in elevation
Birds			
Bald eagle *Haliaeetus leucocephalus*	T	E2	Riparian
American peregrine falcon *Falco peregrinus anatum*	E	E1	Canyons with steep rocky cliffs, close to water
Arctic peregrine falcon *Falco peregrinus tundrius*	E1	E1	Canyons with steep rocky cliffs, close to water
Whooping Crane *Grus americana*	E	E1	Marshes, wetlands, pastures
Mountain plover *Charadrius montanus*	C		Semidesert grassland and mountain meadows
Baird's sparrow *Ammodramus bairdii*		E2	Desert grassland and mountain meadows
Mammals			
Swift fox *Vulpes velox*	C		Grasslands

Notes:

(a) Lightfoot 1995, National Geographic Society 1987, New Mexico Department of Game and Fish 1990, New Mexico Native Plant Protection Advisory Committee 1984, New Mexico Natural Heritage Program 1994, Sivinski and Lightfoot 1995, Stebbins 1985, U.S. Fish and Wildlife Service 1996, and Whitaker 1980 (as cited in U.S. Air Force 1996)

C = Candidate
E^1 = Endangered due to similarity of appearance
E1 = Endangered (Group 1)
E2 = Endangered (Group 2)
L = List 2 (Rare and Sensitive)
T = Threatened

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
Deer Mouse						
VOCs						
m/p-Xylenes [b]	Chronic (reproduction)	Mouse	2.06	NA	2.1	Marks et al. 1982 [c]
PCBs						
PCB-1260[d]	Subchronic (14.5 weeks) LOAEL mortality	Mink	0.0206	0.01	0.000206	Aulerich et al. 1985. TRV based on toxicity of 3,4,5-hexachlorobiphenyl [e]
Pesticides						
alpha-BHC [f]	Chronic (> 1 year)	Rat	1.6	NA	1.6	Grant et al. 1977 [c]
beta-BHC	Subchronic (3 weeks)	Rat	4	NA	0.4	Van Velsen et al. 1986 [c]
gamma-BHC (Lindane)	Chronic (> 1 year)	Rat	8	NA	8	Palmer et al. 1978 [c]
alpha-Chlordane [g]	Chronic (> 1 year)	Mouse	4.58	NA	4.6	Keplinger et al. 1968 [c]
gamma-Chlordane [g]	Chronic (> 1 year)	Mouse	4.58	NA	4.6	Keplinger et al. 1968 [c]
4,4'-DDE	Subchronic (5 weeks) NOAEL	Rat	10	0.1	1	Kornburst et al. 1986 [c]
4,4'-DDT	Chronic (2 years)	Rat	0.8	NA	0.8	Fitzhugh 1948 [c]
Dieldrin	Chronic (> 1 year)	Rat	0.2	0.1	0.02	Treon and Cleveland 1955 [c]
Endrin Aldehyde [h]	Chronic (120 days)	Mouse	0.92	0.1	0.092	Good and Ware 1969 [c]
Heptachlor	Subchronic (60 days) LOAEL (mortality)	Rat	0.25	0.01	0.0025	Green 1970 [e]
Heptachlor Epoxide [i]	Subchronic (60 days) LOAEL (mortality)	Rat	0.25	0.01	0.0025	Green 1970 [f]
Inorganics						
Arsenic	Chronic (2 years) NOAEL	Dog	1.25	1.0	1.25	Byron et al. 1967 [e]
Barium	Chronic (16 months) NOAEL	Rat	0.51	1.0	0.51	Perry et al. 1983 [e]
Cadmium	Chronic (>150 days) LOAEL (reproduction)	Mouse	2.52	0.01	0.0252	Schroeder and Mitchner 1971 [e]
Chromium [j]	Chronic (1 year) NOAEL	Rat	3.5	1	3.5	Mackenzie et al. 1958 [e]

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
Lead	Chronic (>150 days) LOAEL (mortality)	Mouse	3.75	0.01	0.0375	Schroeder and Mitchner 1971 [e]
Mercury[k]	Subchronic (93 days) NOAEL	Rat	0.032	1.00	0.032	Verschuuren et al. 1976 [e]
Nitrate/Nitrite-N	Chronic (143-204 days)	Guinea pig	507	NA	507	Sleight and Atallah 1968 [c]
Selenium	Chronic (>150 days) LOAEL (mortality)	Mouse	0.76	0.10	0.076	Schroeder and Mitchner 1971 [e]
Silver	Chronic (125 days) LOAEL (Hyperactivitiy)	Mouse	3.75	0.10	0.375	Rungby and Danscher 1984 [e]
Mourning Dove						
VOCs						
m/p-Xylenes	NA	NA	NA	NA	NA	NA
PCBs						
PCB-1260[d]	Chronic (3 months) LOAEL (embryonic mortality)	Ring dove	0.72	0.1	0.072	Peakall et al. 1972 [e]
Pesticides						
alpha-BHC [f]	Chronic (90 days)	Japanese quail	0.563	NA	0.56	Vos et al. 1971 [c]
beta-BHC [f]	Chronic (90 days)	Japanese quail	0.563	NA	0.56	Vos et al. 1971 [c]
gamma-BHC (Lindane)	Chronic (8 weeks)	Mallard duck	20	0.1	2	Chakravarty and Lahiri 1986 [c]
alpha-Chlordane [g]	Chronic (84 days)	Red-winged blackbird	2.14	NA	2.14	Stickel et al. 1983 [c]
gamma-Chlordane [g]	Chronic (84 days)	Red-winged blackbird	2.14	NA	2.14	Stickel et al. 1983 [c]
4,4'-DDE	Acute (5 days) LOAEL (mortality)	Coturnix quail	85	0.01	0.845	Hill and Camardese 1986. Test data for 1,1'-DDE used as a surrogate for 4,4'-DDE [e]
4,4'-DDT	Chronic (5 years)	Brown pelican	0.028	0.1	0.0028	Anderson et al. 1975 [c]
Dieldrin	Chronic (2 years)	Barn owl	0.077	NA	0.077	Mendenhall et al. 1983 [c]
Endrin Aldehyde [h]	Chronic (>83 days)	Screech owl	0.1035	0.1	0.01	Fleming et al. 1982 [c]

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
Heptachlor	Acute (5 days) LOAEL (mortality)	Quail	7	0.01	0.065	Hill and Camardese 1986 [e]
Heptachlor Epoxide [i]	Acute (5 days) LOAEL (mortality)	Quail	7	0.01	0.065	Hill and Camardese 1986 [e]
Inorganics						
Arsenic	Chronic (7 months) NOAEL	Brown-headed cowbird	2.46	1.0	2.46	US Fish and Wildlife Service 1969 [e]
Barium	Subchronic (4 weeks) NOAEL	One-day-old chick	208.26	0.1	20.8	Johnson et al. 1960 [e]
Cadmium	Chronic (90 days) NOAEL	Mallard drake	1.45	NA	1.45	White and Finley 1978 [e]
Chromium [j]	Chronic (5 months) NOAEL	Black duck	1.0	NA	1.0	Haseltine et al. 1985. TRV based on trivalent chromium [e]
Lead	Acute (7 days) LOAEL (altered enzyme levels)	Ringed turtle dove	25	0.001	0.025	Kendall and Scanlon 1982 [e]
Mercury[k]	Chronic (3 generations) LOAEL (mortality)	Mallard	0.064	0.1	0.0064	Heinz 1979 [e]
Nitrate/Nitrite-N	NA	NA	NA	NA	NA	NA
Selenium	Chronic (78 days) NOAEL	Mallard	0.5	1.0	0.5	Heinz et al. 1987 [e]
Silver	Subchronic (14 days) NOAEL	Mallard	1,780	0.1	178	EPA 1997b [e]
Least Shrew						
VOCs						
m/p-Xylenes [b]	Chronic (reproduction)	Mouse	2.06	NA	2.1	Marks et al. 1982 [c]
PCBs						
PCB-1260 [d]	Subchronic (14.5 weeks) LOAEL mortality	Mink	0.0206	0.01	0.000206	Aulerich et al. 1985. TRV based on toxicity of 3,4,5-hexachlorobiphenyl [e]
Pesticides						
alpha-BHC [f]	Chronic (> 1 year)	Rat	1.6	NA	1.6	Grant et al. 1977 [c]

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
beta-BHC	Subchronic (3 weeks)	Rat	4	NA	0.4	Van Velsen et al. 1986 [c]
gamma-BHC (Lindane)	Chronic (> 1 year)	Rat	8	NA	8	Palmer et al. 1978 [c]
alpha-Chlordane [g]	Chronic (> 1 year)	Mouse	4.58	NA	4.6	Keplinger et al. 1968 [c]
gamma-Chlordane [g]	Chronic (> 1 year)	Mouse	4.58	NA	4.6	Keplinger et al. 1968 [c]
4,4'-DDE	Subchronic (5 weeks) NOAEL	Rat	10	0.1	1	Kornburst et al. 1986 [e]
4,4'-DDT	Chronic (2 years)	Rat	0.8	NA	0.8	Fitzhugh 1948 [c]
Dieldrin	Chronic (> 1 year)	Rat	0.2	0.1	0.02	Treon and Cleveland 1955 [c]
Endrin Aldehyde [h]	Chronic (120 days)	Mouse	0.92	0.1	0.092	Good and Ware 1969 [c]
Heptachlor	Subchronic (60 days) LOAEL (mortality)	Rat	0.25	0.01	0.0025	Green 1970 [e]
Heptachlor Epoxide [i]	Subchronic (60 days) LOAEL (mortality)	Rat	0.25	0.01	0.0025	Green 1970 [e]
<u>Inorganics</u>						
Arsenic	Chronic (2 years) NOAEL	Dog	1.25	1.0	1.25	Byron et al. 1967 [e]
Barium	Chronic (16 months) NOAEL	Rat	0.51	1.0	0.51	Perry et al. 1983 [e]
Cadmium	Chronic (>150 days) LOAEL (reproduction)	Mouse	2.52	0.01	0.0252	Schroeder and Mitchner 1971 [e]
Chromium [j]	Chronic (1 year) NOAEL	Rat	3.5	1	3.5	Mackenzie et al. 1958 [e]
Lead	Chronic (>150 days) LOAEL (mortality)	Mouse	3.75	0.01	0.0375	Schroeder and Mitchner 1971 [e]
Mercury [k]	Subchronic (93 days) NOAEL	Rat	0.032	1.00	0.032	Verschuuren et al. 1976 [e]
Nitrate/Nitrite-N	Chronic (143-204 days)	Guinea pig	507	NA	507	Sleight and Atallah 1968 [c]
Selenium	Chronic (>150 days) LOAEL (mortality)	Mouse	0.76	0.10	0.076	Schroeder and Mitchner 1971 [e]
Silver	Chronic (125 days) LOAEL (Hyperactivitiy)	Mouse	3.75	0.10	0.375	Rungby and Danscher 1984 [e]

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
Red-Tailed Hawk						
VOCs						
m/p-Xylenes	NA	NA	NA	NA	NA	NA
PCBs						
PCB-1260[d]	Chronic (3 months) LOAEL (embryonic mortality)	Ring dove	0.72	0.1	0.072	Peakall et al. 1972 [e]
Pesticides						
alpha-BHC [f]	Chronic (90 days)	Japanese quail	0.563	NA	0.56	Vos et al. 1971 [c]
beta-BHC [f]	Chronic (90 days)	Japanese quail	0.563	NA	0.56	Vos et al. 1971 [c]
gamma-BHC (Lindane)	Chronic (8 weeks)	Mallard duck	20	0.1	2	Chakravarty and Lahiri 1986 [c]
alpha-Chlordane [g]	Chronic (84 days)	Red-winged blackbird	2.14	NA	2.14	Stickel et al. 1983 [c]
gamma-Chlordane [g]	Chronic (84 days)	Red-winged blackbird	2.14	NA	2.14	Stickel et al. 1983 [c]
4,4'-DDE	Acute (5 days) LOAEL (mortality)	Coturnix quail	85	0.01	0.845	Hill and Camardese 1986. Test data for 1,1'-DDE used as a surrogate for 4,4'-DDE [e]
4,4'-DDT	Chronic (5 years)	Brown pelican	0.028	0.1	0.0028	Anderson et al. 1975 [c]
Dieldrin	Chronic (2 years)	Barn owl	0.077	NA	0.077	Mendenhall et al. 1983 [c]
Endrin Aldehyde [h]	Chronic (>83 days)	Screech owl	0.1035	0.1	0.01	Fleming et al. 1982 [c]
Heptachlor	Acute (5 days) LOAEL (mortality)	Quail	7	0.01	0.065	Hill and Camardese 1986 [e]
Heptachlor Epoxide [i]	Acute (5 days) LOAEL (mortality)	Quail	7	0.01	0.065	Hill and Camardese 1986 [e]
Inorganics						
Arsenic	Chronic (7 months) NOAEL	Brown-headed cowbird	2.46	1.0	2.46	US Fish and Wildlife Service 1969 [e]

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[a]	TRV (mg/kg BW-day)	Reference and Notes
Barium	Subchronic (4 weeks) NOAEL	One-day-old chick	208.26	0.1	20.8	Johnson et al. 1960 [e]
Cadmium	Chronic (90 days) NOAEL	Mallard drake	1.45	NA	1.45	White and Finley 1978 [e]
Chromium [j]	Chronic (5 months) NOAEL	Black duck	1.0	NA	1.0	Haseltine et al. 1985. TRV based on trivalent chromium [e]
Lead	Acute (7 days) LOAEL (altered enzyme levels)	Ringed turtle dove	25	0.001	0.025	Kendall and Scanlon 1982 [e]
Mercury [k]	Chronic (3 generations) LOAEL (mortality)	Mallard	0.064	0.1	0.0064	Heinz 1979 [e]
Nitrate/Nitrite-N	NA	NA	NA	NA	NA	NA
Selenium	Chronic (78 days) NOAEL	Mallard	0.5	1.0	0.5	Heinz et al. 1987 [e]
Silver	Subchronic (14 days) NOAEL	Mallard	1,780	0.1	178	EPA 1997b [e]

Notes:

(a) Uncertainty factors are used to extrapolate a chronic NOAEL value when one is not available in the toxicological literature. Uncertainty factors are designed to be protective by preventing underestimation of the chronic NOAEL value.

(b) Toxicity value derived for xylene (mixed isomers) was used as the TRV.

(c) As cited in Sample et al. 1996.

(d) Toxicity value for aroclor-1254 was used as a surrogate.

(e) As cited in NMED 2000d.

(f) Toxicity value derived for BHC (mixed isomers) was used as the TRV.

(g) Toxicity value derived for chlordane was used as the TRV.

(h) Toxicity value derived for endrin was used as a surrogate.

(i) Toxicity value derived for heptachlor was used as a surrogate.

(j) Toxicity value deried for hexavalent chromium was used as a surrogate.

(k) Toxicity value derived for methyl mercury was used as a surrogate.

BHC - hexachlorocyclohexane
COPEC - chemical of potential ecological concern
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
EPA - Environmental Protection Agency

Table C-58. Toxicity Study Information and Toxicity Reference Values for Upper Trophic Level Assessment Endpoints

COPEC	Duration and Endpoint	Test Organism	Dose (mg/kg BW-day)	Uncertainty Factor[(a)]	TRV (mg/kg BW-day)	Reference and Notes

LOAEL - lowest observed adverse effects level
mg/kg BW-day - milligrams per kilograms body weight per day
NA - not available
NOAEL - no observed adverse effects level
PCBs - polychlorinated biphenyls
TRV - toxicity reference value
VOCs - volatile organic chemicals

Table ES-2. Summary of Risk to Ecological Receptors at SWMU 101 [(a)]

COPEC	Terrestrial Invertebrates	Plants	Deer Mouse	Mourning Dove	Least Shrew	Red-Tailed Hawk
North Lagoon Soil						
Pesticides						
Heptachlor	NA	< 1	< 1	< 1	< 1	< 1
Inorganics						
Arsenic	21	5.3	< 1	< 1	< 1	< 1
Barium	NA	170	97	< 1	220	1.6
Cadmium	< 1	1.5	2.7	< 1	5.9	< 1
Chromium	96	1100	< 1	< 1	< 1	< 1
Lead	< 1	3.0	3.8	4.9	11	21
Nitrate/Nitrite	NA	NA	< 1	NA	< 1	NA
Selenium	< 1	26	< 1	3.5	2.2	< 1
North Lagoon Sludge						
VOCs						
m/p-Xylenes	NA	< 1	< 1	NA	< 1	NA
PCBs						
PCB-1260	< 1	< 1	480	< 1	1100	< 1
Pesticides						
alpha-BHC	NA	NA	1	< 1	2.3	< 1
beta-BHC	NA	NA	13	< 1	28	< 1
gamma-Chlordane	NA	NA	19	< 1	43	< 1
4,4'-DDE	NA	NA	< 1	< 1	< 1	< 1
4,4'-DDT	NA	NA	< 1	< 1	< 1	< 1
Dieldrin	NA	NA	810	< 1	1800	< 1
Endrin Aldehyde	NA	NA	11	< 1	25	< 1
Heptachlor Epoxide	NA	< 1	7.6	< 1	17	< 1
Inorganics						
Arsenic	21	5.3	< 1	< 1	< 1	< 1
Cadmium	< 1	25	46	< 1	100	< 1
Chromium	170	1900	< 1	< 1	< 1	1.3
Lead	< 1	18	23	30	66	130
Mercury	1.6	11	240	7.7	530	23
Nitrate/Nitrite-N	NA	NA	< 1	NA	< 1	NA
Selenium	1.3	200	6.9	< 1	17	< 1
Silver	NA	2700	10	< 1	19	< 1

Table ES-2. Summary of Risk to Ecological Receptors at SWMU 101 [(a)]

COPEC	Terrestrial Invertebrates	Plants	Deer Mouse	Mourning Dove	Least Shrew	Red-Tailed Hawk
South Lagoon Soil						
VOCs						
m/p-Xylenes	NA	< 1	< 1	NA	< 1	NA
Pesticides						
alpha-BHC	NA	NA	530	< 1	< 1	< 1
gamma-BHC (Lindane)	NA	NA	< 1	< 1	< 1	< 1
Heptachlor	NA	< 1	< 1	< 1	1	< 1
Inorganics						
Arsenic	28	7	< 1	< 1	< 1	< 1
Cadmium	< 1	5.4	10	< 1	22	< 1
Chromium	100	1100	< 1	< 1	< 1	< 1
Lead	< 1	2.2	2.8	3.6	8.1	15
Nitrate/Nitrite-N	NA	NA	< 1	NA	< 1	NA
South Lagoon Sludge						
Pesticides						
gamma-BHC (Lindane)	NA	NA	< 1	< 1	< 1	< 1
alpha-Chlordane	NA	NA	5.2	< 1	12	< 1
gamma-Chlordane	NA	NA	5.5	< 1	12	< 1
4,4'-DDE	NA	NA	< 1	< 1	< 1	< 1
Dieldrin	NA	NA	570	< 1	1300	< 1
Inorganics						
Arsenic	56	14	< 1	< 1	< 1	< 1
Barium	NA	190	110	< 1	230	1.7
Cadmium	1.3	64	120	< 1	260	< 1
Chromium	290	3200	< 1	< 1	< 1	2.2
Lead	1.1	23	29	38	85	160
Mercury	1.3	10	200	6.7	460	5.3
Nitrate/Nitrite-N	NA	NA	< 1	NA	< 1	NA
Selenium	4.3	660	23	< 1	55	< 1
Silver	NA	5300	19	< 1	37	< 1

Notes:
(a) Risk estimates are represented to two significant figures.

BHC - hexachlorocyclohexane
COPEC - chemical of potential ecological concern
DDE - dichlorodiphenyldichloroethylene

Table ES-2. Summary of Risk to Ecological Receptors at SWMU 101 [(a)]

COPEC	Terrestrial Invertebrates	Plants	Deer Mouse	Mourning Dove	Least Shrew	Red-Tailed Hawk

DDT - dichlorodiphenyltrichloroethane
NA - not available; risk was not quantitatively evaluated due to lack of toxicity value
PCB - polychlorinated biphenyl
VOC - volatile organic chemical

Table C-82. Risk Calculations for the Red-Tailed Hawk from Sludge at South Lagoon

COPEC	Estimated Exposure Level (mg/kg DW-day)	TRV (mg/kg DW-day)	ESQ (unitless)
Pesticides			
gamma-BHC (Lindane)	0.00070	2	0.00035
alpha-Chlordane	0.095	2.14	0.044
gamma-Chlordane	0.10	2.14	0.047
4,4'-DDE	0.0010	0.845	0.0012
Dieldrin	0.0046	0.077	0.059
Inorganics			
Arsenic	0.53	2.46	0.21
Barium	35	20.8	1.7
Cadmium	0.13	1.45	0.088
Chromium	2.2	1.0	2.2
Lead	4.1	0.025	160
Mercury	0.034	0.0064	5.3
Nitrate/Nitrite-N	121	NA	NA
Selenium	0.34	0.5	0.68
Silver	4.1	178	0.023
		CESQ =	170

Notes:
BHC - hexachlorocyclohexane
CESQ - cumulative ecological screening quotient
COPEC - chemical of potential ecological concern
DDE - dichlorodiphenyldichloroethylene
ESQ - ecological screening quotient
mg/kg DW-day - milligrams per kilogram dry weight per day
NA - not available
TRV - toxicity reference value

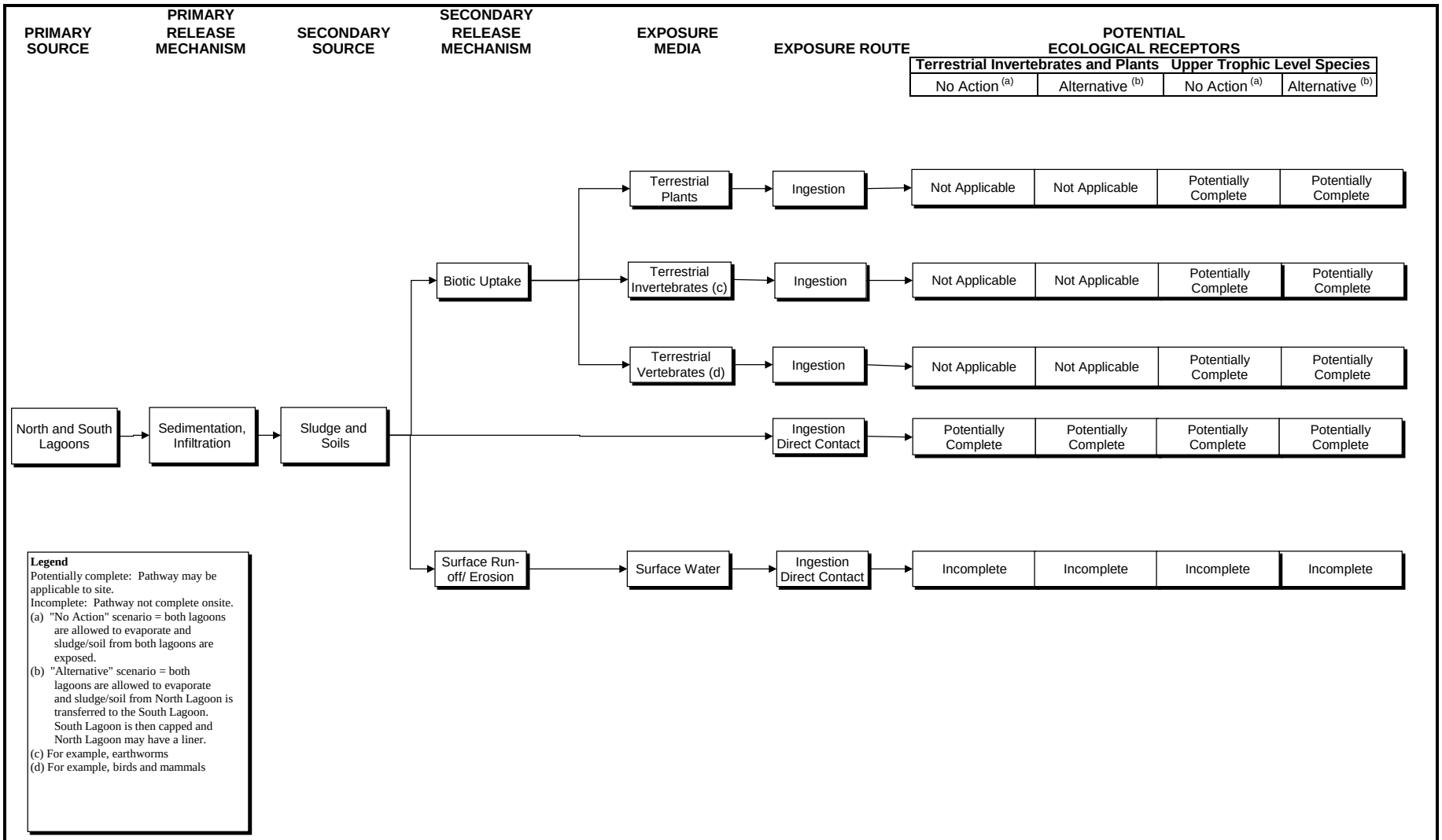


Figure C-5. Ecological Site Conceptual Model for SWMU 101

Table C-34. Exposure Factors for Ecological Receptors Evaluated at the North and South Lagoons

Measurement Endpoints	Class/Order	Feeding Guild	Body Weight (kg)	Daily Ingestion Rate for Food (kg WW/ kg BW-day)	Soil/Sludge Ingestion Rate (kg DW/ kg BW-day)	Fraction of Diet Consisting of Food Item	Exposure Area [a]
Deer Mouse (*Peromyscus maniculatus*)	Mammalia/ Rodentia	Herbivorous mammal	0.0148 [b]	0.599 [c]	0.00144 [d]	0.62 terrestrial plants 0.38 terrestrial invertebrates [e]	100%
Mourning Dove *(Zenaida macroura)*	Aves/ Columbiformes	Herbivorous bird	0.15 [f]	0.349 [g]	0.00701 [h]	1.0 terrestrial plants (grains and seeds primarily) [i]	100%
Least Shrew (*Cryptotis parva*)	Mammalia/ Insectivora	Insectivorous mammal	0.004 [j]	0.62 [k]	0.0136 [h]	0.83 terrestrial invertebrates 0.17 terrestrial plants [l]	100%
Red-Tailed Hawk *(Buteo jamaicensis)*	Aves/ Falconiformes	Carnivorous bird	0.96 [b]	0.185 [g]	0.00995 [m]	0.85 small mammals 0.15 small birds [n]	100%

Notes:

(a) The exposure area is assumed to be equal to the area of the lagoon.

(b) EPA 1993

(c) Food ingestion rate generated using the following allometric equation for rodents: IR (g/day) = 0.621 wt $^{0.564}$ (EPA 1993; Nagy 1987; as cited in NMED 2000d).

(d) Percent soil in diet reported for the white-footed mouse is used as a surrogate value (Beyer et al. 1994; as cited in NMED 2000d).

(e) Extrapolated from a study of the dietary composition of deer mice in a short grass prairie habitat in Colorado (Flake 1973; as cited in EPA 1993).

(f) The body weight for the northern bobwhite is used as a surrogate (EPA 1993; as cited in NMED 2000d).

(g) Food ingestion rate generated using the following allometric equation for all birds: IR (g/day) = 0.648 wt $^{0.651}$ (EPA 1993; Nagy 1987; as cited in NMED 2000d).

(h) Percent soil in diet is assumed as 10.0 percent of diet based on range presented in Beyer et al. (1994) (as cited in NMED 2000d).

(i) NMED 2000d

(j) National Audubon Society 1995 (as cited in NMED 2000d)

(k) Allometric equations reported in EPA (1993) do not represent intake rates for shrews; therefore, measured field values are presented (as cited in NMED 2000d).

(l) Extrapolated from a study of the dietary composition of the short-tailed shrew in the eastern United States (Hamilton 1941; as cited in EPA 1993).

(m) Percent soil in diet reported for the bald eagle is used as a surrogate value (Beyer et al. 1994; as cited in NMED 2000d).

(n) Extrapolated from study of the dietary composition of the red-tailed hawk in a foothills habitat in California (Fitch et al. 1946; as cited in EPA 1993).

g/day - grams per day
IR - ingestion rate
kg DW/kg BW-day - kilograms dry weight per kilograms body weight per day
kg WW/kg BW-day - kilograms wet weight per kilograms body weight per day
kg - kilograms
NMED - New Mexico Environment Department
EPA – U. S. Environmental Protection Agency
wt - weight

DIELDRIN

Dieldrin is 1,2,3,4,10,10-hexachloro-6,7,-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo-1,4- exo-5,8-dimethanonaphthalene. The common name, "dieldrin," generally refers to the technical grade product (not less than 80.75 percent dieldrin). Dieldrin is no longer produced in the United States and has not been imported since 1985. Its insecticidal properties first became known in 1949. The only registered uses of dieldrin are subsurface ground insertion for termite control, dipping of non-food plant roots and tops, and moth-proofing in closed systems during manufacturing. According to the EPA, the latter two uses have been voluntarily cancelled (ATSDR 1987).

TOXICOKINETICS

Dieldrin is absorbed via the gastrointestinal tract at a relatively slow rate (Tanaka *et al*. 1981). Dieldrin is toxic when applied to the skin, indicating that dermal absorption may significant (Smith 1991). In humans, about eight percent of a dermal dose of dieldrin is absorbed over a five-day period (ATSDR 1987). Human volunteers exposed to concentrations of 1.31 micrograms per cubic meter ($\mu g/m^3$) dieldrin absorbed and retained approximately 20 to 50 percent of the inhaled dieldrin (ATSDR 1987).

Following absorption, dieldrin has been detected in all tissues, although it is preferentially stored in adipose tissue. Dieldrin bioconcentrates, and levels in human adipose tissue of human volunteers ingesting 211 µg dieldrin per day for 24 months were 136 times greater than levels in blood of the same volunteers (Geyer *et al*. 1986). In mammals, dieldrin is metabolized primarily in the liver, the primary metabolite being the 9-hydroxy derivative of dieldrin. The primary route of excretion is the feces via the bile. Urinary excretion is minor in mammals (ATSDR 1987).

TOXICITY

Non-Carcinogenic Effects

The nervous system is the primary and most sensitive endpoint for acute effects of dieldrin poisoning. Dieldrin binds to the receptor for g-aminobutyric acid at the nerve synapse (Matsumura and Ghiasudden 1983). The resulting overstimulation of the synapses of the central nervous system during acute exposure may result in cardiac and pulmonary arrest (ATSDR 1987).

Intermediate-term exposure has resulted in immunosuppression in mice fed levels as low as 1 part per million (ppm), although this effect has not been studied in other species (Loose, 1982). Chronic exposure can result in nervous system effects if the daily exposure exceeds the rate of excretion. Symptoms of dieldrin toxicity include headache, dizziness, anorexia, and muscle twitching. Increased liver-to-body-weight ratios have been observed in animal studies. For example, rats have exhibited this effect after exposure for three months at levels exceeding 1 ppm (ATSDR 1987). Exposure to dieldrin has not been shown to have an effect on other organ systems.

The oral reference dose (RFD) for dieldrin is 5×10^{-5} milligrams per kilogram per day (mg/kg-d), based on a no observable adverse effect level (NOAEL) of 0.005 mg/kg-d. The two-year rat liver lesion study which led to this RFD had an uncertainty factor of 100 (10 for animal to human extrapolation, 10 to adjust for sensitive human populations), and a modifying factor of 1.

Carcinogenicity

Dieldrin has been extensively investigated for mutagenic potential in a variety of tests, including the Ames Salmonella assay, the *Escherichia coli* gene mutation assay, the mouse dominant lethal assay, and unscheduled DNA synthesis (ATSDR 1987). No significant positive finding was found in any of these tests. Aldrin, which is similar in structure to dieldrin, is carcinogenic in mice and causes an increase in hepatocellular tumors (ATSDR 1987). This effect was not seen in rats or hamsters. A dose-related increase in liver tumors has been observed in mice fed dietary levels of 1.25 ppm or greater (Walker *et al*. 1972). The mechanism of action is not known, but there is some evidence which suggests that dieldrin inhibits intercellular communication (Zhong-Xiang *et al*. 1986).

Dieldrin has been classified as a Group B2 carcinogen, or probable human carcinogen, by the USEPA. This classification is based upon evidence of carcinogenicity in seven strains of mice orally exposed to dieldrin, and evidence of tumor development in rates from other structurally related compounds. The oral and inhalation cancer slope factor from liver carcinoma data is 16 $(mg/kg\text{-}d)^{-1}$ and the drinking water unit risk is 4.6×10^{-4} per microgram per liter ($^{-1}$ (µg/L) USEPA 2000). There is no epidemiological evidence that exposure to dieldrin is associated with an increased cancer risk in humans.

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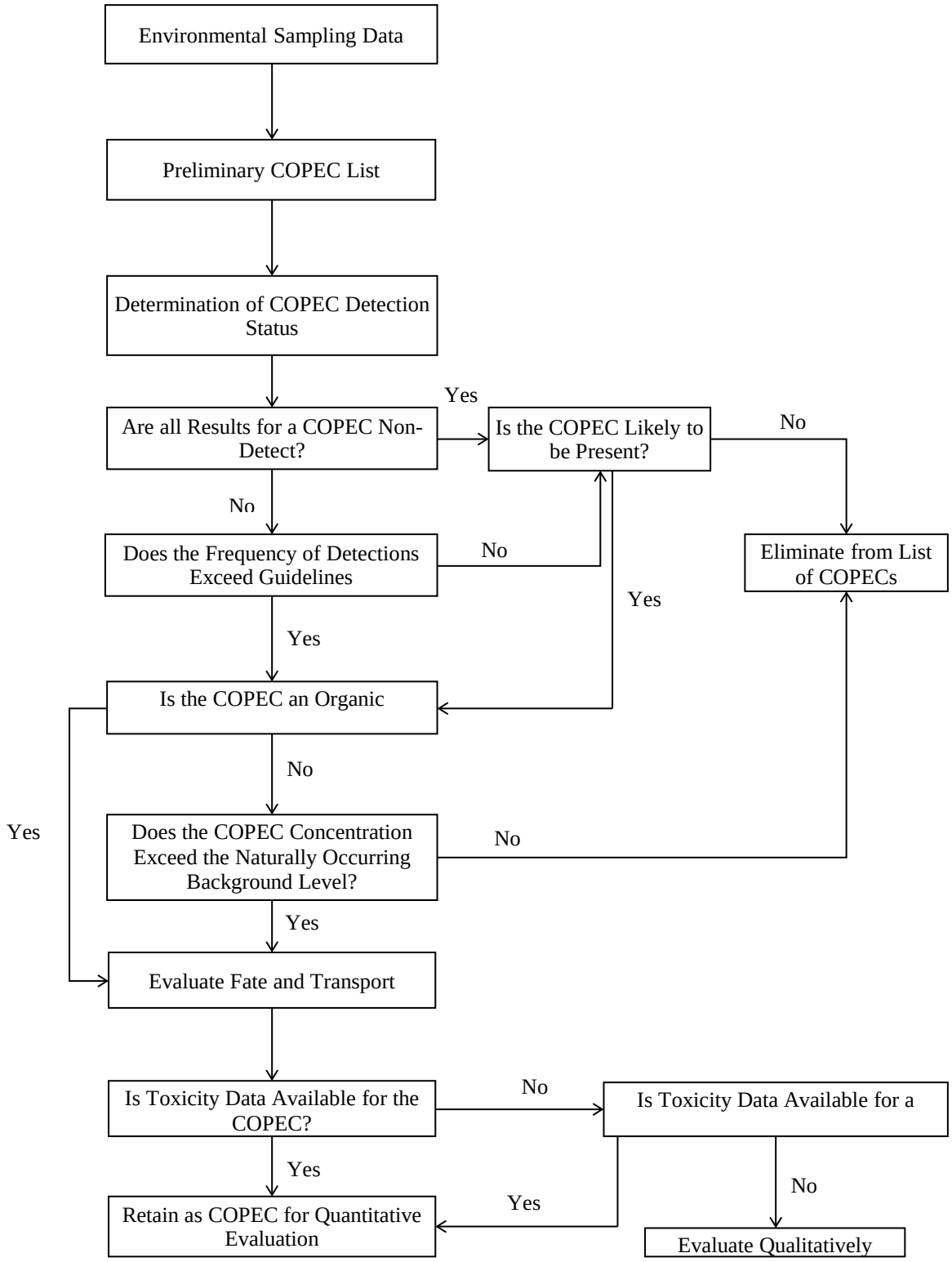

Figure C-2. COPEC Selection Process

CANNON AIR FORCE BASE, NEW MEXICO

Comment Resolution
Final Corrective Measures Study Report for SWMU 101—Sewage Lagoons

No.	Sec./Page	Comment	Response
Reviewer: Sanford Hutsell, Cannon AFB Environmental Flight			
1	ES-1	Delete reference to CERCLA and IRP site. Sites only qualify for CERCLA if they were taken out of service prior to 1983.	The text has been deleted as requested.
2	Pg. 11-1	Again delete reference to CERCLA.	The text has been deleted as requested.
3	Appendix C Pg. 4	Fill in blanks in references to figures and sections.	The text has been revised as requested.
4	Appendix C Pg. 9	Again, fill in blank in reference to section.	The text has been revised as requested
Reviewer: Brad Jones, USACE Project Geotechnical Engineer			
1	6-7	1st Para., 3rd Sent: Replace “cement” with “concrete”	The text has been revised as requested.
2	Figure 6-1	I don’t understand the logic of placing a 3-foot soil/bentonite liner beneath north lagoon when all sludge and the upper 1-foot of native soil will be removed.	The soil/bentonite liner was included in the design as a barrier to infiltration of stormwater contained in the basin. It has since been determined that removal of the upper 1 foot of soil from the bottom of the lagoon will be adequate to prevent contamination of the groundwater by infiltration of nitrates from contaminated soils.
3	Figure 6-1	I don’t understand the logic of placing no bottom liner beneath south lagoon where sludge from both south and north lagoons will be contained.	Closure requirements for the south lagoon require that we cover the lagoon with an infiltration layer that has a permeability of less than that of the lagoon bottom. This infiltration layer will inhibit the infiltration of water into the sludge layer and through to the subgrade and groundwater.
4	Appendix A HTRW Logs	Drilling logs should show depth of sludge and sludge/soil interface. Field soil classifications on logs correlate poorly with laboratory classifications in Appendix titled “Geotechnical Data”.	The sludge thickness will be indicated at the top of each drilling log. This information was added to the text in Section 3.2.1 The poor correlation between field and laboratory soil classifications is a consequence of the heterogeneous nature of the soils at the site. This description of heterogeneity will be

No.	Sec./Page	Comment	Response
			added to the text in Section 3.4.2 A notation was added to the boring logs explaining that the geotechnical laboratory had a different classification for the particular sample.
5	Appendix A Geotech. Data	Significant discrepancies exist in test duration for measuring hydraulic conductivity with exception of SB-10 @ 0-30" (e.g., SB-07 @ 30-60"). This raises the concern that steady-state conditions were not achieved (a plot of hydraulic conductivity vs. time would be helpful) or different soil material was used for "runs 1 and 2" from each test.	Based on conversations from the geotechnical laboratory, the difference in test run times and the difference in sample-specific conductivity values between tests is most likely attributed to a difference in lithologies within the undisturbed sample sent to the laboratory which would effect the rate of saturation required to achieve steady-state conditions.
Reviewer: Carl Nardin, USACE Project Geologist			
1	2.2/2-2	In 1992, the sludge was ~2 feet thick and the water depth ranged from 3.4 to 4.5 feet- so what are the conditions now?	The text has been revised to reflect current conditions.
2	3.2/3-1	Note that the sampling was in accordance to the work plan. (Deviations from the work plan, if any, should be discussed here.)	The text has been revised as requested. There were no deviations from the work plan.
3	3.2/3-2	State the diameter of borehole and the size (I.D.) of the hollow stem augers.	The text has been revised as requested.
4	3.2.1/3-2	Clarify if the headspace readings are relative to background. Was the background levels recorded?	The headspace readings relative to background were recorded. The text has been revised as requested. No, the background levels were not recorded.
5	3.3/3-3	2nd Para: The borehole cuttings could not be "currently remaining in place" (with respect to the borehole?) or they would not be soil cuttings. Change the phrase to "stockpiled".	The text has been revised as requested.
6	6.1.2.3/6-3	Native plants used for vegetative cover have been used loosely in this and other sections. a) What native plants will be able to fulfill the requirements to withstand drought and extreme temperatures, root depth, density, maintenance, and longevity? b) Are these requirements achievable? c) What is density in regards to vegetative cover?	This comment will be addressed in detail during the design phase of the CMD/CMI.

No.	Sec./Page	Comment	Response
7	Table 7-1/ 7-1	From previous discussions, are not the sewage lagoons dry at this time? Clarify the dewatering operations.	The sludge in the lagoons does not have any freestanding water on its surface at this time. However, the sludge was described in May 2000 as having a thick black crust over wet sludge. underneath. The sludge lagoons will not need to be dewatered in the sense that freestanding water will need to be removed. The term "Dewatering operations" was used in Table 7-1 of the draft CMS to refer to further drying and aeration of the sludge by means of tilling with and auger or harrow type machinery. The purpose of this step in the dewatering process is to eliminate the crust that has formed on the sludge surface and allow for uniform drying and limit anaerobic activity. The drier sludge will be more readily compacted and form a more stable base for the south lagoon final cover. The process will be referred to as the "Aeration and Tilling Operations" instead of "Dewatering Operations".
8	General	All forms (logs, C-O-C forms, DQCRs, etc.) need to be signed legibly.	The name of the geologist has been printed on the drilling logs. In the future we will both print and sign names on the forms.
The following comments are in reference to all HTRW Drilling Logs			
9	Block 6	Add the manufacturer's designation of the drill rig.	The drill rig manufacturer has been added to the drilling logs.
10	Block 12	The overburden thickness is the same as the total depth of the hole if bedrock is not encountered.	The overburden thickness has been added to each boring log.
11	Block 23	This block shall have the name of the inspector (or geologist/engineer).	The name has been added to each log.

No.	Sec./Page	Comment	Response
12	Column H-REMARKS	Note the drill section action (i.e. hard, cemented, sandstone vs soft clay)	In the future this type of information will be included in the Remarks Column.
13		Use dash lines if the material being logged is inferred (i.e. logged from cuttings or drill action) and a solid line if visually observed (i.e. from split spoon samples or cores).	All of the boreholes were logged from split spoon samples. Therefore, the entire core was visually observed and the lines are solid.
14		Note in the REMARKS method how the borehole is being logged – i.e. from cuttings or samples.	All of the boreholes were logged from soil core contained in split spoon samplers. The logs have been revised accordingly.
15		The USCS symbol should be listed in Column C – not Column H "REMARKS".	The logs have been revised as requested.
16		It would be helpful if the soil type (i.e. sand, clay, sandy silt, etc.) was underlined to make it stand out.	The logs have been revised as requested.
17		There are some intervals without a USCS symbol. It appears there is a dilemma with the logger to designate a soil type when encountering materials that are a possible SP, SW, or CL/ML soil types. Consult the classification charts of ASTM D2488 (These should be on-site with the geologist.) Dual classifications are acceptable (i.e. CL/ML, SP/SW, SP/GC, etc.)	A USCS symbol has been assigned to each interval.
18		Note on the log the sample intervals for analytical/geotechnical samples and headspace readings.	The sample intervals have been added to the drilling logs.
19		It appears from the lack of description that the soil cuttings were not checked for $CaCO_3$ with dilute HCL. The presence of $CaCO_3$ shall be noted on the boring logs.	HCL was not used to check for $CaCO_3$. This will be added to our field procedures. $CaCO_3$ was not specifically noted but caliche was observed and noted in the logs.

Reviewer: Paula Peters, USACE Project Chemist			
1	ES-2	Human Health and Screening-Level Ecological Risk Assessments – State why only two corrective action alternatives were evaluated in the HHRA and SLERA even though three alternatives were considered during the focused CMS.	The Executive summary has been revised as requested.

CANNON AIR FORCE BASE, NEW MEXICO

Comment Resolution
Final Corrective Measures Study Report for SWMU 101—Sewage Lagoons

No.	Sec./Page	Comment	Response
2	ES-5	Corrective Action Alternative Screening, 3rd Para. - This paragraph is about Alternative 3, In-situ Bioremediation through Composting. The second sentence, it states that the risk assessment indicated several metals as COCs for ecological risk. However, as the above comments notes, the SLERA did not include an evaluation of the bioremediation alternative. Please resolve this discrepancy.	The Executive summary has been revised as requested.
3	3.2.1/3-2	Chemical Sampling: a. State the depth of the sludge samples. b. The sludge samples were not analyzed for TOC, only the soil samples. However, this bulleted analyses indicate that those analyses were performed on both sludge and soil samples. c. Section 3.4.1 states that TCLP for VOCs, Pesticides and Metals were analyzed on sludge samples. However, Section 3.2.1 does not state this. d. State if any duplicate samples or QA splits were taken.	a. Sludge thicknesses were added to the text in Section 3.2.1 and to the drilling logs. b. Comment noted. Text has been revised accordingly. c. The sludge TCLP analyses will be added to the bullets in Section 3.2.1. d. Three field duplicate and three QA replicate samples were collected. The results are presented in Appendix A, Section 1.3, and Table A-1.
4	3.4.1/3-4	This paragraph states that sludge samples were also analyzed for VCLP VOCs, pesticides and metals. However these analyses are not shown on pg. 3-2 Section 3.2.1. Please correct the discrepancy.	The text has been revised as requested.
5	3.4.1/3-4	The presentation of chemical analyses is a little confusing as written. Recommend discussion of sludge results and then discussion of soil results, both in separate paragraphs.	For clarity, the sludge and soil results are discussed in separate sections.
6	3.4.1/3-5	Summary Para: State the results of the TCLP analyses that were performed on sludge. The second sentence in paragraph 5.1 references the TCLP results but I could not find this information discussed anywhere else in the document.	The results of the TCLP analyses are presented in a new table, Table 3-2. Additional text describing the TCLP results has been included in the text.
7	3.6/3-6	Another name for lindane is gamma-BHC. Table 3-2 uses gamma-BHC, but not lindane. Please be consistent.	The text has been revised for consistency.
8	Pg. 3-8	Clarify that according to the model, only nitrate reached the groundwater.	The text has been revised as requested.

No.	Sec./Page	Comment	Response
9	Table 3-2	a. Include units (ug/kg) for the range of concentrations. b. Be consistent on the usage of gamma-BHC or lindane. c. When both the sludge and soil boxes ad marked for any given analyte, it becomes difficult to know if the sludge or soil contained the detections for that chemical. It may be easiest to make two tables; one for sludge and one for soil.	a. The appropriate units will be shown. b. The text has been clarified as requested. c. For clarification, Table 3-1, which represented soil and sludge data has been divided into two tables to show soil and sludge separately. This division should make interpreting the summary table, Table 3-2 (now Table 3-3), easier for the reader.
10	4.0/4-1	Indicate why the third alternative, Composting, was not evaluated in the HHRA and SLERA.	The text has been revised as requested.
11	Appendix A DQCRs	It would be useful to include the names of personnel that are shown on the table on 1. Contract/Subcontractors and Area of Responsibility.	A new table, A-2, listing names and responsibilities of field personnel was added to the Data Quality Control Reports Section.

FINAL
CORRECTIVE MEASURES STUDY REPORT
SWMU 101—SEWAGE LAGOONS

CANNON AIR FORCE BASE, NEW MEXICO

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U.S. Army Corps of Engineers
Omaha District
Omaha, Nebraska

October 2000

Project Number: CZQZ979361Z1

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LIST OF ACRONYMS

AFB	Air Force Base
Air Force	U.S. Air Force
ARAR	Applicable or Relevant and Appropriate Requirement
asl	above sea level
ASTM	American Society for Testing Materials
BHC	benzene hexachloride
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESQ	cumulative ecological screening quotients
CFR	Code of Federal Regulation
cm/sec	centimeters per second
CMD	Corrective Measures Design
CMS	Corrective Measures Study
COC	contaminant of concern
COPC	chemicals of potential concern
COPEC	chemicals of potential ecological concern
CSF	cancer slope factor
cu yd	cubic yard
ELCR	excess lifetime cancer risk
EEL	estimated exposure level
EPA	U.S. Environmental Protection Agency
ESQ	ecological screening quotient
Foster Wheeler	Foster Wheeler Environmental Corporation
ft	feet
H_2S	hydrogen sulfide
HHRA	human health risk assessment
HHSL	human health screening level
HI	hazard index
HQ	hazard quotient
in	inches
mg/kg	milligram per kilogram
mL	milliliter
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NOAEL	no-observed-adverse-effects-level
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyls
Permit	Hazardous Waste Facility Permit
POTW	Publicly own treatment works
PPE	personal protective equipment
ppm	parts per million

RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RFI	RCRA Facility Investigation
SESOIL	Seasonal Soil Compartment Model
SLERA	screening-level environmental risk assessment
SPCC	Spill Prevention Countermeasures and Control
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TCLP	toxicity characteristic leaching procedure
TOC	total organic compound
TRV	toxicity reference value
TS	total solid
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
VOC	volatile organic compound

1.0 INTRODUCTION

This document describes the Corrective Measures Study (CMS) conducted for Solid Waste Management Unit (SWMU) 101, the Sewage Lagoons, at Cannon Air Force Base (AFB), New Mexico. The CMS is a voluntary program aimed at achieving closure of the Sewage Lagoons, which were active from 1966 through 1998. This CMS report complies with the requirements outlined in the Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (EPA, 1994).

Foster Wheeler Environmental Corporation (Foster Wheeler) conducted the CMS for the U.S. Army Corps of Engineers (USACE) under the Total Environmental Restoration Contract No. DACW-45-94-D0003, Delivery Order 25, Work Authorization Directive 1.

The CMS report provides information on:

- Site background and previous studies
- Methodology and technical approach for the evaluation of site-specific risk
- Overview of corrective action alternatives
- Field investigation sampling program for characterization of lagoon sludge and soil
- Project-specific quality assurance and quality control protocol
- Regulatory compliance.

All field activities were performed in accordance with the Basewide Health and Safety Plan, the site-specific Site Safety and Health Plan Addendum (Appendix B [Foster Wheeler, 1999]), and USACE health and safety requirements.

1.1 PURPOSE OF THE CORRECTIVE MEASURES STUDY

The purpose of the CMS for this site was to identify and evaluate potential corrective action alternatives to prevent future impact to human health and the environment. This CMS is of a focused nature such that preliminary work was completed in 1998 to support the use of sludge consolidation and covering the containment area with soil to achieve site closure (E&E, 1998). Corrective action alternatives appropriate for the Sewage Lagoons should provide containment of any residual contamination present at the site and source control. Human health and

ecological risk assessments were conducted as part of the CMS in order to determine the level at which containment and source control is required at the site.

Existing information was available to support the risk assessment and the focused evaluation of corrective action alternatives to be considered in the CMS. However, additional data were required to support the CMS and preliminary remedial design work including collection of analytical and geotechnical data to support the characterization of sludge and native soil beneath the lagoons. An ecological survey of the area was also conducted to support the risk assessment.

1.2 REGULATORY FRAMEWORK

The New Mexico Environment Department (NMED) is authorized by the U.S. Environmental Protection Agency (EPA) to implement the federal RCRA hazardous waste program and oversee the RCRA corrective action program activities conducted in accordance with Cannon AFB's Hazardous Waste Facility Permit (Permit). The NMED issued a RCRA Permit to Cannon AFB on December 17, 1989. Cannon AFB recently submitted an application to the NMED for renewal of the Permit; however, the Permit has not yet been reissued and until such time the Permit is renewed, the Base is operating under the provisions of the 1989 Permit. Cannon AFB's recently submitted Draft RCRA Part B Permit Application (Operations Plan), dated July 1999, refers to the status of various assessment, investigation and remediation projects for a number of SWMUs on the Base. SWMU 101 (the Sewage Lagoons) is currently at the CMS stage of the RCRA Corrective Action process.

The Base's intent is to proceed with the RCRA corrective action process until the sewage lagoons are closed and no further action is required. As allowed under the RCRA corrective action process, cleanup levels that are protective of human health and the environment were determined using site-specific risk considerations. Nevertheless, since SWMU 101 involves residual "domestic" sludge from a sewage treatment plant and consists of unlined "lagoons" (surface impoundments) that may have received limited quantities of industrial wastes, the base evaluated the applicability of other regulatory programs to the site remediation and closure process. A summary of the two regulatory programs that were evaluated and their applicability to SWMU 101 is provided below:

Title 40 Code of Federal Regulation (CFR), Part 265—Closure and Post-closure for Surface Impoundments - this Part applies to non-permitted RCRA hazardous waste surface impoundments and provides standards for closure. These requirements include removing or decontaminating all waste residues and contaminated subsoils, and post-closure care for a landfill (e.g., eliminate free liquids, stabilize wastes, apply cover, promote drainage and minimize erosion, reduce permeability, maintain integrity and effectiveness of final cover, maintain and monitor leak detection system, maintain and monitor groundwater monitoring system, and prevent run-on and run-off). These regulations do not apply to the sewage lagoons since these units were not intended or used as surface impoundments for hazardous waste, but instead received primarily domestic sewage sludges, which are not a hazardous waste.

Title 40 CFR, Part 503—Standards for the Use or Disposal of Sewage Sludge - this part establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a treatment works. Standards are included in this part for sewage sludge applied to land and placed on surface disposal sites. Also included are pathogen and alternative vector attraction reduction requirements for sludge applied to land or placed on a surface disposal site. This part applies to any person who prepares sludge, applies sludge to the land, and to the owner of a sludge disposal site. It also applies to sludge applied to land and placed on a surface disposal site. These regulations are intended more for disposition of sewage sludge from an existing and operating publicly owned treatment works (POTW) and do not really apply to a former sludge drying bed. Also, since the sewage treatment plant was considered a federally owned treatment works and did not have an National Pollutant Discharge Elimination System (NPDES) Permit for discharge, it does not qualify for the same status as that of a POTW regulated under 40 CFR, Part 503.

1.3 DOCUMENT ORGANIZATION

The work plan consists of the following information necessary to conduct the CMS for SWMU 101:

- Section 1.0 – Introduction
- Section 2.0 – Background
- Section 3.0 – CMS Field Program and Data Evaluation
- Section 4.0 – Human Health and Screening-Level Ecological Risk Assessments
- Section 5.0 – Corrective Action Objectives and Selection Criteria

- Section 6.0 – Technology Screening and Corrective Measures Development
- Section 7.0 – Evaluation of Final Corrective Action Alternatives
- Section 8.0 – Applicable Regulations and Guidance
- Section 9.0 – Public Involvement Plan
- Section 10.0 – Project Schedule
- Section 11.0 – Conclusions
- Section 12.0 – References
- Appendix A – CMS Field Information and Data
- Appendix B – Summary of Previous Investigations
- Appendix C – Human Health and Screening-Level Ecological Risk Assessments
- Appendix D – Contaminant Fate and Transport Modeling

A summary of site background information for SWMU 101 is presented in Section 2.0. A discussion of the CMS field program is described in Section 3.0 and includes information on the construction activities supporting the field sampling and analysis. A summary of the human health and ecological risk assessments is presented in Section 4.0.

Sections 5.0, 6.0, and 7.0 present the corrective action objectives, screening of alternatives based on the objectives, and an evaluation of the final alternative. Section 7.0 also includes the detailed cost estimate for the selected corrective action. Section 8.0 presents information on regulatory compliance, waste management, and Applicable or Relevant and Appropriate Requirement (ARARs). A brief summary of the public involvement process is presented in Section 9.0. The project schedule is in Section 10.0. The conclusions of the CMS presented in Section 11.0 and references are in Section 12.0.

Supplemental field program information, including boring logs and the analytical and geotechnical data are presented in Appendix A. A summary of previous investigations is in Appendix B and the human health and ecological risk assessments are in Appendix C. The

details of the fate and transport modeling conducted to support the CMS are presented in Appendix D.

2.0 BACKGROUND

A description of Cannon AFB and brief summaries of SWMU 101 including site description, history, geology, and hydrogeology are provided below. The site history and detailed descriptions of previous site activities are in previous investigation reports and work plans (Woodward-Clyde, 1992; E&E, 1998; Foster Wheeler, 1999).

2.1 CANNON AFB DESCRIPTION AND HISTORY

Cannon AFB occupies approximately 4,000 acres south of U.S. Highway 60/84 in Curry County, New Mexico. The base is situated 6 miles west of the city of Clovis, near the New Mexico–Texas border (Figure 2-1). The area surrounding Cannon AFB is used mainly for farming and ranching. Cannon AFB also maintains several satellite facilities.

In 1942, the Department of Defense established the Clovis Army Air Base, a training facility for B-17, B-24, and B-29 aircrews. The base was renamed Clovis Army Airfield in 1945 and eventually closed in 1947. Reactivated in 1951, it was reassigned to the Tactical Air Command; in 1957 it was renamed Cannon AFB. In 1975, the 27th Tactical Fighter Wing became the principal Air Force unit at Cannon AFB. In 1992, it was reassigned to the Air Combat Command and currently maintains a combat-ready force and provides replacement training of combat aircrews for tactical organizations worldwide.

2.2 DESCRIPTION AND HISTORY OF SWMU 101

The Sewage Lagoons were identified as SWMU 101 in the Cannon AFB Hazardous Waste Permit dated November 14, 1989. The Sewage Lagoons consist of two unlined surface impoundments that were used from 1966 to 1998 and received combined sanitary and industrial waste from base facilities. The lagoons operated in series and have a combined surface area of approximately 33 acres (Figure 2-2). The lagoons were constructed with unlined earthen bottoms and concrete-lined banks. When the new wastewater treatment plant began operation in 1998, wastewater was no longer discharged to the lagoons.

In 1992, SWMU 101 was investigated during the Appendix I RCRA Facility Investigation (RFI). RFI information indicated that the sludge depth was approximately 2 feet (ft) and the average

water depth ranged from 3.5 to 4.5 ft (Woodward-Clyde, 1992; E&E, 1998). As of May 2000, Foster Wheeler personnel noted that there was no freestanding water in the lagoons. At the time of the RFI, SWMU 101 was not included in the Cannon AFB RCRA Part B Permit. The regulatory requirement for this unit was resolved by Cannon AFB, the EPA, and the NMED. As a result of the RFI, the only recommendation for the Sewage Lagoons was to continue annual groundwater monitoring for volatile organic compounds (VOCs), metals, pesticides, nitrate, sulfate, and total dissolved solids. According to the RFI report, a recommendation was made for an interim monitoring program to support site closure until the regulatory framework was resolved. Groundwater monitoring is conducted annually at the Sewage Lagoons to comply with the RCRA requirements.

Appendix B presents a summary of the previous investigations conducted at the Sewage Lagoons, including a detailed description of the geology and hydrogeology of Cannon AFB. A discussion of the nature and extent of contamination is also provided to illustrate a basis for the risk assessment and evaluation of corrective action alternatives.

3.0 CMS FIELD PROGRAM AND DATA EVALUATION

The CMS included a field investigation designed to collect the additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons. Roads were constructed to gain access to the lagoons and sludge. Soil sampling was conducted with a hollow-stem auger drilling rig. The field investigation and sample collection were conducted in accordance with the CMS Work Plan (Foster Wheeler, 1999). This section provides an explanation for each field activity.

The CMS field investigation was conducted in the following steps:

- Mobilization of personnel and equipment
- Construction of access ramps into the lagoons and to each sample location using road base materials
- Collection of sludge and native soil samples at five locations in each lagoon with a hollow-stem auger rig
- Restoration of the site to a state that is comparable to pre-CMS field activities
- Demobilization of personnel and equipment

3.1 FIELD CONSTRUCTION

Field construction activities were conducted from March 20 – 29, 2000. Heavy equipment was used to construct ramps into the Sewage Lagoons because the interior slopes were too steep for safe vehicle access. A road was constructed leading from the access ramps to each sampling point within the Sewage Lagoons.

3.2 FIELD SAMPLING

Sludge and soil sampling was performed on April 3 – 7, 2000. Samples were collected to characterize the sludge and native soil for the future design phase of the corrective action.

Prior to field activities, 10 locations, five in the north lagoon (SB01 through SB05) and five in the south lagoon (SB06 through SB10) were identified. Coordinates and elevations were

established for these borehole locations using a portable global positioning system unit. A map of the borehole locations is illustrated on Figure 3-1. Each borehole was drilled to a depth of 10 ft with a 4 1/4-inch I.D. hollow-stem auger, and 3-inch O.D. stainless steel split-spoon sampler. Samples were continuously collected. The drilling logs are presented in Appendix A.

3.2.1 Chemical Sampling

One sludge sample was collected at each sample location. Sludge thicknesses observed in the boreholes ranged from 2 to 10.5 inches. Soil samples were also collected from each borehole at depth intervals of 0 to 2 ft, 4 to 6 ft, and 8 to 10 ft. Sludge and soil samples were submitted to EMAX Laboratories in Torrance, California, for the following chemical analyses:

- RCRA Metals–arsenic, barium, cadmium, chromium, lead, selenium, and silver: SW-846 Method 6010B Trace
- Mercury: SW-846 Method 7471A
- VOCs: SW-846 Methods 5035/8260B
- Pesticides: SW-846 Method 8181A
- Polychlorinated biphenyls (PCBs): SW-846 Method 8082
- Nitrate: EPA Method 300.0
- Toxicity Characteristic Leaching Procedure (TCLP) for pesticides and metals (analyzed for sludge only)
- Total Organic Carbons (TOCs): SW-846 Method 9060

The VOC samples were collected and preserved to support use of the methanol extraction method. This method required 5.0 grams of soil to be accurately weighed and placed in a 40-milliliter (mL) glass vial containing 10 mL of methanol. The samples were labeled according to the borehole number and collection depth (Foster Wheeler, 1999).

Headspace screening was performed for each sample interval using a photoionization detector; the results were recorded on the HTW drilling log. Headspace readings were measured relative to background. These readings ranged from 0.0 to 42.8 parts per million (ppm), but averaged

approximately 9 ppm, none of which required the use of additional personal protective equipment (PPE).

3.2.2 Geotechnical Sampling

Soil samples were visually examined for soil classification and separated into groups of similar material types. The most representative sample from each group was properly labeled and taken to Western Technologies in Albuquerque, New Mexico, for geotechnical laboratory analysis. The samples were analyzed according to American Society for Testing and Materials (ASTM) procedures listed below:

- Soil Classification – ASTM D2487
- Grain-size analysis to the No. 200 sieve – ASTM D422
- Atterberg limits – ASTM D4318

Undisturbed geotechnical samples were collected at three locations with thin-walled Shelby tube samplers (3 in. x 2.5 ft). Because of the large amounts of caliche in the soil in the vicinity of the lagoons, the undisturbed samples were collected at depths less than 5 ft. Samples were collected at the following soil boreholes:

- SB-02: 0 to 2.5 ft
- SB-07: 0 to 2.5 ft and 2.5 to 5 ft
- SB-10: 0 to 2.5 ft

When the Shelby tube was removed from the borehole, the sampler ends were carefully sealed to be airtight, and the tube was wiped clean and labeled with project name, location, borehole number, sample number, sample interval, date, and the sampler's initials. Extreme care was taken while storing, handling and transporting the samples to the laboratory to ensure they remained undisturbed.

3.3 SITE RESTORATION

The constructed access roads will remain in place until the final site corrective action has been determined. All other disturbed areas of the Sewage Lagoons have been returned to the original state.

When field sampling was completed, the 10 boreholes were properly abandoned according to the work plan (Foster Wheeler, 1999). Each 10-ft borehole was filled with a grout mixture of 30 percent solids and 70 percent water. All borehole cuttings were placed on a plastic sheet during drilling, wrapped, covered, and currently are stockpiled within the Sewage Lagoons. All of the drilling and sampling equipment was thoroughly decontaminated. Decontamination of the augers and rig equipment was performed at a specified location near Landfill 5, which was approved for use by the Cannon AFB Environmental Department.

3.4 ANALYTICAL RESULTS

The analytical results for chemical and geotechnical samples collected during the CMS field program are presented in the following subsections. A detailed discussion of the nature and extent of contamination based on the results of previous sampling programs is presented in Appendix B. To characterize the contamination, 10 sludge samples and 30 soil samples from 10 locations (0 to 2 ft, 4 to 6 ft, and 8 to 10 ft) were collected from the Sewage Lagoons.

3.4.1 Sludge Chemical Analyses

The sludge samples were analyzed for the following analytes: VOCs, pesticides, PCBs, RCRA metals, nitrate/nitrite, TOC, and TCLP for pesticides and metals. Analytical results for the sludge samples collected during the CMS field program are presented in Table 3-1 and summarized in Table 3-4. The TCLP detection results are presented in Table 3-2.

VOCs (as m- and p-xylene) were only detected in one sludge sample at a concentration of 110 J micrograms per kilogram (µg/kg). (The J qualifier indicates the detection is an estimated value below the certified reporting limit.)

Detections of pesticides occurred mainly in the sludge samples. 4, 4'-DDE and 4, 4-DDT, alpha-chlordane, beta-BHC, dieldrin, gamma-chlordane, and heptachlor epoxide were only detected in the sludge samples; however, no one pesticide was detected in all locations. Alpha-BHC was not detected in any of the sludge samples. Gamma-BHC was only detected at SB-09 in the South Lagoon at a concentration of 52 J μg/kg. Alpha-chlordane was detected in three of the sludge samples from the North Lagoon and two samples from the South Lagoon at concentrations ranging from 14 J to 32 μg/kg. Beta-BHC was only detected at SB-03 in the North Lagoon at a concentration of 100 μg/kg. Dieldrin was detected in three of the North Lagoon sludge samples and two of the South Lagoon sludge samples at concentrations ranging from 32 J to 89 μg/kg. Endrin aldehyde was detected only at SB-03 in the North Lagoon at a concentration of 20 J μg/kg. Gamma-chlordane was detected in four of the North Lagoon sludge samples and one of the South Lagoon sludge samples at concentrations ranging from 14 J to 66 μg/kg. Heptachlor was not detected in any of the sludge samples. Heptachlor epoxide was only detected at SB-03 in the North Lagoon. The concentration was 59 μg/kg.

PCB, as Aroclor 1260, was only detected at SB-03 in the North Lagoon at a concentration of 380 J μg/kg.

The metals analysis of the sludge indicates that arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver are all present at this site. Arsenic was detected in every sludge sample, at concentrations ranging from 2.46 to 13.9 milligrams per kilogram (mg/kg). All detections of barium were relatively high, ranging from 54.8 to 923 mg/kg. Cadmium was detected in nine of the ten sludge samples at concentrations ranging from 0.161 J to 12.8 mg/kg. Chromium was detected in every sludge sample, at concentrations ranging from 11.3 to 57.4 mg/kg. Lead was detected in every sludge sample, at concentrations ranging from 9.57 to 108 mg/kg. Mercury was detected in nine of the ten sludge samples at concentrations ranging from 0.269 to 3.89 mg/kg. Selenium was detected in nine of the ten sludge samples at concentrations ranging from 1.78 to 33.2 mg/kg. Silver was detected in every sludge sample, at concentrations ranging from 1.94 to 105 mg/kg.

Nitrate/nitrite was detected in eight of the ten sludge samples at concentrations ranging from 7.41 to 486 mg/kg. Concentrations were significantly higher in the South Lagoon where all five samples had detections. The sludge at SB-07 had the highest level of nitrate with a concentration of 486 mg/kg.

TOC was detected in every sludge sample collected at the Sewage Lagoons. Concentrations ranged from 5,800 to 193,000 mg/kg. These high concentrations are expected because of the nature of the material previously deposited in the lagoons.

The sludge samples were also analyzed for TCLP RCRA constituents. TCLP detections are presented in Table 3-2. Gamma-chlordane, heptachlor, and heptachlor epoxide were the only three pesticides detected. The gamma-chlordane concentrations ranged from 0.00016 J to 0.0003 J milligrams per liter (mg/L). For heptachlor, the concentrations ranged from 0.00021 J to 0.00054 mg/L. There was only one detection of heptachlor epoxide, in SB-09, at a concentration of 0.0002 J mg/L.

Arsenic, barium, mercury, and silver were the only metals with TCLP detections. Arsenic concentrations ranged from 0.40 J to 0.60 J mg/L. Barium concentrations ranged from 0.13 J to 1.1 mg/L. There was only one detection of mercury, in SB-02, at a concentration of 0.015 J mg/L. Silver was detected in two boreholes, SB-06 and SB-07, at concentrations ranging from 0.029 J to 0.03 J mg/L.

In summary, very low TCLP concentrations of pesticides and metals were detected in the sludge samples from both the north and south Sewage Lagoons. All of the sludge TCLP concentrations were below the RCRA regulatory limits specified in 40 CFR 261.

3.4.2 Soil Chemical Analyses

The soil samples were analyzed for the following analytes: VOCs, pesticides, PCBs, RCRA metals, nitrate/nitrite and TOC. Analytical results for the soil samples collected during the CMS field program are presented in Table 3-3 and are summarized in Table 3-4.

VOCs (as m- and p-xylene) were only detected in one soil sample at a concentration of 95 J μg/kg. (The J qualifier indicates the detection is an estimated value below the certified reporting limit.)

Only three pesticides were detected in soil samples. Alpha-BHC was only detected in three samples at SB-09 in the South Lagoon at concentrations ranging from 1.1 J to 2.2 μg/kg. Gamma-BHC was only detected at SB-10 in the South Lagoon at a concentration of 1.3 J μg/kg. Heptachlor was detected in soil samples from five of the boreholes at concentrations ranging from 2.3 to 3.4 μg/kg. No other pesticides were detected in the soil samples.

PCBs were not detected in any of the soil samples.

The metals analysis of the sludge indicates that arsenic, barium, cadmium, chromium, lead and selenium are all present. Arsenic was detected in every soil sample, at concentrations ranging from 1.63 to 13.9 mg/kg. All detections of barium were relatively high, ranging from 63.3 to 2,040 mg/kg. Cadmium was detected in every soil sample at concentrations ranging from 0.0994 J to 1.07 mg/kg. Chromium was detected in every soil sample, at concentrations ranging from 3.81 to 19.9 mg/kg. Lead was detected in every soil sample, at concentrations ranging from 1.29 to 13.7 mg/kg. Selenium was detected in seven of the ten soil samples at concentrations ranging from 0.508 to 1.31 mg/kg. Only arsenic, chromium and lead show any apparent trend with depth, and all show a general decrease in concentration with increasing depth of sample.

Nitrate/nitrite was detected in every soil sample at concentrations ranging from 0.45 to 125 mg/kg. Concentrations were significantly higher in the South Lagoon where all five samples had detections. The sludge at SB-06 had the highest level of nitrate with a concentration of 125 mg/kg.

TOC was detected in every soil sample collected at the Sewage Lagoons. Concentrations ranged from 627 to 3,300 mg/kg. Again, these relatively high concentrations are expected because of the nature of the material previously deposited in the lagoons.

In summary, low levels of pesticides were detected in the sludge of both the north and south Sewage Lagoons. Various metals were detected in the sludge and soil at concentration levels that tend to decrease with depth.

3.4.3 Geotechnical Analyses

Geotechnical results for the soil samples collected at the Sewage Lagoons indicated that the soil consists mostly of clay and sand with some silt and gravel. The amount of gravel in the soil encountered during drilling operations increases with depth. The three samples analyzed from the 8 to 10-ft interval contained 15.9, 30, and 44.2 percent gravel. The shallower samples were generally fine-grained, consisting mostly of silt and clay. The sand in the soil ranged from 27.6 to 62.3 percent with an average of 40.6 percent. Silt and clay ranged from 21.2 to 72.4 percent with an average of 50.3 percent.

Permeability tests were performed on the four undisturbed samples. Three samples were collected from the 0 to 2.5-ft interval: one from the north lagoon (SB-02) and two from the south lagoon (SB-07 and SB-10). The fourth sample was taken from the south lagoon from the 2.5 to 5.0-ft interval (SB-07). For the 0 to 2.5 ft undisturbed samples, permeability values ranged from $7x10^{-6}$ to $6x10^{-4}$ centimeters per second (cm/sec). The sample taken at 2.5 to 5.0 ft had a permeability of $1x10^{-6}$ cm/sec.

The Unified Soil Classification System (USCS) two-letter designations differ between some of the field observations and the laboratory geotechnical samples. Based on the observations of our field staff the differences are due to the heterogeneous nature of the soils in the lagoons.

3.5 FIELD PROGRAM SUMMARY

Field investigation activities at the Sewage Lagoons consisted of field construction and field sampling of the sludge and underlying native soil. Results of the chemical and geotechnical analyses performed on the samples will aid in determining the appropriate corrective action alternative for the SWMU. Efforts of this CMS are aimed at selecting a final corrective action for achieving closure of the Sewage Lagoons.

To obtain additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons, a field-sampling program was conducted. Based on sludge and soil sample results from previous investigations (E&E, 1998) and field sampling, analysis, and fate and transport modeling performed during the CMS, sludge and soil are considered nonhazardous and will not require offsite disposal.

3.6 FATE AND TRANSPORT MODELING

Fate and transport modeling simulated contaminant migration through the vadose zone. The fate and transport of contaminants of concern (COCs) that exceeded appropriate screening criteria were modeled based on current, normal site conditions. The COCs modeled were heptachlor, gamma-BHC (lindane), nitrate, and total xylenes. Additional simulations were performed with excessive precipitation to evaluate the transport effects of the COCs with increased infiltration.

The Seasonal Soil Compartment Model (SESOIL) was used for the fate and transport modeling (GSC, 1998). The SESOIL model has been used by many local, state, and federal agencies at several sites across the country to evaluate the effectiveness of waste-containment cover systems.

SESOIL is a one-dimensional vertical transport model designed to simultaneously simulate water transport, sediment transport, and contaminant fate for the unsaturated soil zone (Wisconsin Department of Natural Resources, 1994). Input data include soil physical parameters, contaminant chemical parameters, and meteorological information. Specific input parameters are presented in Appendix D.

The processes modeled by SESOIL are categorized into three cycles: hydrology, sediment washload, and pollutant transport; each cycle is a separate sub-model within the SESOIL code (Wisconsin Department of Natural Resources, 1994). SESOIL is a compartmental model that allows the user flexibility to divide the unsaturated zone into separate layers (if appropriate) and model contaminant release and migration within each layer down to the water table. The result is a calculated leachate concentration that will be introduced to groundwater. The model simulates leaching to groundwater and subsequent mixing that ultimately provides a groundwater concentration as a calculated result.

The simulations performed for the CMS applied conservative assumptions for the fate and transport modeling. The greatest concentrations of soil/sludge samples from field-testing were used to calculate loading rates for the COCs. The contaminant sources were modeled as instantaneous releases from the top 10 ft of the model. Groundwater was modeled as 290 below ground surface. The first simulation of each COC used climatic data specific for Clovis, New Mexico. Additional simulations were performed with one 24-hour, 100-year storm per year and six 24-hour, 100-year storms per year, beyond normal precipitation events.

Results of the 50-year simulations for the current, normal conditions at Cannon predicted vertical contaminant migrations of 0.02 ft, 0.04 ft, 225.85 ft, and 53.02 ft for heptachlor, gamma-BHC (lindane), nitrate, and total xylenes, respectively. None of the COCs reached groundwater in the 50-year simulation under normal, current conditions. An extended duration simulation predicted nitrate reaching the groundwater after 65 years under current, normal conditions. The increased infiltration from the addition of one 24-hour, 100-year storm per year had a negligible effect on transport of the heptachlor and gamma-BHC (lindane). Nitrate and total xylenes showed vertical depth increases of approximately 12 to 13 percent. The precipitation equivalent of six 24-hour, 100-year storms per year were required to increase infiltration to the extent that nitrate reached groundwater within 45 years. Once nitrate reached groundwater, the model predicted concentrations above the EPA maximum contaminant level. The modeling illustrated that degradation to groundwater from sludge COCs migration is unlikely under current, normal conditions where infiltration of water into the vadose zone is minimal. In summary, the model predicted that the only COC reaching groundwater is nitrate. An extended discussion of the modeling effort, including output, is presented in Appendix D.

4.0 HUMAN HEALTH AND SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENTS

A human health risk assessment (HHRA) and screening-level ecological risk assessment (SLERA) were prepared for SWMU 101, the Sewage Lagoons, to evaluate potential risks to human health and ecological receptors. The methodology used to prepare the risk assessments is presented in Appendix C and summarized below.

Two corrective action alternatives were evaluated in the HHRA and SLERA. The first alternative, No Action, was evaluated quantitatively. The second alternative, Sludge Dewatering In-Place, Consolidation, Compaction, and Cover was evaluated qualitatively. During the screening of chemicals of potential concern to be considered in the HHRA and SLERA several metals were identified as potential risk drivers, Therefore, the third alternative (In-situ Bioremediation Through Composting) was deemed ineffective in reducing the levels of metals in sludge at the sewage lagoons. Thus, the third alternative was not evaluated in the risk assessment.

4.1 NO ACTION ALTERNATIVE

The No Action Alternative is the baseline against which the other alternatives are compared. Under this alternative, existing conditions at SWMU 101 continue without any environmental improvements. Currently, the lagoons are dewatered and the sludge is exposed. Risks to human and ecological receptors were evaluated quantitatively for this alternative.

4.1.1 Areas of Concern

SWMU 101 was divided into four areas of concern for evaluation in the HHRA and SLERA: north lagoon sludge, north lagoon soil, south lagoon sludge, and south lagoon soil. Both the HHRA and SLERA used the sludge and soil analytical data collected in April 2000 as most representative of the current and future conditions that may occur at the site.

4.1.2 Human Health Risk Assessment

The purpose of the HHRA is to define the magnitude and probability of threats to public health posed by site-related chemicals in untreated sludge and soil at SWMU 101. The HHRA

evaluates all relevant potential current and future conditions at the site. The extent of risk is dependent on the degree to which receptors are exposed, which is mainly influenced by the types, frequencies, and duration of activities conducted at the site.

The HHRA was conducted to comply with the Federal and State regulations (EPA, 1999a, 1989; NMED, 2000a).

4.1.2.1 Selection of Chemicals of Potential Concern

Chemicals of potential concern (COPCs) for the HHRA are a subset of site-related chemicals that may be associated with adverse effects on human health. Selected COPCs were based on soil data collected from 0 to 10 ft below the sludge-native soil interface and all of the sludge data collected. The data were considered a realistic estimate of the sludge and soil to which receptors, industrial workers working at or near the lagoons, would most likely be exposed.

A comparison of detected inorganics with site-specific background levels of inorganics was made to identify naturally occurring chemicals not related to human activities at SWMU 101 (NMED, 2000b; EPA, 1989). The maximum inorganic concentrations detected in sludge and soil were compared with corresponding maximum detected concentrations of site-specific background samples (Cannon AFB, 1997). Chemicals detected below background concentrations were eliminated from further evaluation.

Following the background screening, a screening was made against EPA Region 6 *Residential Human Health Medium-Specific Screening Levels (HHSLs)* (EPA, 1999a). Based on guidance (NMED, 2000a), the maximum concentration of each noncarcinogenic chemical detected in sludge and soil samples from 0 to 10 ft below the sludge native-soil interface in each lagoon were compared to adjusted residential HHSLs. NMED requires that if two or more noncarcinogenic chemicals are present at a site, each chemical must be compared to one-tenth of its respective residential HHSL. This method addresses the potential that two or more of the noncarcinogenic COPCs may affect the same target organs or systems. The HHSLs for chemicals that exceeded the adjusted HHSLs were readjusted based on the number of chemicals in sludge or soil in the north or south lagoon that had the same critical effects and/or target

organs. The unadjusted residential HHSL was divided by the number of chemicals with the same critical effects and the maximum detected chemicals concentrations were all screened against the newly adjusted value. The maximum concentrations of each carcinogenic chemical detected in sludge and soil samples from 0 to 10 ft below the sludge native-soil interface in each lagoon were compared to the residential HHSLs. Chemicals with maximum detections below the adjusted or unadjusted residential HHSLs were eliminated from the quantitative risk assessment.

Based on the screening results against background and the HHSLs, the following COPCs were identified for the HHRA: PCB-1260, dieldrin, endrin aldehyde, and arsenic. Arsenic is the only COPC in both north and south lagoon soil. Arsenic and dieldrin are COPCs in sludge in both the north and south lagoon; PCB-1260 and endrin aldehyde are COPCs only in the north lagoon sludge.

4.1.2.2 Exposure Assessment

The Management Action Plan for Cannon AFB indicates that current land use at SWMU 101 is industrial and it is expected to remain industrial in the future. Based on land use information, under both current and future conditions, industrial workers are the only potential receptors who have direct access to SWMU 101 and any related contamination. Industrial workers would not be conducting any excavation in the sludge or soil, only working in the vicinity. The pathways that represent potentially complete exposure routes for industrial workers include:

- Ingestion and dermal contact with soil during work activities
- Inhalation of contaminated soil and soil particulates during wind or soil disturbance activities

The risks associated with exposure to COPCs depend on the concentrations of COPCs and on the extent to which receptors are exposed. The exposure assumptions are taken from Federal and State guidance documents (EPA, 1989, 1991, 1996a, 1999a, and 1999b; NMED, 2000a). The exposure point concentration used in the risk calculations was determined according to EPA guidance (EPA, 1989). The maximum COPC value was detected in the samples collected from sludge and from 0 to 2 ft below the sludge native-soil contact in each lagoon. If risk was were at

an unacceptable level in the 0 to 2-ft depth interval, risks would be calculated for individual depth intervals until an acceptable level of risk was obtained. This method was selected to assess at what depths risk was and was not present.

4.1.2.3 Toxicity Assessment

EPA guidance was followed for HHRA toxicity values (EPA, 2000; EPA, 1999a). COPCs were separated into two categories of chemical toxicity: carcinogenic and noncarcinogenic effects. Oral and inhalation reference doses (RfDs) are experimentally derived no-effect levels (even for sensitive populations) used to quantify the extent of toxic effects other than cancer because of contaminant exposure. Oral and inhalation cancer slope factors (CSFs) are chemical-specific, experimentally derived, potency values that are used to calculate the risk of cancer resulting from exposure to potentially carcinogenic contaminants. A great deal of uncertainty surrounds toxicity of dermal contact with chemicals in soil. The oral CSFs and RfDs were adjusted to derive dermal RfDs and CSFs (EPA, 1999a).

4.1.2.4 Uncertainty Analysis

Risk estimates have various uncertainties associated with them. These uncertainties are evaluated to provide an indication of the relative degree of uncertainty associated with a risk estimate. Risk estimates are calculated by combining site data, assumptions about the individual receptor's exposures to affected media, and toxicity data. These HHRA uncertainties can be grouped into four main categories:

- Environmental sampling and analysis
- Assumptions concerning exposure scenarios
- Toxicity data and dose-response extrapolations
- Combinations of sources of uncertainty

4.1.2.5 Risk Characterization

In the final step of the HHRA, the estimated rate at which human intake of a particular COPC occurs is compared with information about the toxicity of the COPC to estimate the potential

risks to human health posed by exposure to the COPC. In the risk characterization, cancer risks are evaluated separately from noncancer health threats.

Potential noncancer health effects are assessed by comparing the estimated average exposure rate with an exposure level at which no adverse health effects are expected to occur from a long period of exposure; this comparison gives a ratio known as the hazard quotient (HQ). This sum of the HQ for each COPC in soil and sludge in each lagoon is known as a hazard index (HI). Carcinogenic risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of a chemical exposure. Carcinogenic risks are evaluated by multiplying the estimated average exposure rate by the chemical's CSF giving an excess lifetime cancer risk (ELCR).

4.1.2.6 Summary and Results

For the industrial worker, the ELCR or HQ value for each analyte and exposure pathway (ingestion, inhalation, and dermal) was summed to produce total cancer risk and HIs. As shown in Table 4-1, risks from COPCs in soil and sludge in the north and south lagoon were below the target HQ of 1.0 (NMED, 2000a). NMED has established a target total ELCR of 1×10^{-5} for the sum of all carcinogens at a site or if only one carcinogen is present (NMED, 2000a). If multiple carcinogens are present the target ELCR for each carcinogen is 1×10^{-6} (NMED, 2000a). Arsenic was the only COPC that exceeded the target ELCR of 1×10^{-6} for a single chemical in sludge and soil in the north and south lagoons. Based on the results of the risk calculations, there is negligible risk to industrial workers from exposure to sludge and soil at SWMU 101.

Table 4-1. Summary of Risks and Hazards to Potential Human Receptors at the Sewage Lagoons

Risk or Hazard	North Lagoon Sludge	North Lagoon Soil	South Lagoon Sludge	South Lagoon Soil
HI	0.046	0.012	0.033	0.016
ELCR	3.1×10^{-6}	1.9×10^{-6}	5.5×10^{-6}	2.5×10^{-6}

4.1.3 Screening-Level Ecological Risk Assessment

The objective of the SLERA is to evaluate the potential ecological risks from chemical contaminants found on site. This information was used to develop a basis for risk management decisions for the SWMU. The procedures used to conduct this SLERA are consistent with those presented in Federal and State guidance documents (NMED, 2000c; U.S. Army Corps of Engineers [USACE], 1996; EPA, 1996b, 1998). Chemical contamination determined to potentially cause ecological risk may require additional evaluation in a more detailed quantitative assessment.

On April 6 – 7, 2000, a site survey of SWMU 101 was conducted to gather site-specific information to identify relevant and complete contaminant-pathway-receptor relationships. Information gathered during the survey is included in the discussion below.

4.1.3.1 Data Evaluation and Selection of Chemicals of Potential Ecological Concern

All chemicals positively identified above the method detection limit in sludge and soil data collected to a depth of 6 ft were considered preliminary chemicals of potential ecological concern (COPECs). Because not all chemicals found at a site will have adverse affects on ecological receptors, the list of preliminary COPECs was narrowed via a COPEC selection process. The selection process includes:

- Gathering all data available from the site investigation(s)
- Evaluating a preliminary COPEC detection status
- Comparing inorganic preliminary COPEC concentrations with naturally occurring background values
- Evaluating environmental fate and transport properties
- Developing a list of COPECs that are likely to be site related and that will be evaluated in the SLERA.

No inorganics in the north lagoon soil or south lagoon sludge were detected below background concentrations. Barium in north lagoon sludge and barium and selenium in south lagoon soil

were detected below background concentrations and were eliminated from further evaluation in the SLERA for their respective areas of concern.

4.1.3.2 Exposure Setting

Information pertaining to the exposure setting at Cannon AFB was obtained primarily from Cannon AFB (Cannon AFB, 1996). Information collected during the April 2000 site survey was also incorporated.

The area climate is semi-arid, characterized by highly variable precipitation patterns. The average annual precipitation is 14 in., most of which falls as midsummer thunderstorms.

Historically, drainage at Cannon AFB has been by overland flow into four natural ephemeral playas. The natural land surface base is relatively flat and slopes gently from the northwest section of the base, where the elevation is 4,330 ft above sea level (asl), to the southeast, where the elevation is 4,260 asl. However, the two northern playas have been converted to intensely maintained, plastic-lined, golf course ponds. The southern playa is still intact; however, the surrounding drainage patterns have been altered. The eastern playa, known as the North Playa Lake, is the most significant playa for wildlife habitat. The North Playa Lake has been bermed on the north, west, and south sides with fill dirt and concrete debris.

The native vegetation of Cannon AFB is Plains-Mesa Grassland, which is the most extensive grassland community in New Mexico. In good condition, Plains-Mesa Grassland is composed almost entirely of grasses, with forbs and shrubs comprising less than 10 percent.

Four habitat types exist at Cannon AFB and include improved/landscaped, semi-improved/mowed grassland, unimproved/disturbed grassland, and riparian/aquatic. Overall, the habitats present on Cannon AFB are relatively isolated and are surrounded by cultivated agricultural fields and cattle grazing pastures.

The northwestern half of the base is almost entirely improved/landscaped. Additional areas of development are scattered on the southeastern portion. This habitat type consists of the flightline

area, base operations areas, housing areas, and golf course. Vegetation predominantly consists of cultivated landscape plants.

The grassland areas on Cannon AFB were cultivated agricultural fields prior to the construction of the airfield. The grassland areas were eventually allowed to go fallow and continue to be impacted by base operations and maintenance (e.g., police training, mowing). The semi-improved/mowed grassland community is found within and/or adjacent to the airfield, base housing, munitions storage area, recreation fields, and roadways. The grass in these areas is maintained at a height of approximately 1 to 3 in. Surrounding these areas are unimproved/ disturbed grasslands.

Riparian/aquatic communities on Cannon AFB include drainage ditches and the playa lakes. The drainage ditches are concentrated around the developed/landscaped areas and carry runoff to the playa lakes and golf course ponds. The playa lakes have no surface outlet, and any water they collect is eventually lost to evaporation, infiltration, and/or use by plants and animals.

Six federally listed endangered, threatened, and candidate species; one state endangered species; and one state rare and sensitive species potentially occur on Cannon AFB. The American peregrine falcon (*Falco peregrinus anatum*), Arctic peregrine falcon (*Falco peregrinus tundrius*), bald eagle (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), and Baird's sparrow (*Ammodramus bairdii*) have a low potential of occurrence, while the mountain plover (*Charadrius montanus*) and swift fox (*Vulpes velox*) have a moderate potential of occurrence. The tall plains spurge (*Euphorbia strictior*) is not expected to occur because of the historic use of the area for agriculture (Cannon AFB, 1996).

4.1.3.3 Complete Exposure Pathways

Ingestion of soil and sludge, plants, or prey is considered the primary route of exposure for this SLERA. Inhalation and dermal absorption are possible routes of exposure, but for this SLERA, they are not likely to significantly contribute to the total exposure. In addition, methods are not adequately developed to quantitatively evaluate this pathway. Exposure to groundwater will not be evaluated because a complete exposure pathway does not exist. The ingestion of drinking

water is also expected to be insignificant because of the limited presence of surface water. Therefore, ingestion was the only route of exposure for upper trophic level species considered in this evaluation. For lower trophic level species (i.e., terrestrial invertebrates and plants) exposure was considered to be via direct absorption through the dermis or cell wall.

4.1.3.4 Identification and Selection of Assessment Endpoints

Assessment endpoints are particular components or attributes of an ecosystem that are critical to maintenance of the ecosystem structure and function. Assessment endpoints focus the SLERA on ecosystem components that may be impacted by contaminants at the site. The assessment endpoints identified for this SLERA include decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

4.1.3.5 Identification and Selection of Measurement Receptors

Measurement receptors were identified to evaluate the biological effects of contaminants on the assessment endpoints identified above. The measurement receptors for communities evaluated in this SLERA include terrestrial invertebrates and terrestrial plants. Terrestrial invertebrates include nematodes, gastropods, oligochaetes, and arthropods; terrestrial plants include vascular plants, grasses, forbs, and lichens. These communities provide an important food source for many higher trophic level species. In addition, terrestrial invertebrates, as decomposers and detritivores, play a critical role in nutrient cycling and terrestrial plants provide critical habitat for wildlife. Measurement receptors for guilds were chosen for the following class-specific guilds: herbivorous mammal, herbivorous bird, omnivorous mammal, and carnivorous bird. No amphibious/reptilian class-specific guilds were selected for SLERA inclusion in the quantitative portion because of the lack of toxicity information. Measurement receptors for guilds evaluated in this SLERA include the deer mouse, mourning dove, least shrew, and red-tailed hawk.

4.1.3.6 COPEC Concentrations at Point of Potential Exposure

The COPEC concentration used to represent the environmental concentration for this SLERA is the maximum measured COPEC concentration at each of the areas of concern.

4.1.3.7 Exposure Assessment

The exposure of a specific measurement receptor to a COPEC is quantified in the exposure assessment. Exposure assessments are conducted separately for each community measurement receptor and each class-specific guild measurement receptor.

4.1.3.8 Toxicity Assessment

Identifying toxicity reference values (TRVs) specific to a COPEC and to the measurement receptor being evaluated assesses the toxicity of a COPEC. The TRV is the dose for a measurement receptor that is likely to be without appreciable risk of deleterious effects from chronic exposure. TRVs are, therefore, developed based on a no-observed-adverse-effects-level (NOAEL) for a particular COPEC. NOAELs are derived experimentally or estimated by applying uncertainty factors to available toxicity data. The chronic NOAEL is used as the toxicity value endpoint to determine the TRV in this SLERA to protect against chronic effects.

For lower trophic-level communities (i.e., terrestrial invertebrates and plants), these TRVs are presented as media levels (in milligram per kilogram [mg/kg]) because it is assumed that the level of COPEC in these organisms will be proportional to the concentration in the media. TRVs for upper trophic-level class-specific guilds are expressed in terms of dose ingested (in mg/kg per pound of body weight per day) (NMED, 2000c).

Toxicity values not indicated in State guidance were adopted from other documentation (Efroymson et al., 1997a, 1997b; Sample et al., 1996). Significant data gaps exist in the toxicological information for pesticides available for terrestrial invertebrates and plants. COPECs for which a TRV could not be identified were evaluated qualitatively.

4.1.3.9 Risk Characterization

The exposure assessment and the toxicity assessment were integrated to produce an estimate of risk in the form of ecological screening quotients (ESQ) for a single chemical or cumulative ecological screening quotients (CESQ) for multiple chemicals. These ESQs and CESQs are receptor-specific, media-specific, and COPEC-specific.

An ESQ is equal to the COPEC estimated exposure level (EEL) divided by the TRV. For community receptors, the EEL is equal to the media concentration of the COPEC. For guild measurement receptors, the EEL is equal to the daily dose of COPEC ingested per unit body weight. An ESQ is generated for each measurement receptor for each COPEC exposure at each of the four areas of concern.

CESQs assume that the exposure and risk from multiple contaminants are additive (i.e., two or more contaminants may affect the same target organs or organ systems and/or act by similar mechanisms). This CESQ calculation is not typically completed for ecological risk assessments because of the uncertainties associated with the ESQs, the toxicity reference values, and the target effects of the COPECs (NMED, 2000c).

4.1.3.10 Description of Risk

The exceedance of toxicological benchmarks in this SLERA does not imply certain ecological risk; rather, the exceedance indicates contamination may be sufficient to warrant further investigation.

HQs greater than 1.0 indicate potential risk to an ecological receptor and may indicate the need for further evaluation using more site-specific information. HQs less than 1.0 indicate no potential ecological risk. COPECs with HQs less than 1.0 can be removed from further consideration because of the inherent and conservative assumptions applied to derive the HQ.

4.1.3.11 Limitations and Uncertainties in the Screening Process

There are many sources of uncertainty associated with the characterization of potential risk at this site. The uncertainties exist because assumptions and estimates were made about the existing onsite conditions, the receptors potentially exposed to COPECs, and the COPECs themselves. The uncertainties include, but are not limited to:

- Receptor species selected for evaluation
- Exposure parameters
- Sampling and COPEC selection process

- Assumptions used in estimating the daily dose ingested by the receptor species
- Toxicity information
- Assumptions made about the complexity of the existing ecosystem

4.1.3.12 Conclusions

The risk characterization for measurement receptors from potential exposure to COPECs in north lagoon sludge, south lagoon soil, and south lagoon sludge found that pesticides produced elevated ESQs for the deer mouse and least shrew. However, there were limited toxicity data available for terrestrial invertebrates and plants and risk could not be quantified for the majority of the pesticides. Results of the risk characterization are summarized in Table 4-2.

Concentrations of VOCs did not produce elevated HQs for any of the measurement receptors at any of the areas of concern.

Concentrations of PCBs produced elevated ESQs for the deer mouse and least shrew in north lagoon sludge. This is the only area of concern in which PCBs were detected.

Concentrations of inorganics produced elevated ESQs for all measurement receptors in all four areas of concern. ESQs ranged from 1.1 for terrestrial invertebrates from lead exposure to 5,300 for plants from silver exposure. Many of these ESQs are likely overestimated because of the presence of naturally high concentrations of inorganics. Most of the inorganics were detected at concentrations only slightly higher than background and would pose risk to potential receptors even at background concentrations.

The SLERA was designed to evaluate potential risk to representative receptors from multiple trophic levels present at the site as well as wildlife temporarily visiting the site. The risk characterization indicated that there might be risk for multiple tropic-level species from COPECs present in all four areas of concern.

4.2 SLUDGE DEWATERING IN-PLACE, CONSOLIDATION, COMPACTION, AND COVER ALTERNATIVE

In the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, sludge and affected soil from the north lagoon are dewatered, tilled, aerated, and transferred to the south lagoon. More specifically, a final dewatering of sludge is completed in both the north and south lagoons and the dewatered sludge and affected soil are removed from the north lagoon and placed in the south lagoon. The sludge in the south lagoon is then compacted with clean construction and demolition debris and a thick native topsoil and appropriate vegetation are placed on the south lagoon. The North Lagoon will be restored for use as a stormwater detention basin.

4.2.1 Human Health Risk Assessment

Under the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers are, again, the population who could potentially be exposed to COPCs in the north and south lagoon sludge and soil. In this alternative, sludge and affected soil in the south lagoon are covered with debris, topsoil, and vegetation. The covering would eliminate exposure to the COPCs; therefore, there would be no risk to the industrial worker at the south lagoon. Since all of the sludge and affected soil was removed from the north lagoon, there would be no risk to an industrial worker at the north lagoon.

4.2.2 Screening-Level Ecological Risk Assessment

The ecological receptors identified for the quantitative evaluation were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, potentially a complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise the cover. Therefore, it is recommended that a biotic barrier be used to ensure that this exposure pathway is no longer complete and potential receptors are not exposed to COPECs.

4.2.3 Recommendations

If this alternative is selected, it is recommended that a biotic barrier be used in the south lagoon to ensure that this exposure pathway is no longer complete for ecological receptors. The biotic barrier will prevent potential ecological receptors from being exposed to COPECs. No specific safeguards are necessary to prevent additional exposure to human receptors.

5.0 CORRECTIVE ACTION OBJECTIVES AND SELECTION CRITERIA

Three alternatives are being considered during this focused CMS. Alternative 1 is presented as no action at the site, while Alternative 2 was addressed in the Phase III Sludge Management Compliance Evaluation and Requirements Identification Document (E&E 1998). Alternative 3 presented below now consists of *in-situ* bioremediation based on input from Cannon AFB in response to recent public comments. The three alternatives are briefly discussed below.

1. No Action—This alternative is the baseline against which all other alternatives are compared and consists of allowing the existing conditions at the site to continue without any environmental improvements.

2. Sludge Dewatering In-Place, Consolidation, Compaction, and Cover—This alternative involves performing final dewatering of the north and south lagoons; removal of dewatered sludge from the north lagoon and placement into the south lagoon; compaction of the sludge in-place with clean construction and demolition debris; and installing thick, native topsoil layer and appropriate vegetation. Erosion control measures will be installed if necessary.

3. *In-situ* Bioremediation Through Composting—This alternative involves composting contaminated lagoon sludges and soil in place within the lagoons in order to reduce contaminant concentrations which present a risk to the environment.

The aforementioned corrective measures alternatives for the sewage lagoons will be evaluated based upon the ability of each alternative to meet the following: (1) the corrective action objectives; (2) conceptual design criteria (i.e., permeability of backfill, design life, erosion control, vegetation, etc.); and (3) selection criteria (i.e., effectiveness, cost, risk, final use, aesthetics, etc.). In this focused CMS, individual criterion will be qualitatively evaluated for each alternative. As a result of the evaluation, one alternative will be chosen for further examination during the future design phase of the corrective action process at the sewage lagoons.

The CMS was based on the following corrective action objectives:

- Protect human health and address risks to ecological receptors
- Attain media-specific cleanup standards
- Control source of releases
- Comply with applicable standards for waste management

5.1 CONCEPTUAL DESIGN CRITERIA

The conceptual design criteria were based on the Foster Wheeler Environmental risk assessment of the sewage sludge lagoons (Appendix C). Sludge TCLP concentrations in the North and South lagoons were below levels in 40 CFR 261 for hazardous waste characterization. Metals concentrations in the sludge were below those for Class A land application in 40 CFR 503. Though the sludge meets regulatory requirements for closure, the human health and ecological risk assessment was performed to provide a more conservative standard for closure of the lagoons. The risk to human health resulting from the risk assessment is $1x10^{-6}$. Because this level of risk demonstrates a low relative risk to humans, a further analysis of the risks to ecological receptors was performed. Based on the ecological risk assessment, it was determined that a conservative design for closure of the lagoons would prevent ecological receptors, including burrowing organisms, from coming in contact with the sludge.

The conceptual design criteria for this focused CMS were developed to meet regulatory requirements and support reducing risks to human health and the environment. The conceptual design criteria are present below:

- Reduce risk to human health and the environment–A reduction in risk can be achieved by physical means (i.e., creation of a barrier to prevent direct contact to contaminated materials).

- Limit surface ponding and infiltration through consolidated soil and sludge–It will be necessary to protect groundwater from infiltrating leachate from the sludge. SESOIL modeling performed during this CMS indicates that no further contamination to groundwater

would occur if infiltration through the sludge layer and soil beneath were prevented. Therefore, a conservative design should prevent ponding and infiltration through the sludge layer.

- Prevent burrowing into contaminate materials by wildlife–Due to the unacceptable risk to ecological receptors due to exposure to lagoon sludges, barriers should be considered in the final design that would prevent burrowing into the soil cover.

- Promote positive drainage–If an alternative involving a final cover is implemented, the cover will be designed with adequate slopes for drainage.

- Use native species of grasses in revegetation efforts–The design will provide for lagoon revegetation with native species that will prevent erosion and cracking of the cover or base surfaces.

5.2 CORRECTIVE ACTION ALTERNATIVE EVALUATION

The evaluation and selection of the proposed corrective action alternatives will be based on the ability to meet the following criteria:

- Corrective Action objectives will be met
- Conceptual Design Criteria will be met
- Long-term reliability and effectiveness
- Reduction of waste toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Safety
- Cost

A qualitative discussion of the screening process for each corrective action alternative is presented in Section 6.0.

6.0 TECHNOLOGY SCREENING AND CORRECTIVE MEASURES DEVELOPMENT

This section discusses the technology screening methods and corrective measures development for the selected alternatives.

- Alternative 1–No Action
- Alternative 2–Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
- Alternative 3–*In-situ* Bioremediation Through Composting

6.1 DEVELOPMENT OF CORRECTIVE MEASURES

6.1.1 Alternative 1: No Action

The No Action Alternative is the baseline against which all other alternatives are compared. This option consists of allowing the existing site conditions to continue without any environmental improvements. The sludge is currently exposed to the air, with no freestanding water, and is partially dry. As of May 2000, the sludge was estimated to be 2 ft deep.

As a result of the 1992 RFI, it was recommended that annual groundwater monitoring be continued for VOCs, metals, pesticides, nitrates, sulfate and total dissolved solids. The monitoring is currently conducted annually and should continue if the No Action Alternative is implemented.

6.1.2 Alternative 2: Sludge Dewatering in Place, Consolidation, Compaction, and Cover

This alternative involves:

- Performing final dewatering of the north and south lagoons
- Removing dewatered, tilled, and aerated sludge from the north lagoon and placement into the south lagoon
- Compacting the sludge in place with clean construction and demolition debris
- Installing a final cover and appropriate vegetation

- Installing erosion control measures, if necessary

6.1.2.1 Sludge Dewatering

Freestanding water in the sludge lagoons will be removed and discharged to the base Wastewater Treatment Plan. As of May 2000, Foster Wheeler personnel noted that there was no freestanding water in the lagoons. The remaining sludge will be tilled and aerated in place to promote further drying. A tractor-mounted deep disk harrow or auger/aerator will be used to turn the sludge and expose lower wet surfaces to the air and promote aerobic conditions. It is assumed that 10 passes over each lagoon spaced over a 2-week period would be sufficient. With approximately 2 weeks of dry weather, the total solids (TS) content of the soil should increase to 50 percent (E&E, 1998), which would be sufficient for the sludge to support the final cover.

Foster Wheeler personnel also observed that a black crust approximately 6-in. thick had formed on the surface of the sludge, with greenish wet sludge below. The tractor-mounted tilling equipment will aid in aeration of the lower layers and prevent formation of a hardened crust that may hamper evaporation.

6.1.2.2 Dewatered Sludge Consolidation

The dewatered, tilled, and aerated sludge will be transported from the north lagoon to the south lagoon after the sludge has reached approximately 50 percent TS. Prior to consolidation, the south lagoon sludge will be compacted by passes with a sheepsfoot or a roller. Dewatered sludge from the north lagoon will be transported to the south lagoon, compacted and graded to provide a sub-base for the final cover. Compaction specifications should be determined during the Corrective Measures Design (CMD). Crushed concrete demolition debris from another Cannon AFB site will be used as additional fill material for the subgrade as needed. The final slopes of the subgrade will be between 2 and 5 percent to provide adequate drainage slopes for the final cover.

In Spring 2000, Foster Wheeler personnel estimated the sludge depth in the north and south lagoons to be less than 2 ft. The resulting wet sludge volumes for the north and south lagoons are 52,000 and 55,000 cubic yards (cu yds), respectively.

6.1.2.3 South Lagoon Final Cover

A final cover will be placed over the subgrade to address ecological risks, prevent infiltration to the sludge layer, and protect groundwater. The following final cover recommendations are based on the Federal guidance (EPA, 1995). The final cover will consist of an 18-inch infiltration layer, a 12-inch biotic barrier, and an erosion layer as shown in Figure 6-1. A low permeability soil layer will be compacted directly above the subgrade to form the infiltration layer. To prevent ponding and infiltration through the sludge, this layer will have an infiltration rate less than that of the lagoon bottom. Regardless of the permeability of the lagoon bottom, the hydraulic conductivity of the infiltration layer can not exceed $1x\ 10^{-5}$ cm/sec. The infiltration layer will consist of a minimum of 18 in. of compacted soil and will maintain the 2 to 5 percent drainage slopes established by the subgrade.

The next layer is a biotic barrier designed to prevent exposure of burrowing animals to the sludge. This is a conservative, risk-based approach to designing the final cover because the highest risk is to ecological receptors. Typical biotic barriers have been constructed of a minimum of 12 in. of cobbles (EPA, 1995). In order to promote recycling of demolition debris, the biotic barrier will be constructed of at least 12 inches of clean concrete debris from another Cannon AFB site crushed to minus 4 inches. This layer will prevent the intrusion of burrowing animals into the infiltration layer, protecting the sludge from infiltration and the animals from exposure. The biotic barrier will also prevent deep rooting plants from disrupting the infiltration layer.

The final and uppermost layer in the lagoon cover is an erosion layer that will provide protection from erosion and form the growing medium for a vegetative cover. A minimum of 6 in. of soil will be required for the erosion layer and the type and thickness of the soil layer will be determined in conjunction with the type of vegetative cover it will support. The erosion layer will maintain the 2 to 5 percent drainage slopes established by the subgrade. The vegetative cover should be composed of native plants selected on their ability to withstand drought and extreme temperatures, root depth, density, maintenance, and longevity.

If this alternative is selected, a detailed cover design should be developed and analyzed further in the CMD. Preliminary estimates indicate that the layers shown in Figure 6-1 will fill the lagoon basin high enough to promote drainage from the finished cover grade and over the existing lagoon berm. However, further analysis during the CMD may indicate that modification to the lagoon berm or additional fill material will be required to maintain adequate final cover drainage.

6.1.2.4 North Lagoon Restoration

As part of the sludge consolidation alternative, the north lagoon will be emptied and restored for use as an emergency stormwater management basin. The restoration includes:

- Modifying piping
- Installing a submersible pump at the playa lake
- Excavation of 12 inches of existing soil from the lagoon bottom to eliminate contamination from the sludge

It is assumed that the piping and mechanical work will be sufficient to connect the north lagoon as a stormwater management basin. This work includes (E&E, 1998):

- Closure of piping to the south lagoon with blind flanges
- Installation of piping and fittings to connect the playa lake to the north lagoon
- Installation of a submersible pump and automatic controls at the playa lake

Results of the fate and transport modeling indicated that if a significant amount of water were to accumulate within the North Lagoon and allowed to stay for extended periods of time, infiltration to the water table could occur within 100 years; and any nitrate within soil remaining in the bottom of the lagoon would leach to the water table at levels exceeding regulatory requirements.

To reduce the potential for nitrate contamination, the existing soil at the bottom of the lagoon will be excavated to a depth of 12 inches. The excavated soil will be disposed of in the south lagoon. Clean native soil will be imported to fil in the 12-inch excavation and restore the north lagoon bottom to its original subgrade.

6.1.3 Alternative 3: *In-Situ* Bioremediation Through Composting

To reduce contaminant levels, the *in-situ* bioremediation alternative involves further treatment of the sludge through composting processes. Bioremediation is the breakdown of organic contaminants by micro-organisms. The micro-organisms use the contaminants as an energy source at rates that depend on the amount of oxygen, nutrient levels, moisture, pH, and sludge temperature. To some extent, the process can be monitored and influenced by controlled changes to these parameters. A small-scale pilot study is typically performed prior to a full-scale bioremediation project in order to determine the effectiveness of the bioremediation process and fine tune controls. Therefore, bioremediation is not an effective means of reducing concentrations of inorganic contaminants.

The results of sludge analyses show that the sludge contaminant concentrations are below TCLP limits for hazardous waste as prescribed in 40 CFR 261. The sludge contaminant concentrations are also below those listed in 40 CFR 503 as the ceiling concentrations for land application of the sludge. Therefore, it is not necessary to reduce contaminant levels further to meet regulatory requirements by bioremediation or composting.

However, after meetings with state agencies and the client, it was determined that an ecological risk-based approach to the corrective action is more conservative than simply meeting regulatory requirements for closure. The risk assessment for ecological receptors demonstrated that the primary COCs for the sludge are metals including arsenic, cadmium, chromium, lead, mercury, selenium, and silver. Reducing the levels of these COCs to eliminate risk to ecological receptors is not possible by means of bioremediation or composting. After it was determined that the corrective action would be based on a conservative ecological risk-based approach, the *in-situ* bioremediation alternative was not researched further.

6.2 CORRECTIVE ACTION ALTERNATIVE SCREENING

6.2.1 Alternative 1: No Action

The No Action Alternative does not comply with any of the corrective action objectives. The current conditions pose a low relative risk to humans, but pose a higher risk to ecological

receptors (Appendix C). The sludge is a potential source of releases of contaminants to the groundwater by infiltration through the lagoon bottom.

The No Action Alternative does not address the previously discussed conceptual design criteria, including preventing infiltration of contaminants to the groundwater and preventing exposure to ecological receptors. This alternative does not provide an ecological risk-based approach to lagoon closure.

The volume of lagoon sludge will likely be reduced by the No Action Alternative, through natural evaporation processes. In the short term, the hard crust that forms over the sludge may promote anaerobic conditions in the lower layers and result in odor problems. Over the long-term, drying of the exposed sludge will likely result in dust problems and increased mobility of the waste.

The No Action Alternative is easily implemented and low in cost since it involves a continuation of the current conditions and little action. However, it does not address the corrective action objectives or the conceptual design criteria. In addition, current conditions limit the use of the land occupied by the basins.

6.2.2 Alternative 2: Sludge Dewatering in Place, Consolidation, Compaction, and Cover

The sludge consolidation and cover alternative addresses all of the corrective action objectives defined earlier. This conservative alternative is based on addressing human and ecological risks for COCs (Appendix C). The design criteria met by the sludge consolidation and cover alternative to address risks are more conservative than those required by the applicable regulations. The sludge consolidation and cover alternative prevents contaminant releases from the sludge by prescribing a final cover with infiltration, erosion, and exposure controls.

The sludge consolidation and cover alternative meets all design criteria established by regulatory requirements and the risk assessment. Burrowing animals will be protected from exposure to the sludge material by means of a biotic barrier layer in the final cover. This layer of cobbles or crushed concrete will prevent the animals from burrowing into the sludge layer. Groundwater will be protected by preventing infiltration into the sludge layer and through the bottom of the

lagoon. The final cover will have an infiltration layer with a hydraulic conductivity less than that of the bottom of the lagoon to prevent infiltration. The alternative provides for a final cover with adequate drainage slopes and a vegetative cover to prevent erosion and cracking.

The final cover for the sludge consolidation and cover alternative is a long-term measure for permanent closure of the lagoon. Proper maintenance (i.e., periodic monitoring for settlement, cracking, erosion and annual mowing) will enhance the effectiveness of the final cover.

The waste sludge volume will be reduced through dewatering, tilling, and aerating and the south lagoon will have the capacity to consolidate the dewatered north lagoon sludge. In addition, preliminary estimates show that the south lagoon will be able to accommodate an additional 20,000 to 30,000 cu yds of fill material, such as crushed concrete debris from other Cannon AFB sites. Following construction of the final cover, the mobility of the sludge will be decreased greatly, and there will be no potential for dust problems from the sludge. Daily cover material placed over the sludge will reduce the short-term risks of exposure to the sludge during construction activities.

The consolidation and cover alternative provides a reliable, simple means of closing the lagoons permanently. Recycling Cannon AFB demolition debris as fill, and biotic-barrier materials and reuse of the north lagoon as a stormwater basin increase the cost-effectiveness of this alternative. Construction practices involved in the consolidation and cover alternative are standard practices, such as excavation, hauling, and grading. All safety issues will be discussed in detail in a site-specific health and safety plan following the CMD development.

6.2.3 Alternative 3: *In-Situ* Bioremediation Through Composting

Preliminary analysis of the *in-situ* bioremediation alternative demonstrated that this alternative does not meet the corrective action objectives or the conceptual design criteria. The risk assessment performed by Foster Wheeler Environmental (Appendix C) listed several metals as COCs for ecological risk. *In-situ* bioremediation will not improve the levels of these metals in the sludge. Therefore, the *in-situ* bioremediation alternative is not recommended.

7.0 EVALUATION OF FINAL CORRECTIVE ACTION ALTERNATIVE

Alternative 2, sludge consolidation and covering, is recommended as the corrective action for closure of SWMU 101. This alternative meets the corrective action objectives, conforms to the conceptual design criteria, and provides the additional benefit of restoring the north lagoon for use as a stormwater management basin.

A preliminary cost estimate for the selected alternative, the sludge consolidation and covering is provided in summary in Table 7-1 and in detail in Table 7-2. The total estimated cost is $1,544,000, including the estimated costs to restore the north lagoon for use as a stormwater management basin.

Table 7-1. Cost Estimate Summary

Task	Estimated Cost
Predesign sampling	$12,000
Permits	$1,000
Reporting	$10,000
Sludge tilling and aeration operations	$37,000
Excavation/hauling/grading	$598,800
Final cover at south lagoon	$536,500
North lagoon restoration	$208,200
Subtotal	$1,403,500
CMD and Engineering (10%)	$140,400
Total	$1,544,000

The cost estimate was based on the following assumptions:

- Cannon AFB will hire a contractor to perform the work.
- Tilled and aerated sludge volumes were estimated based on a 15 percent reduction from the current volume.
- Gas monitoring at the site will not be necessary because of the stabilized nature and low volatile solids content of the sludge.

- The CMD and engineering support were estimated to be 10 percent of the capital cost.

8.0 APPLICABLE REGULATIONS AND GUIDANCE

This section describes the environmental regulations and guidance that may be applicable to the proposed corrective measures activities. The EPA has authorized NMED to implement the RCRA program and to oversee corrective action program activities conducted in accordance with the Cannon AFB RCRA Part B Permit. A detailed plan for ensuring conformance with applicable regulations will be developed as part of the corrective measures implementation work plan.

8.1 REGULATED SITE ACTIVITIES

During investigations of SWMU 101, various inorganic constituents have been detected at concentrations in excess of acceptable ecological risk-based levels. The anticipated regulated activities that are to be addressed include:

- Allowing passive dewatering of the Sewage Lagoons prior to CMS field activities
- Constructing access roads/ramps on the surface of each of the Sewage Lagoons
- Storing fuel for heavy equipment utilized onsite
- Excavating impacted sludge and soil from the north Sewage Lagoon, hauling the material to the south lagoon, and consolidating the material onto the south lagoon
- Constructing a soil cap containing a biotic barrier for the consolidated material in the south lagoon
- Generating and storing decontamination water and used PPE
- Sampling and analysis of decontamination water, if required, for subsequent characterization, management, and disposal purposes
- Assisting Cannon AFB with identification of appropriate transportation companies and disposal facilities for disposal of potentially hazardous waste generated from the SWMU corrective action activities
- Preparing and completing documentation, and labeling and placarding waste containers, as necessary, for transport to an appropriate disposal facility

8.2 REGULATORY REQUIREMENTS

Project activities will generate nonhazardous and potentially RCRA hazardous waste. The project activities will also include construction activities involving the excavation and replacement of impacted soil and the operation of heavy equipment. Therefore, the following Federal and State regulations are applicable and must be complied with during implementation of planned project activities:

- EPA Regulations for Identification and Management of Hazardous Waste, 40 CFR 260–299
- U.S. Department of Transportation Rules for Hazardous Materials Transport, 49 CFR 100–178
- New Mexico Hazardous Waste Management Regulations
- New Mexico Air Quality Control Regulations
- NPDES Stormwater Regulations
- Federal Fuel Hydrocarbon Spill Prevention and Countermeasures Control Regulations
- Applicable Cannon AFB Permits and Policies and Procedures

Table 8-1 lists and summarizes the regulations applicable to the corrective action activities proposed for SWMU 101.

8.3 PERMIT REQUIREMENTS

An NPDES Storm Water Construction Permit (40 CFR 122.26) is required for an NPDES permit for construction activity, including clearing, grading, and excavation activities. An exception to this rule is for operations that result in the disturbance of less than 5 acres of total land area and are not part of a larger common plan of development or sale. The actual construction area for this project is greater than 5 acres; consequently, an NPDES construction permit or a Notice of Intent to discharge is required. When the design for implementation of the corrective measures activities is finalized, Cannon AFB will prepare an NOI. As required under the general stormwater NPDES Permit, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared. The SWPPP will address surface water discharges and run-on and runoff control resulting from project construction activities.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements

Requirement	Citation	Description
CHEMICAL-RELATED REGULATORY REQUIREMENTS		
New Mexico Standards for Groundwater	20 New Mexico Administrative Code (NMAC) 6 Part 2, Subpart III, Section 3104	Unless otherwise provided by this Part, no person will cause or allow effluent, leachate, or water/liquid to discharge so that it may move directly or indirectly into groundwater unless they are discharging pursuant to a discharge plan approved by the secretary of the NMED.
New Mexico Standards for Groundwater	20 NMAC 6 Part 2, Subpart III, Section 3101	The following standards apply to discharges of water to the ground (chemical specific standards to be included in Work Plan): • Human Health Standards—Groundwater: Nonaqueous phase liquid will not be present floating atop of or immersed within groundwater, as can be reasonably measured. • Other Standards for Domestic Water Supply • Standards for Irrigation Use: Groundwater will meet the standards of Subsections A, B, and C unless otherwise provided.
National Ambient Air Quality Standards	40 CFR 50	Sources cannot cause or contribute to an exceedance of a national ambient air quality standard.
New Mexico Ambient Air Quality Standards	20 NMAC 2 Part 3, Sections 109, 110, and 111	Sources cannot cause or contribute to an exceedance of New Mexico ambient air quality standards for total suspended solids, sulfur, carbon monoxide, and nitrogen dioxide.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (continued)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Air Emissions/Construction Activities		
Clean Water Act Storm Water Permit	40 CFR 122	General NPDES Storm Water Permit Requirements for Construction Activities
Clean Water Act SPCC Plan	40 CFR 112	Spill Prevention Countermeasures and Control (SPCC) requirements for storage of fuel hydrocarbons
Air emissions from stationary combustion equipment and diesel-powered vehicles associated with excavation and backfill operations	20 NMAC 2 Part 61, Sections 109 and 110	The owner or operator of stationary combustion equipment shall not permit, cause, suffer, or allow visible emissions from the stationary combustion equipment to equal or exceed opacity of 20%. No person will permit, cause, suffer, or allow the emission into the open air of any smoke having an opacity greater than 30% for any period greater than 10 seconds from any diesel-powered vehicle operating below 8,000 ft (mean sea level).

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (continued)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Waste Characterization		
Determination of Hazardous Waste	• 40 CFR 262.11 • 40 CFR 261 • 20 NMAC 4 Part 1, Subpart II	Any waste generated during remedial activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous: • Determine whether the waste is excluded from regulation under 40 CFR 261.4 • Determine whether the waste is listed under 40 CFR 261 • Determine whether the waste is identified in 40 CFR 261 by testing the waste according to specified test methods or by applying knowledge of the hazardous characteristics of the waste in light of the materials or the process used.
Waste Management		
Hazardous Waste Generator Standards	• 40 CFR 262 • 20 NMAC 4 Part 1, Subpart III—Generator Standards • 20 NMAC 4 Part I, Subpart VIII—Land Disposal Restriction Standards	Hazardous waste generated during remedial activities must be managed and disposed of per RCRA requirements pertaining to storage (i.e., container requirements) and disposal at approved offsite permitted hazardous treatment, storage, and disposal facilities.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (concluded)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Treatment, Storage, or Disposal of RCRA Hazardous Waste	• 40 CFR 264.310(a)(4), (5), (b)(1) and (5) • 40 CFR 264.117 – 264.120 • 20 NMAC 4 Part 1, Subpart V • 40 CFR 264.95 • 40 CFR 264.16 (a)(1) • 20 NMAC 4 Part 1, Subpart V	• Closure and cover requirements for landfills • Post-closure requirements • Groundwater protection standards and point of compliance • Personnel training
Treatment and Disposal of Hazardous Debris	• 40 CFR 268.45 • 20 NMAC 4 Part 1, Subpart VIII	Hazardous debris generated during remedial activities must be treated using specific technologies to extract, destroy, or immobilize hazardous constituents on or in the debris if placement occurs. In certain cases, the debris may no longer be subject to RCRA Subtitle C regulations after treatment.
Health and Safety Requirements		
Health and Safety Requirements	29 CFR 1910.120	Hazardous waste site supervisors, workers, and visitors are required to comply with the training and medical surveillance requirements detailed in this citation.

9.0 PUBLIC INVOLVEMENT PLAN

Public involvement in the evaluation of the preferred corrective action alternative is a requirement of RCRA as specified in the RCRA Corrective Action Plan (EPA, 1994). Once the CMS report has been reviewed by Cannon AFB and NMED, the preferred alternative will be proposed in the Statement of Basis, which will be prepared as a document summarizing the CMS report for the Administrative Record. When the Statement of Basis is issued, the public will be invited to comment on the proposed corrective measure of the Sewage Lagoons. Public involvement during the review process of the CMS will follow procedures presented in the Cannon AFB Community Relations Plan (Cannon AFB, 1993) and can take place using one, or more, of the following activities:

- Present a formal announcement in Cannon AFB and local Clovis and Portales newspapers notifying the public of the CMS and the Statement of Basis.
- Schedule and conduct a public briefing as part of the quarterly Restoration Advisory Board meeting for the base. Invite the public to attend through media bulletins.
- Provide copies of the Statement of Basis in local public libraries.

Once the public is notified of the CMS results and the Statement of Basis becomes accessible, the public will be allowed a specified comment period. Comments from the public will be addressed and the final decision document will be issued detailing the selected corrective measure.

10.0 PROJECT SCHEDULE

A tentative project schedule has been developed and is represented on Table 10-1. The schedule is based on the corrective action timeline suggested by RCRA guidance (EPA, 1994). Beginning on the issue date of the draft CMS report and continuing through the regulatory review, the public comment period, and the submittal of the Final Decision document, the schedule elapses 168 days.

Revisions to the schedule may take place at any time based on communication between Cannon AFB and NMED concerning the focused nature of the CMS and the results presented in this report.

Table 10-1. Sewage Lagoons Corrective Action Schedule

Action Item	Dates	Number of Days
2000		
1. Review of the Draft CMS Report by Cannon AFB and USACE	August 29 – September 26	29 days
2. Preparation of the Final CMS Report	September 27 – October 12	16 days
3. Review of the Final CMS Report by NMED	October 13 – November 12	31 days
4. Issue the Statement of Basis	November 13 – December 15	33 days
2001		
5. Public Comment Period	December 16, 2000 – January 14	30 days
6. Issue the Final Decision Document	January 15 – February 12	29 days

11.0 SUMMARY AND CONCLUSIONS

The CMS of the Sewage Lagoons is a voluntary program aimed at achieving closure of the Sewage Lagoons, which were active from 1966 through 1998. This focused CMS report complies with the requirements outlined in RCRA guidance (EPA, 1994). However, the requirements CERCLA apply to the Sewage Lagoons because they are identified by the Air Force as an IRP site. The lagoons are currently at the RCRA corrective action equivalent of the feasibility study stage of the CERCLA process, and all recommended milestones have been met.

The purpose of the CMS for this site was to identify and evaluate potential corrective action alternatives to prevent future impact to human health and the environment. This CMS is of a focused nature such that preliminary work was completed in 1998 to support the use of sludge consolidation and covering the containment area with soil to achieve site closure (E&E, 1998). Human health and ecological risk assessments were conducted as part of the CMS in order to determine the level at which containment and source control is required at the site. An ecological survey of the area was also conducted to support the risk assessment.

11.1 CMS FIELD PROGRAM AND DATA EVALUATION

The CMS included a field program designed to collect the additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons. Roads were constructed to gain access to the lagoons and sludge. Sludge and soil sampling was performed to support the CMS. Samples were collected to characterize the sludge and native soil for the future design phase of the corrective action. Samples were analyzed for RCRA metals, VOCs, pesticides, PCBs, nitrate and TOC. TCLP results for sludge samples indicate there is no potential for leachate to exceed regulatory levels. Geotechnical samples were collected during the CMS field program and were analyzed according to ASTM procedures for soil classification, grain-size analysis, Atterberg limits, and permeability.

Fate and transport modeling was performed to support the risk assessment and the evaluation of corrective action alternatives to simulate contaminant migration through the vadose zone. The fate and transport of COCs that exceeded appropriate screening criteria were modeled based on current, normal site conditions. The simulations performed for the CMS applied conservative

assumptions for the fate and transport modeling. Results of the 50-year simulations for the current, normal conditions at Cannon predicted vertical pollution migration does not reach groundwater. The modeling illustrated that degradation to groundwater, due to COCs in sludge, is unlikely under current, normal conditions.

11.2 RISK ASSESSMENTS

The purpose of the risk assessments was to define the magnitude and probability of threats to human health and the environment posed by site-related chemicals in untreated sludge and soil at SWMU 101. The HHRA and SLERA evaluated all relevant potential current and future conditions at SWMU 101. Two corrective action alternatives were evaluated in the HHRA and SLERA. The first, No Action, was evaluated quantitatively in both the HHRA and SLERA. The second alternative, Sludge Dewatering In-Place, Consolidation, Compaction, and Cover was evaluated qualitatively in the HHRA and SLERA. Both the HHRA and SLERA used the analytical sludge and soil data collected during the CMS as most representative of the current and future conditions that may occur at SWMU 101.

11.2.1 Risk Results for the No Action Alternative

HHRA—The HHRA considered soil data from the 0- to 10-ft interval and all of the sludge data collected. Detected chemicals were screened against site-specific background levels and EPA Region 6 residential HHSLs. Based on the results of screening against background levels and the HHSLs, four COPCs were identified for further evaluation in the HHRA: arsenic, dieldrin, PCB-1260, and endrin aldehyde. The pathways that represent potentially complete exposure routes for industrial workers include the following: ingestion and dermal contact with soils during work activities and inhalation of contaminated soil and soil particulates during wind or soil disturbance activities.

The ELCR or noncarcinogenic HQ for each COPC and exposure pathway (ingestion, inhalation, and dermal) were summed to produce total cancer risk and noncancer risk HI values. All noncancer risks from contaminants in soil and sludge in the north and south lagoon were below the target HQ of 1.0. The total ELCRs were below the NMED target total ELCR of $1x10^{-5}$.

Arsenic was the only COPC that exceeded the target ELCR of $1x10^{-6}$ for a single COPC in sludge and soil in the north and south lagoons. Based on the results of the risk calculations, there is negligible risk to industrial workers due to exposure to sludge and soil at SWMU 101.

SLERA—The SLERA evaluated all chemicals positively identified above the method detection limit in site sludge and soil data collected to a depth of 6 ft. The pathways that represent potentially complete exposure routes for ecological receptors included the following: ingestion of soil and sludge and ingestion of terrestrial invertebrates, plants, or vertebrate prey. The assessment endpoints identified for this SLERA include decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

Risk to potential ecological receptors was calculated by estimating the exposure of each receptor to the COPECs and comparing that exposure to the toxicity of each COPEC. Concentrations of inorganics produced elevated ESQs for all measurement receptors in all four areas of concern. ESQs ranged from 1.1 for terrestrial invertebrates due to lead exposure to 5,300 for plants due to silver exposure. Many of the ESQs may be overestimated due to the presence of naturally high concentrations of inorganics. Most of the site concentrations of inorganics were only slightly higher than the background concentrations. Risk to potential ecological receptors exists even at the background concentrations.

11.2.2 Risk Results for Sludge Dewatering In-Place, Consolidation, Compaction, and Cover Alternative

HHRA—For the evaluation of the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers were again considered to be the potentially exposed population. For this alternative, sludge and affected soil in the south lagoon would be covered with debris, topsoil, and vegetation, eliminating human exposure to the COPCs. Therefore, there would be no risk to the industrial worker at the south lagoon. Because all of the sludge and affected soil was removed from the north lagoon, there would be no risk to an industrial worker working at the north lagoon.

SLERA—The ecological receptors identified for the quantitative evaluation above were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and

Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, a potentially complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise the cover. Therefore, it is recommended that a biotic barrier be installed to ensure that this exposure pathway is no longer complete and potential receptors are not exposed to COPECs.

11.3 CORRECTIVE ACTION OBJECTIVES AND SELECTION CRITERIA

The three alternatives considered during this focused CMS included the following:

- Alternative 1—No Action
- Alternative 2—Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
- Alternative 3—*In-situ* Bioremediation Through Composting

In this focused CMS, individual criterion were qualitatively evaluated for each alternative. As a result of the evaluation, one alternative was chosen for further examination during the future design phase of the corrective action process at the Sewage Lagoons. The screening of alternatives was based on an evaluation of corrective action objectives and conceptual design criteria. Corrective action objectives for this CMS were taken from the RCRA Corrective Action Guidance (EPA, 1994).

The conceptual design criteria were based on results of the HHRA and the SLERA. Although the sludge meets regulatory requirements for closure, the human health and ecological risk assessment was performed to provide a more conservative standard for closure of the lagoons. An acceptable risk to human health under the No Action alternative is $1x10^{-6}$. Based on the ecological risk assessment, it was determined that a conservative design for closure of the lagoons would prevent ecological receptors, including burrowing organisms, from coming in contact with the sludge.

The evaluation and selection of the proposed corrective action alternatives was based on the ability to meet the following criteria: corrective action objectives; conceptual design criteria; long-term reliability and effectiveness; reduction of waste toxicity, mobility, or volume; short-term effectiveness; implementability; safety; and cost.

11.4 CORRECTIVE ACTION ALTERNATIVE SCREENING

Alternative 1 (No Action) does not comply with any of the corrective action objectives or the conceptual design criteria. The current conditions pose a low relative risk to humans, but pose a higher risk to ecological receptors. The No Action Alternative is easily implemented and low in cost since it involves a continuation of the current conditions and little action. In addition, current conditions limit the use of the land occupied by the basins.

Alternative 2 (Sludge Dewatering In-Place, Consolidation, Compaction, and Cover) addresses all of the corrective action objectives defined earlier. This conservative alternative is based on addressing human and ecological risks for COCs. The design criteria met by the sludge consolidation and cover alternative to address risks are more conservative than those required by the applicable regulations. The sludge consolidation and cover alternative prevents contaminant releases from the sludge by prescribing a final cover with infiltration, erosion, and exposure controls. Alternative 2 also provides a reliable, simple means of closing the lagoons permanently. Recycling Cannon AFB demolition debris as fill, and biotic-barrier materials and reuse of the north lagoon as a stormwater basin increase the cost-effectiveness of this alternative. Construction practices involved in the consolidation and cover alternative are standard practices, such as excavation, hauling, and grading.

Alternative 3 (*In-situ* Bioremediation Through Composting) demonstrated that this alternative does not meet the corrective action objectives or the conceptual design criteria. The risk assessment indicated several metals as COCs for ecological risk. *In-situ* bioremediation will not decrease the levels of these metals in the sludge. Therefore, the *in-situ* bioremediation alternative is not recommended.

11.5 RECOMMENDATION OF FINAL CORRECTIVE ACTION

Alternative 2 is recommended as the corrective action for closure of SWMU 101. This alternative meets the corrective action objectives, conforms to the conceptual design criteria, and provides the additional benefit of restoring the north lagoon for stormwater management. A preliminary cost estimate for the selected alternative, the sludge consolidation and covering is provided in Section 7.0 and the total estimated cost is $1,544,000, including the estimated costs to restore the north lagoon for use as a future stormwater management basin.

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REVISED FINAL
CORRECTIVE MEASURES STUDY REPORT
SWMU 101—SEWAGE LAGOONS

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LIST OF ACRONYMS

AFB	Air Force Base
Air Force	U.S. Air Force
ARAR	Applicable or Relevant and Appropriate Requirement
asl	above sea level
ASTM	American Society for Testing Materials
BHC	benzene hexachloride
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESQ	cumulative ecological screening quotients
CFR	Code of Federal Regulation
cm/sec	centimeters per second
CMD	Corrective Measures Design
CMS	Corrective Measures Study
COC	contaminant of concern
COPC	chemicals of potential concern
COPEC	chemicals of potential ecological concern
CSF	cancer slope factor
cu yd	cubic yard
ELCR	excess lifetime cancer risk
EEL	estimated exposure level
EPA	U.S. Environmental Protection Agency
ESQ	ecological screening quotient
Foster Wheeler	Foster Wheeler Environmental Corporation
ft	feet
H_2S	hydrogen sulfide
HHRA	human health risk assessment
HHSL	human health screening level
HI	hazard index
HQ	hazard quotient
in	inches
mg/kg	milligram per kilogram
mL	milliliter
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NOAEL	no-observed-adverse-effects-level
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyls
Permit	Hazardous Waste Facility Permit
POTW	Publicly own treatment works

PPE	personal protective equipment
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RFI	RCRA Facility Investigation
SESOIL	Seasonal Soil Compartment Model
SLERA	screening-level environmental risk assessment
SPCC	Spill Prevention Countermeasures and Control
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TCLP	toxicity characteristic leaching procedure
TOC	total organic compound
TRV	toxicity reference value
TS	total solid
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
VOC	volatile organic compound

1.0 INTRODUCTION

This document describes the Corrective Measures Study (CMS) conducted for Solid Waste Management Unit (SWMU) 101, the Sewage Lagoons, at Cannon Air Force Base (AFB), New Mexico. The CMS is a voluntary program aimed at achieving closure of the Sewage Lagoons, which were active from 1966 through 1998. This CMS report complies with the requirements outlined in the Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (EPA, 1994).

Foster Wheeler Environmental Corporation (Foster Wheeler) conducted the CMS for the U.S. Army Corps of Engineers (USACE) under the Total Environmental Restoration Contract No. DACW-45-94-D0003, Delivery Order 25, Work Authorization Directive 1.

The CMS report provides information on:

- Site background and previous studies
- Methodology and technical approach for the evaluation of site-specific risk
- Overview of corrective action alternatives
- Field investigation sampling program for characterization of lagoon sludge and soil
- Project-specific quality assurance and quality control protocol
- Regulatory compliance.

All field activities were performed in accordance with the Basewide Health and Safety Plan, the site-specific Site Safety and Health Plan Addendum (Appendix B [Foster Wheeler, 1999]), and USACE health and safety requirements.

1.1 PURPOSE OF THE CORRECTIVE MEASURES STUDY

The purpose of the CMS for this site was to identify and evaluate potential corrective action alternatives to prevent future impact to human health and the environment. This CMS is of a focused nature such that preliminary work was completed in 1998 to support the use of sludge consolidation and covering the containment area with soil to achieve site closure (E&E, 1998). Corrective action alternatives appropriate for the Sewage Lagoons should provide containment of any residual contamination present at the site and source control. Human health and

ecological risk assessments were conducted as part of the CMS in order to determine the level at which containment and source control is required at the site.

Existing information was available to support the risk assessment and the focused evaluation of corrective action alternatives to be considered in the CMS. However, additional data were required to support the CMS and preliminary remedial design work including collection of analytical and geotechnical data to support the characterization of sludge and native soil beneath the lagoons. An ecological survey of the area was also conducted to support the risk assessment.

1.2 REGULATORY FRAMEWORK

The New Mexico Environment Department (NMED) is authorized by the U.S. Environmental Protection Agency (EPA) to implement the federal RCRA hazardous waste program and oversee the RCRA corrective action program activities conducted in accordance with Cannon AFB's Hazardous Waste Facility Permit (Permit). The NMED issued a RCRA Permit to Cannon AFB on December 17, 1989. Cannon AFB recently submitted an application to the NMED for renewal of the Permit; however, the Permit has not yet been reissued and until such time the Permit is renewed, the Base is operating under the provisions of the 1989 Permit. Cannon AFB's recently submitted Draft RCRA Part B Permit Application (Operations Plan), dated July 1999, refers to the status of various assessment, investigation and remediation projects for a number of SWMUs on the Base. SWMU 101 (the Sewage Lagoons) is currently at the CMS stage of the RCRA Corrective Action process.

The Base's intent is to proceed with the RCRA corrective action process until the sewage lagoons are closed and no further action is required. As allowed under the RCRA corrective action process, cleanup levels that are protective of human health and the environment were determined using site-specific risk considerations. Nevertheless, since SWMU 101 involves residual "domestic" sludge from a sewage treatment plant and consists of unlined "lagoons" (surface impoundments) that may have received limited quantities of industrial wastes, the base evaluated the applicability of other regulatory programs to the site remediation and closure process. A summary of the two regulatory programs that were evaluated and their applicability to SWMU 101 is provided below:

Title 40 Code of Federal Regulation (CFR), Part 265—Closure and Post-closure for Surface Impoundments - this Part applies to non-permitted RCRA hazardous waste surface impoundments and provides standards for closure. These requirements include removing or decontaminating all waste residues and contaminated subsoils, and post-closure care for a landfill (e.g., eliminate free liquids, stabilize wastes, apply cover, promote drainage and minimize erosion, reduce permeability, maintain integrity and effectiveness of final cover, maintain and monitor leak detection system, maintain and monitor groundwater monitoring system, and prevent run-on and run-off). These regulations do not apply to the sewage lagoons since these units were not intended or used as surface impoundments for hazardous waste, but instead received primarily domestic sewage sludges, which are not a hazardous waste.

Title 40 CFR, Part 503—Standards for the Use or Disposal of Sewage Sludge - this part establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a treatment works. Standards are included in this part for sewage sludge applied to land and placed on surface disposal sites. Also included are pathogen and alternative vector attraction reduction requirements for sludge applied to land or placed on a surface disposal site. This part applies to any person who prepares sludge, applies sludge to the land, and to the owner of a sludge disposal site. It also applies to sludge applied to land and placed on a surface disposal site. These regulations are intended more for disposition of sewage sludge from an existing and operating publicly owned treatment works (POTW) and do not really apply to a former sludge drying bed. Also, since the sewage treatment plant was considered a federally owned treatment works and did not have an National Pollutant Discharge Elimination System (NPDES) Permit for discharge, it does not qualify for the same status as that of a POTW regulated under 40 CFR, Part 503.

1.3 DOCUMENT ORGANIZATION

The work plan consists of the following information necessary to conduct the CMS for SWMU 101:

- Section 1.0 – Introduction
- Section 2.0 – Background
- Section 3.0 – CMS Field Program and Data Evaluation
- Section 4.0 – Human Health and Screening-Level Ecological Risk Assessments
- Section 5.0 – Corrective Action Objectives and Selection Criteria

- Section 6.0 – Technology Screening and Corrective Measures Development
- Section 7.0 – Evaluation of Final Corrective Action Alternatives
- Section 8.0 – Applicable Regulations and Guidance
- Section 9.0 – Public Involvement Plan
- Section 10.0 – Project Schedule
- Section 11.0 – Conclusions
- Section 12.0 – References
- Appendix A – CMS Field Information and Data
- Appendix B – Summary of Previous Investigations
- Appendix C – Human Health and Screening-Level Ecological Risk Assessments
- Appendix D – Contaminant Fate and Transport Modeling

A summary of site background information for SWMU 101 is presented in Section 2.0. A discussion of the CMS field program is described in Section 3.0 and includes information on the construction activities supporting the field sampling and analysis. A summary of the human health and ecological risk assessments is presented in Section 4.0.

detailed cost estimate Sections 5.0, 6.0, and 7.0 present the corrective action objectives, screening of alternatives based on the objectives, and an evaluation of the final alternative. Section 7.0 also includes the for the selected corrective action. Section 8.0 presents information on regulatory compliance, waste management, and Applicable or Relevant and Appropriate Requirement (ARARs). A brief summary of the public involvement process is presented in Section 9.0. The project schedule is in Section 10.0. The conclusions of the CMS presented in Section 11.0 and references are in Section 12.0.

Supplemental field program information, including boring logs and the analytical and geotechnical data are presented in Appendix A. A summary of previous investigations is in Appendix B and the human health and ecological risk assessments are in Appendix C. The

details of the fate and transport modeling conducted to support the CMS are presented in Appendix D.

2.0 BACKGROUND

A description of Cannon AFB and brief summaries of SWMU 101 including site description, history, geology, and hydrogeology are provided below. The site history and detailed descriptions of previous site activities are in previous investigation reports and work plans (Woodward-Clyde, 1992; E&E, 1998; Foster Wheeler, 1999).

2.1 CANNON AFB DESCRIPTION AND HISTORY

Cannon AFB occupies approximately 4,000 acres south of U.S. Highway 60/84 in Curry County, New Mexico. The base is situated 6 miles west of the city of Clovis, near the New Mexico–Texas border (Figure 2-1). The area surrounding Cannon AFB is used mainly for farming and ranching. Cannon AFB also maintains several satellite facilities.

In 1942, the Department of Defense established the Clovis Army Air Base, a training facility for B-17, B-24, and B-29 aircrews. The base was renamed Clovis Army Airfield in 1945 and eventually closed in 1947. Reactivated in 1951, it was reassigned to the Tactical Air Command; in 1957 it was renamed Cannon AFB. In 1975, the 27th Tactical Fighter Wing became the principal Air Force unit at Cannon AFB. In 1992, it was reassigned to the Air Combat Command and currently maintains a combat-ready force and provides replacement training of combat aircrews for tactical organizations worldwide.

2.2 DESCRIPTION AND HISTORY OF SWMU 101

The Sewage Lagoons were identified as SWMU 101 in the Cannon AFB Hazardous Waste Permit dated November 14, 1989. The Sewage Lagoons consist of two unlined surface impoundments that were used from 1966 to 1998 and received combined sanitary and industrial waste from base facilities. The lagoons operated in series and have a combined surface area of approximately 33 acres (Figure 2-2). The lagoons were constructed with unlined earthen bottoms and concrete-lined banks. When the new wastewater treatment plant began operation in 1998, wastewater was no longer discharged to the lagoons.

In 1992, SWMU 101 was investigated during the Appendix I RCRA Facility Investigation (RFI). RFI information indicated that the sludge depth was approximately 2 feet (ft) and the average

water depth ranged from 3.5 to 4.5 ft (Woodward-Clyde, 1992; E&E, 1998). As of May 2000, Foster Wheeler personnel noted that there was no freestanding water in the lagoons. At the time of the RFI, SWMU 101 was not included in the Cannon AFB RCRA Part B Permit. The regulatory requirement for this unit was resolved by Cannon AFB, the EPA, and the NMED. As a result of the RFI, the only recommendation for the Sewage Lagoons was to continue annual groundwater monitoring for volatile organic compounds (VOCs), metals, pesticides, nitrate, sulfate, and total dissolved solids. According to the RFI report, a recommendation was made for an interim monitoring program to support site closure until the regulatory framework was resolved. Groundwater monitoring is conducted annually at the Sewage Lagoons to comply with the RCRA requirements.

Appendix B presents a summary of the previous investigations conducted at the Sewage Lagoons, including a detailed description of the geology and hydrogeology of Cannon AFB. A discussion of the nature and extent of contamination is also provided to illustrate a basis for the risk assessment and evaluation of corrective action alternatives.

3.0 CMS FIELD PROGRAM AND DATA EVALUATION

The CMS included a field investigation designed to collect the additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons. Roads were constructed to gain access to the lagoons and sludge. Soil sampling was conducted with a hollow-stem auger drilling rig. The field investigation and sample collection were conducted in accordance with the CMS Work Plan (Foster Wheeler, 1999). This section provides an explanation for each field activity.

The CMS field investigation was conducted in the following steps:

- Mobilization of personnel and equipment
- Construction of access ramps into the lagoons and to each sample location using road base materials
- Collection of sludge and native soil samples at five locations in each lagoon with a hollow-stem auger rig
- Restoration of the site to a state that is comparable to pre-CMS field activities
- Demobilization of personnel and equipment

3.1 FIELD CONSTRUCTION

Field construction activities were conducted from March 20 – 29, 2000. Heavy equipment was used to construct ramps into the Sewage Lagoons because the interior slopes were too steep for safe vehicle access. A road was constructed leading from the access ramps to each sampling point within the Sewage Lagoons.

3.2 FIELD SAMPLING

Sludge and soil sampling was performed on April 3 – 7, 2000. Samples were collected to characterize the sludge and native soil for the future design phase of the corrective action.

Prior to field activities, 10 locations, five in the north lagoon (SB01 through SB05) and five in the south lagoon (SB06 through SB10) were identified. Coordinates and elevations were

established for these borehole locations using a portable global positioning system unit. A map of the borehole locations is illustrated on Figure 3-1. Each borehole was drilled to a depth of 10 ft with a 4 1/4-inch I.D. hollow-stem auger, and 3-inch O.D. stainless steel split-spoon sampler. Samples were continuously collected. The drilling logs are presented in Appendix A.

3.2.1 Chemical Sampling

One sludge sample was collected at each sample location. Sludge thicknesses observed in the boreholes ranged from 2 to 10.5 inches. Soil samples were also collected from each borehole at depth intervals of 0 to 2 ft, 4 to 6 ft, and 8 to 10 ft. Sludge and soil samples were submitted to EMAX Laboratories in Torrance, California, for the following chemical analyses:

- RCRA Metals–arsenic, barium, cadmium, chromium, lead, selenium, and silver: SW-846 Method 6010B Trace
- Mercury: SW-846 Method 7471A
- VOCs: SW-846 Methods 5035/8260B
- Pesticides: SW-846 Method 8181A
- Polychlorinated biphenyls (PCBs): SW-846 Method 8082
- Nitrate: EPA Method 300.0
- Toxicity Characteristic Leaching Procedure (TCLP) for pesticides and metals (analyzed for sludge only)
- Total Organic Carbons (TOCs): SW-846 Method 9060

The VOC samples were collected and preserved to support use of the methanol extraction method. This method required 5.0 grams of soil to be accurately weighed and placed in a 40-milliliter (mL) glass vial containing 10 mL of methanol. The samples were labeled according to the borehole number and collection depth (Foster Wheeler, 1999).

Headspace screening was performed for each sample interval using a photoionization detector; the results were recorded on the HTW drilling log. Headspace readings were measured relative to background. These readings ranged from 0.0 to 42.8 parts per million (ppm), but averaged

approximately 9 ppm, none of which required the use of additional personal protective equipment (PPE).

3.2.2 Geotechnical Sampling

Soil samples were visually examined for soil classification and separated into groups of similar material types. The most representative sample from each group was properly labeled and taken to Western Technologies in Albuquerque, New Mexico, for geotechnical laboratory analysis. The samples were analyzed according to American Society for Testing and Materials (ASTM) procedures listed below:

- Soil Classification – ASTM D2487
- Grain-size analysis to the No. 200 sieve – ASTM D422
- Atterberg limits – ASTM D4318

Undisturbed geotechnical samples were collected at three locations with thin-walled Shelby tube samplers (3 in. x 2.5 ft). Because of the large amounts of caliche in the soil in the vicinity of the lagoons, the undisturbed samples were collected at depths less than 5 ft. Samples were collected at the following soil boreholes:

- SB-02: 0 to 2.5 ft
- SB-07: 0 to 2.5 ft and 2.5 to 5 ft
- SB-10: 0 to 2.5 ft

When the Shelby tube was removed from the borehole, the sampler ends were carefully sealed to be airtight, and the tube was wiped clean and labeled with project name, location, borehole number, sample number, sample interval, date, and the sampler's initials. Extreme care was taken while storing, handling and transporting the samples to the laboratory to ensure they remained undisturbed.

3.3 SITE RESTORATION

The constructed access roads will remain in place until the final site corrective action has been determined. All other disturbed areas of the Sewage Lagoons have been returned to the original state.

When field sampling was completed, the 10 boreholes were properly abandoned according to the work plan (Foster Wheeler, 1999). Each 10-ft borehole was filled with a grout mixture of 30 percent solids and 70 percent water. All borehole cuttings were placed on a plastic sheet during drilling, wrapped, covered, and currently are stockpiled within the Sewage Lagoons. All of the drilling and sampling equipment was thoroughly decontaminated. Decontamination of the augers and rig equipment was performed at a specified location near Landfill 5, which was approved for use by the Cannon AFB Environmental Department.

3.4 ANALYTICAL RESULTS

The analytical results for chemical and geotechnical samples collected during the CMS field program are presented in the following subsections. A detailed discussion of the nature and extent of contamination based on the results of previous sampling programs is presented in Appendix B. To characterize the contamination, 10 sludge samples and 30 soil samples from 10 locations (0 to 2 ft, 4 to 6 ft, and 8 to 10 ft) were collected from the Sewage Lagoons.

3.4.1 Sludge Chemical Analyses

The sludge samples were analyzed for the following analytes: VOCs, pesticides, PCBs, RCRA metals, nitrate/nitrite, TOC, and TCLP for pesticides and metals. Analytical results for the sludge samples collected during the CMS field program are presented in Table 3-1 and summarized in Table 3-4. The TCLP detection results are presented in Table 3-2.

VOCs (as m- and p-xylene) were only detected in one sludge sample at a concentration of 110 J micrograms per kilogram (µg/kg). (The J qualifier indicates the detection is an estimated value below the certified reporting limit.)

Detections of pesticides occurred mainly in the sludge samples. 4, 4'-DDE and 4, 4-DDT, alpha-chlordane, beta-BHC, dieldrin, gamma-chlordane, and heptachlor epoxide were only detected in the sludge samples; however, no one pesticide was detected in all locations. Alpha-BHC was not detected in any of the sludge samples. Gamma-BHC was only detected at SB-09 in the South Lagoon at a concentration of 52 J μg/kg. Alpha-chlordane was detected in three of the sludge samples from the North Lagoon and two samples from the South Lagoon at concentrations ranging from 14 J to 32 μg/kg. Beta-BHC was only detected at SB-03 in the North Lagoon at a concentration of 100 μg/kg. Dieldrin was detected in three of the North Lagoon sludge samples and two of the South Lagoon sludge samples at concentrations ranging from 32 J to 89 μg/kg. Endrin aldehyde was detected only at SB-03 in the North Lagoon at a concentration of 20 J μg/kg. Gamma-chlordane was detected in four of the North Lagoon sludge samples and one of the South Lagoon sludge samples at concentrations ranging from 14 J to 66 μg/kg. Heptachlor was not detected in any of the sludge samples. Heptachlor epoxide was only detected at SB-03 in the North Lagoon. The concentration was 59 μg/kg.

PCB, as Aroclor 1260, was only detected at SB-03 in the North Lagoon at a concentration of 380 J μg/kg.

The metals analysis of the sludge indicates that arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver are all present at this site. Arsenic was detected in every sludge sample, at concentrations ranging from 2.46 to 13.9 milligrams per kilogram (mg/kg). All detections of barium were relatively high, ranging from 54.8 to 923 mg/kg. Cadmium was detected in nine of the ten sludge samples at concentrations ranging from 0.161 J to 12.8 mg/kg. Chromium was detected in every sludge sample, at concentrations ranging from 11.3 to 57.4 mg/kg. Lead was detected in every sludge sample, at concentrations ranging from 9.57 to 108 mg/kg. Mercury was detected in nine of the ten sludge samples at concentrations ranging from 0.269 to 3.89 mg/kg. Selenium was detected in nine of the ten sludge samples at concentrations ranging from 1.78 to 33.2 mg/kg. Silver was detected in every sludge sample, at concentrations ranging from 1.94 to 105 mg/kg.

Nitrate/nitrite was detected in eight of the ten sludge samples at concentrations ranging from 7.41 to 486 mg/kg. Concentrations were significantly higher in the South Lagoon where all five samples had detections. The sludge at SB-07 had the highest level of nitrate with a concentration of 486 mg/kg.

TOC was detected in every sludge sample collected at the Sewage Lagoons. Concentrations ranged from 5,800 to 193,000 mg/kg. These high concentrations are expected because of the nature of the material previously deposited in the lagoons.

The sludge samples were also analyzed for TCLP RCRA constituents. TCLP detections are presented in Table 3-2. Gamma-chlordane, heptachlor, and heptachlor epoxide were the only three pesticides detected. The gamma-chlordane concentrations ranged from 0.00016 J to 0.0003 J milligrams per liter (mg/L). For heptachlor, the concentrations ranged from 0.00021 J to 0.00054 mg/L. There was only one detection of heptachlor epoxide, in SB-09, at a concentration of 0.0002 J mg/L.

Arsenic, barium, mercury, and silver were the only metals with TCLP detections. Arsenic concentrations ranged from 0.40 J to 0.60 J mg/L. Barium concentrations ranged from 0.13 J to 1.1 mg/L. There was only one detection of mercury, in SB-02, at a concentration of 0.015 J mg/L. Silver was detected in two boreholes, SB-06 and SB-07, at concentrations ranging from 0.029 J to 0.03 J mg/L.

In summary, very low TCLP concentrations of pesticides and metals were detected in the sludge samples from both the north and south Sewage Lagoons. All of the sludge TCLP concentrations were below the RCRA regulatory limits specified in 40 CFR 261.

3.4.2 Soil Chemical Analyses

The soil samples were analyzed for the following analytes: VOCs, pesticides, PCBs, RCRA metals, nitrate/nitrite and TOC. Analytical results for the soil samples collected during the CMS field program are presented in Table 3-3 and are summarized in Table 3-4.

VOCs (as m- and p-xylene) were only detected in one soil sample at a concentration of 95 J μg/kg. (The J qualifier indicates the detection is an estimated value below the certified reporting limit.)

Only three pesticides were detected in soil samples. Alpha-BHC was only detected in three samples at SB-09 in the South Lagoon at concentrations ranging from 1.1 J to 2.2 μg/kg. Gamma-BHC was only detected at SB-10 in the South Lagoon at a concentration of 1.3 J μg/kg. Heptachlor was detected in soil samples from five of the boreholes at concentrations ranging from 2.3 to 3.4 μg/kg. No other pesticides were detected in the soil samples.

PCBs were not detected in any of the soil samples.

The metals analysis of the sludge indicates that arsenic, barium, cadmium, chromium, lead and selenium are all present. Arsenic was detected in every soil sample, at concentrations ranging from 1.63 to 13.9 mg/kg. All detections of barium were relatively high, ranging from 63.3 to 2,040 mg/kg. Cadmium was detected in every soil sample at concentrations ranging from 0.0994 J to 1.07 mg/kg. Chromium was detected in every soil sample, at concentrations ranging from 3.81 to 19.9 mg/kg. Lead was detected in every soil sample, at concentrations ranging from 1.29 to 13.7 mg/kg. Selenium was detected in seven of the ten soil samples at concentrations ranging from 0.508 to 1.31 mg/kg. Only arsenic, chromium and lead show any apparent trend with depth, and all show a general decrease in concentration with increasing depth of sample.

Nitrate/nitrite was detected in every soil sample at concentrations ranging from 0.45 to 125 mg/kg. Concentrations were significantly higher in the South Lagoon where all five samples had detections. The sludge at SB-06 had the highest level of nitrate with a concentration of 125 mg/kg.

TOC was detected in every soil sample collected at the Sewage Lagoons. Concentrations ranged from 627 to 3,300 mg/kg. Again, these relatively high concentrations are expected because of the nature of the material previously deposited in the lagoons.

In summary, low levels of pesticides were detected in the sludge of both the north and south Sewage Lagoons. Various metals were detected in the sludge and soil at concentration levels that tend to decrease with depth.

3.4.3 Geotechnical Analyses

Geotechnical results for the soil samples collected at the Sewage Lagoons indicated that the soil consists mostly of clay and sand with some silt and gravel. The amount of gravel in the soil encountered during drilling operations increases with depth. The three samples analyzed from the 8 to 10-ft interval contained 15.9, 30, and 44.2 percent gravel. The shallower samples were generally fine-grained, consisting mostly of silt and clay. The sand in the soil ranged from 27.6 to 62.3 percent with an average of 40.6 percent. Silt and clay ranged from 21.2 to 72.4 percent with an average of 50.3 percent.

Permeability tests were performed on the four undisturbed samples. Three samples were collected from the 0 to 2.5-ft interval: one from the north lagoon (SB-02) and two from the south lagoon (SB-07 and SB-10). The fourth sample was taken from the south lagoon from the 2.5 to 5.0-ft interval (SB-07). For the 0 to 2.5 ft undisturbed samples, permeability values ranged from $7x10^{-6}$ to $6x10^{-4}$ centimeters per second (cm/sec). The sample taken at 2.5 to 5.0 ft had a permeability of $1x10^{-6}$ cm/sec.

The Unified Soil Classification System (USCS) two-letter designations differ between some of the field observations and the laboratory geotechnical samples. Based on the observations of our field staff the differences are due to the heterogeneous nature of the soils in the lagoons.

3.5 FIELD PROGRAM SUMMARY

Field investigation activities at the Sewage Lagoons consisted of field construction and field sampling of the sludge and underlying native soil. Results of the chemical and geotechnical analyses performed on the samples will aid in determining the appropriate corrective action alternative for the SWMU. Efforts of this CMS are aimed at selecting a final corrective action for achieving closure of the Sewage Lagoons.

To obtain additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons, a field-sampling program was conducted. Based on sludge and soil sample results from previous investigations (E&E, 1998) and field sampling, analysis, and fate and transport modeling performed during the CMS, sludge and soil are considered nonhazardous and will not require offsite disposal.

3.6 FATE AND TRANSPORT MODELING

Fate and transport modeling simulated contaminant migration through the vadose zone. The fate and transport of contaminants of concern (COCs) that exceeded appropriate screening criteria were modeled based on current, normal site conditions. The COCs modeled were heptachlor, gamma-BHC (lindane), nitrate, and total xylenes. Additional simulations were performed with excessive precipitation to evaluate the transport effects of the COCs with increased infiltration.

The Seasonal Soil Compartment Model (SESOIL) was used for the fate and transport modeling (GSC, 1998). The SESOIL model has been used by many local, state, and federal agencies at several sites across the country to evaluate the effectiveness of waste-containment cover systems.

SESOIL is a one-dimensional vertical transport model designed to simultaneously simulate water transport, sediment transport, and contaminant fate for the unsaturated soil zone (Wisconsin Department of Natural Resources, 1994). Input data include soil physical parameters, contaminant chemical parameters, and meteorological information. Specific input parameters are presented in Appendix D.

The processes modeled by SESOIL are categorized into three cycles: hydrology, sediment washload, and pollutant transport; each cycle is a separate sub-model within the SESOIL code (Wisconsin Department of Natural Resources, 1994). SESOIL is a compartmental model that allows the user flexibility to divide the unsaturated zone into separate layers (if appropriate) and model contaminant release and migration within each layer down to the water table. The result is a calculated leachate concentration that will be introduced to groundwater. The model simulates leaching to groundwater and subsequent mixing that ultimately provides a groundwater concentration as a calculated result.

The simulations performed for the CMS applied conservative assumptions for the fate and transport modeling. The greatest concentrations of soil/sludge samples from field-testing were used to calculate loading rates for the COCs. The contaminant sources were modeled as instantaneous releases from the top 10 ft of the model. Groundwater was modeled as 290 below ground surface. The first simulation of each COC used climatic data specific for Clovis, New Mexico. Additional simulations were performed with one 24-hour, 100-year storm per year and six 24-hour, 100-year storms per year, beyond normal precipitation events.

Results of the 50-year simulations for the current, normal conditions at Cannon predicted vertical contaminant migrations of 0.02 ft, 0.04 ft, 225.85 ft, and 53.02 ft for heptachlor, gamma-BHC (lindane), nitrate, and total xylenes, respectively. None of the COCs reached groundwater in the 50-year simulation under normal, current conditions. An extended duration simulation predicted nitrate reaching the groundwater after 65 years under current, normal conditions. The increased infiltration from the addition of one 24-hour, 100-year storm per year had a negligible effect on transport of the heptachlor and gamma-BHC (lindane). Nitrate and total xylenes showed vertical depth increases of approximately 12 to 13 percent. The precipitation equivalent of six 24-hour, 100-year storms per year were required to increase infiltration to the extent that nitrate reached groundwater within 45 years. Once nitrate reached groundwater, the model predicted concentrations above the EPA maximum contaminant level.

Additional modeling was performed to observe the effects of standing water within the sewage lagoons. The unsaturated flow model VS2DTI was used to determine the infiltration rate of water from the sewage lagoons for a thirty-five year period. Based on predicted soil types and initial soil moisture contents, infiltrating water from the lagoons reached groundwater at 290 ft after approximately 2.7 years, yielding an infiltration rate of 107.4 ft per year.

A calibration was performed on the SESOIL model to imitate the predicted infiltration rate by increasing monthly precipitation. The contaminant surface loading rate for the model was manipulated to match observed groundwater concentrations of approximately 12 mg/L nitrate. Different simulations were performed using average contaminant concentrations from field data and calibrated surface loading to achieve measured groundwater concentrations. The results from the modeling indicated that extreme precipitation events were necessary to match the

effects on infiltration of the standing surface water. Also, nitrate concentrations much greater than those measured in the field were necessary to achieve a groundwater concentration equivalent to that measured in the field.

The modeling illustrated that degradation to groundwater from sludge COCs migration is unlikely under current, normal conditions where infiltration of water into the vadose zone is minimal. In summary, the model predicted that under conservative conditions where extreme precipitation occurred or standing water is allowed to accumulate in the open lagoons, the only COC that would reach groundwater is nitrate. An extended discussion of the modeling effort, including output, is presented in Appendix D.

4.0 HUMAN HEALTH AND SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENTS

A human health risk assessment (HHRA) and screening-level ecological risk assessment (SLERA) were prepared for SWMU 101, the Sewage Lagoons, to evaluate potential risks to human health and ecological receptors. The methodology used to prepare the risk assessments is presented in Appendix C and summarized below.

Two corrective action alternatives were evaluated in the HHRA and SLERA. The first alternative, No Action, was evaluated quantitatively. The second alternative, Sludge Dewatering In-Place, Consolidation, Compaction, and Cover was evaluated qualitatively. During the screening of chemicals of potential concern to be considered in the HHRA and SLERA several metals were identified as potential risk drivers, Therefore, the third alternative (In-situ Bioremediation Through Composting) was deemed ineffective in reducing the levels of metals in sludge at the sewage lagoons. Thus, the third alternative was not evaluated in the risk assessment.

4.1 NO ACTION ALTERNATIVE

The No Action Alternative is the baseline against which the other alternatives are compared. Under this alternative, existing conditions at SWMU 101 continue without any environmental improvements. Currently, the lagoons are dewatered and the sludge is exposed. Risks to human and ecological receptors were evaluated quantitatively for this alternative.

4.1.1 Areas of Concern

SWMU 101 was divided into four areas of concern for evaluation in the HHRA and SLERA: north lagoon sludge, north lagoon soil, south lagoon sludge, and south lagoon soil. Both the HHRA and SLERA used the sludge and soil analytical data collected in April 2000 as most representative of the current and future conditions that may occur at the site.

4.1.2 Human Health Risk Assessment

The purpose of the HHRA is to define the magnitude and probability of threats to public health posed by site-related chemicals in untreated sludge and soil at SWMU 101. The HHRA

evaluates all relevant potential current and future conditions at the site. The extent of risk is dependent on the degree to which receptors are exposed, which is mainly influenced by the types, frequencies, and duration of activities conducted at the site.

The HHRA was conducted to comply with the Federal and State regulations (EPA, 1999a, 1989; NMED, 2000a).

4.1.2.1 Selection of Chemicals of Potential Concern

Chemicals of potential concern (COPCs) for the HHRA are a subset of site-related chemicals that may be associated with adverse effects on human health. Selected COPCs were based on soil data collected from 0 to 10 ft below the sludge-native soil interface and all of the sludge data collected. The data were considered a realistic estimate of the sludge and soil to which receptors, industrial workers working at or near the lagoons, would most likely be exposed.

A comparison of detected inorganics with site-specific background levels of inorganics was made to identify naturally occurring chemicals not related to human activities at SWMU 101 (NMED, 2000b; EPA, 1989). The maximum inorganic concentrations detected in sludge and soil were compared with corresponding maximum detected concentrations of site-specific background samples (Cannon AFB, 1997). Chemicals detected below background concentrations were eliminated from further evaluation.

Following the background screening, a screening was made against EPA Region 6 *Residential Human Health Medium-Specific Screening Levels (HHSLs)* (EPA, 1999a). Based on guidance (NMED, 2000a), the maximum concentration of each noncarcinogenic chemical detected in sludge and soil samples from 0 to 10 ft below the sludge native-soil interface in each lagoon were compared to adjusted residential HHSLs. NMED requires that if two or more noncarcinogenic chemicals are present at a site, each chemical must be compared to one-tenth of its respective residential HHSL. This method addresses the potential that two or more of the noncarcinogenic COPCs may affect the same target organs or systems. The HHSLs for chemicals that exceeded the adjusted HHSLs were readjusted based on the number of chemicals in sludge or soil in the north or south lagoon that had the same critical effects and/or target

organs. The unadjusted residential HHSL was divided by the number of chemicals with the same critical effects and the maximum detected chemicals concentrations were all screened against the newly adjusted value. The maximum concentrations of each carcinogenic chemical detected in sludge and soil samples from 0 to 10 ft below the sludge native-soil interface in each lagoon were compared to the residential HHSLs. Chemicals with maximum detections below the adjusted or unadjusted residential HHSLs were eliminated from the quantitative risk assessment.

Based on the screening results against background and the HHSLs, the following COPCs were identified for the HHRA: PCB-1260, dieldrin, endrin aldehyde, and arsenic. Arsenic is the only COPC in both north and south lagoon soil. Arsenic and dieldrin are COPCs in sludge in both the north and south lagoon; PCB-1260 and endrin aldehyde are COPCs only in the north lagoon sludge.

4.1.2.2 Exposure Assessment

The Management Action Plan for Cannon AFB indicates that current land use at SWMU 101 is industrial and it is expected to remain industrial in the future. Based on land use information, under both current and future conditions, industrial workers are the only potential receptors who have direct access to SWMU 101 and any related contamination. Industrial workers would not be conducting any excavation in the sludge or soil, only working in the vicinity. The pathways that represent potentially complete exposure routes for industrial workers include:

- Ingestion and dermal contact with soil during work activities
- Inhalation of contaminated soil and soil particulates during wind or soil disturbance activities

The risks associated with exposure to COPCs depend on the concentrations of COPCs and on the extent to which receptors are exposed. The exposure assumptions are taken from Federal and State guidance documents (EPA, 1989, 1991, 1996a, 1999a, and 1999b; NMED, 2000a). The exposure point concentration used in the risk calculations was determined according to EPA guidance (EPA, 1989). The maximum COPC value was detected in the samples collected from sludge and from 0 to 2 ft below the sludge native-soil contact in each lagoon. If risk was were at

an unacceptable level in the 0 to 2-ft depth interval, risks would be calculated for individual depth intervals until an acceptable level of risk was obtained. This method was selected to assess at what depths risk was and was not present.

4.1.2.3 Toxicity Assessment

EPA guidance was followed for HHRA toxicity values (EPA, 2000; EPA, 1999a). COPCs were separated into two categories of chemical toxicity: carcinogenic and noncarcinogenic effects. Oral and inhalation reference doses (RfDs) are experimentally derived no-effect levels (even for sensitive populations) used to quantify the extent of toxic effects other than cancer because of contaminant exposure. Oral and inhalation cancer slope factors (CSFs) are chemical-specific, experimentally derived, potency values that are used to calculate the risk of cancer resulting from exposure to potentially carcinogenic contaminants. A great deal of uncertainty surrounds toxicity of dermal contact with chemicals in soil. The oral CSFs and RfDs were adjusted to derive dermal RfDs and CSFs (EPA, 1999a).

4.1.2.4 Uncertainty Analysis

Risk estimates have various uncertainties associated with them. These uncertainties are evaluated to provide an indication of the relative degree of uncertainty associated with a risk estimate. Risk estimates are calculated by combining site data, assumptions about the individual receptor's exposures to affected media, and toxicity data. These HHRA uncertainties can be grouped into four main categories:

- Environmental sampling and analysis
- Assumptions concerning exposure scenarios
- Toxicity data and dose-response extrapolations
- Combinations of sources of uncertainty

4.1.2.5 Risk Characterization

In the final step of the HHRA, the estimated rate at which human intake of a particular COPC occurs is compared with information about the toxicity of the COPC to estimate the potential

risks to human health posed by exposure to the COPC. In the risk characterization, cancer risks are evaluated separately from noncancer health threats.

Potential noncancer health effects are assessed by comparing the estimated average exposure rate with an exposure level at which no adverse health effects are expected to occur from a long period of exposure; this comparison gives a ratio known as the hazard quotient (HQ). This sum of the HQ for each COPC in soil and sludge in each lagoon is known as a hazard index (HI). Carcinogenic risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of a chemical exposure. Carcinogenic risks are evaluated by multiplying the estimated average exposure rate by the chemical's CSF giving an excess lifetime cancer risk (ELCR).

4.1.2.6 Summary and Results

For the industrial worker, the ELCR or HQ value for each analyte and exposure pathway (ingestion, inhalation, and dermal) was summed to produce total cancer risk and HIs. As shown in Table 4-1, risks from COPCs in soil and sludge in the north and south lagoon were below the target HQ of 1.0 (NMED, 2000a). NMED has established a target total ELCR of 1×10^{-5} for the sum of all carcinogens at a site or if only one carcinogen is present (NMED, 2000a). If multiple carcinogens are present the target ELCR for each carcinogen is 1×10^{-6} (NMED, 2000a). Arsenic was the only COPC that exceeded the target ELCR of 1×10^{-6} for a single chemical in sludge and soil in the north and south lagoons. Based on the results of the risk calculations, there is negligible risk to industrial workers from exposure to sludge and soil at SWMU 101.

Table 4-1. Summary of Risks and Hazards to Potential Human Receptors at the Sewage Lagoons

Risk or Hazard	North Lagoon Sludge	North Lagoon Soil	South Lagoon Sludge	South Lagoon Soil
HI	0.046	0.012	0.033	0.016
ELCR	3.1×10^{-6}	1.9×10^{-6}	5.5×10^{-6}	2.5×10^{-6}

4.1.3 Screening-Level Ecological Risk Assessment

The objective of the SLERA is to evaluate the potential ecological risks from chemical contaminants found on site. This information was used to develop a basis for risk management decisions for the SWMU. The procedures used to conduct this SLERA are consistent with those presented in Federal and State guidance documents (NMED, 2000c; U.S. Army Corps of Engineers [USACE], 1996; EPA, 1996b, 1998). Chemical contamination determined to potentially cause ecological risk may require additional evaluation in a more detailed quantitative assessment.

On April 6 – 7, 2000, a site survey of SWMU 101 was conducted to gather site-specific information to identify relevant and complete contaminant-pathway-receptor relationships. Information gathered during the survey is included in the discussion below.

4.1.3.1 Data Evaluation and Selection of Chemicals of Potential Ecological Concern

All chemicals positively identified above the method detection limit in sludge and soil data collected to a depth of 6 ft were considered preliminary chemicals of potential ecological concern (COPECs). Because not all chemicals found at a site will have adverse affects on ecological receptors, the list of preliminary COPECs was narrowed via a COPEC selection process. The selection process includes:

- Gathering all data available from the site investigation(s)
- Evaluating a preliminary COPEC detection status
- Comparing inorganic preliminary COPEC concentrations with naturally occurring background values
- Evaluating environmental fate and transport properties
- Developing a list of COPECs that are likely to be site related and that will be evaluated in the SLERA.

No inorganics in the north lagoon soil or south lagoon sludge were detected below background concentrations. Barium in north lagoon sludge and barium and selenium in south lagoon soil

were detected below background concentrations and were eliminated from further evaluation in the SLERA for their respective areas of concern.

4.1.3.2 Exposure Setting

Information pertaining to the exposure setting at Cannon AFB was obtained primarily from Cannon AFB (Cannon AFB, 1996). Information collected during the April 2000 site survey was also incorporated.

The area climate is semi-arid, characterized by highly variable precipitation patterns. The average annual precipitation is 14 in., most of which falls as midsummer thunderstorms.

Historically, drainage at Cannon AFB has been by overland flow into four natural ephemeral playas. The natural land surface base is relatively flat and slopes gently from the northwest section of the base, where the elevation is 4,330 ft above sea level (asl), to the southeast, where the elevation is 4,260 asl. However, the two northern playas have been converted to intensely maintained, plastic-lined, golf course ponds. The southern playa is still intact; however, the surrounding drainage patterns have been altered. The eastern playa, known as the North Playa Lake, is the most significant playa for wildlife habitat. The North Playa Lake has been bermed on the north, west, and south sides with fill dirt and concrete debris.

The native vegetation of Cannon AFB is Plains-Mesa Grassland, which is the most extensive grassland community in New Mexico. In good condition, Plains-Mesa Grassland is composed almost entirely of grasses, with forbs and shrubs comprising less than 10 percent.

Four habitat types exist at Cannon AFB and include improved/landscaped, semi-improved/mowed grassland, unimproved/disturbed grassland, and riparian/aquatic. Overall, the habitats present on Cannon AFB are relatively isolated and are surrounded by cultivated agricultural fields and cattle grazing pastures.

The northwestern half of the base is almost entirely improved/landscaped. Additional areas of development are scattered on the southeastern portion. This habitat type consists of the flightline

area, base operations areas, housing areas, and golf course. Vegetation predominantly consists of cultivated landscape plants.

The grassland areas on Cannon AFB were cultivated agricultural fields prior to the construction of the airfield. The grassland areas were eventually allowed to go fallow and continue to be impacted by base operations and maintenance (e.g., police training, mowing). The semi-improved/mowed grassland community is found within and/or adjacent to the airfield, base housing, munitions storage area, recreation fields, and roadways. The grass in these areas is maintained at a height of approximately 1 to 3 in. Surrounding these areas are unimproved/ disturbed grasslands.

Riparian/aquatic communities on Cannon AFB include drainage ditches and the playa lakes. The drainage ditches are concentrated around the developed/landscaped areas and carry runoff to the playa lakes and golf course ponds. The playa lakes have no surface outlet, and any water they collect is eventually lost to evaporation, infiltration, and/or use by plants and animals.

Six federally listed endangered, threatened, and candidate species; one state endangered species; and one state rare and sensitive species potentially occur on Cannon AFB. The American peregrine falcon (*Falco peregrinus anatum*), Arctic peregrine falcon (*Falco peregrinus tundrius*), bald eagle (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), and Baird's sparrow (*Ammodramus bairdii*) have a low potential of occurrence, while the mountain plover (*Charadrius montanus*) and swift fox (*Vulpes velox*) have a moderate potential of occurrence. The tall plains spurge (*Euphorbia strictior*) is not expected to occur because of the historic use of the area for agriculture (Cannon AFB, 1996).

4.1.3.3 Complete Exposure Pathways

Ingestion of soil and sludge, plants, or prey is considered the primary route of exposure for this SLERA. Inhalation and dermal absorption are possible routes of exposure, but for this SLERA, they are not likely to significantly contribute to the total exposure. In addition, methods are not adequately developed to quantitatively evaluate this pathway. Exposure to groundwater will not be evaluated because a complete exposure pathway does not exist. The ingestion of drinking

water is also expected to be insignificant because of the limited presence of surface water. Therefore, ingestion was the only route of exposure for upper trophic level species considered in this evaluation. For lower trophic level species (i.e., terrestrial invertebrates and plants) exposure was considered to be via direct absorption through the dermis or cell wall.

4.1.3.4 Identification and Selection of Assessment Endpoints

Assessment endpoints are particular components or attributes of an ecosystem that are critical to maintenance of the ecosystem structure and function. Assessment endpoints focus the SLERA on ecosystem components that may be impacted by contaminants at the site. The assessment endpoints identified for this SLERA include decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

4.1.3.5 Identification and Selection of Measurement Receptors

Measurement receptors were identified to evaluate the biological effects of contaminants on the assessment endpoints identified above. The measurement receptors for communities evaluated in this SLERA include terrestrial invertebrates and terrestrial plants. Terrestrial invertebrates include nematodes, gastropods, oligochaetes, and arthropods; terrestrial plants include vascular plants, grasses, forbs, and lichens. These communities provide an important food source for many higher trophic level species. In addition, terrestrial invertebrates, as decomposers and detritivores, play a critical role in nutrient cycling and terrestrial plants provide critical habitat for wildlife. Measurement receptors for guilds were chosen for the following class-specific guilds: herbivorous mammal, herbivorous bird, omnivorous mammal, and carnivorous bird. No amphibious/reptilian class-specific guilds were selected for SLERA inclusion in the quantitative portion because of the lack of toxicity information. Measurement receptors for guilds evaluated in this SLERA include the deer mouse, mourning dove, least shrew, and red-tailed hawk.

4.1.3.6 COPEC Concentrations at Point of Potential Exposure

The COPEC concentration used to represent the environmental concentration for this SLERA is the maximum measured COPEC concentration at each of the areas of concern.

4.1.3.7 Exposure Assessment

The exposure of a specific measurement receptor to a COPEC is quantified in the exposure assessment. Exposure assessments are conducted separately for each community measurement receptor and each class-specific guild measurement receptor.

4.1.3.8 Toxicity Assessment

Identifying toxicity reference values (TRVs) specific to a COPEC and to the measurement receptor being evaluated assesses the toxicity of a COPEC. The TRV is the dose for a measurement receptor that is likely to be without appreciable risk of deleterious effects from chronic exposure. TRVs are, therefore, developed based on a no-observed-adverse-effects-level (NOAEL) for a particular COPEC. NOAELs are derived experimentally or estimated by applying uncertainty factors to available toxicity data. The chronic NOAEL is used as the toxicity value endpoint to determine the TRV in this SLERA to protect against chronic effects.

For lower trophic-level communities (i.e., terrestrial invertebrates and plants), these TRVs are presented as media levels (in milligram per kilogram [mg/kg]) because it is assumed that the level of COPEC in these organisms will be proportional to the concentration in the media. TRVs for upper trophic-level class-specific guilds are expressed in terms of dose ingested (in mg/kg per pound of body weight per day) (NMED, 2000c).

Toxicity values not indicated in State guidance were adopted from other documentation (Efroymson et al., 1997a, 1997b; Sample et al., 1996). Significant data gaps exist in the toxicological information for pesticides available for terrestrial invertebrates and plants. COPECs for which a TRV could not be identified were evaluated qualitatively.

4.1.3.9 Risk Characterization

The exposure assessment and the toxicity assessment were integrated to produce an estimate of risk in the form of ecological screening quotients (ESQ) for a single chemical or cumulative ecological screening quotients (CESQ) for multiple chemicals. These ESQs and CESQs are receptor-specific, media-specific, and COPEC-specific.

An ESQ is equal to the COPEC estimated exposure level (EEL) divided by the TRV. For community receptors, the EEL is equal to the media concentration of the COPEC. For guild measurement receptors, the EEL is equal to the daily dose of COPEC ingested per unit body weight. An ESQ is generated for each measurement receptor for each COPEC exposure at each of the four areas of concern.

CESQs assume that the exposure and risk from multiple contaminants are additive (i.e., two or more contaminants may affect the same target organs or organ systems and/or act by similar mechanisms). This CESQ calculation is not typically completed for ecological risk assessments because of the uncertainties associated with the ESQs, the toxicity reference values, and the target effects of the COPECs (NMED, 2000c).

4.1.3.10 Description of Risk

The exceedance of toxicological benchmarks in this SLERA does not imply certain ecological risk; rather, the exceedance indicates contamination may be sufficient to warrant further investigation.

HQs greater than 1.0 indicate potential risk to an ecological receptor and may indicate the need for further evaluation using more site-specific information. HQs less than 1.0 indicate no potential ecological risk. COPECs with HQs less than 1.0 can be removed from further consideration because of the inherent and conservative assumptions applied to derive the HQ.

4.1.3.11 Limitations and Uncertainties in the Screening Process

There are many sources of uncertainty associated with the characterization of potential risk at this site. The uncertainties exist because assumptions and estimates were made about the existing onsite conditions, the receptors potentially exposed to COPECs, and the COPECs themselves. The uncertainties include, but are not limited to:

- Receptor species selected for evaluation
- Exposure parameters
- Sampling and COPEC selection process

- Assumptions used in estimating the daily dose ingested by the receptor species
- Toxicity information
- Assumptions made about the complexity of the existing ecosystem

4.1.3.12 Conclusions

The risk characterization for measurement receptors from potential exposure to COPECs in north lagoon sludge, south lagoon soil, and south lagoon sludge found that pesticides produced elevated ESQs for the deer mouse and least shrew. However, there were limited toxicity data available for terrestrial invertebrates and plants and risk could not be quantified for the majority of the pesticides. Results of the risk characterization are summarized in Table 4-2.

Concentrations of VOCs did not produce elevated HQs for any of the measurement receptors at any of the areas of concern.

Concentrations of PCBs produced elevated ESQs for the deer mouse and least shrew in north lagoon sludge. This is the only area of concern in which PCBs were detected.

Concentrations of inorganics produced elevated ESQs for all measurement receptors in all four areas of concern. ESQs ranged from 1.1 for terrestrial invertebrates from lead exposure to 5,300 for plants from silver exposure. Many of these ESQs are likely overestimated because of the presence of naturally high concentrations of inorganics. Most of the inorganics were detected at concentrations only slightly higher than background and would pose risk to potential receptors even at background concentrations.

The SLERA was designed to evaluate potential risk to representative receptors from multiple trophic levels present at the site as well as wildlife temporarily visiting the site. The risk characterization indicated that there might be risk for multiple tropic-level species from COPECs present in all four areas of concern.

4.2 SLUDGE DEWATERING IN-PLACE, CONSOLIDATION, COMPACTION, AND COVER ALTERNATIVE

In the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, sludge and affected soil from the north lagoon are dewatered, tilled, aerated, and transferred to the south lagoon. More specifically, a final dewatering of sludge is completed in both the north and south lagoons and the dewatered sludge and affected soil are removed from the north lagoon and placed in the south lagoon. The sludge in the south lagoon is then compacted with clean construction and demolition debris and a thick native topsoil and appropriate vegetation are placed on the south lagoon. The North Lagoon will be restored for use as a stormwater detention basin.

4.2.1 Human Health Risk Assessment

Under the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers are, again, the population who could potentially be exposed to COPCs in the north and south lagoon sludge and soil. In this alternative, sludge and affected soil in the south lagoon are covered with debris, topsoil, and vegetation. The covering would eliminate exposure to the COPCs; therefore, there would be no risk to the industrial worker at the south lagoon. Since all of the sludge and affected soil was removed from the north lagoon, there would be no risk to an industrial worker at the north lagoon.

4.2.2 Screening-Level Ecological Risk Assessment

The ecological receptors identified for the quantitative evaluation were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, potentially a complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise the cover. Therefore, it is recommended that a biotic barrier be used to ensure that this exposure pathway is no longer complete and potential receptors are not exposed to COPECs.

4.2.3 Recommendations

If this alternative is selected, it is recommended that a biotic barrier be used in the south lagoon to ensure that this exposure pathway is no longer complete for ecological receptors. The biotic barrier will prevent potential ecological receptors from being exposed to COPECs. No specific safeguards are necessary to prevent additional exposure to human receptors.

5.0 CORRECTIVE ACTION OBJECTIVES AND SELECTION CRITERIA

Three alternatives are being considered during this focused CMS. Alternative 1 is presented as no action at the site, while Alternative 2 was addressed in the Phase III Sludge Management Compliance Evaluation and Requirements Identification Document (E&E 1998). Alternative 3 presented below now consists of *in-situ* bioremediation based on input from Cannon AFB in response to recent public comments. The three alternatives are briefly discussed below.

1. No Action—This alternative is the baseline against which all other alternatives are compared and consists of allowing the existing conditions at the site to continue without any environmental improvements.

2. Sludge Dewatering In-Place, Consolidation, Compaction, and Cover—This alternative involves performing final dewatering of the north and south lagoons; removal of dewatered sludge from the north lagoon and placement into the south lagoon; compaction of the sludge in-place with clean construction and demolition debris; and installing thick, native topsoil layer and appropriate vegetation. Erosion control measures will be installed if necessary.

3. *In-situ* Bioremediation Through Composting—This alternative involves composting contaminated lagoon sludges and soil in place within the lagoons in order to reduce contaminant concentrations which present a risk to the environment.

The aforementioned corrective measures alternatives for the sewage lagoons will be evaluated based upon the ability of each alternative to meet the following: (1) the corrective action objectives; (2) conceptual design criteria (i.e., permeability of backfill, design life, erosion control, vegetation, etc.); and (3) selection criteria (i.e., effectiveness, cost, risk, final use, aesthetics, etc.). In this focused CMS, individual criterion will be qualitatively evaluated for each alternative. As a result of the evaluation, one alternative will be chosen for further examination during the future design phase of the corrective action process at the sewage lagoons.

The CMS was based on the following corrective action objectives:

- Protect human health and address risks to ecological receptors
- Attain media-specific cleanup standards
- Control source of releases
- Comply with applicable standards for waste management

5.1 CONCEPTUAL DESIGN CRITERIA

The conceptual design criteria were based on the Foster Wheeler Environmental risk assessment of the sewage sludge lagoons (Appendix C). Sludge TCLP concentrations in the North and South lagoons were below levels in 40 CFR 261 for hazardous waste characterization. Metals concentrations in the sludge were below those for Class A land application in 40 CFR 503. Though the sludge meets regulatory requirements for closure, the human health and ecological risk assessment was performed to provide a more conservative standard for closure of the lagoons. The risk to human health resulting from the risk assessment is $1x10^{-6}$. Because this level of risk demonstrates a low relative risk to humans, a further analysis of the risks to ecological receptors was performed. Based on the ecological risk assessment, it was determined that a conservative design for closure of the lagoons would prevent ecological receptors, including burrowing organisms, from coming in contact with the sludge.

The conceptual design criteria for this focused CMS were developed to meet regulatory requirements and support reducing risks to human health and the environment. The conceptual design criteria are present below:

- Reduce risk to human health and the environment–A reduction in risk can be achieved by physical means (i.e., creation of a barrier to prevent direct contact to contaminated materials).

- Limit surface ponding and infiltration through consolidated soil and sludge–It will be necessary to protect groundwater from infiltrating leachate from the sludge. SESOIL modeling performed during this CMS indicates that no further contamination to groundwater

would occur if infiltration through the sludge layer and soil beneath were prevented. Therefore, a conservative design should prevent ponding and infiltration through the sludge layer.

- Prevent burrowing into contaminate materials by wildlife–Due to the unacceptable risk to ecological receptors due to exposure to lagoon sludges, barriers should be considered in the final design that would prevent burrowing into the soil cover.

- Promote positive drainage–If an alternative involving a final cover is implemented, the cover will be designed with adequate slopes for drainage.

- Use native species of grasses in revegetation efforts–The design will provide for lagoon revegetation with native species that will prevent erosion and cracking of the cover or base surfaces.

5.2 CORRECTIVE ACTION ALTERNATIVE EVALUATION

The evaluation and selection of the proposed corrective action alternatives will be based on the ability to meet the following criteria:

- Corrective Action objectives will be met
- Conceptual Design Criteria will be met
- Long-term reliability and effectiveness
- Reduction of waste toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Safety
- Cost

A qualitative discussion of the screening process for each corrective action alternative is presented in Section 6.0.

6.0 TECHNOLOGY SCREENING AND CORRECTIVE MEASURES DEVELOPMENT

This section discusses the technology screening methods and corrective measures development for the selected alternatives.

- Alternative 1–No Action
- Alternative 2–Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
- Alternative 3–*In-situ* Bioremediation Through Composting

6.1 DEVELOPMENT OF CORRECTIVE MEASURES

6.1.1 Alternative 1: No Action

The No Action Alternative is the baseline against which all other alternatives are compared. This option consists of allowing the existing site conditions to continue without any environmental improvements. The sludge is currently exposed to the air, with no freestanding water, and is partially dry. As of May 2000, the sludge was estimated to be 2 ft deep.

As a result of the 1992 RFI, it was recommended that annual groundwater monitoring be continued for VOCs, metals, pesticides, nitrates, sulfate and total dissolved solids. The monitoring is currently conducted annually and should continue if the No Action Alternative is implemented.

6.1.2 Alternative 2: Sludge Dewatering in Place, Consolidation, Compaction, and Cover

This alternative involves:

- Performing final dewatering of the north and south lagoons
- Removing dewatered, tilled, and aerated sludge from the north lagoon and placement into the south lagoon
- Compacting the sludge in place with clean construction and demolition debris
- Installing a final cover and appropriate vegetation

- Installing erosion control measures, if necessary

6.1.2.1 Sludge Dewatering

Freestanding water in the sludge lagoons will be removed and discharged to the base Wastewater Treatment Plan. As of May 2000, Foster Wheeler personnel noted that there was no freestanding water in the lagoons. The remaining sludge will be tilled and aerated in place to promote further drying. A tractor-mounted deep disk harrow or auger/aerator will be used to turn the sludge and expose lower wet surfaces to the air and promote aerobic conditions. It is assumed that 10 passes over each lagoon spaced over a 2-week period would be sufficient. With approximately 2 weeks of dry weather, the total solids (TS) content of the soil should increase to 50 percent (E&E, 1998), which would be sufficient for the sludge to support the final cover.

Foster Wheeler personnel also observed that a black crust approximately 6-in. thick had formed on the surface of the sludge, with greenish wet sludge below. The tractor-mounted tilling equipment will aid in aeration of the lower layers and prevent formation of a hardened crust that may hamper evaporation.

6.1.2.2 Dewatered Sludge Consolidation

The dewatered, tilled, and aerated sludge will be transported from the north lagoon to the south lagoon after the sludge has reached approximately 50 percent TS. Prior to consolidation, the south lagoon sludge will be compacted by passes with a sheepsfoot or a roller. Dewatered sludge from the north lagoon will be transported to the south lagoon, compacted and graded to provide a sub-base for the final cover. Compaction specifications should be determined during the Corrective Measures Design (CMD). Crushed concrete demolition debris from another Cannon AFB site will be used as additional fill material for the subgrade as needed. The final slopes of the subgrade will be between 2 and 5 percent to provide adequate drainage slopes for the final cover.

In Spring 2000, Foster Wheeler personnel estimated the sludge depth in the north and south lagoons to be less than 2 ft. The resulting wet sludge volumes for the north and south lagoons are 52,000 and 55,000 cubic yards (cu yds), respectively.

6.1.2.3 South Lagoon Final Cover

A final cover will be placed over the subgrade to address ecological risks, prevent infiltration to the sludge layer, and protect groundwater. The following final cover recommendations are based on the Federal guidance (EPA, 1995). The final cover will consist of an 18-inch infiltration layer, a 12-inch biotic barrier, and an erosion layer as shown in Figure 6-1. A low permeability soil layer will be compacted directly above the subgrade to form the infiltration layer. To prevent ponding and infiltration through the sludge, this layer will have an infiltration rate less than that of the lagoon bottom. Regardless of the permeability of the lagoon bottom, the hydraulic conductivity of the infiltration layer can not exceed $1x\ 10^{-5}$ cm/sec. The infiltration layer will consist of a minimum of 18 in. of compacted soil and will maintain the 2 to 5 percent drainage slopes established by the subgrade.

The next layer is a biotic barrier designed to prevent exposure of burrowing animals to the sludge. This is a conservative, risk-based approach to designing the final cover because the highest risk is to ecological receptors. Typical biotic barriers have been constructed of a minimum of 12 in. of cobbles (EPA, 1995). In order to promote recycling of demolition debris, the biotic barrier will be constructed of at least 12 inches of clean concrete debris from another Cannon AFB site crushed to minus 4 inches. This layer will prevent the intrusion of burrowing animals into the infiltration layer, protecting the sludge from infiltration and the animals from exposure. The biotic barrier will also prevent deep rooting plants from disrupting the infiltration layer.

The final and uppermost layer in the lagoon cover is an erosion layer that will provide protection from erosion and form the growing medium for a vegetative cover. A minimum of 6 in. of soil will be required for the erosion layer and the type and thickness of the soil layer will be determined in conjunction with the type of vegetative cover it will support. The erosion layer will maintain the 2 to 5 percent drainage slopes established by the subgrade. The vegetative cover should be composed of native plants selected on their ability to withstand drought and extreme temperatures, root depth, density, maintenance, and longevity.

If this alternative is selected, a detailed cover design should be developed and analyzed further in the CMD. Preliminary estimates indicate that the layers shown in Figure 6-1 will fill the lagoon basin high enough to promote drainage from the finished cover grade and over the existing lagoon berm. However, further analysis during the CMD may indicate that modification to the lagoon berm or additional fill material will be required to maintain adequate final cover drainage.

6.1.2.4 North Lagoon Restoration

As part of the sludge consolidation alternative, the north lagoon will be emptied and restored for use as an emergency stormwater management basin. The restoration includes:

- Modifying piping
- Installing a submersible pump at the playa lake
- Excavation of 12 inches of existing soil from the lagoon bottom to eliminate contamination from the sludge

It is assumed that the piping and mechanical work will be sufficient to connect the north lagoon as a stormwater management basin. This work includes (E&E, 1998):

- Closure of piping to the south lagoon with blind flanges
- Installation of piping and fittings to connect the playa lake to the north lagoon
- Installation of a submersible pump and automatic controls at the playa lake

Results of the fate and transport modeling indicated that if a significant amount of water were to accumulate within the North Lagoon and allowed to stay for extended periods of time, infiltration to the water table could occur within 100 years; and any nitrate within soil remaining in the bottom of the lagoon would leach to the water table at levels exceeding regulatory requirements.

To reduce the potential for nitrate contamination, the existing soil at the bottom of the lagoon will be excavated to a depth of 12 inches. The excavated soil will be disposed of in the south lagoon. Clean native soil will be imported to fil in the 12-inch excavation and restore the north lagoon bottom to its original subgrade.

6.1.3 Alternative 3: *In-Situ* Bioremediation Through Composting

To reduce contaminant levels, the *in-situ* bioremediation alternative involves further treatment of the sludge through composting processes. Bioremediation is the breakdown of organic contaminants by micro-organisms. The micro-organisms use the contaminants as an energy source at rates that depend on the amount of oxygen, nutrient levels, moisture, pH, and sludge temperature. To some extent, the process can be monitored and influenced by controlled changes to these parameters. A small-scale pilot study is typically performed prior to a full-scale bioremediation project in order to determine the effectiveness of the bioremediation process and fine tune controls. Therefore, bioremediation is not an effective means of reducing concentrations of inorganic contaminants.

The results of sludge analyses show that the sludge contaminant concentrations are below TCLP limits for hazardous waste as prescribed in 40 CFR 261. The sludge contaminant concentrations are also below those listed in 40 CFR 503 as the ceiling concentrations for land application of the sludge. Therefore, it is not necessary to reduce contaminant levels further to meet regulatory requirements by bioremediation or composting.

However, after meetings with state agencies and the client, it was determined that an ecological risk-based approach to the corrective action is more conservative than simply meeting regulatory requirements for closure. The risk assessment for ecological receptors demonstrated that the primary COCs for the sludge are metals including arsenic, cadmium, chromium, lead, mercury, selenium, and silver. Reducing the levels of these COCs to eliminate risk to ecological receptors is not possible by means of bioremediation or composting. After it was determined that the corrective action would be based on a conservative ecological risk-based approach, the *in-situ* bioremediation alternative was not researched further.

6.2 CORRECTIVE ACTION ALTERNATIVE SCREENING

6.2.1 Alternative 1: No Action

The No Action Alternative does not comply with any of the corrective action objectives. The current conditions pose a low relative risk to humans, but pose a higher risk to ecological

receptors (Appendix C). The sludge is a potential source of releases of contaminants to the groundwater by infiltration through the lagoon bottom.

The No Action Alternative does not address the previously discussed conceptual design criteria, including preventing infiltration of contaminants to the groundwater and preventing exposure to ecological receptors. This alternative does not provide an ecological risk-based approach to lagoon closure.

The volume of lagoon sludge will likely be reduced by the No Action Alternative, through natural evaporation processes. In the short term, the hard crust that forms over the sludge may promote anaerobic conditions in the lower layers and result in odor problems. Over the long-term, drying of the exposed sludge will likely result in dust problems and increased mobility of the waste.

The No Action Alternative is easily implemented and low in cost since it involves a continuation of the current conditions and little action. However, it does not address the corrective action objectives or the conceptual design criteria. In addition, current conditions limit the use of the land occupied by the basins.

6.2.2 Alternative 2: Sludge Dewatering in Place, Consolidation, Compaction, and Cover

The sludge consolidation and cover alternative addresses all of the corrective action objectives defined earlier. This conservative alternative is based on addressing human and ecological risks for COCs (Appendix C). The design criteria met by the sludge consolidation and cover alternative to address risks are more conservative than those required by the applicable regulations. The sludge consolidation and cover alternative prevents contaminant releases from the sludge by prescribing a final cover with infiltration, erosion, and exposure controls.

The sludge consolidation and cover alternative meets all design criteria established by regulatory requirements and the risk assessment. Burrowing animals will be protected from exposure to the sludge material by means of a biotic barrier layer in the final cover. This layer of cobbles or crushed concrete will prevent the animals from burrowing into the sludge layer. Groundwater will be protected by preventing infiltration into the sludge layer and through the bottom of the

lagoon. The final cover will have an infiltration layer with a hydraulic conductivity less than that of the bottom of the lagoon to prevent infiltration. The alternative provides for a final cover with adequate drainage slopes and a vegetative cover to prevent erosion and cracking.

The final cover for the sludge consolidation and cover alternative is a long-term measure for permanent closure of the lagoon. Proper maintenance (i.e., periodic monitoring for settlement, cracking, erosion and annual mowing) will enhance the effectiveness of the final cover.

The waste sludge volume will be reduced through dewatering, tilling, and aerating and the south lagoon will have the capacity to consolidate the dewatered north lagoon sludge. In addition, preliminary estimates show that the south lagoon will be able to accommodate an additional 20,000 to 30,000 cu yds of fill material, such as crushed concrete debris from other Cannon AFB sites. Following construction of the final cover, the mobility of the sludge will be decreased greatly, and there will be no potential for dust problems from the sludge. Daily cover material placed over the sludge will reduce the short-term risks of exposure to the sludge during construction activities.

The consolidation and cover alternative provides a reliable, simple means of closing the lagoons permanently. Recycling Cannon AFB demolition debris as fill, and biotic-barrier materials and reuse of the north lagoon as a stormwater basin increase the cost-effectiveness of this alternative. Construction practices involved in the consolidation and cover alternative are standard practices, such as excavation, hauling, and grading. All safety issues will be discussed in detail in a site-specific health and safety plan following the CMD development.

6.2.3 Alternative 3: *In-Situ* Bioremediation Through Composting

Preliminary analysis of the *in-situ* bioremediation alternative demonstrated that this alternative does not meet the corrective action objectives or the conceptual design criteria. The risk assessment performed by Foster Wheeler Environmental (Appendix C) listed several metals as COCs for ecological risk. *In-situ* bioremediation will not improve the levels of these metals in the sludge. Therefore, the *in-situ* bioremediation alternative is not recommended.

7.0 EVALUATION OF FINAL CORRECTIVE ACTION ALTERNATIVE

Alternative 2, sludge consolidation and covering, is recommended as the corrective action for closure of SWMU 101. This alternative meets the corrective action objectives, conforms to the conceptual design criteria, and provides the additional benefit of restoring the north lagoon for use as a stormwater management basin.

A preliminary cost estimate for the selected alternative, the sludge consolidation and covering is provided in summary in Table 7-1 and in detail in Table 7-2. The total estimated cost is $1,544,000, including the estimated costs to restore the north lagoon for use as a stormwater management basin.

Table 7-1. Cost Estimate Summary

Task	Estimated Cost
Predesign sampling	$12,000
Permits	$1,000
Reporting	$10,000
Sludge tilling and aeration operations	$37,000
Excavation/hauling/grading	$598,800
Final cover at south lagoon	$536,500
North lagoon restoration	$208,200
Subtotal	$1,403,500
CMD and Engineering (10%)	$140,400
Total	$1,544,000

The cost estimate was based on the following assumptions:

- Cannon AFB will hire a contractor to perform the work.
- Tilled and aerated sludge volumes were estimated based on a 15 percent reduction from the current volume.
- Gas monitoring at the site will not be necessary because of the stabilized nature and low volatile solids content of the sludge.

- The CMD and engineering support were estimated to be 10 percent of the capital cost.

8.0 APPLICABLE REGULATIONS AND GUIDANCE

This section describes the environmental regulations and guidance that may be applicable to the proposed corrective measures activities. The EPA has authorized NMED to implement the RCRA program and to oversee corrective action program activities conducted in accordance with the Cannon AFB RCRA Part B Permit. A detailed plan for ensuring conformance with applicable regulations will be developed as part of the corrective measures implementation work plan.

8.1 REGULATED SITE ACTIVITIES

During investigations of SWMU 101, various inorganic constituents have been detected at concentrations in excess of acceptable ecological risk-based levels. The anticipated regulated activities that are to be addressed include:

- Allowing passive dewatering of the Sewage Lagoons prior to CMS field activities
- Constructing access roads/ramps on the surface of each of the Sewage Lagoons
- Storing fuel for heavy equipment utilized onsite
- Excavating impacted sludge and soil from the north Sewage Lagoon, hauling the material to the south lagoon, and consolidating the material onto the south lagoon
- Constructing a soil cap containing a biotic barrier for the consolidated material in the south lagoon
- Generating and storing decontamination water and used PPE
- Sampling and analysis of decontamination water, if required, for subsequent characterization, management, and disposal purposes
- Assisting Cannon AFB with identification of appropriate transportation companies and disposal facilities for disposal of potentially hazardous waste generated from the SWMU corrective action activities
- Preparing and completing documentation, and labeling and placarding waste containers, as necessary, for transport to an appropriate disposal facility

8.2 REGULATORY REQUIREMENTS

Project activities will generate nonhazardous and potentially RCRA hazardous waste. The project activities will also include construction activities involving the excavation and replacement of impacted soil and the operation of heavy equipment. Therefore, the following Federal and State regulations are applicable and must be complied with during implementation of planned project activities:

- EPA Regulations for Identification and Management of Hazardous Waste, 40 CFR 260–299
- U.S. Department of Transportation Rules for Hazardous Materials Transport, 49 CFR 100–178
- New Mexico Hazardous Waste Management Regulations
- New Mexico Air Quality Control Regulations
- NPDES Stormwater Regulations
- Federal Fuel Hydrocarbon Spill Prevention and Countermeasures Control Regulations
- Applicable Cannon AFB Permits and Policies and Procedures

Table 8-1 lists and summarizes the regulations applicable to the corrective action activities proposed for SWMU 101.

8.3 PERMIT REQUIREMENTS

An NPDES Storm Water Construction Permit (40 CFR 122.26) is required for an NPDES permit for construction activity, including clearing, grading, and excavation activities. An exception to this rule is for operations that result in the disturbance of less than 5 acres of total land area and are not part of a larger common plan of development or sale. The actual construction area for this project is greater than 5 acres; consequently, an NPDES construction permit or a Notice of Intent to discharge is required. When the design for implementation of the corrective measures activities is finalized, Cannon AFB will prepare an NOI. As required under the general stormwater NPDES Permit, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared. The SWPPP will address surface water discharges and run-on and runoff control resulting from project construction activities.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements

Requirement	Citation	Description
CHEMICAL-RELATED REGULATORY REQUIREMENTS		
New Mexico Standards for Groundwater	20 New Mexico Administrative Code (NMAC) 6 Part 2, Subpart III, Section 3104	Unless otherwise provided by this Part, no person will cause or allow effluent, leachate, or water/liquid to discharge so that it may move directly or indirectly into groundwater unless they are discharging pursuant to a discharge plan approved by the secretary of the NMED.
New Mexico Standards for Groundwater	20 NMAC 6 Part 2, Subpart III, Section 3101	The following standards apply to discharges of water to the ground (chemical specific standards to be included in Work Plan): • Human Health Standards—Groundwater: Nonaqueous phase liquid will not be present floating atop of or immersed within groundwater, as can be reasonably measured. • Other Standards for Domestic Water Supply • Standards for Irrigation Use: Groundwater will meet the standards of Subsections A, B, and C unless otherwise provided.
National Ambient Air Quality Standards	40 CFR 50	Sources cannot cause or contribute to an exceedance of a national ambient air quality standard.
New Mexico Ambient Air Quality Standards	20 NMAC 2 Part 3, Sections 109, 110, and 111	Sources cannot cause or contribute to an exceedance of New Mexico ambient air quality standards for total suspended solids, sulfur, carbon monoxide, and nitrogen dioxide.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (continued)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Air Emissions/Construction Activities		
Clean Water Act Storm Water Permit	40 CFR 122	General NPDES Storm Water Permit Requirements for Construction Activities
Clean Water Act SPCC Plan	40 CFR 112	Spill Prevention Countermeasures and Control (SPCC) requirements for storage of fuel hydrocarbons
Air emissions from stationary combustion equipment and diesel-powered vehicles associated with excavation and backfill operations	20 NMAC 2 Part 61, Sections 109 and 110	The owner or operator of stationary combustion equipment shall not permit, cause, suffer, or allow visible emissions from the stationary combustion equipment to equal or exceed opacity of 20%. No person will permit, cause, suffer, or allow the emission into the open air of any smoke having an opacity greater than 30% for any period greater than 10 seconds from any diesel-powered vehicle operating below 8,000 ft (mean sea level).

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (continued)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Waste Characterization		
Determination of Hazardous Waste	• 40 CFR 262.11 • 40 CFR 261 • 20 NMAC 4 Part 1, Subpart II	Any waste generated during remedial activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous: • Determine whether the waste is excluded from regulation under 40 CFR 261.4 • Determine whether the waste is listed under 40 CFR 261 • Determine whether the waste is identified in 40 CFR 261 by testing the waste according to specified test methods or by applying knowledge of the hazardous characteristics of the waste in light of the materials or the process used.
Waste Management		
Hazardous Waste Generator Standards	• 40 CFR 262 • 20 NMAC 4 Part 1, Subpart III—Generator Standards • 20 NMAC 4 Part I, Subpart VIII—Land Disposal Restriction Standards	Hazardous waste generated during remedial activities must be managed and disposed of per RCRA requirements pertaining to storage (i.e., container requirements) and disposal at approved offsite permitted hazardous treatment, storage, and disposal facilities.

Table 8-1. Summary of Potentially Applicable Regulatory Requirements (concluded)

Requirement	Citation	Description
ACTION-RELATED REGULATORY REQUIREMENTS		
Treatment, Storage, or Disposal of RCRA Hazardous Waste	• 40 CFR 264.310(a)(4), (5), (b)(1) and (5) • 40 CFR 264.117 – 264.120 • 20 NMAC 4 Part 1, Subpart V • 40 CFR 264.95 • 40 CFR 264.16 (a)(1) • 20 NMAC 4 Part 1, Subpart V	• Closure and cover requirements for landfills • Post-closure requirements • Groundwater protection standards and point of compliance • Personnel training
Treatment and Disposal of Hazardous Debris	• 40 CFR 268.45 • 20 NMAC 4 Part 1, Subpart VIII	Hazardous debris generated during remedial activities must be treated using specific technologies to extract, destroy, or immobilize hazardous constituents on or in the debris if placement occurs. In certain cases, the debris may no longer be subject to RCRA Subtitle C regulations after treatment.
Health and Safety Requirements		
Health and Safety Requirements	29 CFR 1910.120	Hazardous waste site supervisors, workers, and visitors are required to comply with the training and medical surveillance requirements detailed in this citation.

9.0 PUBLIC INVOLVEMENT PLAN

Public involvement in the evaluation of the preferred corrective action alternative is a requirement of RCRA as specified in the RCRA Corrective Action Plan (EPA, 1994). Once the CMS report has been reviewed by Cannon AFB and NMED, the preferred alternative will be proposed in the Statement of Basis, which will be prepared as a document summarizing the CMS report for the Administrative Record. When the Statement of Basis is issued, the public will be invited to comment on the proposed corrective measure of the Sewage Lagoons. Public involvement during the review process of the CMS will follow procedures presented in the Cannon AFB Community Relations Plan (Cannon AFB, 1993) and can take place using one, or more, of the following activities:

- Present a formal announcement in Cannon AFB and local Clovis and Portales newspapers notifying the public of the CMS and the Statement of Basis.
- Schedule and conduct a public briefing as part of the quarterly Restoration Advisory Board meeting for the base. Invite the public to attend through media bulletins.
- Provide copies of the Statement of Basis in local public libraries.

Once the public is notified of the CMS results and the Statement of Basis becomes accessible, the public will be allowed a specified comment period. Comments from the public will be addressed and the final decision document will be issued detailing the selected corrective measure.

10.0 PROJECT SCHEDULE

A tentative project schedule has been developed and is represented on Table 10-1. The schedule is based on the corrective action timeline suggested by RCRA guidance (EPA, 1994). Beginning on the issue date of the draft CMS report and continuing through the regulatory review, the public comment period, and the submittal of the Final Decision document, the schedule elapses 168 days.

Revisions to the schedule may take place at any time based on communication between Cannon AFB and NMED concerning the focused nature of the CMS and the results presented in this report.

Table 10-1. Sewage Lagoons Corrective Action Schedule

Action Item	Dates	Number of Days
2000		
1. Review of the Draft CMS Report by Cannon AFB and USACE	August 29 – September 26	29 days
2. Preparation of the Final CMS Report	September 27 – October 12	16 days
3. Review of the Final CMS Report by NMED	October 13 – November 12	31 days
4. Issue the Statement of Basis	November 13 – December 15	33 days
2001		
5. Public Comment Period	December 16, 2000 – January 14	30 days
6. Issue the Final Decision Document	January 15 – February 12	29 days

11.0 SUMMARY AND CONCLUSIONS

The CMS of the Sewage Lagoons is a voluntary program aimed at achieving closure of the Sewage Lagoons, which were active from 1966 through 1998. This focused CMS report complies with the requirements outlined in RCRA guidance (EPA, 1994). However, the requirements CERCLA apply to the Sewage Lagoons because they are identified by the Air Force as an IRP site. The lagoons are currently at the RCRA corrective action equivalent of the feasibility study stage of the CERCLA process, and all recommended milestones have been met.

The purpose of the CMS for this site was to identify and evaluate potential corrective action alternatives to prevent future impact to human health and the environment. This CMS is of a focused nature such that preliminary work was completed in 1998 to support the use of sludge consolidation and covering the containment area with soil to achieve site closure (E&E, 1998). Human health and ecological risk assessments were conducted as part of the CMS in order to determine the level at which containment and source control is required at the site. An ecological survey of the area was also conducted to support the risk assessment.

11.1 CMS FIELD PROGRAM AND DATA EVALUATION

The CMS included a field program designed to collect the additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons. Roads were constructed to gain access to the lagoons and sludge. Sludge and soil sampling was performed to support the CMS. Samples were collected to characterize the sludge and native soil for the future design phase of the corrective action. Samples were analyzed for RCRA metals, VOCs, pesticides, PCBs, nitrate and TOC. TCLP results for sludge samples indicate there is no potential for leachate to exceed regulatory levels. Geotechnical samples were collected during the CMS field program and were analyzed according to ASTM procedures for soil classification, grain-size analysis, Atterberg limits, and permeability.

Fate and transport modeling was performed to support the risk assessment and the evaluation of corrective action alternatives to simulate contaminant migration through the vadose zone. The fate and transport of COCs that exceeded appropriate screening criteria were modeled based on current, normal site conditions. The simulations performed for the CMS applied conservative

assumptions for the fate and transport modeling. Results of the 50-year simulations for the current, normal conditions at Cannon predicted vertical pollution migration does not reach groundwater. The modeling illustrated that degradation to groundwater, due to COCs in sludge, is unlikely under current, normal conditions.

11.2 RISK ASSESSMENTS

The purpose of the risk assessments was to define the magnitude and probability of threats to human health and the environment posed by site-related chemicals in untreated sludge and soil at SWMU 101. The HHRA and SLERA evaluated all relevant potential current and future conditions at SWMU 101. Two corrective action alternatives were evaluated in the HHRA and SLERA. The first, No Action, was evaluated quantitatively in both the HHRA and SLERA. The second alternative, Sludge Dewatering In-Place, Consolidation, Compaction, and Cover was evaluated qualitatively in the HHRA and SLERA. Both the HHRA and SLERA used the analytical sludge and soil data collected during the CMS as most representative of the current and future conditions that may occur at SWMU 101.

11.2.1 Risk Results for the No Action Alternative

HHRA—The HHRA considered soil data from the 0- to 10-ft interval and all of the sludge data collected. Detected chemicals were screened against site-specific background levels and EPA Region 6 residential HHSLs. Based on the results of screening against background levels and the HHSLs, four COPCs were identified for further evaluation in the HHRA: arsenic, dieldrin, PCB-1260, and endrin aldehyde. The pathways that represent potentially complete exposure routes for industrial workers include the following: ingestion and dermal contact with soils during work activities and inhalation of contaminated soil and soil particulates during wind or soil disturbance activities.

The ELCR or noncarcinogenic HQ for each COPC and exposure pathway (ingestion, inhalation, and dermal) were summed to produce total cancer risk and noncancer risk HI values. All noncancer risks from contaminants in soil and sludge in the north and south lagoon were below the target HQ of 1.0. The total ELCRs were below the NMED target total ELCR of $1x10^{-5}$.

Arsenic was the only COPC that exceeded the target ELCR of $1x10^{-6}$ for a single COPC in sludge and soil in the north and south lagoons. Based on the results of the risk calculations, there is negligible risk to industrial workers due to exposure to sludge and soil at SWMU 101.

SLERA—The SLERA evaluated all chemicals positively identified above the method detection limit in site sludge and soil data collected to a depth of 6 ft. The pathways that represent potentially complete exposure routes for ecological receptors included the following: ingestion of soil and sludge and ingestion of terrestrial invertebrates, plants, or vertebrate prey. The assessment endpoints identified for this SLERA include decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

Risk to potential ecological receptors was calculated by estimating the exposure of each receptor to the COPECs and comparing that exposure to the toxicity of each COPEC. Concentrations of inorganics produced elevated ESQs for all measurement receptors in all four areas of concern. ESQs ranged from 1.1 for terrestrial invertebrates due to lead exposure to 5,300 for plants due to silver exposure. Many of the ESQs may be overestimated due to the presence of naturally high concentrations of inorganics. Most of the site concentrations of inorganics were only slightly higher than the background concentrations. Risk to potential ecological receptors exists even at the background concentrations.

11.2.2 Risk Results for Sludge Dewatering In-Place, Consolidation, Compaction, and Cover Alternative

HHRA—For the evaluation of the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers were again considered to be the potentially exposed population. For this alternative, sludge and affected soil in the south lagoon would be covered with debris, topsoil, and vegetation, eliminating human exposure to the COPCs. Therefore, there would be no risk to the industrial worker at the south lagoon. Because all of the sludge and affected soil was removed from the north lagoon, there would be no risk to an industrial worker working at the north lagoon.

SLERA—The ecological receptors identified for the quantitative evaluation above were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and

Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, a potentially complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise the cover. Therefore, it is recommended that a biotic barrier be installed to ensure that this exposure pathway is no longer complete and potential receptors are not exposed to COPECs.

11.3 CORRECTIVE ACTION OBJECTIVES AND SELECTION CRITERIA

The three alternatives considered during this focused CMS included the following:

- Alternative 1—No Action
- Alternative 2—Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
- Alternative 3—*In-situ* Bioremediation Through Composting

In this focused CMS, individual criterion were qualitatively evaluated for each alternative. As a result of the evaluation, one alternative was chosen for further examination during the future design phase of the corrective action process at the Sewage Lagoons. The screening of alternatives was based on an evaluation of corrective action objectives and conceptual design criteria. Corrective action objectives for this CMS were taken from the RCRA Corrective Action Guidance (EPA, 1994).

The conceptual design criteria were based on results of the HHRA and the SLERA. Although the sludge meets regulatory requirements for closure, the human health and ecological risk assessment was performed to provide a more conservative standard for closure of the lagoons. An acceptable risk to human health under the No Action alternative is $1x10^{-6}$. Based on the ecological risk assessment, it was determined that a conservative design for closure of the lagoons would prevent ecological receptors, including burrowing organisms, from coming in contact with the sludge.

The evaluation and selection of the proposed corrective action alternatives was based on the ability to meet the following criteria: corrective action objectives; conceptual design criteria; long-term reliability and effectiveness; reduction of waste toxicity, mobility, or volume; short-term effectiveness; implementability; safety; and cost.

11.4 CORRECTIVE ACTION ALTERNATIVE SCREENING

Alternative 1 (No Action) does not comply with any of the corrective action objectives or the conceptual design criteria. The current conditions pose a low relative risk to humans, but pose a higher risk to ecological receptors. The No Action Alternative is easily implemented and low in cost since it involves a continuation of the current conditions and little action. In addition, current conditions limit the use of the land occupied by the basins.

Alternative 2 (Sludge Dewatering In-Place, Consolidation, Compaction, and Cover) addresses all of the corrective action objectives defined earlier. This conservative alternative is based on addressing human and ecological risks for COCs. The design criteria met by the sludge consolidation and cover alternative to address risks are more conservative than those required by the applicable regulations. The sludge consolidation and cover alternative prevents contaminant releases from the sludge by prescribing a final cover with infiltration, erosion, and exposure controls. Alternative 2 also provides a reliable, simple means of closing the lagoons permanently. Recycling Cannon AFB demolition debris as fill, and biotic-barrier materials and reuse of the north lagoon as a stormwater basin increase the cost-effectiveness of this alternative. Construction practices involved in the consolidation and cover alternative are standard practices, such as excavation, hauling, and grading.

Alternative 3 (*In-situ* Bioremediation Through Composting) demonstrated that this alternative does not meet the corrective action objectives or the conceptual design criteria. The risk assessment indicated several metals as COCs for ecological risk. *In-situ* bioremediation will not decrease the levels of these metals in the sludge. Therefore, the *in-situ* bioremediation alternative is not recommended.

11.5 RECOMMENDATION OF FINAL CORRECTIVE ACTION

Alternative 2 is recommended as the corrective action for closure of SWMU 101. This alternative meets the corrective action objectives, conforms to the conceptual design criteria, and provides the additional benefit of restoring the north lagoon for stormwater management. A preliminary cost estimate for the selected alternative, the sludge consolidation and covering is provided in Section 7.0 and the total estimated cost is $1,544,000, including the estimated costs to restore the north lagoon for use as a future stormwater management basin.

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EXECUTIVE SUMMARY

The Corrective Measures Study (CMS) of Solid Waste Management Unit (SWMU) 101 at Cannon Air Force Base (AFB) is a voluntary program aimed at achieving closure of the Sewage Lagoons, which were active from 1966 through 1998. This focused CMS report complies with the requirements outlined in Resource conservation and Recovery Act (RCRA) guidance.

The purpose of the CMS for this site was to identify and evaluate potential corrective action alternatives to prevent future impact to human health and the environment. This CMS is of a focused nature such that preliminary work was completed in 1998 to support the use of sludge consolidation and covering the containment area with soil to achieve site closure (E&E, 1998). Human health and ecological risk assessments were conducted as part of the CMS in order to determine the level at which containment and source control is required at the site. An ecological survey of the area was also conducted to support the risk assessment.

CMS FIELD PROGRAM AND DATA EVALUATION

The CMS included a field program designed to collect the additional information to characterize the Sewage Lagoon sludge and the native soil directly beneath the lagoons. Sludge and soil sampling was performed to support the CMS. Samples were collected to characterize the sludge and native soil for the future design phase of the corrective action. Geotechnical samples were collected during the CMS field program to support future design work.

Fate and transport modeling was performed to support the risk assessment and the evaluation of corrective action alternatives to simulate contaminant migration through the vadose zone. The fate and transport of contaminants of concern that exceeded appropriate screening criteria were modeled based on current, normal site conditions. The simulations performed for the CMS applied conservative assumptions for the fate and transport modeling. Results of the modeling under current conditions predicted vertical pollution migration does not reach groundwater. The modeling illustrated that degradation to groundwater, due to contaminants of concern in sludge, is unlikely under current, normal conditions.

HUMAN HEALTH AND SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENTS

The purpose of the risk assessments was to define the magnitude and probability of threats to human health and the environment posed by site-related chemicals in untreated sludge and soil at SWMU 101. The human health risk assessment (HHRA) and the screening-level ecological risk assessment (SLERA) evaluated all relevant potential current and future conditions at SWMU 101. Two corrective action alternatives were evaluated in the HHRA and SLERA. Although three alternatives were screened in this CMS, the composting alternative was deemed ineffective in reducing the levels of contaminants (metals), which could adversely effect ecological receptors if exposure were to occur. The first alternative, No Action, was evaluated quantitatively in both the HHRA and SLERA. The second alternative, (Sludge Dewatering In-Place, Consolidation, Compaction, and Cover) was evaluated qualitatively in the HHRA and SLERA. Both the HHRA and SLERA used the analytical sludge and soil data collected during the CMS as most representative of the current and future conditions that may occur at SWMU 101.

Risk Results for the No Action Alternative

HHRA—The HHRA considered soil data from the 0 to 10-foot interval and all of the sludge data collected. Detected chemicals were screened against site-specific background levels and EPA Region 6 residential human health screening levels (HHSLs). Based on the results of screening against background levels and the HHSLs, four chemicals of potential concern (COPCs) were identified for further evaluation in the HHRA: arsenic, dieldrin, polychlorobiphenyl (PCB)-1260, and endrin aldehyde. The pathways that represent potentially complete exposure routes for industrial workers include the following: ingestion and dermal contact with soils during work activities and inhalation of contaminated soil and soil particulates during wind or soil disturbance activities. All noncancer risks from contaminants in soil and sludge in the north and south lagoon were below the target HQ of 1.0. The total excess lifetime cancer risks (ELCRs) were below the New Mexico Environment Department (NMED) target total ELCR of $1x10^{-5}$. Arsenic was the only COPC that exceeded the target ELCR of $1x10^{-6}$ for a single COPC in sludge and soil in the north and south lagoons. Based on the results of the risk calculations, there is negligible risk to industrial workers due to exposure to sludge and soil at SWMU 101.

SLERA—The SLERA evaluated all chemicals positively identified above the method detection limit in site sludge and soil data collected to a depth of 6 feet. The pathways that represent potentially complete exposure routes for ecological receptors included the following: ingestion of soil and sludge and ingestion of terrestrial invertebrates, plants, or vertebrate prey. The assessment endpoints identified for this SLERA include decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

Concentrations of inorganics produced elevated ecological screening quotients (ESQs) for all measurement receptors in all four areas of concern. ESQs ranged from 1.1 for terrestrial invertebrates due to lead exposure to 5,300 for plants due to silver exposure. Many of the ESQs may be overestimated due to the presence of naturally high concentrations of inorganics and most of the site concentrations of inorganics were only slightly higher than the background concentrations. Risk to potential ecological receptors exists even at the background concentrations.

Risk Results for Sludge Dewatering In-Place, Consolidation, Compaction, and Cover Alternative

HHRA—For the evaluation of the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers were again considered to be the potentially exposed population. For this alternative, sludge and affected soil in the south lagoon would be covered with debris, topsoil, and vegetation, eliminating human exposure to the COPCs. Therefore, there would be no risk to the industrial worker at the south lagoon. Because all of the sludge and affected soil was removed from the north lagoon, there would be no risk to an industrial worker working at the north lagoon.

SLERA—The ecological receptors identified for the quantitative evaluation above were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, a potentially complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise

the cover. Therefore, it is recommended that a biotic barrier be installed to ensure that this exposure pathway is no longer complete and potential receptors are not exposed to contaminants of potential ecological concern.

CORRECTIVE ACTION OBJECTIVES AND SELECTION CRITERIA

The three alternatives considered during this focused CMS included the following:

- Alternative 1—No Action
- Alternative 2—Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
- Alternative 3—*In-situ* Bioremediation Through Composting

In this focused CMS, individual criterion was qualitatively evaluated for each alternative. As a result of the evaluation, one alternative was chosen for further examination during the future design phase of the corrective action process at the Sewage Lagoons. The screening of alternatives was based on an evaluation of corrective action objectives and conceptual design criteria. Corrective action objectives for this CMS were taken from the RCRA Corrective Action Guidance.

The conceptual design criteria were based on results of the HHRA and the SLERA. Although the sludge meets regulatory requirements for closure, the human health and ecological risk assessment was performed to provide a more conservative standard for closure of the lagoons. An acceptable risk to human health under the No Action alternative is $1x10^{-6}$, but risk to ecological receptors exists if there is a potential for direct exposure. To prevent exposure to ecological receptors, a conservative design for closure of the lagoons should prevent burrowing from taking place.

The evaluation and selection of the proposed corrective action alternatives was based on the ability to meet the following criteria: corrective action objectives; conceptual design criteria; long-term reliability and effectiveness; reduction of waste toxicity, mobility, or volume; short-term effectiveness; implementability; safety; and cost.

CORRECTIVE ACTION ALTERNATIVE SCREENING

Alternative 1 (No Action) does not comply with any of the corrective action objectives or the conceptual design criteria. The current conditions pose a low relative risk to humans, but pose a higher risk to ecological receptors. The No Action Alternative is easily implemented and low in cost since it involves a continuation of the current conditions and little action. In addition, current conditions limit the use of the land occupied by the basins.

Alternative 2 (Sludge Dewatering In-Place, Consolidation, Compaction, and Cover) addresses all of the corrective action objectives and conceptual design criteria. This conservative alternative is based on addressing human and ecological risks to COCs. Alternative 2 also provides a reliable, simple means of closing the lagoons permanently. Recycling Cannon AFB demolition debris as fill, and biotic-barrier materials and reuse of the north lagoon as a stormwater basin increase the cost-effectiveness of this alternative. Construction practices involved in the consolidation and cover alternative are standard practices, such as excavation, hauling, and grading.

Alternative 3 (*In-situ* Bioremediation Through Composting) demonstrated that this alternative does not meet the corrective action objectives or the conceptual design criteria. The risk assessment screening for COCs indicated several metals exist at levels high enough to induce adverse effects on ecological receptors should exposure occur. *In-situ* bioremediation will not decrease the levels of these metals in the sludge and it is not a recommended corrective action.

RECOMMENDATION OF FINAL CORRECTIVE ACTION

Sludge Dewatering In-Place, Consolidation, Compaction, and Cover (Alternative 2) is recommended as the corrective action for closure of SWMU 101. This alternative meets the corrective action objectives, conforms to the conceptual design criteria, and provides the additional benefit of restoring the north lagoon for stormwater management. The preliminary estimated total cost is $2,412,000, including the costs to restore the north lagoon for use as a stormwater management basin.

Appendix A

CMS Field Information and Data

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Daily Quality Control Reports

Geotechnical Data

Analytical Data

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Table C-12. Comparison of Maximum Detected Concentration of Non-carcinogenic PCOPCs in South Lagoon Soil (0-10 ft) To Adjusted HHSLs[a]

PCOPC	Maximum Detected Concentration in Soil (mg/kg)	Critical Effect[b]	Residential HHSL[c] (mg/kg)	Maximum Detection Greater than Background?
Inorganics				
Barium	2,040	increased kidney weight	5,400[d]	No

Notes:

(a) HHSLs adjusted baed on number of PCOPCs with same target organ and critical effect; residential HHSL divided by the number of PCOPCs with same target organ and/or critical effect
(b) EPA 2000
(c) EPA Region 6 Residential HHSL for ingestion, inhalation, and dermal exposure routes (EPA 1999a)
(d) unadjusted HHSL used because only one PCOPC had critical effect on target organ

EPA - U.S. Environmental Protection Agency
ft - feet
HHSL - human health screening level
mg/kg - milligrams per kilogram
PCOPC - preliminary chemical of potential concern

Report File Log

Files ending in .doc are MS Word 97 files.
Files ending in .xls are MS Excel 97 files.
Files ending in .ppt are MS PowerPoint 97 files.
Files ending in .dwg are AutoCAD files.

Name of Electronic File

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Cannon AFB
SWMU 101, Sewage Lagoons

Photo 1. Looking east from SWMU 101 towards Landfill 25

Photo 2. Looking across the northeast corner of the North Lagoon towards the wastewater treatment facility

Cannon AFB
SWMU 101, Sewage Lagoons

Photo 3. Looking east across SWMU 101

Photo 4. The abandoned runway and disturbed grasslands to the west of SWMU 101

Cannon AFB
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Cannon AFB
SWMU 101, Sewage Lagoons

Photo 1. The west edge of the North Lagoon. Note grasses beginning to revegetate the sludge.

Photo 2. The unimproved/disturbed grasslands to the west of SWMU 101, on the other side of the abandoned runway.

Cannon AFB
SWMU 101, Sewage Lagoons

Photo 3. Killdeer eggs along the northern edge of the SWMU.

Photo 4. Antelope tracks to the east of SWMU 101 between Landfill 25 and the North Playa Lake

Cannon AFB
SWMU 101, Sewage Lagoons

Photo 5. Looking east from the top of the southern berm towards the North Playa Lake. Note the sparse vegetation.

Photo 5. The water in SWMU 101 has evaporated, leaving a layer a sludge. Weedy plants starting to revegetate.

ARSENIC

Arsenic occurs naturally in air, water, soil, plant, and in the tissues of living organisms. Occurrence of arsenic in the environment can be a result of industrial and agricultural activities. Arsenate (As^{+5}) is the main species of arsenic found in environments such as unflooded soils. Mildly reducing conditions favor the arsenite (As^{+3}) form (Goyer 1991; EPA 2013a; Lewis 1992).

TOXICOKINETICS

Studies of tri- and pentavalent arsenic indicate almost complete absorption through the gastrointestinal tract in most laboratory animals and humans. Inhalation and absorption of arsenic is dependent upon the size of the particle inhaled. Large particles are quickly deposited in the upper airways and removed by ciliary action; therefore, there is only limited absorption across lung tissue. Small particles penetrate deep into the lungs into the alveoli and, dependent upon the chemical form of the arsenic, absorption across alveolar epithelium occurs. Data also indicate soluble forms (*e.g.*, tri- and pentavalent arsenic) are rapidly absorbed through the skin (EPA 2013a; ATSDR 1993).

Once absorbed, all but a small fraction of systemic arsenic is cleared from tissues. Arsenic seems to distribute preferentially in the nails, skin and hair. There is also general agreement that arsenic will initially accumulate in the kidney, liver, bile, brain, skeleton, and blood (ATSDR 1993).

Most of the absorbed arsenic is quickly cleared from tissue. The major metabolite is dimethylarsenate, which is found in the urine. Monomethylarsenate is often a secondary metabolite, and can also appear in the urine. Arsenic is also known to be eliminated through the skin in sweat, particularly during periods of perfuse sweating (Goyer 1991).

TOXICITY

Non-Carcinogenic Effects

Oral exposures of humans to arsenic can produce a large range of gastrointestinal disturbances, including nausea, vomiting, diarrhea, and thirst. Anemia, cardiovascular effects, seizures, and toxic delirium have also been noted. Inhalation exposures can cause all of the above, including pulmonary edema. Skin exposures have commonly caused hyperpigmentation, keratosis, epidermoid carcinomas, and occasionally skin sensitization (EPA 2013a; ATSDR1993; Goyer 1991).

A no observable adverse effect level (NOAEL) of 0.009 milligrams per liter (mg/L) was established by the U.S. Environmental Protection Agency (EPA), based on hyperpigmentation, keratosis and possible vascular complications. An oral reference dose (RfD) of 3×10^{-4} milligrams per kilogram per day (mg/kg-day) was also established by the EPA based on these

effects. An uncertainty factor of 3 and a modifying factor of 1 were applied to the NOAEL in the derivation of the RfD. Confidence in the RfD is medium (EPA 2013b).

Carcinogenicity

Arsenic is carcinogenic in humans, and is classified by EPA as a Group A carcinogen. EPA has established an inhalation unit risk of 4.3×10^{-3} per microgram per cubic meter $(mg/m^3)^{-1}$ and an oral cancer slope factor of 1.5 $mg/kg\text{-}day^{-1}$.

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Table D-7 Cannon AFB Sewage Lagoons
SESOIL Simulations

Cannon AFB
Sewage Lagoons
SESOIL Input Parameters

Simulation Desc.	Chemical	Climate Data From SESOIL Database	1 -24 hr.-100 yr. Storm per year	6 -24 hr.-100 yr. Storm per year	50 year Simulation	Depth to GW 290 ft.	Max. Pollution Depth (m)	Max. Pollution Depth (ft.)	Groundwater Concentration (Ug/mL)
1	heptachlor	X			X	X	0.006	0.02	
1	lindane	X			X	X	0.014	0.04	
1	nitrate	X			X	X	68.840	225.85	
1	xylenes	X			X	X	16.160	53.02	
2	heptachlor	X	X		X	X	0.006	0.02	
2	lindane	X	X		X	X	0.015	0.05	
2	nitrate	X	X		X	X	77.180	253.22	
2	xylenes	X	X		X	X	18.400	60.37	
3	heptachlor	X		X	X	X	0.008	0.03	
3	lindane	X		X	X	X	0.020	0.06	
3	nitrate	X		X	X	X	88.390	289.99	233
3	xylenes	X		X	X	X	24.150	79.23	

APPENDIX D

Contaminant Fate and Transport Modeling

1.0 INTRODUCTION

The transport of contaminants of concern (COC) through unsaturated zone materials was simulated over a 50-year period at the Sewage Lagoons located on the Cannon Air Force Base (AFB) in Clovis, New Mexico. The environmental model, Seasonal Soil Compartment Model (SESOIL) for Windows (Version 2.5), was used to estimate the migration of the COCs.

SESOIL is a one-dimensional vertical transport model for the unsaturated vadose zone. SESOIL simulates water transport, sediment transport, and contaminant fate for constituents introduced into the system either instantaneously or continuously. This model was developed for use by the U.S. Environmental Protection Agency (EPA) and Department of Energy (DOE). It has been revised and refined over time for application as a screening-level model to aid in exposure assessment and remediation projects by using fewer inputs for soil, climate, and chemical constituents than similar models (GSC, 1995).

2.0 METHODOLOGY

2.1 DETERMINATION OF COCS

Ten boreholes were advanced at the Sewage Lagoons at Cannon AFB. Five of the borings were uniformly located in the north lagoon (four in each of the corners of the lagoon and one in the center) and five in the south lagoon with the same configuration. In each of the boreholes, samples were taken from the surface sludge, 0 to 2 ft, 4 to 6 ft, and 8 to 10 ft. The samples were analyzed in the laboratory for 23 contaminants, including organics, pesticides and metals. Initially, any constituents that were detected were considered as a COC which would be modeled to simulate downward migration to groundwater. From the list of COCs, contaminants were eliminated from consideration if they did not have a federal or New Mexico groundwater standard. A risk assessment was performed by Foster Wheeler as part of this Corrective Measures Study (Appendix C). Contaminants that were not identified in the risk assessment were not considered as COCs to be modeled. Contaminant concentrations were compared to Basewide background levels. Any contaminant concentrations that did not exceed background levels were not considered as COCs in the modeling effort. Finally, the physical characteristics of the contaminant were

considered prior to inclusion in the fate and transport modeling. For example, arsenic, barium, chromium, and lead met all of the other criteria for model input COCs, but because of the insolubility of these metals, they were not included in the model simulations. The COCs simulated in the fate and transport modeling were gamma-BHC (lindane), heptachlor, nitrate, and total xylenes.

2.2 GENERAL ASSUMPTIONS

A conservative approach was taken to determine the potential for the COCs to migrate vertically through the vadose zone and contaminate groundwater to a level that would exceed the maximum contaminant level (MCL) of each COC. To remain conservative, the following general assumptions were made for site conditions and contaminant levels:

- Typical site concentrations were the maximum detected concentrations of COCs in sludge and/or soil samples.
- Depth to the water table was simulated as 290 ft below ground surface across the site.
- Saturated and unsaturated materials were homogeneous and isotropic.
- Initial site conditions assume evapotranspiration, runoff, and soil-to-air diffusion do not occur. All contaminants introduced to the system infiltrate the surface.

COCs at the site were determined based on positive concentrations from laboratory testing of field samples, the designation of an MCL for the contaminant, and solubility. The COCs chosen for the simulations were gamma-BHC (lindane), heptachlor, nitrate, and total xylenes.

3.0 INPUT PARAMETERS AND SPECIFIC ASSUMPTIONS

Processes simulated in the SESOIL model include three cycles: hydrologic, sediment, and pollutant. To closely approximate the actual site conditions SESOIL requires site-specific data for the following categories:

- Soil properties and compartments
- Climate
- Chemistry
- Pollutant load

The hydrologic cycle includes rainfall, surface runoff, infiltration, soil water content, evapotranspiration, and groundwater runoff. The sediment cycle includes sediment washload as a result of storms that produce enough precipitation to induce erosion from surface runoff. The pollutant cycle includes: advective transport, volatilization, adsorption/desorption, and degradation. Output from the model

provides information on water and sediment transport, contaminant fate, and migration through the vadose zone to groundwater.

3.1 SOIL COMPARTMENTS

SESOIL allows the user to compartmentalize the unsaturated and saturated soil column into discreet intervals based on the intrinsic soil characteristics or site-specific exposure scenarios. Geologic site characteristics were taken from the site-specific geotechnical data. The saturated zone occurs at a depth of 290 ft and is in the peripheral region of the Ogallala aquifer.

For purposes of this report, the soil column was subdivided into three layers. Two layers represent the unsaturated zone at depth intervals of 0 to 10 ft for Layer 1 and 10 to 290 ft for Layer 2, while Layer 3 represented the saturated zone from 290 ft to 310 ft. Table D-1 provides the soil parameter input. A schematic diagram representing the compartments in the SESOIL model as they apply to the sewage lagoon site is presented in Figure D-1. A summary of soil parameters required for the model include the following:

Parameter	Value	Site-specific Data?
Bulk density	1.63 g/cc	Yes
Intrinsic permeability	1.79E-9 cm^2	Yes
Disconnectedness index	9	No
Effective porosity	0.33	No
Organic carbon content	0.17 %	Yes
Cation exchange capacity	0	No
Freundlich equation exponent	1	No

The SESOIL User's Guide was followed to determine disconnectedness index values. Based on the soil classification from field samples, appropriate index values were assigned and averaged (GSC, 1995). Assumptions were made to determine the effective porosity. Density values from field data and assumed values of specific gravity were used to calculate the porosity of the soil samples. Porosity values were reduced 15 percent to represent the effective porosity of the samples. The final values of effective porosity were averaged among the samples to represent the entire unsaturated layer. Cation exchange capacity and the Freundlich exponent were assumed values based on recommendation from the SESOIL manual (GSC, 1995).

3.2 CLIMATE

Climatological data are required for the hydrologic cycle of the model. Meteorological and climatological data were acquired through the SESOIL climate database for Clovis, New Mexico (Table

D-2). The SESOIL climate database considers data prior to 1993. However, because of the age of the database data, it was compared to more recent data obtained through Internet access of the Western Regional Climate Center (WRCC [Table D-3]), in which data ranged from 1995 to 1999. Monthly averages for the following parameters were gathered from the various sources and included the following:

Parameter	Value	Site-specific Data?
Air temperature	Monthly variability See Table D-2	Yes
Cloud cover		Yes
Humidity		Yes
Short wave albedo		Yes
Evapotranspiration		Assumed zero
Precipitation		Yes
Average storm duration		Yes
Number of storms		Yes
Average month length		Yes

References for site-specific values and assumptions are listed on Table D-3.

No significant differences were detected in the different data sets. Therefore, because of accessibility and the need for less assumptions (i.e., albedo is provided by the SESOIL database, but could not be obtained externally), the SESOIL database climate data was used in the simulations. Both the SESOIL database and WRCC data sets are provided in Tables D-2 and D-3, respectively.

3.3 CHEMISTRY

Analyte-specific information was input for the pollutant cycle of the model. Model runs were completed for heptachlor, lindane, nitrate, and total xylenes. The following parameters were entered into the model for each COC:

Parameter	Value	Chemical-specific data?
Solubility	Chemical specific See Table D-4	Yes
K_h (diffusion coefficient)		Yes/no
Henry's constant		Yes/no
K_{oc}(carbon adsorption coefficient)		Yes/no
K_d (soil adsorption coefficient)		Yes/no
Molecular weight		Yes
Hydrolysis and biodegradation		No
Complexation		No

References for analyte-specific values and assumptions are listed in Table D-4. Literature on nitrate activity coefficients is unavailable because of its negative ionic state. Therefore, activity coefficients were all assumed zero, meaning the entire contaminant remains in solution and travels at the rate of advancing groundwater. For the simulations of lindane and heptachlor, either K_{oc} or K_d values were used (Table D-4).

3.4 POLLUTANT LOAD

The algorithm utilized by SESOIL for the pollutant load requires the user to determine the pollutant load concentration, the layer that will receive the pollutant, and the area of pollutant application. Pollutant load was calculated for the model as a function of concentration, soil bulk density, and soil intrinsic permeability. Maximum concentrations of each COC was used to calculate pollutant load.

The first layer of the soil column (0 to 10 ft) was designated to receive the pollutant. This is consistent with actual data collected from the Cannon AFB Sewage Lagoons that indicates the highest concentrations of COC occurring in soil/sludge samples. Based on site history, an instantaneous release of the contaminant, within the first layer during the first month of model simulation was assumed and is a realistic approach to actual conditions of the site.

The pollutant application area is the areal extent of soil where contamination occurred. The pollutant application area represented the 14.38-acre area of the south sewage lagoon.

Information entered into the model for the pollutant cycle are presented below for the pollutant load concentration, the layer that will receive the contaminant, and the area of pollutant application for each of the model runs includes the following:

Pollutant	Years Simulated	Layer to Receive Pollutant	Application Area	Instantaneous Loading	Sampling Location
Heptachlor	50	1	5.819E8 cm^2	Yes	Soil 0 to 1 ft
Lindane	50	1	5.819E8 cm^2	Yes	Sludge 0 to 1 ft
Nitrate	50	1	5.819E8 cm^2	Yes	Sludge 0 to 1 ft
Total xylenes	50	1	5.819E8 cm^2	Yes	Sludge 0 to 1 ft

References for site-specific pollutant load values and assumptions are listed in Table D-5.

3.5 GROUNDWATER MIXING

The saturated zone was modeled at a depth of 290 ft below ground surface (bgs). SESOIL provides a groundwater mixing model (Summer's Model) to estimate concentrations of contaminants in groundwater as a function of time. Necessary parameters to be entered into the mixing model are presented in Table D-6. Hydraulic gradient was calculated from well data available for the site (Cannon AFB, 1999). Permeability was determined from geotechnical laboratory data of soil samples collected during the CMS field program.

3.6 EXTREME PRECIPITATION

The initial simulation was performed for each COC with climate data for Clovis, New Mexico, from the SESOIL climate database. The first simulation will be referred to as current, normal conditions. Additional precipitation was added on Simulations 2 and 3 to evaluate the effects on transport of the COCs as infiltration increases during periods of high precipitation. Simulation 2 included the SESOIL database monthly precipitation and the precipitation from a 100-year, 24-hour storm for the first month of each year. Simulation 3 included the SESOIL database monthly precipitation and the precipitation from a 100-year, 24-hour storm for the first 6 months of each year. The rainfall produced for a 100-year, 24-hour storm was determined to be 6 in (15.24 cm.) for the region, (from the National Oceanic and Atmospheric Administration [NOAA], 2000).

4.0 INITIAL MODEL SIMULATIONS

A descriptive summary of the Simulations follows:

- Simulation 1—Current, normal climate conditions
- Simulation 2—Normal climate with the addition of the precipitation from 1 to 100 years, 24-hour storm, every year.
- Simulation 3—Normal climate with the addition of the precipitation from 6 to 100 years, 24-hour storms, every year.

Each simulation was performed independently for each particular COC for a total of 4 model executions per simulation condition. Other than the precipitation, the variables remained the same for all simulations for each COC. The simulations were performed for the duration of 50 years.

4.1 RESULTS OF INITIAL MODEL SIMULATIONS

Various input parameters and the corresponding maximum pollution depths are presented in Table D-7.

4.1.1 Simulation 1

Pollution depth vs. time plots are presented for each of the COCs for the first simulation (current, normal conditions) in Figures D-2 and D-3. The simulations used the SESOIL database climate for Clovis, New Mexico. None of the contaminants migrated to groundwater during the 50-year simulation. Nitrate is very soluble and extremely mobile and migrates deeper within the vadose zone compared to the other COCs, as illustrated in Figure D-3. For illustrative purposes, the average annual concentration of nitrate in the subsurface is plotted as a function of time at various depths in Figure D-4. Concentrations of nitrate dissolved in the aqueous phase, adsorbed on the soil matrix, and present in the gas phase within the soil pore space are represented at 3,000 cm (98.4 ft), 6,000 cm (196.9 ft), and 8,823.96 cm (289.5 ft [6 in above the water table]) after 50 years of simulation under normal, current conditions.

4.1.2 Simulation 2

Results of the second set of simulations are presented in Figures D-5 through D-7 in the same formats as described for the first simulations. The difference between Simulations 1 and 2 is the addition of one 100-year, 24-hour storm event the first month of each year for the second simulation. None of the contaminants reach the groundwater after 50 years of simulation.

4.1.3 Simulation 3

Results of the third set of simulations are presented in Figures D-8 through D-10 in the same formats as described for the first simulations. The difference between Simulations 1 and 3 is the addition of six 100-year, 24-hour storm events the first 6 months of each year for the third simulation. Heptachlor, lindane, and xylenes do not reach groundwater after 50 years of simulation. Nitrate reaches groundwater after approximately 45 years of simulation. After 50 years, nitrate concentration in the groundwater is estimated at 233 μg/ml (ppm).

COC	Maximum Pollution Depth (ft)		
	Simulation 1	Simulation 2	Simulation 3
Heptachlor	0.02	0.02	0.03
Lindane	0.04	0.05	0.06
Nitrate	230	250	290
Total Xylenes	53	60	79

Note: Groundwater is located at 290 ft bgs.

4.1.4 Conclusions of Initial Model Simulations

50-Year Simulations

Results of the simulations completed for conservative conditions in Simulations 1 and 2 indicate that COCs do not reach groundwater after 50 years of simulation and therefore do not contribute to the degradation of groundwater because of sludge and soil contained within the Sewage Lagoons. For the extreme precipitation events modeled in Simulation 3, nitrate is the only COC modeled that reached groundwater within 50 years. The contaminant reached groundwater after 45 years into the simulation.

The precipitation required to cause nitrate to migrate to the groundwater was demonstrated in the third simulation with approximately 3.4 times the normal rainfall for 50 consecutive years. The simulation did not include runoff of any of the precipitation nor surface evapotranspiration; all rainfall was available to infiltrate to the subsurface. The volume of the groundwater aquifer was represented as the area of the south lagoon (14.38 acres) with a vertical depth of 20 ft. This is a conservative estimate of the water available in the aquifer for mixing (dilution) of the contaminant.

The model did not consider a vertical distribution of contamination deeper than 10 ft. Any contamination present at a depth greater than 10 ft would reduce the distance necessary for migration to groundwater.

Extended Simulation Time

Because of the high mobility of nitrate, an extended simulation of greater than 50 years was performed to determine when nitrate would enter groundwater. Under current, normal conditions (Simulation 1) nitrate was simulated to reach groundwater after 65 years. In the 65th year of simulation nitrate concentration in the groundwater was 60.98 μg/mL (ppm). The concentrations rose steadily for the next 5 years to 196.6, 219.0, 241.4, 263.7, and 285.9 μg/mL (ppm) after 70 years of simulation. The maximum contaminant level for nitrate is 10 ppm, as dictated by the EPA. As previously mentioned, groundwater mixing parameters were conservatively represented.

5.0 PERIPHERAL MODELING

Subsequent to initial model simulations, a less conservative and more realistic approach was applied to the modeling vadose zone migration based on past conditions at the sewage lagoons. From 1965 to 1998, the sewage lagoons at Cannon AFB were maintained to contain standing water (standing pressure head). For purposes of modeling a realistic approach to migration and evaluating the infiltration rate, a constant head needs to be applied to the site conceptual model since it is this pressure head which serves as a driving mechanism for downward contaminant migration.

The SESOIL model is limited on boundary condition input parameters and cannot accommodate a constant pressure head at the ground surface. SESOIL's primary function is to determine contaminant migration based on general parameters that do not allow for simulation of the mechanics of unsaturated flow which take into account the progression of wetting front of the contaminated leachate. The program VS2DTI (version 1.1) was used to more accurately approximate the time of wetting front arrival at the groundwater aquifer. In order to simulate the progression of the wetting front through the vadose zone, assumptions were made based on site-specific conditions and the general properties of the soils typical in this area.

Based on site-specific data available during previous investigations, a constant 3 ft of standing water pressure head was assumed to exist on top of the sludge in both lagoons. This positive pressure head was present for approximately 35 years to prevent the sludge from drying out and being susceptible to wind transport. The positive pressure head would have contributed significantly to the transport of sludge constituents to the groundwater aquifer. A numerical modeling approximation of the wetting front advance was performed from site data using VS2DTI.

5.1 VS2DTI

VS2DTI is a graphical software package for modeling flow and transport in variably saturated porous media. The program is an updated graphical interactive version of VS2D, developed by the U.S. Geological Survey (Lappala, 1987). The program solves single-phase flow by combining the law of conservation with a nonlinear form of Darcy's law extended to accommodate variably saturated porous media.

The program provides choices for the user when determining relationships between saturated and unsaturated flow parameters. For these simulations, the relationship used to describe the relative hydraulic conductivity was derived by van Genuchten (1980) and is supported in this model (Lappala et al, 1987). An upstream weighting method was used when determining an average relative hydraulic conductivity throughout the model domain.

5.1.1 Soil Characteristics

Field data from the sewage lagoons was used to estimate the most appropriate soil types available in the VS2DTI soil library. A distinction was made between the upper soil/sludge layer and the remaining soil strata to the groundwater aquifer. The top 10 ft of soil which contained the lagoon sludge was described in the model as a silty clay. The soil strata from 10 ft below ground surface (bgs) to the groundwater aquifer at 290 ft bgs was represented as a clay loam.

The actual soil defined from drilling logs were composed of heterogeneous layers of sands, silts and clays. Comparisons of values for saturated hydraulic conductivity and soil classifications between field values, and the VS2DTI soil library were used to approximate the model geometry and soil types. Table D-8 lists the VS2DTI flow parameters used to describe the silty clay and clay loam. K_{zz} and K_{hh} represent the vertical and horizontal coefficients of saturated hydraulic conductivity, respectively. Specific storage (Ss) is the fluid storage due to fluid and porous medium-specific compressibilities under saturated conditions. The porosity of a material represents the ratio of the volume of void space to the total volume. The residual moisture content (RMC), α, and β represent curve fitting parameters.

Soil Type	Depth (feet bgs)	K_{zz}/K_{hh}	Saturated K_{hh} (feet/day)	Ss (feet^{-1})	Porosity	RMC	α (feet^{-1})	β
Silty clay	0 - 10	1	0.0158	0	0.36	0.07	0.152	1.09
Clay loam	10 - 290	1	0.205	0	0.41	0.095	0.579	1.31

An important, and often difficult, parameter to determine for the model simulation is the initial moisture profile of the soil. The reported gravimetric soil moisture contents from field samples were converted to equivalent pressure head potentials using the moisture characteristic curves for the soils (Figure D-11). Figure D-12 illustrates the relationship between pressure head and unsaturated hydraulic conductivity. An equilibrium pressure head profile was estimated from the groundwater table (h=0 ft) to a minimum value of -1.64 ft. Above 288.36 ft. bgs, the pressure head remained at -1.64 ft. This represented an initial volumetric moisture content of approximately 35% and a gravimetric moisture content of approximately 22% for the soils.

5.1.2 Simulation Description

The model simulation time is determined by a maximum number of time steps. This model simulation time was manipulated so that the equivalent number of years was long enough for the wetting front to advance to the groundwater table. The ground surface (representing the sewage lagoons) maintained a 3-ft positive pressure head for the duration of the simulation. The simulation represented a one-dimensional soil column, where the column wall boundary condition assumed no lateral flow and the groundwater table boundary condition allowed seepage, thus allowing all infiltrating water to exit the system into the aquifer.

5.1.3 VS2DTI Results

Based on the input parameters and boundary conditions applied to the VS2DTI model, water released at the sewage lagoons and allowed to infiltrate, reached the groundwater aquifer after approximately 2.7 years, yielding an average infiltration rate of 107.4 ft per year.

To verify the validity of the VS2DTI results, the same conceptual site model was assumed to be a saturated soil column of 290 ft with 3 ft of positive pressure driving infiltrating groundwater through the system. Using Darcy's Law, the estimated travel time for water at the surface to reach the aquifer is 5.4 years. Solution of the VS2DTI unsaturated model provided the additional gradient component of matric suction in the unsaturated soil; therefore, the wetting front is expected to reach the groundwater in time less than 5.4 years.

The important attribute of the VS2DTI simulation is the ability to solve for the wetting front arrival time under the influence of the constant 3 ft of positive pressure head. This result was used to help calibrate nitrate migration using the SESOIL model.

5.2 ADDITIONAL SESOIL MODELING

The sewage lagoons at Cannon AFB contained a layer of sludge at the ground surface which contained elevated concentrations of nitrate. To prevent drying of the sludge layer, approximately 3 ft of positive pressure head as wastewater effluent or potable water was maintained in the lagoons from 1965 until 1999. The concentration of nitrate in the groundwater aquifer sampled from a well adjacent to the lagoons, measured 12 mg/L of nitrate in March 2000, at which time, the water within the lagoons had been removed.

The SESOIL model was used to determine the nitrate concentration in the sewage lagoon sludge that produced a groundwater concentration of approximately 12 mg/L after 35 years of operation. SESOIL was also used to verify whether elimination of the positive pressure head (removing standing surface water) from the lagoons would limit the transport mechanism through the vadose zone, thus reducing nitrate levels in groundwater over time.

5.2.1 Infiltration Calibration

SESOIL does not allow the user to designate a positive pressure head or a flux rate as a boundary condition. The user may increase infiltration into the ground surface by increasing precipitation. The results of VS2DTI estimated that the leachate wetting front reached groundwater after approximately 2.7 years. To represent the effect of the 3-ft positive pressure head on the lagoons, precipitation amounts were increased within the SESOIL input file until the model predicted wetting front arrival at the groundwater aquifer after 2 to 3 years of simulation time. To approximate infiltration that equates to 2 to 3 years, a precipitation rate of 99 centimeters per month (cm/month) was used in the SESOIL model simulations.

5.2.2 Loading Rate Calibration

To calibrate the model for initial sludge concentration, the instantaneous loading rate was manipulated until the groundwater concentration measured 12.7 mg/L after 35 years of simulation time. This required a loading concentration of 644.6 mg/kg (10,500 $\mu g/cm^2/day$) in the sludge layer, which is a concentration that is much greater than the results obtained from field samples.

The model reached steady state conditions after 9 to 10 years of simulation time. The groundwater concentration remained constant at 12.7 mg/L from 10 years to the simulation termination at 50 years. This simulation will be referred to as CAL2.

The required precipitation required to simulate the 3-ft positive pressure head (99 cm/month) and the estimated sludge concentration (644.6 mg/kg) were used to simulate migration through the vadose zone under current conditions where the lagoons are dry. The increased precipitation of 99 cm/month, which represents 3 ft of ponded water on the lagoons, was applied for 10 years to allow the system to achieve a steady state. After 10 years, the current normal precipitation conditions and climate data for the area were used. This represented the year 2000, when the sewage lagoons were allowed to dry. This simulation will be referred to as EXP1.

Three additional simulations were performed to predict groundwater nitrate concentrations with soil loading values directly related to field sample data. Only field samples with nitrate concentrations greater than 5.0 mg/kg were considered. The average nitrate concentrations in sludge and soil samples were calculated as 66.25 mg/kg and 154.88 mg/kg for only the sludge samples. The current New Mexico Environmental Department (NMED) soil-screening level (SSL) of 10 mg/kg was also considered. These three soil concentration values corresponded to instantaneous loading rates of 1079.2 $\mu g/cm^2/day$, 2523.0 $\mu g/cm^2/day$, and 488.7 $\mu g/cm^2/day$, respectively. Model simulations using these loading rates produced, after 10 years steady-state groundwater concentrations, 1.3 mg/L, 3.05 mg/L, and 0.59 mg/L, respectively. These simulations will be referred to as LAGAVG (lagoon average), SLUAVG (sludge average), and STATE (NMED SSL value), respectively.

A final simulation was performed to understand the transport of the nitrate to groundwater under precipitation events normal to the region. The loading concentration of 644.6 mg/kg (10,500 $\mu g/cm^2/day$) in the sludge layer was combined with the predicted annual climate for Clovis, NM from the SESOIL climate database. The final simulation was performed for 100 years and is referred to as FINAL.

5.2.3 SESOIL Results

Results of the three additional simulations at increased precipitation (LAGAVG, SLUAVG, and STATE) are presented in Figure D-13. The groundwater aquifer concentration in ppm is plotted as a function of simulation time. All of the simulations reach a steady after approximately 9 years of simulation, except EXP1. The estimated groundwater concentrations at this steady state are proportional to the loading rates.

EXP1 maintained excessive precipitation (as the other simulations) from 0 to 9 years. The climate was returned to normal conditions on the tenth year. After 10 years, results from the EXP1 simulation show a minor decrease, and then a gradual increase in groundwater concentration to an asymptotic value of approximately 185 ppm. This is attributed to the decrease in water infiltrating to the groundwater; and thus, an increase in constituent concentration.

Figure D-14 illustrates the result of the FINAL simulation. Depth of wetting front (ft) is plotted on the left, vertical axis as a function of time. Groundwater aquifer nitrate concentration (ppm) as a function of time is plotted on the right, vertical axis. The wetting front with the nitrate concentration reaches the groundwater aquifer after 74 years. At 74 years, the groundwater aquifer nitrate concentration steadily increases.

5.3 CONCLUSIONS OF PERIPHERAL MODELING

The described simulations were intended to help determine the parameters most significant for promoting constituent transport to groundwater. An attempt was made to understand the effects of maintaining a positive pressure head on the system, and determine the effects of removing this pressure head.

It was determined from the described simulations that excessive amounts of infiltrating water are necessary to provide the transport mechanism required to greatly affect groundwater concentrations. The earliest simulations assuming normal climatic conditions predicted that the constituents of concern would not reach groundwater after 50 years. The final simulation assuming normal climatic conditions predicted a breakthrough of nitrate after 74 years. These simulations have conservative and less conservative components. They are conservative because they do not allow for the removal of soil moisture. There is no lateral movement of water or evapotranspiration occurring. The least conservative aspect of the simulations involves the initial soil moisture content of the soil. After 35 years of standing water present in the lagoons at the top of the soil column, the subsurface should be very moist, thus enabling contaminant transport in the unsaturated zone to occur faster than the wetting front illustrated by SESOIL

at normal climatic conditions. The soil moisture throughout the subsurface would already contain a concentration of nitrate, which cannot be replicated in the SESOIL simulations.

Increasing the precipitation infiltration in an effort to represent the ponded water in the lagoons illustrates that the positive pressure head could enhance transport of constituents enough to be a concern. The positive pressure head created from ponded water in the sewage lagoons, could have provided this mechanism. Removal of the pressure head combined with the effects of evapotranspiration and contaminant decay should greatly limit nitrate flux to groundwater. The excessive amounts of water infiltrating from standing water at the surface would also contribute to diluting nitrate and reducing the nitrate concentration, illustrated by the SESOIL simulations with excessive precipitation. The results indicate an asymptotic nitrate concentration that has a magnitude dependent only on the loading rate. When the precipitation values are decreased, the aquifer concentrations begin to rise and has a direct effect on the Summers mixing model to account for groundwater concentrations in the SESOIL model. A trend in nitrate concentrations in groundwater over time is not possible to observe in the SESOIL results since, degradation or decay was assumed to not occur in the model.

The simulations have shown that effects on the groundwater aquifer were realistic under the 3 ft positive pressure head, but limiting infiltrating water and preventing standing water from existing at the sewage lagoons will significantly reduce the ability of the nitrate to reach the groundwater aquifer.

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HUMAN HEALTH AND SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENTS FOR SWMU 101, SEWAGE LAGOONS CANNON AIR FORCE BASE

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LIST OF ACRONYMS

AFB	Air Force Base
ADD	average daily dose
AF	absorption fraction
asl	above sea level
AT	averaging time
Ba	biotransfer factor
Ba_{DM}	biotransfer factor applicable for the deer mouse (days per kilogram fresh weight tissue)
BCF	bioconcentration factor
$BCF_{F\text{-}DM}$	food bioconcentration factor applicable for the deer mouse
$BCF_{INV\text{-}DM}$	terrestrial invertebrate-to-deer mouse bioconcentration factor
BCF_r	soil-to-plant bioconcentration factor
$BCF_{S\text{-}DM}$	soil-to-deer mouse bioconcentration factor
$BCF_{S\text{-}MD}$	soil-to-mourning dove bioconcentration factor
$BCF_{TP\text{-}DM}$	terrestrial plant-to-deer mouse bioconcentration factor
$BCF_{TP\text{-}MD}$	terrestrial plant-to-mourning dove bioconcentration factor
bgs	below ground surface
BHC	hexachlorocyclohexane
BW	body weight
C	chemical concentration in exposure medium
C_{DM}	COPEC concentration in the deer mouse
C_F	COPEC concentration in the food item
C_{HB}	COPEC concentration in herbivorous birds
C_{INV}	COPEC concentration in terrestrial invertebrates
C_M	COPEC in media

C_{MD}	COPEC concentration in the mourning dove
C_{OM}	COPEC concentration in omnivorous mammals
C_S	COPEC concentration in soil
C_{TP}	COPEC concentration in terrestrial plants
CDI	chronic daily intake
CESQ	cumulative ecological screening quotient
CMS	corrective measures study
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CSF	cancer slope factor
CSFi	inhalation cancer slope factor
CSFo	oral cancer slope factor
DD	daily dose of COPEC ingested
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
d/y	days per year
D_{CB}	daily dose of COPEC ingested by carnivorous terrestrial birds
D_{HB}	daily dose of COPEC ingested by herbivorous bird
D_{OM}	daily dose of COPEC ingested by omnivorous terrestrial mammals
ED	exposure duration
EEL	estimated exposure level
EF	exposure frequency
ELCR	excess lifetime cancer risk
EPA	United States Environmental Protection Agency
EPC	exposure point concentration
ESQ	ecological screening quotient
F_F	fraction of diet consisting of food item
F_{HB}	fraction of diet comprised of herbivorous birds

F_{OM}	fraction of diet comprised of omnivorous mammals
F_{TP}	fraction of diet comprised of terrestrial plants
F_{INV}	fraction of diet comprised of terrestrial invertebrates
ft	feet
HEAST	Health Effects Assessment Summary Tables
HHRA	human health risk assessment
HHSL	human health medium-specific screening level
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
IR	ingestion rate
IR_{CB}	food ingestion rate of carnivorous terrestrial birds
IR_F	ingestion rate for food items
IR_{HB}	food ingestion rate of herbivorous bird
IR_M	measurement receptor media ingestion rate
IR_{OM}	food ingestion rate of omnivorous terrestrial mammals
$IR_{S\text{-}CB}$	soil ingestion rate of carnivorous terrestrial birds
$IR_{S\text{-}HB}$	soil ingestion rate of herbivorous bird
$IR_{S\text{-}OM}$	soil ingestion rate of omnivorous terrestrial mammals
kg	kilogram
kg FW/day	kilogram fresh wet per day
kg WW/kg BW day	kilograms of wet weight per kilogram of body weight per day
kg DW/kg BW-day	kilograms of dry weight per kilogram of body weight per day
LADD	lifetime average daily dose
LOAEL	lowest observed-adverse-effect-level

log Ba_{DM}	logarithm of the COPEC-specific biotransfer factor applicable for the deer mouse
log K_{ow}	logarithm of the octanol-water partition coefficient
MDL	method detection limit
mg COPEC/kg WW	milligram COPEC per kilograms wet weight
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/kg-day	milligrams per kilogram per day
mg/kg DW	milligrams per kilogram of dry weight
mg/kg WW	milligrams per kilogram of wet weight
mg COPEC/kg-BW-day	milligrams of COPEC per kilograms of body weight per day
mg DW/kg BW-day	milligrams of dry weight per kilogram of body weight per day
NMED	New Mexico Environment Department
NOAEL	no-observed-adverse-effect level
NPL	North Playa Lake
P_F	proportion of the food item that is contaminated
P_{HB}	ratio of contaminated to total herbivorous birds in diet
P_{INV}	ratio of contaminated to total terrestrial invertebrates in diet
P_M	proportion of ingested media that is contaminated
P_{OM}	ratio of contaminated to total omnivorous mammals in diet
P_r	plant concentration due to root uptake
P_S	ratio of contaminated to total ingested soil
P_{TP}	ratio of contaminated to total terrestrial plant in diet
PCB	polychlorinated biphenyl
PCOPEC	preliminary chemical of potential ecological concern

RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RfD_i	inhalation reference dose
RfD_o	oral reference dose
SLERA	screening-level ecological risk assessment
SWMU	solid waste management unit
TERC	Total Environmental Restoration Contract
TRV	toxicity reference value
USACE	United States Army Corps of Engineers
USAF	United States Air Force
VOCs	volatile organic chemicals

C.1 INTRODUCTION

This appendix presents the human health risk assessment (HHRA) and screening-level ecological risk assessment (SLERA) prepared for solid waste management unit (SWMU) 101, the sewage lagoons, at Cannon Air Force Base (AFB), New Mexico.

Cannon AFB occupies approximately 4,000 acres south of U.S. Highway 60/84 in Curry County, New Mexico. The Base is situated 6 miles west of Clovis, near the New Mexico–Texas border. A site location map is included as Figure 1-1 in the main body of this report. Cannon AFB, originally the Clovis Army Air Base, was established in 1942 by the Department of Defense as a training facility for B-17, B-24, and B-29 air crews. The Base, renamed Clovis Army Airfield in 1945, eventually closed in 1947. Reactivated in 1951, the Base was reassigned to the Tactical Air Command and renamed Cannon Air Force Base in 1957. The Base currently maintains a combat-ready force and provides replacement training of combat aircrews for tactical organizations worldwide.

SWMU 101, the sewage lagoons, is located on the east side of the Base. It is bordered to the north by the wastewater treatment plant, to the west by the abandoned runway, to the south by unimproved/disturbed grassland, and to the east by Landfill 25. The North Playa Lake (NPL) is approximately 1,000 feet (ft) south/southeast of SWMU 101. A site map is included as Figure 1-2. SWMU 101 is surrounded by a fence that is barbed wire in some areas and chain link in others. SWMU 101 consists of two unlined surface impoundments that were in use from 1966 to 1998 and received combined sanitary and industrial wastes from facilities on the Base. The lagoons operated in a series and have a combined surface area of approximately 33 acres. The lagoons were constructed with unlined earthen bottoms and concrete-lined banks. There is a buffer between the lagoons and the fence that ranges from approximately 10 to 100 ft. The buffer zone is comprised of mowed grasses. With the construction and operation of the Base wastewater treatment plant in 1998, discharge of wastewater into the lagoons was discontinued. Photographs of the site are included as Attachment 1 to this appendix.

Two corrective action alternatives were evaluated in the HHRA and SLERA. The first, No Action, was evaluated quantitatively in both the HHRA and SLERA (Section C.2). The second alternative, Sludge Dewatering In-Place, Consolidation, Compaction, and Cover, was evaluated qualitatively in the HHRA and SLERA (Section C.3). A third corrective action alternative, Pump Liquid Sludge to South Lagoon, Dewater Sludge In-Place, and Cover, is very similar to the

second corrective action alternative and risks are expected to be the same for both alternatives; therefore, the third alternative was not evaluated in the HHRA or SLERA. Section 2.0 of the Corrective Measures Study (CMS) provides a detailed discussion of the three corrective action alternatives. The HHRA and SLERA evaluations of the alternatives are discussed below in Sections C.2 and C.3.

C.2 NO ACTION ALTERNATIVE

The No Action alternative is the baseline against which the other alternatives are compared. This alternative was originally described in the CMS Work Plan as evaporating the water in the lagoons and exposing the sludge (USAF 1999). This has already occurred because water is no longer being discharged to the lagoons. Risks to human and ecological receptors were evaluated quantitatively for this alternative.

C.2.1 MEDIA OF CONCERN

SWMU 101 was divided into four media of concern for evaluation in the HHRA and SLERA: north lagoon sludge, north lagoon soil, south lagoon sludge, and south lagoon soil. Each lagoon was evaluated separately; soil and sludge from the lagoons were also evaluated separately. The risk assessments are based on data that were collected in April 2000 in support of the CMS. All sludge analytical results were used in the HHRA and SLERA. A variety of soil depths were evaluated: analytical results from 0 to 10 ft below the sludge–native soil interface and 0 to 2 ft below the sludge–native soil interface were considered in the HHRA; analytical results for 0 to 6 ft below the sludge–native soil interface soil samples were evaluated in the SLERA.

C.2.2 HUMAN HEALTH RISK ASSESSMENT

The HHRA defines the magnitude and probability of threats to public health posed by site-related chemicals in untreated sludge and soil at SWMU 101. The HHRA evaluates all relevant potential current and future conditions at SWMU 101. The extent of risk depends on the degree to which receptors are exposed, which is mainly influenced by the types, frequencies, and duration of activities conducted at the site.

The HHRA was conducted in accordance with the New Mexico Environment Department (NMED) Position Paper, *Assessing Human Health Risks Posed by Chemicals: Screening-level Risk Assessment* (NMED 2000a), U.S. Environmental Protection Agency's (EPA) *Region 6 Human Health Medium-Specific Screening Levels* (EPA 1999a), and standard EPA guidance, including *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation*

Manual (Part A) (EPA 1989) and *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (EPA 1991).

C.2.2.1 Site-Specific Objectives

The primary objectives of the HHRA are to

- Focus the analytical results presented in the CMS on the chemicals of potential concern (COPCs) for human health risk
- Identify potential exposure pathways
- Identify site areas potentially posing risk to human health under the No Action alternative

C.2.2.2 Organization of the Human Health Risk Assessment

The HHRA has been organized to delineate the data evaluation, present the risk assessment methodology, and summarize the findings and conclusions of the risk assessment. The information is presented in the following sections:

- C.2.2.3—Selection of Chemicals of Potential Concern
- C.2.2.4—Exposure Assessment
- C.2.2.5—Toxicity Assessment
- C.2.2.6—Risk Characterization
- C.2.2.7—Risk Assessment Results
- C.2.2.8—Uncertainty Analysis
- C.2.2.9—Summary

C.2.2.3 Selection of Chemicals of Potential Concern

This section reviews and summarizes the analytical data for soil and sludge samples collected at SWMU 101. It further discusses the selection of the COPCs to be evaluated in the HHRA.

C.2.2.3.1 Data Reduction

The quantitative assessment of exposure and potential risk for SWMU 101 is based on the COPCs, or those site-related chemicals that may be associated with adverse effects on human health. COPCs are a subset of the list of all chemicals positively identified at the site. This assessment used the sludge and soil analytical data collected in April 2000 as most representative of the current and future conditions that may occur at SWMU 101.

Soil Samples

Soil samples were collected from both the north and south lagoon during the CMS field investigation in April 2000. The locations where soil samples were collected are presented in Figure 3-1. Soil samples were collected in the following intervals below the sludge–native soil interface: 0 to 2 ft, 4 to 6 ft, and 8 to 10 ft. The samples were collected from five boreholes in each lagoon. Soil samples were analyzed for volatile organic chemicals (VOCs), polychlorinated biphenyls (PCBs), pesticides, nitrate, total organic carbon, Resource Conservation and Recovery Act (RCRA) metals, and mercury. Section 3.4 provides a detailed discussion of the results of soil sampling conducted during the CMS.

The HHRA considered soil data from the 0- to 10-ft interval. While it was estimated that industrial workers would only be exposed to the 0 to 2 ft interval the entire depth (0 to 10 ft) was evaluated as a conservative measure.

Sludge Samples

One sludge sample was collected from each borehole location in both lagoons. Sludge samples were collected at the locations designated in Figure 3-1. Sludge samples were analyzed for VOCs, PCBs, pesticides, nitrate, total organic carbon, RCRA metals, and mercury. Section 3.4 provides a detailed discussion of the results of the sludge sampling conducted during the CMS.

All of the sludge samples collected were evaluated in the risk assessment and considered to be a realistic estimate of the sludge to which industrial workers working at or near the lagoons would most likely be exposed

Summary Statistics

Summary statistics were calculated for each media of concern evaluated in the HHRA and SLERA. Summary statistics were prepared for each chemical detected at least once in the media of concern. The summary statistics include: frequency of detection, the minimum and maximum detected concentrations, range of detection limits, and arithmetic mean. The arithmetic mean averages the detected concentration and one-half the detection limits for samples with chemical concentrations below the laboratory detection limit. Duplicate samples were not included in the summary statistics unless the chemical concentration in the duplicate was the maximum detected concentration of that chemical in that media. If the duplicate is the maximum detected concentration the duplicate sample was included in the summary statistics and the primary sample was removed. Summary statistics for north lagoon sludge and soil (from 0 to 10 ft below

the sludge–native soil interface) are provided on Tables C-1 and C-2, respectively. Summary statistics for south lagoon sludge and soil (from 0 to 10 ft below the sludge–native soil interface) are provided on Tables C-3 and C-4, respectively.

Data Validation

In an effort to gather all the data available for SWMU 101, an inquiry was made into the investigative history of SWMU 101. One previous investigation was identified. The data from that investigation are discussed qualitatively in Section 2.0 of the CMS. These data were deemed inappropriate for inclusion in the SLERA because the data have not been validated and the sampling locations could not be verified.

The data used in this SLERA were validated in accordance with accepted EPA quality assurance/quality control procedures.

The only data validation flag that was ascribed to this data was the J-qualifier. A J-qualifier indicates that, although a positive identification of the chemical was made, there is some uncertainty in the quantification of the concentration present. Usually the concentration has been estimated and is below the contract-required detection limit. Data that were J-qualified were included in the SLERA. The uncertainties associated with their inclusion are discussed in Section C.2.3.3.3.

Sample results and associated laboratory blanks were evaluated for possible laboratory contamination. The purpose of this evaluation is to prevent the inclusion of non-site-related contaminants in the SLERA. The EPA considers acetone, 2-butanone, methylene chloride, toluene, and phthalate esters to be common laboratory contaminants (EPA 1994). If the laboratory blank contained detectable levels of these common laboratory contaminants, then the sample results were considered positive only if the concentrations in the sample exceeded 10 times the maximum amount detected in any blank. If the concentration of the common laboratory contaminant was less than 10 times the blank concentration, the chemical was considered not detected in the particular sample. If all samples contained levels of a common laboratory contaminant that were less than 10 times the level of contamination in the blank, the chemical was eliminated as a COPEC. For this SLERA, methylene chloride was eliminated as a COPEC because sample concentrations from both rounds of sampling were determined to be due to laboratory contamination.

Comparison to Background Level Concentrations

A comparison of detected inorganics with site-specific background levels was made to identify naturally occurring chemicals not related to human activities at SWMU 101 (NMED 2000b, EPA 1989). A comparison between detected concentrations of 4,4'-dichlorodiphenyltrichloroethane (DDT) with site-specific background levels was also conducted. Because there is no NMED guidance regarding background comparisons of organic chemicals the comparison was made for descriptive purposes only; the results of the comparison did not affect how 4,4'-DDT was evaluated in the HHRA and SLERA. For the comparisons, the maximum detected value in the site investigative data was compared to the maximum detected value in the site-specific background data presented in *Naturally Occurring Concentrations of Inorganics and Background Concentrations of Pesticides at Cannon Air Force Base, New Mexico* (Cannon 1997). The overall objective of that report was to characterize naturally occurring background concentrations for metals and pesticides in soil at Cannon AFB. Samples were analyzed for pesticides (EPA method 8081) and target analyte list metals (EPA methods 6010, 7060 [arsenic], 7740 [selenium], 7471 [mercury], 7420 [lead], and 7841 [thallium]). The only pesticide detected was 4,4'-DDT; therefore, that is the only pesticide for which a background comparison was completed. In accordance with EPA guidance (1989), those chemicals present on site at naturally occurring levels were eliminated from the quantitative risk assessment. The maximum concentrations of inorganics and 4,4'-DDT detected in sludge samples were compared to maximum concentrations detected in surface background soil samples collected from 0 to 1 ft below ground surface (bgs). The maximum detected concentrations of inorganics and 4,4'-DDT in soil samples collected from each lagoon from 0 to 10 ft below the sludge–native soil interface were compared to maximum detected background soil samples collected from 0 of 40 ft bgs. Barium in north lagoon sludge and selenium in south lagoon soil were both detected below background concentrations and eliminated from further evaluation in the HHRA. No inorganics in the north lagoon soil or south lagoon sludge were detected below background concentrations. This comparison is included in Tables C-1 through C-4.

Comparison to Human Health Medium-Specific Screening Levels

A comparison with EPA Region 6 Human Health Medium-Specific Screening Levels (HHSLs) for soil (EPA 2000) was made as a conservative approach for selecting COPCs and is considered a conservative estimate of potential risk at SWMU 101. The residential HHSLs used in the screening incorporate oral, inhalation, and dermal exposure pathways. Based on NMED guidance (2000a), carcinogenic and non-carcinogenic compounds were compared to the HHSLs

differently. NMED requires that if 2 or more non-carcinogenic chemicals are present at a site each chemical must be compared to one-tenth of their respective residential HHSL. For example, the residential HHSL for Selenium is 390 mg/kg, because the HHSL for selenium is based on non-carcinogenic effects, the HHSL was adjusted one-tenth of the HHSL (39 mg/kg) was used in the comparison against site concentrations. The adjustment method is used to address the potential that two or more of the non-carcinogenic COPCs may affect the same target organs or systems. Using the NMED guidance, the maximum detected concentration of each non-carcinogenic chemical detected in soil samples from 0 to 10 ft bgs in each lagoon were compared to the adjusted residential HHSLs. The maximum concentration of each carcinogenic chemical detected in soil samples from 0 to 10 ft bgs in each lagoon was compared to the residential HHSL. Maximum concentrations of carcinogenic chemicals detected in sludge samples collected at each lagoon were also compared to residential HHSLs. Tables C-5 through C-8 show the results of these comparisons for sludge and soil in the north and south lagoons.

The following chemicals did not have HHSLs:

- m/p-Xylenes
- PCB-1260
- alpha-Chlordane
- gamma-Chlordane
- Endrin aldehyde
- Nitrate/Nitrite

Surrogate HHSLs were used for the above chemicals for comparison to maximum detected soil and sludge concentrations. Surrogates selected were chemically similar to the chemicals without HHSLs. The HHSL for m-xylenes was used as a surrogate for m/p-xylenes. The HHSL for p-xylenes was also available but was higher than the HHSL for m-xylenes; the lower HHSL was conservatively selected as the surrogate. The HHSL for PCBs was used as a surrogate for PCB-1260. The HHSL for chlordane was used as a surrogate for both alpha- and gamma-chlordane. The HHSL for endrin was used as a surrogate for endrin aldehyde. Because no HHSL was available for nitrate/nitrite, the EPA Region 3 risk-based concentration (RBC) for nitrite was used (EPA 2000a). The RBC for nitrates was also available but was higher than the RBC for nitrites; the lower RBC was conservatively selected as the surrogate.

The critical effects and target organs of the non-carcinogenic compounds that exceeded the adjusted HHSLs were compared separately for soil and sludge in each lagoon and screened against readjusted HHSLs. The HHSLs were readjusted based on the number of chemicals in sludge or soil in the north or south lagoon that had the same critical effects and/or target organs. The residential HHSL was divided by the number of chemicals with the same critical effects and the maximum detected concentrations of the chemicals were all screened against the newly adjusted value. For example in south lagoon sludge both barium and cadmium had critical effects on the same target organ (the kidney). The HHSL for barium and cadmium were divided by one-half to account for their effects. Barium has a residential HHSL of 5,400 mg/kg, one-half of the residential HHSL (2,700 mg/kg) was used in the screen. If a chemical was the only one with certain critical effects and/or target organs the maximum detected concentration was screened against the unadjusted residential HHSL. Tables C-9 through C-12 show the results of this comparison for sludge and soil in the north and south lagoons.

Chemicals with maximum detections below the unadjusted and adjusted residential HHSLs were eliminated from the quantitative risk assessment. Arsenic was the only chemical detected above the HHSLs in both north and south lagoon soil; all other chemicals detected in soil were eliminated from further evaluation in the HHRA. PCB-1260, dieldrin, heptachlor epoxide, and arsenic in north lagoon sludge were all detected above their respective HHSLs; all other chemicals detected in the north lagoon sludge were detected at concentrations below the HHSLs and were eliminated from further evaluation in the HHRA. Only dieldrin and arsenic were detected above their HHSLs in the south lagoon sludge; all other chemicals detected in south lagoon sludge were eliminated from further evaluation in the HHRA.

C.2.2.3.2 Results of COPC Selection

All organic chemicals exceeding the HHSLs were considered COPCs. All inorganic chemicals detected at concentrations above the background levels and HHSLs were also considered preliminary COPCs. For this risk assessment, the list of COPCs included the following chemicals:

- PCB-1260
- dieldrin
- heptachlor epoxide
- arsenic

Arsenic is the only COPC found in both north and south lagoon soil. Arsenic and dieldrin are COPCs in sludge in both the north and south lagoon; PCB-1260 and heptachlor epoxide are COPCs only in the north lagoon sludge. Table C-13 summarizes the COPC selection process for the HHRA.

C.2.2.4 Exposure Assessment

The objective of the exposure assessment is to characterize the exposure setting, determine potentially exposed populations, and identify exposure pathways. The identification of exposure pathways entails integrating the variables (contaminant sources, releases, fate and transport mechanisms, and exposure points) that contribute to complete exposure pathways to human receptors. Exposure to chemicals is quantified by calculating exposure point concentrations (EPCs) for all media and estimating chemical intakes.

A complete exposure pathway consists of four necessary elements: (1) a source and mechanism of contaminant release to the environment; (2) an environmental transport medium (e.g., soil) for a released contaminant; (3) a point of potential contact with the medium (referred to as the exposure point); and (4) an exposure route (e.g., ingestion) at the contact point (EPA 1989).

C.2.2.4.1 Exposure Setting and Site Conceptual Model

The exposure setting entails the physical environment, the land use associated with the current and potential future uses of SWMU 101, and the soil and sludge at each lagoon affected by industrial discharge. Section 2.2 of the CMS report includes information on the physical characteristics of SWMU 101. This information is used as the basis for identifying the receptors, specific pathways, and input parameters used in the quantitative assessment (Figure C-1).

C.2.2.4.2 Identification of Potential Receptors

In the HHRA, potential exposures were examined to determine if site-related soil and soil vapor could pose a threat to human health. The risks associated with impacted soils depend not only on chemical concentrations in soil but also on the extent to which people are exposed. Because risks depend on the concentration of the contaminant and the extent of the exposure, hypothetical exposure scenarios are created. The scenarios describe the type of population expected to be exposed and the frequency and length of time people are likely to be exposed.

The industrial worker was considered in this assessment as both a potential current and future on-site receptor. The industrial worker is assumed to spend his/her entire workday working in or

near the north and south lagoons. As discussed below, the industrial worker scenario is assumed to be representative of all current and future workers at SWMU 101.

C.2.2.4.3 Exposure Pathways

Exposure pathways describe the ways in which people can potentially be exposed to contaminants at a site. The pathway analysis involves the systematic examination of each potential contaminant source, contaminant transport pathway, and exposed population to determine which combinations should be evaluated quantitatively in the HHRA. The combinations that are considered for risk evaluation are those that represent complete current or future pathways (making reasonable assumptions about future land use).

The Management Action Plan for Cannon AFB indicates that current land use at SWMU 101 is industrial and it is expected to remain industrial in the future. Based on land use information, under both current and future conditions, industrial workers are the only potential receptors who have direct access to SWMU 101 and any related contamination. Industrial workers would not be performing any excavation work in the sludge and soil, only working in the vicinity of the lagoons. The pathways that represent potentially complete exposure routes for industrial workers include the following:

- Ingestion and dermal contact with soil during work activities
- Inhalation of contaminated soil and soil particulates during wind or soil disturbance activities

The HHRA did not evaluate industrial worker exposure to chemicals detected in groundwater below the north and south lagoons. Groundwater is not currently used as a potable water source nor is it expected to be used as a source in the future; however, if the industrial worker did ingest groundwater the risks from this exposure pathway would increase the overall risks for the worker. This increase in risk is not accounted for in this HHRA.

C.2.2.4.4 Quantification of Exposure

In this section, assumptions about the behavior of the populations potentially at risk are considered, as well as the concentrations of COPCs at the point of potential human exposure, to estimate the chronic daily intake (CDI) of COPCs for potentially exposed individuals. The CDI is analogous to the average daily dose (ADD) and the lifetime average daily dose (LADD) (EPA 1989). In the risk characterization step of the assessment, the CDIs are combined with toxicity parameters to estimate whether the calculated intake levels pose a threat to human health.

Exposure Point Concentrations

The EPC was determined, following EPA guidance for a screening-level risk assessment (EPA 1989), to be the maximum COPC value detected in the samples collected from sludge and from 0 to 2 ft below the sludge–native soil interface in each lagoon. Soil data from 0 to 10 ft below the sludge–native soil interface were not utilized in the calculation of CDI or risk; instead, the soil data from 0 to 2 ft below the sludge–native soil interface were used. This approach was selected in order to evaluate smaller depth intervals to determine the depth intervals with and without elevated risk. If the risk was elevated in one of the smaller depth intervals risks would be calculated for the next depth interval to assess at what depths risk is or is not present. EPCs for each lagoon are shown in Tables C-1, C-3, C-14, and C-15 as the maximum detected concentration. New summary tables are provided for soil because a new depth interval (0-2 ft) will be used for the remainder of the HHRA.

Quantification of Chronic Daily Intake

To calculate chemical intakes, the following factors must be estimated:

- EPC to which an individual is exposed
- Amount of chemical taken up by the body via ingestion, dermal absorption, and/or inhalation
- Frequency and duration of exposures

These factors are incorporated into the CDI, which represents an estimated average daily dose received via direct contact (soil ingestion and dermal contact) and/or inhalation pathways. CDIs are expressed in units of milligrams of chemical per kilogram of body weight per day (mg/kg–day) and are calculated using the following generic equation:

$$CDI = \frac{C \times IR \times EF \times ED \times AF}{BW \times AT}$$

Where:

AF = absorption fraction

AT = averaging time; time over which the exposure is averaged (years)

BW = body weight (kilograms [kg])

C = chemical concentration in exposure medium (mg/kg)

CDI = chronic daily intake (mg/kg-day)

ED = exposure duration (years)

EF = exposure frequency (days per year [d/y])

IR = intake rate; the amount of the medium contacted per unit time (e.g., milligrams of soil ingested per day [mg/day])

The risks associated with exposure to COPCs depend not only on the concentrations of COPCs but also on the extent to which receptors are exposed. Table C-16 presents the exposure parameters used in this assessment for each pathway as well as the risk equations. The CDI calculation is incorporated into the risk equations shown in Table C-16. The exposure assumptions are taken from the NMED (NMED 2000a) and EPA guidance documents (EPA 1989, 1991, 1996, 1999a, and 1999b). Averaging time for carcinogenic chemicals is based on a 70-year, or lifetime, exposure. Averaging time for non-carcinogenic chemicals is based on the estimated exposure duration. Absorption via ingestion and inhalation is assumed to be 100 percent because limited chemical-specific information is available.

C.2.2.5 Toxicity Assessment

For the HHRA, COPCs were separated into two categories of chemical toxicity: carcinogenic and non-carcinogenic effects.

C.2.2.5.1 Toxicity Values

Toxicity values, when available, are published by the EPA in the on-line Integrated Risk Information System (IRIS) (EPA 2000b) and the Health Effects Assessment Summary Table 5 (HEAST) (EPA 1997). Toxicity values used in the HHRA were taken from IRIS (EPA 2000b) and compared to toxicity values used in the calculation of EPA Region 6 HHSLs (EPA 1999a). Reference doses (RfDs) are experimentally derived “no-effect” levels (even for sensitive populations) used to quantify the extent of toxic effects other than cancer due to exposure to contaminants. A lower value implies a more potent toxicant. Oral RfDs (RfD_o) used for the HHRA are listed in Table C-17; inhalation RfDs (RfD_i) are listed in Table C-18. Cancer slope factors (CSFs) are chemical-specific, experimentally derived potency values that are used to calculate the risk of cancer resulting from exposure to potentially carcinogenic contaminants.

Here, a higher value implies a more potent carcinogen. Oral CSFs (CSF_o) used in this HHRA are listed in Table C-19; inhalation CSFs (CSF_i) are listed in Table C-20. The methodologies used to calculate each of these criteria are discussed below.

Non-carcinogenic Effects

For effects from non-carcinogenic materials, EPA assumes that a dose threshold exists below which adverse effects are not expected to occur. An RfD is an estimate of a lifetime daily dose of a chemical to humans that is likely to be without appreciable deleterious non-carcinogenic effects, even in sensitive populations. To derive an RfD, a series of professional judgments are made to assess the quality and relevance of the human or animal data and to identify the critical study and the most critical toxic effect. Data typically used in developing the RfD are the highest no-observable-adverse-effects levels (NOAELs) for the critical studies and effects of the noncarcinogen. For each factor representing a specific area of uncertainty inherent in the extrapolation from the available data, an uncertainty factor is applied. Chronic RfDs are derived for exposure durations of 7 years or longer. Subchronic RfDs are derived for exposure durations ranging from 2 weeks to 7 years.

Four major types of uncertainty factors are typically applied to NOAELs in the derivation of RfDs. These are used to (1) account for the variability between humans, (2) extrapolate from animals to humans, (3) account for a NOAEL based on a subchronic study instead of a chronic study, and (4) extrapolate from a lowest-observed-adverse-effects level (LOAEL) to a NOAEL, if necessary. In addition, a modifying factor can be used to account for adequacy of the database. Typically, the modifying factor is set equal to 1.

To obtain the RfD, all uncertainty factors associated with the NOAEL are multiplied together and the NOAEL is divided by the total uncertainty factor. Therefore, each uncertainty factor adds a degree of conservatism to the RfD. An understanding of the uncertainties associated with RfDs is important in evaluating the significance of the hazard indices calculated in the risk characterization portion of the HHRA and will be further discussed in Section C.2.2.8. All of the COPCs evaluated in the HHRA, except for PCB-1260, have EPA-established RfD values. Per NMED guidance (NMED 2000c), the RfD_o and RfD_i for Aroclor 1254 were used to evaluate non-carcinogenic risk from exposure to PCB-1260 in the north lagoon sludge. NMED recommends using toxicity values for Aroclor 1254 for PCBs that have greater than 4 chlorines in more than 0.5% of the congeners present; PCB-1260 meets this criteria. Inhalation RfDs are

not available for Aroclor 1254 and arsenic. Thus risks from this pathway could not be quantified for these chemicals.

Carcinogenic Effects

CSFs are developed from chronic animal studies or, where possible, epidemiological data. Because animal studies use much higher doses over shorter periods of time than do studies for human exposure, the data from these animal studies are adjusted using mathematical models and applying an interspecies scaling factor to derive a comparable low-dose CSF for humans. The use of these CSFs typically results in an upper-bound estimate of the probability for an individual to develop cancer as a result of exposure to a given level of a potential carcinogen. The actual risks are unlikely to be higher than those predicted using the CSF and may actually be considerably lower.

Based on the epidemiological and animal studies available for a given chemical, EPA assigns a weight-of-evidence classification as follows:

- Group A, Human Carcinogen: Sufficient evidence to support a causal link between chemical exposure and cancer in humans
- Group B, Probable Human Carcinogen: B1, limited evidence of carcinogenicity in humans; B2, sufficient evidence of carcinogenicity in animals, with inadequate or no evidence in humans
- Group C, Possible Human Carcinogen: Limited evidence of carcinogenicity in animals and inadequate or no human data
- Group D, Not Classifiable as to Human Carcinogenicity: Inadequate or no evidence of carcinogenicity
- Group E, Evidence of Non-carcinogenicity in Humans: No evidence of carcinogenicity in adequate human or animal studies

Carcinogenic toxicity criteria are generally developed only for Groups A through C carcinogens. Theoretical carcinogenic risks must be estimated for Group A and Group B carcinogens.

All of the COPCs evaluated in the HHRA, except for PCB-1260, have EPA-established CSF_o and CSF_i values. Per NMED and EPA Region 6 guidance (NMED 2000c, EPA 1999a), the toxicity value for Aroclor-1254 was used, a CSFo and CSFi of 2.0 mg/kg-day was used to

calculate risk to potential receptors from exposure to Aroclor–1260. NMED recommends using toxicity values for Aroclor 1254 for PCBs that have greater than 4 chlorines in more than 0.5% of the congeners present; PCB-1260 meets this criteria.

Toxicity Factors Used to Evaluate Dermal Route Exposures

A great deal of uncertainty surrounds the risk evaluation for dermal contact with chemicals in soil. The CSF_o and RfD_o values listed in Tables C-17 through C-20 were adjusted to derive dermal RfDs and CSFs based on a conversion from an administered dose to an absorbed dose (EPA 1989). EPA Region 6 guidance provides chemical-specific dermal absorption values for two COPCs: PCB-1260 and arsenic (EPA 1999a). In addition, EPA Region 6 recommends a default skin absorption value of 0.10 for organics and does not recommend skin absorption values for inorganics; therefore risks from dermal contact with inorganics is not considered in this HHRA (EPA 1999a). These EPA recommendations were used in the evaluation of dermal exposure in the HHRA. To calculate dermal toxicity values, the CSF_o values are divided by the absorption values and the RfD_o values are multiplied by the absorption values. The dermal absorption values used to calculate the dermal RfDs and CSFs are shown on Tables C-17 and C-19, respectively.

C.2.2.6 Risk Characterization

In the final step of the HHRA, the estimated rate at which human intake of a particular COPC occurs is compared with information about the toxicity of the COPC to estimate the potential risks to human health posed by exposure to the COPC. This step is known as the risk characterization. In the risk characterization, cancer risks are evaluated separately from noncancer health threats. The methods used for assessing noncancer health effects and cancer risks are discussed below.

C.2.2.6.1 Methods for Assessing Noncancer Health Effects

Potential noncancer health effects are assessed by comparing the estimated average exposure rate with an exposure level at which no adverse health effects are expected to occur from a chronic period of exposure. The CDIs derived in Section C.2.2.4.4 and RfDs presented in Section C.2.2.5.1 are compared by dividing the CDI by the RfD to obtain the CDI:RfD ratio (hazard quotient [HQ]), as follows:

$$HAZARD\ QUOTIENT = CDI \div RFD$$

Where:

CDI	=	chronic daily intake (mg/kg-day)
RfD	=	reference dose (mg/kg-day)

If a person's average exposure is less than the RfD (i.e., if the HQ is less than 1), the chemical is considered unlikely to pose a significant non-carcinogenic health hazard to individuals under the given exposure conditions. Unlike carcinogenic risk estimates, an HQ is not expressed as a probability. Therefore, although both cancer and noncancer risk characterizations indicate a relative potential for adverse effects to occur from exposure to a chemical, a noncancer health threat estimate is not directly comparable with a cancer risk estimate. If more than one noncarcinogen or pathway is evaluated, the HQs for each chemical and each pathway are summed to determine whether exposure to a combination of pathways and chemicals poses a health concern. This sum of the HQs is known as a hazard index (HI). All HQs are generally summed to calculate HIs; if the HI is elevated (i.e., greater than 1), HQs can be summed separately for different critical effects and target organs. In this HHRA all the HIs were below 1; the HQs were therefore not summed by target organ.

$$HAZARD\ INDEX = SUM\ OF\ HAZARD\ QUOTIENTS$$

The calculations for estimating the HIs and HQs associated with exposure to on-site chemicals are shown in Tables C-21 through C-24.

By using EPA-developed RfDs, along with reasonable maximum estimates of exposure, the risk characterization is likely to be conservative. A conservative risk characterization indicates that the noncancer health threats are not likely to be underestimated.

C.2.2.6.2 Methods for Assessing Cancer Risks

In the risk characterization, carcinogenic risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of a chemical exposure. Carcinogenic risks are evaluated by multiplying the estimated average exposure rate by the chemical's CSF. The CSF converts estimated daily intakes averaged over a lifetime to incremental risk of an individual developing cancer, referred to as the excess lifetime cancer risk (ELCR). Because cancer risks are averaged over a person's lifetime, longer-term exposure to a carcinogen will

result in higher risks than shorter-term exposure to the same carcinogen, if all other exposure assumptions are constant. Theoretical risk associated with low levels of exposure in humans is assumed to be directly related to an observed cancer incidence in animals associated with high levels of exposure. The following equations were used to calculate constituent-specific ELCRs:

$$ELCR = CSF \times CDI$$

Where:

ELCR	=	excess lifetime cancer risk; a unitless probability that an individual will develop cancer attributable to the assumed exposure scenario
CSF	=	cancer slope factor, expressed in $(mg/kg\text{-}day)^{-1}$
CDI	=	chronic daily intake averaged over 70 years, expressed in (mg/kg-day)

It is assumed that cancer risks from various exposure routes and other carcinogens are additive. The equation to calculate the total carcinogenic risk is as follows:

$$TOTAL\ ELCR = SUM\ OF\ INDIVIDUAL\ ELCRS$$

Thus, the result of the assessment is a conservative estimate of the total carcinogenic risk. NMED considers an acceptable ELCR of 1×10^{-5} for a single carcinogen or 1×10^{-6} for carcinogens if more than one is present at the site (NMED 2000a). A total ELCR of 1×10^{-5} is considered acceptable to NMED at a site with multiple carcinogens (NMED 2000a). Evaluating multiple carcinogens individually against an acceptable ELCR of 1×10^{-6} is the same as comparing the total ELCR for multiple carcinogens to an acceptable ELCR of 1×10^{-5}(NMED 2000a).

If the estimated risk is below the risk value considered acceptable by NMED the COPC or COPCs are unlikely to pose an unacceptable carcinogenic health risk to an individual given the exposure conditions. A total ELCR of 1×10^{-5} represents a probability of one in one hundred thousand that an individual could develop cancer from exposure to the potential carcinogen(s) under a defined set of exposure assumptions.

By using EPA-developed CSFs, along with reasonable maximum estimates of exposure, the risk characterization is likely to be conservative. A conservative risk characterization indicates that the cancer health threats are not likely to be underestimated.

The calculations for estimating the cancer risk associated with exposure to on-site chemicals are shown in Tables C-25 through C-28.

C.2.2.7 Risk Assessment Results

This section quantifies risk for the industrial worker exposure scenario evaluated in the HHRA. To ensure that human health is adequately protected, conservative concentrations, exposure parameters, and toxicity assumptions were used to estimate potential risks. Theoretical risks to human health predicted by this assessment are therefore likely to be an overestimation of actual risks.

For the industrial worker, the ELCR values for each exposure pathway (ingestion, inhalation, and dermal) and for each COPC were summed to produce a total cancer risk (ELCR). The HQs for each exposure pathway and each COPC were also summed to produce the total noncancer risk (HI) values. These calculations were done separately for soil and sludge in the north and south lagoons. Tables C-21 through C-28 present the results for the industrial worker population exposed to sludge and soil in the north and south lagoons.

C.2.2.7.1 Results for the North Lagoon

None of the sludge or soil noncancer HQ values exceeded the target HQ of 1.0, nor did the total HIs (Tables C-21 and C-22). This result indicates the potential non-carcinogenic risk from ingestion, dermal contact, and inhalation exposure to soil and sludge in this area is negligible.

The sludge and soil ELCRs were below the target ELCR of 1×10^{-5} for multiple carcinogens (in sludge) and for a single carcinogen (in soil) (Tables C-25 and C-26). These results indicate that the potential carcinogenic risk from ingestion of, dermal contact with, and inhalation of soil and sludge in the area is likely to be minimal. In sludge, where there are multiple carcinogens, arsenic was the only COPC that exceeded the single carcinogen target ELCR of 1×10^{-6}. Industrial worker exposure to sludge had the highest risk, with a total ELCR of 3.1×10^{-6} (Table C-25).

C.2.2.7.2 Results for the South Lagoon

None of the sludge or soil noncancer HQ values exceeded the target HQ of 1.0, nor did the total HIs (Tables C-23 and C-24). This result indicates the potential non-carcinogenic risk from ingestion, dermal contact, and inhalation exposure to soil and sludge in this area is negligible.

The sludge and soil ELCRs were below the target ELCR of 1×10^{-5} for multiple carcinogens (in sludge) and for a single carcinogen (in soil) (Tables C-27 and C-28). These results indicate that the potential carcinogenic risk from ingestion of, dermal contact with, and inhalation of soil and sludge in the area is likely to be minimal. In sludge, where there are multiple carcinogens, arsenic was the only COPC that exceeded the single carcinogen target ELCR of 1×10^{-6}. Industrial worker exposure to sludge had the highest risk, with a total ELCR of 5.5×10^{-6} (Table C-27).

C.2.2.8 Uncertainty Analysis

Risk estimates have various uncertainties associated with them. These uncertainties are evaluated to provide an indication of the relative degree of uncertainty associated with a risk estimate. In this section, a qualitative discussion of the uncertainties associated with the estimation of risks for the site is presented.

HHRAs are not intended to estimate actual risks to a receptor associated with exposure to contaminants in the environment. In fact, estimating actual risks is impossible because of the variability in the exposed or potentially exposed populations. Therefore, the HHRA is a way to estimate the probability that an adverse health effect will occur in a receptor. The multitude of conservative assumptions used in HHRAs guards against underestimation of risks.

Risk estimates are calculated by combining site data, assumptions about the individual receptor's exposures to affected media, and toxicity data. The uncertainties in this HHRA can be grouped into four main categories:

- Uncertainties in environmental sampling and analysis
- Uncertainties in assumptions concerning exposure scenarios
- Uncertainties in toxicity data and dose-response extrapolations
- Combinations of sources of uncertainty

C.2.2.8.1 Uncertainties in Environmental Sampling and Analysis

This assessment conservatively assumes exposure to the, maximum chemical concentration detected in soil. Individuals would more typically be exposed to a wide range of concentrations, potentially resulting in a lower average exposure.

Several of the maximum detected concentrations used to calculate risks in the HHRA were qualifed as “J” values in the data validation process. A “J” value indicates that while a chemical was detected in a sample the exact concentration of the chemical is uncertain and is estimated.

C.2.2.8.2 Uncertainties in Assumptions Concerning Exposure Scenarios

Numerous uncertainties affect the determination of exposure parameters because the behavior patterns of individuals are not always well known. For example, body weights, breathing rates, soil ingestion rates, and dermal contact rates are likely to vary depending on the actual characteristics of the exposed population. As a conservative measure, it was assumed that the industrial worker would spend 8 hours per day, 5 days per week for 25 years working near the lagoons. Realistically, the industrial worker would likely spend much less time working near the lagoons; therefore, the use of the conservative assumptions made for work duration likely overestimate both non-carcinogenic and carcinogenic risk.

C.2.2.8.3 Uncertainties in Toxicity Data

The availability and quality of toxicological data is another source of uncertainty. For example, toxicity data for PCBs, as a class of chemicals, were used to calculate the potential carcinogenic risks of PCB-1260. In addition, PCB-1260 lacks non-carcinogenic toxicity data and non-carcinogenic toxicity values for PCB-1254 were used as surrogate values. Both PCB-1254 and arsenic do not have inhalation reference doses. The lack of chemical-specific data and the use of surrogate toxicity values may affect the outcome of the HHRA by either underestimating or overestimating the risks to potential receptors.

Uncertainties associated with animal and human studies can also influence the classification criteria of carcinogens based on the amount of evidence available that suggests human carcinogenicity.

Uncertainties also affect the use of CSFs, which serve as the basis for calculating estimated cancer risks. During the development of CSFs, it is assumed that the dose-response relationship is the same for both test animals and humans and that these factors represent upper-bound estimates of potency. Thus, if an individual’s exposure to a chemical is equivalent to the level that defines the potency, there is only a 5 percent chance that the actual risk to that individual will exceed the calculated risk and a 95 percent chance that the risk is at or below the calculated level. Consequently, the actual risks associated with exposure to a potential carcinogen are not

likely to exceed the risk estimated using these upper-bound cancer slope factors and, in fact, may be lower.

C.2.2.8.4 Combinations of Sources of Uncertainty

Uncertainties from different sources are compounded in the risk assessment. For example, if a person's daily intake rate for a given compound is compared to an RfD to determine potential health risks, the uncertainties in the concentration measurements, exposure assumptions, and toxicity will all be expressed in the result. Therefore, by combining all upper-bound numbers, the uncertainty and conservatism is compounded and the resulting risk estimate is above the 90th or 95th percentile, perhaps even greater than the 99th percentile.

C.2.2.9 Summary

The HHRA quantitatively evaluated the potential risks to industrial workers under the No Action alternative. The workers were evaluated for potential exposure to contaminants in soil and sludge in the north and south lagoons at SWMU 101 through ingestion, dermal contact, and inhalation pathways. All chemicals detected in each sludge sample and soil samples collected from 0 to 10 ft below the sludge–native soil interface were evaluated in this HHRA. The maximum detected values from all sludge and soil data from 0 to 2 ft below the sludge–native soil interface were used to calculate chemical intakes in evaluating lifetime cancer risks and noncancer risks.

The COPCs quantitatively evaluated were PCB-1260, dieldrin, heptachlor epoxide, and arsenic. NMED guidance established an target HI of 1.0 and a target total ELCR of 1×10^{-5}. The target total ELCR is applicable to sites with multiple carcinogens or sites with a single carcinogen at a site (NMED 2000a). Sludge and soil in both the north and south lagoon has HIs below the target HI of 1 and total ELCRs less than the target 1×10^{-5}. NMED guidance establishes a target ELCR of 1×10^{-6} for individual carcingens present at a site with multiple carcinogens (NMED 2000a). Both north and south lagoon sludge had multiple carcinogens; arsenic was the only carcinogen in sludge to exceed the NMED target ELCR of 1×10^{-6}. Based on the results of the risk calculations, there is negligible risk to industrial workers due to exposure to sludge and soil at SWMU 101.

The risks calculated for soil used the maximum detected concentrations in the 0 to 2ft below the sludge-native soil interface; these concentrations were the maximum detected concentrations in the entire soil depth investigated (0-10 ft below the sludge-native-soil interface). The risks

calculated for the industrial worker exposure to soil from 0-2 ft below the sludge-native soil interface represent the highest risk present in north and south lagoon soil.

Arsenic concentrations in the soil and sludge slightly exceeded background levels; it is likely that arsenic detected in soil and sludge is naturally occurring. Furthermore, arsenic concentrations decrease with depth and were detected below background concentrations in samples collected from 8 to 10 ft below the sludge–native soil interface in both the north and south lagoons. As a conservative measure the maximum detected concentrations were used to calculate risks from exposure to arsenic and the other COPCs likely resulting in an overestimate of risk. If the mean, upper confidence limit or other statistical measure of arsenic concentration were used in the calculations the risks from exposure to arsenic would likely be below the target risk of 1×10^{-6}.

C.2.3 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

The objective of this SLERA is to evaluate the potential ecological risks from chemical contaminants found at SWMU 101 at Cannon AFB, New Mexico. This information will be used to develop a basis for risk management decisions for the SWMU. The procedures used to conduct this SLERA are consistent with those presented in *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* (NMED 2000d), *Risk Assessment Handbook Volume II: Environmental Evaluation* (U.S. Army Corps of Engineers [USACE] 1996), *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1996), and *Guidelines for Ecological Risk Assessment* (EPA 1998). Chemical contamination that is determined to potentially cause ecological risk may require additional evaluation in a more detailed quantitative assessment.

The SLERA has been organized to delineate the problem formulation, present the risk assessment methodology, and summarize the findings and conclusions of the risk assessment. The information is presented in the following sections:

- C.2.3.1—Problem Formulation
- C.2.3.2—Exposure and Effects Analysis
- C.2.3.3—Risk Characterization

C.2.3.1 Problem Formulation

This section establishes potential links between chemicals of potential ecological concern (COPECs) and responses in site-specific receptors by means of a conceptual site exposure model.

It also quantitatively examines the potential risks from COPECs at the SWMU. This section describes the environmental setting at Cannon AFB and the scope of the SLERA, including the process used to identify COPECs, the likely fate and transport mechanisms at the site, the site-specific exposure pathways, and the process used to identify the potential biological receptors (assessment end points).

C.2.3.1.1 Site Survey

A site survey of SWMU 101 was conducted on April 6 and 7, 2000, to gather site-specific information necessary for identifying relevant and complete contaminant–pathway–receptor relationships. The "Checklist for Ecological Assessment/Sampling" adopted from NMED that was used during the site survey is included as Attachment 3. Information gathered during the site survey is included in the discussion below.

C.2.3.1.2 Contaminants and Exposure Setting

COPECs are those chemicals that can potentially induce an adverse response in ecological receptors. The chemical database used to support the SLERA was obtained from the CMS field investigation conducted in April 2000. Refer to Section C.2.2.3.1 for a discussion of the data collected during this effort. For the purposes of the SLERA, data were evaluated for north lagoon sludge, south lagoon sludge, north lagoon soil, and south lagoon soil. Soil data collected to a depth of 6 ft below the sludge–native soil interface and sludge data were considered to be ecologically relevant (NMED 2000d). NMED recommends a depth of 5 ft bgs as ecologically relevant (2000d). Based on the soil intervals sampled for the CMS, soil samples collected to a depth of 6 ft below the sludge-native soil interface were evaluated as the closest approximation of NMED's recommendation.

Data Evaluation and Selection of COPECs

All chemicals positively identified to be above the method detection limit (MDL) in site soil and sludge samples were considered to be preliminary COPECs (PCOPEC). Because not all chemicals found at a site will have adverse effects on ecological receptors, the list of preliminary COPECs was narrowed via a COPEC selection process. The COPEC selection process (represented in Figure C-2) includes the following specific steps:

1. Gather all data available from the site investigation(s).
2. Evaluate a preliminary COPEC detection status.

3. Compare inorganic preliminary COPEC concentrations with naturally occurring background values.
4. Evaluate environmental fate and transport properties.
5. Develop a COPEC list of chemicals that are likely to be site related and that will be evaluated in the SLERA.

Step 1 is discussed in more detail in section C.2.2.3.1. For step 2, all chemicals positivey identified at least once in either soil or sludge were considered to be COPEC.

Concentrations of PCOPECs were compared with naturally occurring, or background, concentrations of chemicals in a manner analogous to that completed for the HHRA (refer to Section C.2.2.3.1). This comparison was conducted to identify inorganic chemical concentrations that may be found naturally at or near the site. Because the SLERA considered data up to 6 ft below the sludge–native soil interface as ecologically relevant, the comparison was conducted using the maximum detection of each PCOPEC in soil up to 6 ft below the sludge–native soil interface for which a background value exists. Summary statistics and the background comparison for soil up to 6 ft below the sludge–native soil interface are included in Tables C-29 and C-30 for the north and south lagoons, respectively. The summary statistics on tables C-29 and C-30 include the arithmetic mean; this valu is calculated using averages the detected concentration and one-half the detection limits for samples with chemical concentrations below the laboratory detection limit. The background comparison for sludge was initially completed for the HHRA and is included in Tables C-1 and C-3 (refer to Section C.2.2).

PCOPECs present on site at or below naturally occurring levels were eliminated from further evaluation in the risk assessment. PCOPECs present above naturally occurring levels were retained as COPECs. No PCOPECs detected in the north lagoon soil (Table C-29) or south lagoon sludge (Table C-3) were detected below background concentrations. Barium in north lagoon sludge (Table C-1) and barium and selenium in south lagoon soil (Table C-30) were detected below background concentrations and were eliminated from further evaluation in the SLERA for their respective media of concern.

The results of the fate and transport model indicate that none of PCOPECs would migrate , in significant concentrations, to groundwater. Refer to Appendix D for a more complete discussion of the fate and transport properties of the COPECs evaluated in this SLERA.

Following the evaluation of site sampling data, as described in the previous sections, all remaining preliminary COPECs were considered COPECs for the SLERA. The results of the COPEC selection process are summarized in Table C-31.

Exposure Setting

Information pertaining to the exposure setting at Cannon AFB was obtained primarily from U.S. Air Force (USAF) 1995 and USAF 1996. Information collected during the April 2000 site survey is also incorporated.

The climate of the area is semiarid, characterized by highly variable precipitation patterns. The average annual precipitation is 14 inches, most of which falls as midsummer thunderstorms. The natural land surface of the Base is relatively flat and slopes gently from the northwest section of the Base, where the elevation is 4,330 ft above sea level (asl), to the southeast, where the elevation is 4,260 asl.

The native vegetation of Cannon AFB is Plains-Mesa Grassland, which is the most extensive grassland community in New Mexico. In good condition, Plains-Mesa Grassland is composed almost entirely of grasses, with forbs and shrubs comprising less than 10 percent.

Four habitat types exist at Cannon AFB and include improved/landscaped, semi-improved/mowed grassland, unimproved/disturbed grassland, and riparian/aquatic. Overall, the habitats present on Cannon AFB are relatively isolated, being surrounded by cultivated agricultural fields and cattle grazing pastures. Habitat types identified for Cannon AFB are included on Figure 3.

The northwestern half of the Base is almost entirely improved/landscaped. Additional areas of development are scattered on the southeastern half of the Base. This habitat type consists of the flightline area, Base operations areas, housing areas, and golf course. Vegetation predominantly consists of cultivated landscape plants.

The grassland areas on Cannon AFB were cultivated agricultural fields prior to the construction of the airfield. The grassland areas were eventually allowed to go fallow and continue to be impacted by Base operations and maintenance (e.g., police training, mowing). The semi-improved/mowed grassland community is found within and/or adjacent to the airfield, Base housing, munitions storage area, recreation fields, and roadways. The grass in these areas is

maintained at a height of approximately 1 to 3 inches. Surrounding these areas are unimproved/disturbed grasslands.

Historically, drainage at Cannon AFB has been by overland flow into four natural ephemeral playas. However, the two northern playas have been converted to intensely maintained, plastic-lined, golf course ponds. The southern playa is still intact; however, the surrounding drainage patterns have been altered. The eastern playa, known as the NPL, is the most significant playa for wildlife habitat. The NPL has been bermed on the north, west, and south sides with fill dirt and concrete debris. Riparian/aquatic communities on Cannon AFB include drainage ditches and the playa lakes. The drainage ditches are concentrated around the developed/landscaped areas of the Base and carry runoff to the playa lakes and golf course ponds. The playa lakes have no surface outlet, and any water they collect is eventually lost to evaporation, infiltration, and/or use by plants and animals.

Potential Ecological Receptors

Dominant grasses of the Plains-Mesa Grassland include blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloë dactyloides*). Associate grasses may include three-awn (*Aristida* spp.), black grama (*Bouteloua eriopoda*), bluestem (*Bothriochloa* spp.), six-weeks grama (*Bouteloua barbata*), and windmill grass (*Chloris verticillata*). The few forbs and small shrubs may include red globemallow (*Sphaeralcea coccinea*), curly cup gumweed (*Grindelia squarrosa*), spiny goldenweed (*Haplopappus spinulosus*), coneflowers (*Ratibida* spp.), rabbitbrush (*Chrysothamnus* spp.), broom snakeweed (*Xanthocephalum sarothrae*), and honey mesquite (*Prosopsis glandulosa*).

A wide variety of animals inhabit the Plains-Mesa Grasslands community. Amphibians that may occur include plains leopard frog (*Rana blairdi*); Great Plains toad (*Bufo cognatus*); green toad (*B. debilis*); red-spotted toad (*B. punctatus*); and plains, Couch's, and western spadefoot toads (*Scaphiopus bombifrons, S. couchii*, and *S. hammondii*, respectively). Common reptiles include yellow-mud turtle (*Kinosternum flavescens*), Texas horned lizard (*Phrynosoma cornutum*), round-tailed horned lizard (*P. modestum*), Great Plains skink (*Eumeces obsoletus*), Texas blind snake (*Leptotyphyes dulcis*), and plains black-headed snake (*Tantilla nigripes fumiceps*).

Characteristic birds of the Plains–Mesa Grasslands include golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), prairie falcon (*Falco mexicanus*), American kestrel (*Falco sparverius*), greater roadrunner (*Geococcyx californianus*), western kingbird (*Tyrannus*

verticalis), chipping sparrow (*Spizella passerina*), Brewer's sparrow (*S. breweri*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophilia alpestris*), and loggerhead shrike (*Lanius ludovicianus*). In addition, a significant number of migratory waterfowl and shorebirds frequent the nearby NPL. Refer to Table C-32 for a list of waterfowl and shorebirds known to occur at Cannon AFB.

Typical small mammals of this community include desert shrew (*Notiosorex crawfordi*), desert cottontail (*Sylvilagus audobonii*), black-tailed prairie dog (*Cynomys ludovicianus*), pocket gopher (*Geomys* spp.), plains pocket mouse (*Perognathus flavescens*), silky pocket mouse (*P. flavus*), and wood rats (*Neotoma* spp.) Larger mammals include American pronghorn (*Antilocapra americana americana*), badger (*Taxidea taxus*), coyote (*Canis latrans*), and swift fox (*Vulpes velox*). Refer to Table C-32 for a more comprehensive list of species known to occur or to potentially occur at Cannon AFB.

Six federally listed endangered, threatened, and candidate species; one state endangered species; and one state rare and sensitive species potentially occur on Cannon AFB. These species, their status, and habitat requirements are included in Table C-33. Specific surveys for federal and state listed endangered threatened, candidate, and sensitive species have not been conducted at Cannon AFB. The American peregrine falcon (*Falco peregrinus anatum*), Arctic peregrine falcon (*Falco peregrinus tundrius*), bald eagle (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), and Baird's sparrow (*Ammodramus bairdii*) have a low potential of occurrence, while the mountain plover (*Charadrius montanus*) and swift fox have a moderate potential of occurrence. The tall plains spurge (*Euphorbia strictior*) is not expected to occur due to the historic use of the area for agriculture (USAF 1996).

C.2.3.1.3 Habitat-Specific Food Web

A habitat-specific food web was developed from the list of species and information obtained during characterization of the exposure setting. The food web is presented as Figure C-4. Site-specific information regarding the species known or suspected to occur on site was added to the shortgrass prairie food web adopted from NMED (2000d). The food web serves primarily to assist in the choice of assessment end points and selection of measurement receptors. Representative species or measurement receptors from the food web were designated assessment end points.

The food web is organized by trophic level. Trophic level 1 consists of species that are primary producers, specifically green plants. Trophic level 2 consists of species that are primary consumers. These species are herbivores, which consume the plants from trophic level 1, and detritivores, which consume dead and decaying organic matter from sediment and soil. Trophic level 3 consists of omnivores, which consume both plant and animal matter. Trophic level 4 consists of carnivores.

The species in the upper trophic levels of the food web (level 2 and above) are also organized by class-specific feeding guild. A class-specific feeding guild is a group of species within a particular trophic level that share similar feeding strategies and dietary habits. Examples of class-specific feeding guilds are herbivorous mammal, omnivorous mammal, carnivorous bird, and herbivorous bird. Plants and invertebrates are grouped into communities distinguished by the media that they inhabit. The communities evaluated in this SLERA include terrestrial plants and terrestrial invertebrates. The distinction between class-specific feeding guilds and communities is made because risk to each will be evaluated differently.

Arrows on the food web define the dietary relationships between class-specific guilds and communities. These relationships were determined by evaluating the dietary composition of the receptors for each class-specific guild or community. For example, terrestrial plants absorb nutrients and, potentially, contaminants from the soil. A deer mouse eats the plant; a red-tailed hawk eats the deer mouse.

Complete Exposure Pathways

A complete exposure pathway between a receptor and an impacted environmental medium is necessary for potential ecological risk to occur. For example, chemical contamination existing in soils at depths 30 ft bgs is not expected to pose risk to deer, because a complete exposure pathway between the deer and soils at that depth does not exist. However, if a plant species with tap roots longer than 30 ft exists on site, then a complete exposure pathway would exist to the plant and also potentially exist to wildlife species that ingest the foliage of that plant.

SWMU 101 is terrestrial in nature; the water previously in the lagoons has been allowed to evaporate. The principal media of ecological concern are sludge and soil. Potential exposure routes to chemicals in soil and sludge may include one or more of the following:

- Inhalation

- Ingestion
- Dermal absorption

Ingestion of soil and sludge, plants, or prey is considered the primary routes of exposure for this SLERA. Inhalation and dermal absorption are possible routes of exposure, but for this SLERA, they are not likely to significantly contribute to the total exposure of upper trophic level species. In addition, methods are not adequately developed to quantitatively evaluate these pathways. Exposure to groundwater will not be evaluated because a complete exposure pathway does not exist. The ingestion of drinking water is also expected to be insignificant due to the limited presence of surface water. Therefore, ingestion was the only route of exposure for upper trophic level species considered in this evaluation. For lower trophic level species, (i.e., terrestrial invertebrates and plants) exposure was considered to be via direct absorption by the potential receptor through the dermis or cell wall.

C.2.3.1.4 Identification and Selection of Assessment End Points

Assessment end points are particular components or attributes of an ecosystem that are critical to maintenance of the ecosystem structure and function. Assessment end points focus the SLERA on components of the ecosystem that may be impacted by contaminants at the site. The assessment end points identified for this SLERA include the following: decomposer/detritivore, habitat for wildlife, major food source for consumer species, seed disperser, and regulator of prey species.

C.2.3.1.5 Identification and Selection of Measurement Receptors

Measurement receptors were identified to evaluate the biological effects of contaminants on the assessment end points identified above. Measurement receptors are defined as the species used to represent a functional group of organisms at the site for evaluation of assessment end points. Measurement receptors were chosen based primarily on their function within the ecosystem.

Identification of Measurement Receptors for Communities

The measurement receptors for communities evaluated in this SLERA include terrestrial invertebrates and terrestrial plants. Terrestrial invertebrates include nematodes, gastropods, oligochaetes, and arthropods; terrestrial plants include vascular plants, grasses, forbs, and lichens. These communities provide an important food source for many higher trophic level

species. In addition, terrestrial invertebrates, as decomposers and detritivores, play a critical role in nutrient cycling and terrestrial plants provide critical habitat for wildlife.

Identification of Measurement Receptors for Guilds

Measurement receptors for guilds were chosen for the following class-specific guilds: herbivorous mammal, herbivorous bird, omnivorous mammal, and carnivorous bird. No amphibian/reptilian class-specific guilds were chosen for inclusion in the quantitative portion of the SLERA because of the lack of toxicity information for them.

The deer mouse represents an herbivorous mammal for the evaluation of the assessment end points of major prey item and seed disperser. It is a prey item for owls and other raptors, snakes, and small carnivorous mammals. The deer mouse is an important seed disperser and influences soil composition and aeration through its burrowing activities. The deer mouse is almost strictly nocturnal and feeds chiefly on seeds, fruits, bark, roots, and herbage. Due to its burrowing and dietary habits, there is a high potential for direct and indirect exposure to on-site contamination.

The mourning dove represents an herbivorous bird for the evaluation of the assessment end points of seed disperser and major prey item. It plays an important role in seed dispersion for many grasses and forbs. Mourning doves are an important prey item for many upper trophic level species including falcons, hawks, foxes, and snakes. It feeds mostly on seeds but may incidentally ingest insignificant amounts of animal matter and green forage. They have a high potential for exposure through ingestion of inorganic contaminants partially because they intentionally ingest grit to aid in digestion.

The least shrew represents an omnivorous mammal for the evaluation of the assessment end points of prey regulator and is a prey item itself. It feeds on terrestrial invertebrates and, in turn, is prey to many carnivores, including owls, hawks, and snakes. Shrews feed on snails, insects, sow bugs, and other small invertebrates. Their diet of invertebrates and their burrowing behavior result in a high potential of direct and indirect exposure to on-site contaminants.

The red-tailed hawk represents a carnivorous bird for the evaluation of the assessment end point of prey regulator. It is a valuable component of terrestrial food webs through its regulation of populations of lower trophic level prey species. Its diet includes small mammals (such as mice, shrews, voles, rabbits, and squirrels), birds, lizards, snakes, and large insects. Red-tailed hawks have shown sensitivity to many chemicals that disrupt reproduction or egg development.

C.2.3.1.6 COPEC Concentrations at Point of Potential Exposure

The COPEC concentration used to represent the environmental concentration for this SLERA is the maximum measured COPEC concentration at each of the media of concern.

C.2.3.1.7 Conceptual Site Exposure Model

A conceptual model of the receptors expected to be present at the site was developed using information about the life history of those receptors to determine if complete pathways exist for exposure of these receptors to contamination at the site. A complete exposure pathway is a pathway that has:

- A source and mechanism for contaminant release to the environment
- An environmental transport medium for the contaminant
- A point of receptor contact (i.e., exposure point) with the contaminated media or through the food web
- An exposure route to the receptor

The conceptual site exposure model for ecological receptors at SWMU 101 is presented as Figure C-5. The exposure model shows the relationship between the contaminants at the site and the potential ecological receptors. For example, contaminants in the north lagoon are released to soil through infiltration. An earthworm is exposed to the contaminants in the soil (biotic uptake). A deer mouse is exposed to the contaminants by eating the earthworm (also biotic uptake). Finally, a red-tailed hawk is exposed to the contaminants by eating the deer mouse.

C.2.3.2 Exposure and Effects Analysis

This section describes how potential ecological risk will be determined and evaluated for SWMU 101. The purpose of the exposure characterization is to estimate the nature, extent, and magnitude of potential exposure of receptors to COPECs present at the SWMU (USACE 1996).

C.2.3.2.1 Exposure Assessment

Exposure of ecological receptors to COPECs present at the SWMU is evaluated through consideration of exposure pathways. Ingestion of soil and sludge, plants, or prey is considered the primary route of exposure for this SLERA, as identified in Section C.2.3.1.3. The summation of this potential exposure to a measurement receptor quantifies the exposure of that measurement

receptor to a COPEC. Exposure assessments are conducted separately for each community measurement receptor and each class-specific guild measurement receptor.

Exposure to Community Measurement Receptors

Terrestrial invertebrates and plants are designated as community measurement receptors for this SLERA. Because the primary exposure route for terrestrial invertebrates and plants is through contact with the surrounding soil or sludge, the assumption is made that their exposure is equivalent to the maximum COPEC concentration in the soil or sludge.

Exposure to Class-Specific Guild Measurement Receptors

Exposure to class-specific guild measurement receptors was assessed by quantitatively estimating the daily dose of contaminated food items and abiotic media ingested using the general equation below.

$$DD = \sum IR_F \ x \ C_F \ x \ P_F \ x \ F_F + \sum IR_M \ x \ C_M \ x \ P_M$$

Where:

DD	=	daily dose of COPEC ingested (milligrams of dry weight per kilogram body weight per day [mg/kg BW-day])
IR_F	=	measurement receptor daily ingestion rate for food items (kilograms wet weight per kilogram body weight per day [kg WW/kg BW-day])
C_F	=	COPEC concentration in the food item (milligrams per kilogram wet weight [mg/kg WW])
P_F	=	proportion of the food item that is contaminated
F_F	=	fraction of diet consisting of food item (unitless)
IR_M	=	measurement receptor media ingestion rate (kg DW/kg BW-day)
C_M	=	COPEC in media (mg/kg DW)
P_M	=	proportion of ingested media that is contaminated (unitless)

Refer to Table C-34 for species-specific exposure factors. The terms IR_F and IR_M represent the species-specific ingestion rates for food items and media (soil or sludge), respectively. Ingestion rates for the deer mouse, mourning dove, least shrew, and red-tailed hawk were adopted from *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* (NMED 2000d). For this screening-level assessment, it is assumed that all food and media ingested came from the contaminated site, so P_F and P_M are assumed to be equal to 1.0 (NMED 2000d). It is also assumed that the total COPEC concentration in food items and media are 100% bioavailable, that each individual species in a class-specific feeding guild is equally exposed, and that body weights and food ingestion rates used represent the lower body weight and higher food and abiotic medium ingestion rate of those available in the literature (NMED 2000d).

For the deer mouse and red-tailed hawk, the term F_F was extrapolated from information contained in the *Wildlife Exposure Factor Handbook* (EPA 1993). For the least shrew, F_F was adopted from information provided for the short-tailed shrew (EPA 1993) because their dietary compositions are considered to be similar and because no information was provided specifically for the least shrew (Fitzgerald et al. 1994). For the mourning dove, F_F was adopted from NMED (2000d).

The COPEC concentration in media (either soil or sludge) is assumed to be the maximum concentration in each of the four media of concern. As previously noted, exposure to soils was based on samples to 6ft below the sludge–native soil interface. The above equation also requires the concentration that may be present in the food items ingested by the receptor. Therefore, the COPEC concentration is calculated for those measurement end points that serve as food items for other measurement receptors. Refer to the sections below for the methodology used to estimate these concentrations.

COPEC Concentrations in Terrestrial Invertebrates

COPEC concentrations in terrestrial invertebrates were estimated by multiplying a measured soil-to-invertebrate bioconcentration factor (BCF) by the concentration of the COPEC in the soil or sludge, as appropriate. BCF values are based on wet tissue weight and dry media weight. The soil-to-invertebrate BCFs are also used for the sludge pathways because there were no sludge-to-invertebrate BCFs available. COPEC concentrations in terrestrial invertebrates are estimated for each area of concern listed in Tables C-35 through C-38. Soil-to-invertebrate BCFs were

adopted primarily from NMED (2000d). For those organic COPECs for which a soil-to-invertebrate BCF could not be identified in the available literature (i.e., m,p-xylenes), a soil-to-invertebrate BCF was calculated using the following equation (Southworth et al. 1978, as cited in NMED 2000d):

$$\log BCF = 0.819 \log K_{ow} - 1.146$$

Where:

log *BCF*	=	logarithm of the bioconcentration factor (unitless)
log K_{ow}	=	logarithm of the organic-water partition coefficient (unitless)

For those inorganic COPECs for which a soil-to-invertebrate BCF could not be identified in the available literature (i.e., nitrate/nitrite), the soil-to-invertebrate BCF was set equal to the arithmetic average of the available BCF values for other inorganics, as specified in NMED (2000d). Derived BCFs are presented in Table C-39.

Estimating COPEC Concentrations in Terrestrial Plants

The COPEC concentration in the aboveground portion of terrestrial plants due to root uptake is estimated using the equation below.

$$P_r = C_s \ x \ BCF_r \ x \ 0.12$$

Where:

P_r	=	plant concentration due to root uptake (milligrams COPEC per kilogram wet weight [mg COPEC/kg WW])
BCF_r	=	soil-to-plant bioconcentration factor (unitless)
C_S	=	COPEC concentration in soil (milligrams COPEC per kilogram dry weight of soil [mg COPEC/kg DW soil])
0.12	=	dry weight to wet weight conversion factor

This equation is adopted from NMED 2000d and is based on Travis and Arms (1988), modified with a dry weight to wet weight conversion factor of 0.12 from Taiz et al. (1991). COPEC

concentrations in terrestrial plants are estimated for each of the media of concern in Tables C-35 through C-38. Soil-to-plant BCFs were adopted primarily from NMED (2000d). For those organic COPECs for which soil-to-plant BCFs could not be identified in the available literature, a soil-to-plant BCF was calculated using the following equation (Travis and Arms [1988] as cited in NMED [2000d]):

$$\log BCF = 1.588 - 0.578 \log K_{ow}$$

Where:

$\log BCF$	=	logarithm of the bioconcentration factor (unitless)
$\log K_{ow}$	=	logarithm of the organic-water partition coefficient (unitless)

For those inorganic COPECs for which a soil-to-plant BCF could not be identified in the available literature (i.e., nitrate/nitrite), the soil-to-plant BCF was set equal to the arithmetic average of the available BCF values for other inorganics, as specified in Appendix C of NMED (2000d).

COPEC Concentrations in the Deer Mouse and Mourning Dove

Equations for generating COPEC concentrations for terrestrial vertebrates that serve as prey items for other potential receptors (i.e., the deer mouse and mourning dove) are specific to each feeding guild (i.e., herbivore, omnivore, and carnivore) and include terms for plants, terrestrial invertebrates, and media ingested. COPEC concentrations in prey item species are based on the whole body concentration. The following equation was used to estimate COPEC concentrations in the deer mouse:

$$C_{DM} = \left(C_{TP}\ x\ BCF_{TP-DM}\ x\ P_{TP}\ x\ F_{TP}\right) + \left(C_{INV}\ x\ BCF_{INV-DM}\ x\ P_{INV}\ F_{INV}\right) + \left(C_{S}\ x\ BCF_{S-MD}\ x\ P_{S}\right)$$

Where:

C_{DM}	=	COPEC concentration in the deer mouse (whole body) (mg/kg WW)
C_{TP}	=	COPEC concentration in terrestrial plants (mg/kg WW)
$BCF_{TP\text{-}DM}$	=	terrestrial plant-to-deer mouse bioconcentration factor (unitless)
P_{TP}	=	ratio of contaminated to total terrestrial plant in diet (unitless)

F_{TP}	=	fraction of diet comprised of terrestrial plants (unitless)
C_{inv}	=	COPEC concentration in terrestrial invertebrates (mg/kg WW)
$BCF_{INV\text{-}DM}$	=	terrestrial invertebrate-to-deer mouse bioconcentration factor (unitless)
P_{INV}	=	ratio of contaminated to total terrestrial invertebrates in diet (unitless)
F_{INV}	=	fraction of diet comprised of terrestrial invertebrates (unitless)
C_S	=	COPEC concentration in soil (mg/kg DW)
$BCF_{S\text{-}DM}$	=	soil-to-deer mouse bioconcentration factor (unitless)
P_S	=	ratio of contaminated to total ingested soil (unitless)

COPEC concentrations in the deer mouse are estimated for each area of concern listed in Tables C-35 through C-38. Soil-to-deer mouse and food-to-deer mouse BCFs were adopted primarily from NMED (2000d). For those organic COPECs for which no BCF was available in the literature, a BCF for the deer mouse ingesting food or prey items was calculated using the compound-specific biotransfer factor (Ba) value and the measurement receptor-specific ingestion rate in the following equation:

$$BCF_{F-DM} = Ba_{DM} \ x \ IR_F$$

Where:

$BCF_{F\text{-}DM}$	=	bioconcentration factor for food item-to-deer mouse (unitless)
Ba_{DM}	=	COPEC-specific biotransfer factor applicable for the deer mouse (days per kilogram fresh weight tissue [day/kg FW tissue])
IR_F	=	food ingestion rate (kilograms fresh weight per day [kg FW/day])

The Ba_{DM} was calculated from the following equation originally developed by Travis and Arms (1988):

$$\log Ba_{DM} = -7.6 + \log K_{ow}$$

Where:

log Ba_{DM}	=	logarithm of the COPEC-specific biotransfer factor applicable for the deer mouse (day/kg FW tissue)
log K_{ow}	=	logarithm of the octanol-water partition coefficient (unitless)

For those inorganic COPECs for which no BCF was available in the literature, the BCF was assumed to be 1.0. This is a conservative assumption that 100 percent of the COPEC is concentrated in the deer mouse tissue. Derived BCFs are included in Table C-39.

The following equation was used to estimate COPEC concentrations in the mourning dove:

$$C_{MD} = \left(C_{TP}\ x\ BCF_{TP-MD}\ x\ P_{TP}\ x\ F_{TP}\right) + \left(C_S\ x\ BCF_{S-MD}\ x\ P_S\right)$$

Where:

C_{MD}	=	COPEC concentration in the mourning dove (whole body) (mg/kg WW)
C_{TP}	=	COPEC concentration in terrestrial plants (mg/kg WW)
$BCF_{TP\text{-}MD}$	=	terrestrial plant-to-mourning dove bioconcentration factor (unitless)
P_{TP}	=	ratio of contaminated to total terrestrial plant in diet (unitless)
F_{TP}	=	fraction of diet comprised of terrestrial plants (unitless)
C_S	=	COPEC concentration in soil (mg/kg DW)
$BCF_{S\text{-}MD}$	=	soil-to-mourning dove bioconcentration factor (unitless)
P_S	=	ratio of contaminated to total ingested soil (unitless)

COPEC concentrations in the mourning dove are estimated for each area of concern listed in Tables C-35 through C-38. Soil-to-mourning dove and terrestrial plant-to-mourning dove BCFs were adopted primarily from NMED (2000d). For those organic COPECs for which no BCF was available in the literature, a BCF for the mourning dove ingesting food or prey items was calculated in a manner analogous to that described for the deer mouse above. The Ba_{MD} was derived from the Ba_{DM} by assuming that the lipid content (by mass) of birds and mammals is 15 and 19 percent, respectively (NMED 2000d). Therefore, the derived BCFs for the mourning

dove in Table C-39 were derived by multiplying the Ba_{DM} by the bird and mammal fat content ratio of 0.8.

C.2.3.2.2 Estimating the COPEC Dose Ingested by Mammals and Birds

The equations in the following subsections calculate the dose ingested by the representatives of the different feeding guilds. The equations estimate the exposure of members of the guild to the COPEC; these values are then compared to toxicity reference values (TRVs) (refer to Section C.2.3.3 for this comparison).

The following equation was used to estimated the daily dose of COPEC ingested by the deer mouse and the least shrew:

$$D_{OM} = \left(C_{TP}\ x\ IR_{OM}\ x\ P_{TP}\ x\ F_{TP}\right) + \left(C_{INV}\ x\ IR_{OM}\ x\ P_{INV}\ x\ F_{INV}\right) + \left(C_{S}\ x\ IR_{S-OM}\ x\ P_{S}\right)$$

Where:

D_{OM}	=	daily dose of COPEC ingested by omnivorous terrestrial mammals (i.e., deer mouse and least shrew) (mg COPEC/kg BW-day)
C_{TP}	=	COPEC concentration in terrestrial plants (mg/kg WW)
IR_{OM}	=	food ingestion rate of omnivorous terrestrial mammals (i.e., deer mouse and least shrew) (kg WW/kg BW-day)
P_{TP}	=	ratio of contaminated to total terrestrial plant in diet (unitless)
F_{TP}	=	fraction of diet comprised of terrestrial plants (unitless)
C_{INV}	=	COPEC concentration in terrestrial invertebrates (mg/kg WW)
P_{INV}	=	ratio of contaminated to total terrestrial invertebrates in diet (unitless)
F_{INV}	=	fraction of diet comprised of terrestrial invertebrates (unitless)
C_{S}	=	COPEC concentration in soil (mg/kg DW)
IR_{S-OM}	=	soil ingestion rate of omnivorous terrestrial mammals (i.e., deer mouse and least shrew) (kg DW/kg BW-day)

P_S = ratio of contaminated to total ingested soil (unitless)

The daily dose of the COPECs ingested by the deer mouse are included in Tables C-40 through C-43 and by the least shrew in Tables C-44 through C-47 for each of the media of concern.

The following equation was used to estimated the daily dose of COPEC ingested by the mourning dove:

$$D_{HB} = \left(C_{TP}\ x\ IR_{HB}\ x\ P_{TP}\ x\ F_{TP}\right) + \left(C_S\ x\ IR_{S-HB}\ x\ P_S\right)$$

Where:

D_{HB} = daily dose of COPEC ingested by herbivorous bird (i.e., mourning dove) (milligrams COPEC per kilogram body weight per day [mg COPEC/kg BW-day])

C_{TP} = COPEC concentration in terrestrial plants (mg/kg WW)

IR_{HB} = food ingestion rate of herbivorous bird (i.e., mourning dove) (kg WW/kg BW-day)

P_{TP} = ratio of contaminated to total terrestrial plant in diet (unitless)

F_{TP} = fraction of diet comprised of terrestrial plants (unitless)

C_S = COPEC concentration in soil (mg/kg DW)

$IR_{S\text{-}HB}$ = soil ingestion rate of herbivorous bird (i.e., mourning dove) (kg DW/kg BW-day)

P_S = ratio of contaminated to total ingested soil (unitless)

The daily dose of COPECs ingested by the mourning dove are included in Tables C-48 through C-51 for each of the media of concern.

The following equation was used to estimated the daily dose of COPEC ingested by the red-tailed hawk (Tables C-52 through C-55):

$$D_{CB} = \left(C_{HB}\ x\ IR_{CB}\ x\ P_{HB}\ x\ F_{HB}\right) + \left(C_{OM}\ x\ IR_{CB}\ P_{OM}\ x\ F_{OM}\right) + \left(C_S\ x\ IR_{S-CB}\ x\ P_S\right)$$

Where:

D_{CB}	=	daily dose of COPEC ingested by carnivorous terrestrial birds (i.e., red-tailed hawk) (mg COPEC/kg BW-day)
C_{HB}	=	COPEC concentration in herbivorous birds (whole body) (mg/kg WW)
IR_{CB}	=	food ingestion rate of carnivorous terrestrial birds (i.e., red-tailed hawk) (kg WW/kg BW-day)
P_{HB}	=	ratio of contaminated to total herbivorous birds in diet (unitless)
F_{HB}	=	fraction of diet comprised of herbivorous birds (unitless)
C_{OM}	=	COPEC concentration in omnivorous mammals (whole body) (mg/kg WW)
P_{OM}	=	ratio of contaminated to total omnivorous mammals in diet (unitless)
F_{OM}	=	fraction of diet comprised of omnivorous mammals (unitless)
C_S	=	COPEC concentration in soil (mg/kg DW)
$IR_{S\text{-}CB}$	=	soil ingestion rate of carnivorous terrestrial birds (i.e., red-tailed hawk) (kg DW/kg BW-day)
P_S	=	ratio of contaminated to total ingested soil (unitless)

C.2.3.2.3 Toxicity Assessment

The toxicity of a COPEC is assessed by identifying TRVs specific to a COPEC and to the measurement receptor being evaluated. The TRV is the dose for a measurement receptor that is likely to be without appreciable risk of deleterious effects from chronic exposure. TRVs are therefore developed based on a NOAEL for a particular COPEC. NOAELs are derived experimentally or estimated by applying uncertainty factors to available toxicity data. The chronic NOAEL is used as the toxicity value end point to determine the TRV in this SLERA to protect against chronic effects.

For lower trophic level communities (i.e., terrestrial invertebrates and plants), these TRVs are presented as media levels (in milligrams per kilogram) because it is assumed that the level of COPEC in these organisms will be proportional to the concentration in the media. TRVs for terrestrial invertebrates are provided in Table C-56. TRVs for terrestrial plants are provided in Table C-57. TRVs for upper trophic level class-specific guilds are expressed in terms of dose ingested (in mg/kg BW-day). TRVs for upper trophic level species are provided in Table C-58.

TRVs used in this SLERA were primarily adopted from NMED 2000d. For those COPECs and receptors for which NMED 2000d did not present a TRV, toxicity values were adopted from *Toxicologial Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision* (Efroymson et al. 1997a), *Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Update* (Efroymson et al. 1997b), and *Toxicological Benchmarks for Wildlife: 1996 Revision* (Sample et al. 1996). Significant data gaps exist in the toxicological information for pesticides available for terrestrial invertebrates and plants. COPECs for which a TRV could not be identified were evaluated qualitatively.

C.2.3.3 Risk Characterization

This section integrates the exposure assessment and the toxicity assessment from the previous sections to produce an estimate of risk in the form of ecological screening quotients (ESQ) for a single chemical or cumulative ecological screening quotients (CESQ) for multiple chemicals. The calculation of a CESQ was completed in accordance with NMED guidance (2000d). This calculation is not typically completed for ecological risk assessments due to the uncertainties associated with the ESQs, the toxicity reference values, and the target effects of the COPECs. These ESQs and CESQs are receptor specific, media specific, and COPEC specific. For those COPECs with an ESQ or CESQ exceeding the benchmark, a description of the risk to the receptor is included in Section C.2.3.3.2.

C.2.3.3.1 Estimating Risk

An ESQ is equal to the COPEC estimated exposure level (EEL) divided by the TRV. For community receptors, the EEL is equal to the media concentration of the COPEC. For guild measurement receptors, the EEL is equal to the daily dose of COPEC ingested per unit body weight. An ESQ is generated for each measurement receptor for each COPEC it is exposed to at

each of the four media of concern. For both community and guild receptors, the ESQ is defined by the equation below.

$$ESQ = \frac{EEL}{TRV}$$

If multiple COPECs are present at an area of concern, each of the COPEC-specific ESQ values for a receptor is summed to derive a CESQ for each receptor according to the following equation:

$$CESQ_{\mathrm{Re}ceptor} = \sum ESQ_{COPEC}$$

CESQs assume that the exposure and risk from multiple contaminants are additive (i.e., two or more contaminants may affect the same target organs or organ systems and/or act by similar mechanisms) (NMED 2000d).

C.2.3.3.2 Description of Risk

The exceedance of toxicological benchmarks in this SLERA does not imply certain ecological risk; rather, the exceedance indicates contamination may be sufficient to warrant further investigation.

HQs greater than 1.0 indicate potential risk to an ecological receptor and may indicate the need for further evaluation using more site-specific information. HQs less than 1.0 indicate no potential ecological risk. COPECs with HQs less than 1.0 can be removed from further consideration due to the inherent and conservative assumptions applied to derive the HQ.

The results of the SLERA are discussed separately for each media of concern below. Within the subsection designated for each media of concern the results are discussed for terrestrial invertebrates, plants, the deer mouse, mourning dove, least shrew, and red-tailed hawk.

Risk Estimate for North Lagoon Soil

Risk estimates for soil at the north lagoon show terrestrial invertebrates to potentially be at risk due to exposure to arsenic (ESQ = 21) and chromium (ESQ = 96). Risk to terrestrial invertebrates could not be calculated for heptachlor, barium, or nitrate. Heptachlor is assumed to be somewhat toxic to terrestrial invertebrates due to its primary application as a pesticide but exposures at which this may occur are not available. No risk to terrestrial invertebrates is expected from exposure to cadmium, lead, or selenium. The north lagoon had a CESQ for terrestrial invertebrates equal to 117. Refer to Table C-59 for the results of the risk calculations.

Risk estimates for soil at the north lagoon show terrestrial plants to potentially be at risk due to exposure to arsenic (ESQ = 5.3), barium (ESQ = 170), cadmium (ESQ = 1.5), chromium (ESQ = 1100), lead (ESQ = 3.0), and selenium (ESQ = 26). These risk estimates are probably overly conservative. For example, the site concentration of barium (850 mg/kg) is only slightly higher than the background concentration (805 mg/kg). This difference could be due to variation in the naturally-occurring concentration of barium or to contamination related to the sewage lagoons. The same is true for chromium (site concentration of 19.1 mg/kg and background concentration of 11.1 mg/kg) for both chromium and lead, risk to plants would exist even at background concentrations. Also, for plants, there is considerable uncertainty in the available toxicity values which are based on agricultural plants rather than native species. The risk due to exposure to cadmium and lead is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to plants due to exposure to these two COPECs is expected to be minimal. Risk to terrestrial plants could not be calculated for nitrate/nitrite due to a lack of toxicity data. No risk due to exposure to heptachlor is expected. The north lagoon had a CESQ for terrestrial plants of 1300. Refer to Table C-60 for the results of the risk calculations.

The deer mouse is potentially at risk due to exposure to barium (ESQ = 97), cadmium (ESQ = 2.7), and lead (ESQ = 3.8). The ESQ for barium is likely overestimated based on the same reasons given above for plants. In addition the chemical form of barium that exists on-site may be different then that used in the toxicity tests that established the TRV. The risk due to exposure to cadmium and lead is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the deer mouse due to exposure to these two COPECs is expected to be minimal. Risk to the deer mouse is not expected due to exposure to heptachlor, arsenic, chromium, nitrate/nitrite, or selenium. The north lagoon had a CESQ of 110 for the deer mouse. Refer to Table C-61 for the results of the risk calculations.

The mourning dove is potentially at risk due to exposure to lead (ESQ = 4.9) and selenium (ESQ = 3.5). However, the risk due to exposure to these COPECs is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the mourning dove is expected to be minimal. Risk to the mourning dove is not expected due to exposure to heptachlor, arsenic, barium, cadmium, or chromium. Risk to the mourning dove could not be calculated for exposure to nitrate/nitrite due to a lack of toxicity

information. The north lagoon had a CESQ of 9.1 for the mourning dove. Refer to Table C-62 for the results of the risk calculations.

The least shrew is potentially at risk due to exposure to barium (ESQ = 215), cadmium (ESQ = 5.9), lead (ESQ = 11), and selenium (ESQ = 2.2). However, the risk due to exposure to selenium is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the least shrew due to exposure to selenium is expected to be minimal. Risk to the least shrew is not expected due to exposure to heptachlor, arsenic, chromium, or nitrate/nitrite. The north lagoon had a CESQ of 240 for the least shrew. Refer to Table C-63 for the results of the risk calculations,

The red-tailed hawk is potentially at risk due to exposure to barium (ESQ = 1.6) and lead (ESQ = 21). However, the risk due to exposure to barium is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the red-tailed hawk due to exposure to barium is expected to be minimal. Risk to the red-tailed hawk is not expected due to exposure to heptachlor, arsenic, cadmium, chromium, or selenium. Risk due to exposure to nitrate/nitrite could not be calculated due to a lack of toxicity information. The north lagoon had a CESQ equal to 23 for the red-tailed hawk. Refer to Table C-64 for the results of the risk calculations. This CESQ is extremely conservative. For example, the red-tailed hawk has an average home range of 1,770 hectares (EPA 1993). This SLERA assumed the red-tailed hawk's home range was equal to the size of the SWMU. Therefore, the red-tailed hawk's true exposure would be much less than what was evaluated.

Risk Estimate for North Lagoon Sludge

Risk estimates for north lagoon sludge show that terrestrial invertebrates are potentially at risk due to exposure to arsenic (ESQ = 21), chromium (ESQ = 170), mercury (ESQ = 1.6), and selenium (ESQ 1.3). The background concentrations of both arsenic and chromium are so high that risk to terrestrial invertebrates exists even at background levels. In addition, the site concentrations of arsenic and chromium are only slightly higher than background concentrations, less than an order of magnitude. Therefore, the arsenic and chromium EXQs are likely overestimated. Risk due to exposure to mercury and selenium is only slightly higher than the target of 1.0. Due to the uncertainties inherent in the risk assessment (as described in Section C.2.3.3.3), risk to terrestrial invertebrates due to exposure to these two COPECs is expected to be minimal. Risk to terrestrial invertebrates due to exposure to the pesticides or VOCs on the

COPEC list, nitrate/nitrite, or silver could not be calculated due to the lack of toxicity data. The pesticides are expected to be somewhat toxic to terrestrial invertebrates due to their primary use as a pesticide but exposures at which this may occur are not available. Risk is not expected due to exposure to PCB-1260, cadmium, or chromium. North lagoon sludge had a CESQ of 200 for terrestrial invertebrates. Refer to Table C-65 for the results of the risk calculations.

Plants in north lagoon sludge are potentially at risk due to exposure to arsenic (ESQ = 5.3), cadmium (ESQ = 25), chromium (ESQ = 1900), lead (ESQ = 18), mercury (ESQ = 11), selenium (ESQ = 200), and silver (ESQ = 2700). Risk to plants due to chromium exposure is likely overestimated for the same reasons as given above for terrestrial invertebrates. Risk could not be calculated for most of the pesticides on the COPEC list (except for heptachlor epoxide and nitrate/nitrite) due to a lack of toxicity information. Risk due to exposure to m/p-xylenes, PCB-1260, and heptachlor epoxide is not expected for plants. North lagoon sludge had a CESQ for plants equal to 4900. Refer to Table C-66 for the results of the risk calculations.

Deer mice in north lagoon sludge are potentially at risk due to exposure to PCB-1260 (ESQ = 480), beta-hexachlorocyclohexane (BHC) (ESQ = 13), gamma-chlordane (ESQ = 19), dieldrin (ESQ = 810), endrin aldehyde (ESQ = 11), heptachlor epoxide (ESQ = 7.6), cadmium (ESQ = 46), lead (ESQ = 23), mercury (ESQ = 240), selenium (ESQ = 6.9), and silver (ESQ = 10). Risk to the deer mouse is not expected due to exposure to m/p-xylenes, alpha-BHC, arsenic, chromium, or nitrate/nitrite. North lagoon sludge had a CESQ equal to 1700 for the deer mouse. Refer to Table C-67 for the results of the risk calculations.

The mourning dove is potentially at risk due to exposure to lead (ESQ = 30) and mercury (ESQ = 7.7). Risk to the mourning dove due to exposure to m/p-xylenes and nitrate/nitrite could not be calculated due to the lack of toxicity information. Risk to the mourning dove is not expected due to exposure to PCB-1260; alpha-BHC; beta-BHC; gamma-chlordane; 4,4’-1,1-bis(chlorophenyl)-2,2-dichloroethene (DDE); 4,4’-DDT; dieldrin; endrin aldehyde; heptachlor expoxide; arsenic; cadmium; chromium; selenium; or silver. North lagoon sludge had a CESQ equal to 38 for the mourning dove. Refer to Table C-68 for the results of the risk calculations.

The least shrew is potentially at risk due to exposure to PCB-1260 (ESQ = 1100), alpha-BHC (ESQ = 2.3), beta-BHC (ESQ = 28), gamma-chlordane (ESQ = 43), dieldrin (ESQ = 1800), endrin aldehyde (ESQ = 25), heptachlor epoxide (ESQ = 17), cadmium (ESQ = 100), lead (ESQ = 66), mercury (ESQ = 534), selenium (ESQ = 17), and silver (ESQ = 19). However, the

calculated risk due to exposure to alpha-BHC is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the least shrew is not expected due to exposure to alpha-BHC. Risk is also not expected due to exposure to m/p-xylenes; 4,4'-DDE; 4,4'-DDT; arsenic; chromium; or nitrate/nitrite. North lagoon sludge had a CESQ of 3800 for the least shrew. Refer to Table C-69 for the results of the risk calculations.

The red-tailed hawk is potentially at risk due to exposure to chromium (ESQ =1.3), lead (ESQ = 130), and mercury (ESQ = 23). However, the calculated risk due to chromium exposure is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to the red-tailed hawk due to chromium exposure is expected to be minimal. Risk due to exposure to PCB-1260; alpha-BHC; beta-BHC; gamma-chlordane; 4,4'-DDE; 4,4'-DDT; dieldrin; endrin aldehyde; heptachlor epoxide; arsenic; cadmium; selenium; and silver is not expected. Risk due to exposure to m/p-xylenes and nitrate/nitrite could not be calculated due to the lack of toxicity information. North lagoon sludge had a CESQ of 150 for the red-tailed hawk. This CESQ is extremely conservative. For example, the red-tailed hawk has an average home range of 1,770 hectares (EPA 1993). This SLERA assumed the red-tailed hawk's home range was equal to the size of the SWMU. Therefore, the red-tailed hawk's true exposure would be much less than what was evaluated. Refer to Table C-70 for the results of the risk calculations.

Risk Estimates for South Lagoon Soil

Risk estimates for south lagoon soil indicate that terrestrial invertebrates are potentially at risk due to exposure to arsenic (ESQ = 28) and chromium (ESQ = 100). The background concentrations of both arsenic and chromium are so high that risk to terrestrial invertebrates exists even at background levels. In addition, the site concentrations of arsenic and chromium are only slightly higher than background concentrations, less than an order of magnitude. Therefore, the arsenic and chromium ESQs are likely overestimated. Risk due to exposure to the VOCs, pesticides, or nitrate/nitrite could not be calculated due to the lack of toxicity information. The pesticides are expected to be somewhat toxic to terrestrial invertebrates due to their primary application as pesticides although the exposure levels at which toxic effects occur is unknown. Risk to terrestrial invertebrates is not expected due to exposure to cadmium or lead. South

lagoon sludge had a CESQ equal to 128 for terrestrial invertebrates. Refer to Table C-71 for the results of the risk calculations.

Terrestrial plants in south lagoon soil are potentially at risk due to exposure to arsenic (ESQ = 7.0), cadmium (ESQ = 5.4), chromium (ESQ = 1100), and lead (ESQ = 2.2). The risk to plants due to chromium exposure is likely overestimated based on the reasons given above for terrestrial invertebrates. However, the calculated risk due to lead exposure is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to plants due to exposure to lead is expected to be minimal. No risk due to exposure to m/p-xylenes or heptachlor is expected. Risk to plants due to exposure to alpha- and beta-BHC and nitrate/nitrite could not be calculated due to the lack of toxicity information. South lagoon soil had a CESQ equal to 1100 for plants. Refer to Table C-72 for the results of the risk calculations.

Deer mice are potentially at risk due to exposure to alpha-BHC (ESQ = 530), cadmium (ESQ = 10), and lead (ESQ = 2.8). However, the calculated risk due to exposure to lead is only slightly higher than the target of 1.0. Due to the uncertainties inherent in this risk assessment, risks to deer mice as a result of lead exposure are expected to be minimal. Risk is also not expected due to exposure to m/p-xylenes, gamma-BHC, heptachlor, arsenic, chromium, or nitrate/nitrite. South lagoon soil had a CESQ equal to 550 for the deer mouse. Refer to Table C-73 for the results of the risk calculations.

The mourning dove is potentially at risk due to exposure to lead (ESQ = 3.6) in south lagoon soil. However, this ESQ is only slightly higher than the target of 1.0. Due to the uncertainties inherent in the risk assessment (as described in Section C.2.3.3.3), no risk to the mourning dove is expected as a result of exposure to lead. Risk is also not expected due to exposure to alpha-BHC, gamma-BHC, heptachlor, arsenic, chromium, or cadmium. Risk due to exposure to nitrate/nitrite and m/p-xylenes could not be calculated due to the lack of toxicity information. South lagoon soil had a CESQ equal to 3.8 for the mourning dove. Refer to Table C-74 for the results of the risk calculations.

The least shrew is potentially at risk due to exposure to cadmium (ESQ = 22) and lead (ESQ = 8.1). Risk to the least shrew is not expected due to exposure to m/p-xylenes, alpha-BHC, gamma-BHC, heptachlor, arsenic, chromium, or nitrate/nitrite. South lagoon soil had a CESQ equal to 32 for the least shrew. Refer to Table C-75 for the results of the risk calculations.

The red-tailed hawk is potentially at risk due to exposure to lead (ESQ = 15). Risk to the red-tailed hawk due to exposure to m/p-xylenes and nitrate/nitrite could not be calculated due to the lack of toxicity information for these COPECs. No risk to the red-tailed hawk is expected due to exposure to alpha-BHC, gamma-BHC, heptachlor, arsenic, cadmium, or chromium. South lagoon soil had a CESQ equal to 16 for the red-tailed hawk. Refer to Table C-76 for the results of the risk calculations. This CESQ is extremely conservative. For example, the red-tailed hawk has an average home range of 1,770 hectares (EPA 1993). This SLERA assumed the red-tailed hawk's home range was equal to the size of the SWMU. Therefore, the red-tailed hawk's true exposure would be much less than what was evaluated.

Risk Estimates for South Lagoon Sludge

Risk estimates for south lagoon sludge indicate that terrestrial invertebrates are potentially at risk due to exposure to arsenic (ESQ = 56), cadmium (ESQ = 1.3), chromium (ESQ = 290), lead (ESQ = 1.1), mercury (ESQ = 1.3), and selenium (ESQ = 4.3). However, the risk calculated for cadmium, lead, mercury, and selenium are only slightly above the target ESQ of 1.0. Due to the uncertainties inherent in this risk assessment (as described in Section C.2.3.3.3), risk to terrestrial invertebrates is not expected as a result of exposure to these COPECs. The risk to terrestrial invertebrates due to exposure to arsenic and chromium is likely overestimated because these inorganics are naturally present at Cannon AFB at elevated concentrations. Risk to terrestrial invertebrates exists even at background concentrations. Risk due to exposure to pesticides, barium, or silver could not be calculated due to the lack of toxicity information. The pesticides are expected to be somewhat toxic to terrestrial invertebrates due to their primary use as a pesticide but exposure levels at which toxic-effects may occur are not available. South lagoon sludge had a CESQ of 350 for terrestrial invertebrates. Refer to Table C-77 for the results of the risk calculations.

Plants in south lagoon sludge are potentially at risk due to exposure to arsenic (ESQ = 14), barium (ESQ = 190), cadmium (ESQ = 64), chromium (ESQ = 3200), lead (ESQ = 23), mercury (ESQ = 10), selenium (ESQ = 660), and silver (ESQ = 5300). The ESQs for arsenic and cadmium are likely overestimated due to the same reason given above for terrestrial invertebrates. Risk to plants due to exposure to pesticides could not be calculated due to the lack of toxicity information. South lagoon sludge had a CESQ equal to 9400 for plants. Refer to Table C-78 for the results of the risk calculations.

Deer mice are potentially at risk due to exposure to alpha-chlordane (ESQ = 5.2), gamma-chlordane (ESQ = 5.5), dieldrin (ESQ = 570), barium (ESQ = 110), cadmium (ESQ = 120), lead (ESQ = 29), mercury (ESQ = 200), selenium (ESQ = 23), and silver (ESQ = 19). Risk to the deer mouse is not expected due to exposure to gamma-BHC; 4,4'-DDE; arsenic; chromium; or nitrate/nitrite. South lagoon sludge had a CESQ equal to 1100 for the deer mouse. Refer to Table C-79 for the results of the risk calculations.

The mourning dove is potentially at risk due to exposure to lead (ESQ = 38) and mercury (ESQ = 6.7). Risk due to exposure to nitrate/nitrite could not be calculated for the mourning dove due to the lack of toxicity information. Risk to the mourning dove is not expected as a result of exposure to gamma-BHC; alpha-chlordane; gamma-chlordane; 4,4'-DDE; dieldrin; arsenic; barium; cadmium; chromium; selenium; or silver. South lagoon sludge had a CESQ equal to 47 for the mourning dove. Refer to Table C-80 for the results of the risk calculations.

The least shrew is potentially at risk due to exposure to alpha-chlordane (ESQ = 12), gamma-chlordane (ESQ = 12), dieldrin (ESQ = 1300), barium (ESQ = 230), cadmium (ESQ = 260), lead (ESQ = 85), mercury (ESQ = 460), selenium (ESQ = 55), and silver (ESQ = 37). Risk to the least shrew is not expected due to exposure to gamma-BHC; 4,4'-DDE; arsenic; chromium; or nitrate/nitrite. South lagoon sludge had a CESQ equal to 2400 for the least shrew. Refer to Table C-81 for the results of the risk calculations.

The red-tailed hawk is potentially at risk due to exposure to barium (ESQ = 1.7), chromium (ESQ = 2.2), lead (ESQ = 160), and mercury (ESQ = 5.3). However, the calculated risk due to exposure to barium and chromium is only slightly above the target ESQ of 1.0. Due to the inherent uncertainties in this risk assessment (as described in Section C.2.3.3.3), no risk to the red-tailed hawk is expected as a result of exposure to these COPECs. No risk to the red-tailed hawk is expected due to exposure to gamma-BHC; alpha-chlordane; gamma-chlordane; 4,4'-DDE; dieldrin; arsenic; cadmium; selenium; or silver. Risk to the red-tailed hawk due to exposure to nitrate/nitrite could not be calculated due to the lack of toxicity data. South lagoon sludge had a CESQ equal to 170 for the red-tailed hawk. This CESQ is extremely conservative. For example, the red-tailed hawk has an average home range of 1,770 hectares (EPA 1993). This SLERA assumed the red-tailed hawk's home range was equal to the size of the SWMU. Therefore, the red-tailed hawk's true exposure would be much less than what was evaluated. Refer to Table C-82 for the results of the risk calculations.

C.2.3.3.3 Limitations and Uncertainties in the Screening Process

There are many sources of uncertainty associated with the characterization of potential risk at SWMU 101. The uncertainties exist because assumptions and estimates were made about the existing on-site conditions, the receptors potentially exposed to COPECs, and the COPECs themselves. These uncertainties include, but are not limited to, uncertainties associated with the receptor species selected for evaluation, uncertainties in the exposure parameters, uncertainties in the sampling and COPEC selection process, uncertainties in the assumptions used in estimating the daily dose ingested by the receptor species, uncertainties in the toxicity information used, and uncertainties in the assumptions made about the complexity of the existing ecosystem. The effect these uncertainties may have on the results of the SLERA are discussed qualitatively below and are summarized in Table C-83.

The ecological screening process is based on the premise that protection of ecological receptors chosen on the basis of their role within the ecosystem will protect the ecosystem as a whole. This approach allows the quantitative evaluation of risk at the site. However, it is possible that the receptors that were chosen for this SLERA are not the most sensitive to the effects of a particular COPEC. Two of the criteria that were used to select the receptors are availability of life history information and availability of toxicity information. Neither of these criteria reflect the relative sensitivity of the receptors being considered. The potential to underestimate risk due to the uncertainties associated with the selection of potential receptors is moderate.

There is also some uncertainty associated with the exposure assumptions used in this SLERA. The selected exposure assumptions were as conservative as possible. These assumptions may overestimate the risk that exists at SWMU 101. For example, it was conservatively assumed that the red-tailed hawk feeds entirely on prey species from SWMU 101 that have concentrations of COPECs bioconcentrated in their tissues. In reality, the red-tailed hawk may have a home range of up to 1,770 hectares (NMED 2000d). A home range this size would result in the red-tailed hawk preying on lower trophic level species from areas that are free of COPEC concentrations. It was also assumed that the exposure point concentration was equal to the maximum concentration detected at each area of concern. This assumption likely overestimates the concentration of the COPECs to which the receptors are exposed. Several of the maximum detected concentrations used to calculate exposure point concentration in the SLERA were qualifed as “J” values in the data validation process. A “J” value indicates that while a chemical was detected in a sample the exact concentration of the chemical is uncertain and is estimated.

No natural attenuation or dispersal of the COPECs was taken into account. This assumption also likely overestimates the concentration of COPECs to which the receptors will be exposed in the future. The potential for overestimating risk due to these assumptions is high.

There is uncertainty associated with the site investigation completed in support of the CMS for the site. For example, the sampling effort was focused entirely within the lagoons; no samples were collected from the buffer area surrounding the lagoons. This methodology likely overestimates the concentrations of COPECs to which the receptors are exposed. Also, although samples were collected from a number of locations in the lagoons it is possible that areas of higher COPEC concentrations exist that were not detected by the sampling effort. The potential for over- or underestimating risk due to the sampling methodology is low. This potential was minimized by the spatial pattern of the samples that were collected for the CMS.

There is uncertainty associated with the COPEC selection process. This process attempted to consider all chemicals that could possibly be present at the site. However, it is possible that a chemical is present that was not detected during sampling and was not expected to be present; this chemical may therefore, be left off the COPEC list. In addition, chemicals were eliminated from the COPEC list based on a comparison with background concentrations (barium and selenium from two of the media of concern). This methodology creates a low potential that risk has been underestimated at the site.

Uncertainties related to estimating the tissue concentrations of COPECs are generated by assumptions about the bioconcentration of COPECs by receptors and how the COPECs are metabolized. Tissue concentrations were estimated because no biota samples were collected for this investigation. Bioconcentration data reported in the literature may be specific to a tissue or organ and not reflective of whole body accumulation or the lipophilicity of a COPEC may not be the only predictor of its bioconcentration potential. In addition, many BCFs were unavailable for the COPECs at SWMU 101. Therefore, BCFs were adopted from surrogate chemicals or default values were assigned. As a result, the potential for the estimated dose and risk to be over- or underestimated is moderate.

Basing toxicity values on surrogate domestic species to determine the toxicity to a wildlife species also is a source of uncertainty. For example, the alpha-BHC toxicity value for the red-tailed hawk was estimated from a study conducted on the Japanese quail. Uncertainty factors are

assigned to the toxicity values when they are developed in an attempt to account for these uncertainties. The potential to over- or underestimate risk due to this methodology is moderate.

There is uncertainty associated with the assumption that COPECs are 100 percent bioavailable. Bioavailability of COPECs can vary substantially with factors such as pH, temperature, alkalinity of soil, organic carbon content of soil, soil type, and health of the individual animal. The potential to overestimate risk due to this assumption is high.

Sources of uncertainty also arise from assumptions made about the complexities of the ecosystem. Methods of predicting nonchemical stresses, biotic interactions, behavior patterns, biological variability, and resiliency and recovery capacities are unavailable and their effect cannot be addressed quantitatively. For example, plants common to the plains-mesa Grassland habitat type may have a naturally high resistance to elevated inorganic concentrations in soil. This, in turn, may lead to a lower exposure to upper trophic level receptors. It is unknown to what degree this relationship exists at since 101. The potential to over- or underestimate risk due to these assumptions is high.

C.2.3.3.4 Conclusions

The risk characterization for measurement receptors from potential exposure to COPECs in all four media of concern found that, for the deer mouse and least shrew, pesticides produced elevated ESQs. However, there was limited toxicity data available for terrestrial invertebrates and plants and risk could not be quantified for the majority of the pesticides. Results of the risk characterization are summarized in Table C-84.

Concentrations of VOCs did not produce elevated HQs for any of the measurement receptors at any of the media of concern.

Concentrations of PCBs produced elevated ESQs for the deer mouse and least shrew in north lagoon sludge. This is the only area of concern in which PCBs were detected.

Concentrations of inorganics produced elevated ESQs for all measurement receptors in all four media of concern. ESQs ranged from 1.1 for terrestrial invertebrates due to lead exposure to 5300 for plants due to silver exposure.

Federal and state listed threatened, endangered, candidate and sensitive species were not quantitatively evaluated in this SLERA. The conservatism inherent in the SLERA is designed to be protective of all potential ecological receptors.

The SLERA was designed to evaluate potential risk to representative receptors from multiple trophic levels present at the site as well as wildlife temporarily visiting the site. There are many sources of uncertainties in the risk assessment, partially as a result of basing exposure estimates on modeled values instead of measured tissue concentrations. The risk characterization indicated that risk may be present for multiple trophic level species from COPECs present in all four media of concern.

C.3 SLUDGE DEWATERING IN-PLACE, CONSOLIDATION, COMPACTION, AND COVER ALTERNATIVE

In the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, sludge and affected soil from the north lagoon are dewatered and transferred to the south lagoon. More specifically, a final dewatering of sludge is completed in both the north and south lagoons and the dewatered sludge and affected soil are removed from the north lagoon and placed in the south lagoon. The sludge in the south lagoon is then compacted with clean construction and demolition debris and a thick native topsoil and appropriate vegetation are placed on the south lagoon. A liner will be placed in the north lagoon and then be used as a stormwater-runoff retention basin. The human health and ecological risks associated with this alternative were evaluated qualitatively in the HHRA and SLERA.

C.3.1 HUMAN HEALTH RISK ASSESSMENT

Under the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, industrial workers are again the population who could potentially be exposed to COPCs in the north and south lagoon sludge and soil. In this alternative, sludge and affected soil in the south lagoon are covered with debris, topsoil, and vegetation. The covering would eliminate exposure to the COPCs; therefore, there would be no risk to the industrial worker at the south lagoon. This conclusion assumes that no intrusive activities would take place at the SWMU. Since all of the sludge and affected soil would be removed from the north lagoon, there would be no risk to an industrial worker working at the north lagoon.

C.3.2 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

The ecological receptors identified in Section C.2.3.1.2 were evaluated qualitatively for the Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative. Because this alternative requires all of the affected soil and sludge in the north lagoon to be consolidated in the south lagoon, risk to ecological receptors in the north lagoon would be eliminated. However, a potentially complete exposure pathway for burrowing animals would still exist in the south lagoon. Potential receptors such as the deer mouse and the least shrew could burrow through the proposed debris, soil, and vegetation that would comprise the cover.

C.3.3 RECOMMENDATIONS

If this alternative is selected, it is recommended that a bio-barrier be used in the south lagoon to ensure that this exposure pathway is no longer complete for ecological receptors. The bio-barrier will prevent potential ecological receptors from being exposed to COPECs. No specific safe guards are necessary to prevent additional exposure to human receptors.

C.4 CONCLUSIONS OF THE HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENTS

Risk to human health and the environment was evaluated for the two alternatives considered in the CMS for SWMU 101. For the no action alternative the HHRA concluded that no risk to potential human receptors exists at the SWMU. For the same alternative, the SLERA concluded that risk exists for multiple ecological receptors due to exposure to pesticides, PCBs, and metals.

The evaluation of the second alternative Sludge Dewatering In-Place, Consolidation, Compaction, and Cover alternative, also concluded that there was no risk to potential human receptors. Some risk to burrowing ecological receptors would still exist. This risk would be mitigated by the installation of a bio-barrier after the impacted soil and sludge has been consolidated.

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ATTACHMENT 1

SITE PHOTOGRAPHS

ATTACHMENT 2

TOXICITY PROFILES

ATTACHMENT 4

SITE PHOTOGRAPHS

TABLES

FIGURES

APPENDIX B

Summary of Previous Investigations

A description of Solid Waste Management Unit (SWMU) 101, the Sewage Lagoons at Cannon Air Force Base (AFB) is provided below. Included are discussions of the previous investigations, history, geology, and hydrogeology of the site presented in this appendix in Section 1 through 4. The results of the corrective measures study (CMS) are provided in Section 5.

1.0 HISTORY OF SWMU 101

The Sewage Lagoons were identified as SWMU 101 in the Cannon AFB Hazardous Waste Permit, dated November 14, 1989. The New Mexico Environment Department (NMED) issued a RCRA Permit to Cannon AFB on December 17, 1989, of which the current revision has not been approved by the state. SWMU 101 (the Sewage Lagoons) is currently at the CMS stage of the RCRA Corrective Action process. The Sewage Lagoons consist of two unlined surface impoundments that were in use from 1966 to 1998 and received combined sanitary and industrial waste from Base facilities. The lagoons operated in series and have a combined surface area of approximately 33 acres. The lagoons were constructed with unlined earthen bottoms and concrete-lined banks. With the construction and operation of the Base wastewater treatment plant in 1998, wastewater was no longer discharged to the lagoons.

2.0 PREVIOUS INVESTIGATIONS AT SWMU 101

Table B-1 provides a summary of the investigations, sampling involved, and detection history of the Sewage Lagoons. Investigations began at the Sewage Lagoons in 1984 when four groundwater monitoring wells were installed (William Matotan and Associates, 1985). After being designated a SWMU in 1989, a more thorough RCRA facility investigation (RFI) was conducted in 1991 (Woodward-Clyde, 1995). The only recommendation as a result of these previous investigations was for annual site groundwater monitoring. In order to achieve closure of the SWMU, more data on the extent of contamination were necessary; therefore, in 1997 Ecology and Environment, Inc. (E & E) conducted a supplemental sludge sampling program.

In 1998, a wastewater treatment plant was built for Cannon AFB and the Sewage Lagoons no longer received any waste. Currently, there is no wastewater in the lagoons and the sludge ranges in thickness from approximately 2 to 18 inches. In 2000, a sampling program was conducted during the CMS was in order to characterize the sludge and native soil within the Sewage Lagoons and to determine the appropriate corrective action for closure. Results of this sampling program show that contamination levels generally decrease with depth. No volatile organic compounds (VOCs) were detected. Details of the CMS sampling program results are presented in Section 5.

2.1 HYDROGEOLOGICAL INVESTIGATION

From 1984 through 1985, William Matotan and Associates conducted a hydrogeological investigation. At the time of the investigation, the Sewage Lagoons had not yet been designated a SWMU. This investigation included the installation of four monitoring wells: one upgradient and three downgradient of the Sewage Lagoons. These wells were sampled quarterly and analyzed for field parameters only, including pH, temperature, and conductivity.

2.2 REMEDIAL INVESTIGATION

In 1991, Woodward-Clyde conducted a remedial investigation at the Sewage Lagoons (now SWMU 101 in the Base's RCRA Part B Permit). Field activities consisted of:

- Collecting eight sludge samples and three surface water samples for chemical analyses,
- Measuring the static water level,
- Purging completely,
- Collecting groundwater samples from four monitoring wells for chemical analysis.

The sampling objective at the Sewage Lagoons was to provide information regarding the nature and extent of contamination present in the wastewater sludge, the treated wastewater within the lagoons, and the groundwater downgradient of the SWMU. The data collected from these sludge, surface water, and groundwater samples were used to further evaluate the extent of potential contamination, if present, and to perform a baseline risk assessment to determine if the area poses a risk to human health or the environment. No ecological assessment was performed during this investigation.

As a result of this investigation, the only recommendation made for ongoing work at the Sewage Lagoons was to continue annual groundwater monitoring for VOCs, metals, pesticides, nitrate, sulfate, and total dissolved solids (TDS). According to the RFI report, the recommendation for an interim monitoring program was made to support site closure until the regulatory framework was resolved. Groundwater monitoring has been conducted on an annual basis to fulfill the requirements of RCRA.

Sludge—Four sludge samples from the north lagoon (samples 5001 through 5004) and four sludge samples from the south lagoon (5005 through 5008) were collected during the RFI. Sludge samples were analyzed for toxicity characteristic leaching procedure (TCLP) parameters, VOCs, semivolatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Table B-2 presents a summary of the analytes detected in the sludge samples collected during the RFI.

The VOCs acetone and 2-butanone and the SVOC bis(2-ethylhexyl) phthalate were the only organic compounds identified as being present in the sludge samples collected during the RFI. It is possible that the detections of these compounds are attributable to laboratory contamination since they were detected in up to 14 of the method blanks analyzed during the RFI. Metals analysis of the sludge indicated that barium, chromium, copper, selenium, silver, vanadium, and zinc all exceeded the site background levels for soil. The pesticides 4,4'-DDD, 4,4'-DDE, chlordane, and PCB-1254 were detected in the sludge samples from both the north and south lagoons. These pesticides and PCB-1254 were uniformly detected at low concentrations throughout the lagoons and are most likely the result of an accumulation of materials from various base activities transferred to the lagoons through the sanitary sewer. Sludge samples 5003 and 5007 were also analyzed for TCLP parameters to evaluate the leachability of detected chemicals. None of the chemicals exceeded the TCLP criteria.

Groundwater—Four groundwater samples were collected from existing monitoring wells E, F, G, and H at the Sewage Lagoons during the RFI. Wells F, G, and H are located downgradient from the Sewage Lagoons, and well E is located upgradient of the site. Groundwater samples were analyzed for Appendix IX constituents.

Metals were the only analytes detected above the analytical reporting limits. Results showed the presence of barium and vanadium in all four groundwater samples. All metals concentrations were below respective maximum contaminant levels. The concentrations of the metals detected in each well are summarized in Table B-2.

Surface Water—Three surface water samples, one from the center of the south lagoon (3001), one from the center of the north lagoon (3002), and one near the wastewater flow splitting pool (3003) were collected during the RFI. Surface water samples were analyzed for Appendix IX constituents. Concentrations of the analytes detected in surface water samples are summarized in Table B-2.

The metals detected in surface water samples included barium, lead, copper, zinc, mercury, silver, and vanadium. Barium was detected in all three samples. Sample 3001 also contained lead. Sample 3002 contained zinc and copper in addition to barium, and 3003 contained seven metals. Sulfide was detected in all three surface water samples with concentrations ranging from 0.19 to 3.7 mg/L.

2.3 SUPPLEMENTAL SLUDGE SAMPLING

In January 1997, E & E collected additional sludge samples to support the preliminary evaluation of corrective action alternatives (E & E, 1998). Three sludge samples were collected and analyzed for total nitrogen, total solids, volatile solids, metals, and pathogens. One sample each was collected from the north lagoon, the south lagoon, and the discharge point at the south lagoon that leads to the playa lake. Analytical results indicated that the levels of analytes detected in the 1997 sludge samples did not exceed RCRA limits for hazardous constituents. E&E concluded that additional sludge samples were required to adequately characterize the sludge during the corrective action process of the Sewage Lagoons.

To propose the appropriate method of excavation and transferal, disposal area, and sludge hauling requirements, the sludge quantity was also investigated by E & E. The sludge volume in the lagoons during the 1997 investigation was estimated to be 165,000 cubic yards.

2.4 RCRA GROUNDWATER MONITORING

As a result of the 1992 Woodward-Clyde RFI program, recommendations were made for annual groundwater sampling of the four monitoring wells located at SWMU 101. The groundwater is monitored yearly VOCs, metals, pesticides, nitrate, sulfate, and TDS.

3.0 GEOLOGY

The near-surface stratigraphic units of interest at Cannon AFB are the Late Miocene-Late Pliocene age Ogallala Formation and the Early Triassic Dockum Group.

The Dockum Group consists of three formations. The stratigraphically lowest unit is the Santa Rosa Sandstone. Overlying the Santa Rosa Sandstone are the Chinle and Redonda Formations. The Chinle and Redonda Formations are composed mainly of red shales with lesser interbedded sands and are known locally as "redbeds." The top of the Dockum Group is marked by an erosional unconformity having relief of up to several hundred feet (ft).

Overlying the Dockum Group redbeds is the Ogallala Formation, which extends from eastern New Mexico and Colorado into Texas, Oklahoma, Kansas, Nebraska, and South Dakota. Drillers' logs from Cannon AFB indicate that the Ogallala Formation varies from 360 to 415 ft in thickness. The incised upper surface of Triassic redbeds strongly influences the Ogallala thickness. Stream valleys in the post-Triassic unconformity are deep and trend dominantly east-west. Ogallala thickness may, thus, vary significantly over short north-south distances.

The Ogallala is erosionally truncated to the south along the abandoned Portales Valley, to the west along the Pecos River Valley, and to the north in a series of ephemeral stream valleys. The Ogallala Formation extends more than 125 miles (mi) to the east before terminating as an escarpment in Briscoe County, Texas. Springs and seeps are common along the erosional margins of the Ogallala.

The Ogallala dips gently and monoclinally to the southeast in the vicinity of Cannon AFB. As reported in Lee Wan and Associates (1990), data suggest that some Quaternary warping may have occurred; however, most of the structures are well to the northwest and southwest of Cannon AFB. No faults or buried structural lineaments are known to exist in the vicinity of Cannon AFB.

The Ogallala Formation is composed of unconsolidated, poorly sorted gravel, sand, silt, and clay. The base of the Ogallala is generally marked by a gravel, cobble, and boulder deposit. This basal member contains sediment derived from igneous and sedimentary rock transported from the mountains to the west. The Ogallala Formation was laid down by stream and overbank deposits formed within coalescing alluvial fans. These fans form a broad pediment along the eastern flank of the Rocky Mountains. As is typical of alluvial deposits, Ogallala internal stratigraphy varies vertically and horizontally over short distances.

Except where strongly cemented by calcium carbonate (caliche), the sediment of the Ogallala is loose and friable. Authigenic and allogenic clays are found as a trace to abundant matrix mineral (Lee Wan and Associates, 1990). As reported by Lee Wan and Associates (1990), five zones have been distinguished within the Ogallala of east-central New Mexico on the basis of clay minerals. Smectites (montmorillonites) and attapulgite (with sepeotite) are the dominant clays throughout the Ogallala. Illite is a lesser but persistent clay, as is kaolinite. Smectite is a swelling clay, causing deep cracks to form in dry surface soil. Smectite in particular and, to a lesser extent, attapulgite and illite are clays with moderate to high cation exchange capacities (CEC). The formation as a whole should, therefore, have a relatively high CEC, which should inhibit the migration of charged contaminants, especially ionic forms of metals.

Caliche is a major feature of the Ogallala Formation, occurring as nearly continuous to discontinuous layers throughout. Caliche is hard, white to pale tan on fresh surfaces, weathering to gray, and has a chalky appearance. Caliche forms as calcium carbonate leached from overlying sediment, and precipitates in the pore space of the host sediment. Precipitation is caused by the evaporation of downward percolating water. The caliche may, thus, mark the position of ancient vadose zones. Lee Wan and Associates (1990) give radiocarbon dates for the upper climax caliche range from approximately 27,000 years before present (BP) to approximately 42,000 years BP.

Caliche is relatively soluble in acidic water (pH less than 7) or in water containing dissolved carbon dioxide. The top surface of the upper climax caliche in fresh outcrop shows solution etching.

4.0 HYDROGEOLOGY

The lower portion of the Ogallala Formation is the primary regional aquifer for both potable and irrigation water. No deeper aquifers are used in the vicinity of Cannon AFB. The Ogallala aquifer is part of the High Plains Aquifer, which extends continuously from Wyoming and South Dakota into New Mexico and Texas. In east-central New Mexico, the Ogallala aquifer rests on Dockum Group redbeds, which serve as the basal confining layer. The Ogallala is a water table, or unconfined, aquifer. The Ogallala aquifer has a southeasterly regional gradient of about 10 to 15 ft per mi (Woodward-Clyde, 1992). Well yields vary from less than 1 gallon per minute (gpm) in thin silt and sand, and up to 1,600 gpm in thick sand and gravel (Lee Wan and Associates, 1990). Water quality is generally good with dissolved solids ranging from 250 to 500 milligram per liter (mg/L) (Gutentag et. al, 1984) and fluoride ranging from 2.2 to 2.7 mg/L (William Matotan and Associates, Inc., 1985).

Based on mid-1960s data, the Ogallala aquifer at Cannon AFB has an average saturated thickness of 120 ft. Saturated thickness ranges from 93 to 143 ft and is influenced by the configuration of the erosional unconformity surface marking the top of the Dockum Group. The local groundwater gradient is southeasterly at 7 to 15 ft per mile (USAF, 1990). Flow within the saturated zone may be influenced by the configuration of the top of the Dockum Group. Cannon AFB water well tests have yields ranging from 205 gpm to 1,150 gpm. Specific capacities range from 11.4 gallons per ft (gpf) to 27.9 gpf (Lee Wan and Associates, 1990).

Estimates of hydraulic conductivity were made from well pump tests conducted by Cannon AFB using the Theis equation. The data used in these calculations were obtained to evaluate pump rates, efficiency, and well yield and were not intended for use in calculating aquifer properties. The results of these calculations should, therefore, be considered as estimates only.

Hydraulic conductivity values for ranged from approximately 2.0×10^{-3} centimeters per second (cm/sec) to 2.0×10^{-2} cm/sec. These estimates appear to be low when compared to published hydraulic conductivity data for sand and gravel (Freeze and Cherry, 1979). As reported in Kearney (1987), a groundwater flow velocity of about 150 ft per year has been estimated. Based on this calculation, the hydraulic conductivity is approximately 1.0×10^{-1} cm/sec.

Recharge to the Ogallala is primarily through precipitation. Kearney (1987) indicated that the recharge rate may be as much as 1.0 in per year. Because of the high evapotranspiration rate and low precipitation, recharge occurs only during heavy rainfall events in which the infiltration capacity of the soil is exceeded and runoff occurs, or during cool months when precipitation exceeds evapotranspiration. Excess runoff flows to playas, and the presence of water in playas allows deep percolation to the aquifer. The occurrence of this process is evidenced by the presence of clay deposits in playas and the possibility that caliche is thin or absent directly below playas. Caliche is soluble in acidic rain water and is leached over time to form percolation pathways.

Discharge from the Ogallala occurs through well pumping and springs along the eroded margins. Spring discharge does not occur on or near Cannon AFB. Domestic and irrigation water wells are common on and around the base. However, the rate of discharge exceeds local recharge. Water levels in the Ogallala have declined steadily from the 1930s to the present. From the 1930s to 1980, a decline of 50 to 100 ft has been observed in the area around Clovis, New Mexico. Luckey et. al. (1981) states, "the largest area of water-level decline exceeding 100 ft occurs south of the Canadian River extending from Curry County, New Mexico, to Crosby County, Texas."

The Ogallala will continue to be used as the primary source of potable and irrigation water for eastern New Mexico. In 1989, the New Mexico State Engineer designated Curry County as a Water Basin. This designation allows for regulation of water rights, usage, and well drilling.

5.0 CORRECTIVE MEASURES STUDY

During Spring 2000, Foster Wheeler Environmental Corporation conducted a field investigation as a part of the CMS for SWMU 101. The CMS is a voluntary program at Cannon AFB aimed at achieving closure of the Sewage Lagoons. The purpose of the CMS was focused to evaluate researched and selected corrective action alternatives to prevent future impact to human health and the environment. Corrective action alternatives appropriate for the Sewage Lagoons should provide containment of residual contamination present at the site.

As part of the CMS, human health and ecological risk assessments were conducted. There was existing information available to support the risk assessment and corrective action selection;

however, additional data were required to support the CMS and preliminary remedial design work. To characterize the sludge and underlying soil within the Sewage Lagoons, chemical and geotechnical analyses were performed on soil and sludge samples collected during the CMS.

5.1 CMS FIELD PROGRAM

This field program was designed to collect the necessary data needed to characterize the sludge and soil within the Sewage Lagoons. The data were needed to take appropriate corrective action at this SWMU.

Field activities included construction of access ramps into the lagoons, construction of roads to each sampling point within the lagoons, and sampling activities.

The field sampling activities consisted of collecting samples from 10 predetermined locations within the Sewage Lagoons: five each in the north lagoon and south lagoon. One sludge sample was collected from each location. After samples were collected, boreholes were drilled at each location to a depth of 10 ft. Samples were collected at 0 to 2 ft, 4 to 6 ft, and 8 to 10 ft below the sludge/soil interface. These sludge and soil samples were submitted to EMAX laboratories and analyzed for RCRA metals, mercury, VOCs, pesticides, polychlorinated biphenyls PCBs, nitrates, and total organic carbon (TOCs).

Both disturbed and undisturbed geotechnical samples were also collected. Additional samples were collected from each borehole at 2-ft intervals. After collection, the samples were visually examined for soil type and separated into groups of similar material types. The most representative sample from each group sent in for geotechnical laboratory analysis. The analyses included soil classification, grain size down to the No. 200 sieve, and Atterberg limits.

Undisturbed geotechnical samples were collected with a thin-walled Shelby tube 3 inches in diameter and 2.5 ft in length. Because of the nature of the soil and amounts of caliche present at greater depths, all undisturbed samples were collected at depths less than 5 ft. Three were collected from the 0 to 2.5-ft interval and one was collected from 2.5 to 5 ft. The Shelby tubes were carefully sealed to be airtight on both ends, labeled, and were analyzed for the above-mentioned geotechnical analyses as well as permeability tests.

Upon completion of field activities, the 10 boreholes were properly abandoned and filled with a grout mixture of 30 percent solids and 70 percent water. All borehole cuttings were placed in a plastic sheet, covered, and wrapped. The access roads that were constructed remain in place.

5.2 RESULTS OF THE CMS FIELD INVESTIGATION

Chemical Results— To characterize the contamination, 10 sludge samples and 30 soil samples from 10 locations (0 to 2 ft, 4 to 6 ft, and 8 to 10 ft) were collected from the Sewage Lagoons. The sludge samples were analyzed for the following parameters: VOCs; pesticides; PCBs; nitrate; RCRA metals; and TCLP VOCs, pesticides, and metals. The soil samples were analyzed for VOCs, pesticides, PCBs, nitrate, TOC, and RCRA metals.

The metals analysis of the sludge indicates that arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver are all present at this site. However, only arsenic, barium, chromium, and lead are consistently present in the underlying soil. Cadmium was detected in the soil at one location (SB-09) at the 4 to 6-ft interval. All detections of barium were relatively high, ranging from 48.8 to 2,040 mg/kg. There is no apparent trend when relating concentration to depth. Concentrations of arsenic range from 1.63 to 13.9 mg/kg, chromium concentrations range from 3.81 to 57.4 mg/kg, and lead concentrations range from 1.29 to 108 mg/kg. Arsenic, chromium, and lead concentrations show a general decrease with increased depth.

Nitrate/nitrite was detected in both sludge and soil samples at concentrations ranging from 5.96 to 486 mg/kg. Nitrate/nitrite was detected in eight out of the 10 sludge samples. Concentrations were significantly higher in the South Lagoon where all 5 samples had nitrate/nitrite detections. At SB-02 and SB-03, nitrate/nitrite was detected only at a depth of 8 to 10 ft. The sludge at SB-07 had the highest level of nitrate with a concentration of 486 mg/kg; however, no nitrate/nitrite was detected in the soil at this location.

TOC was detected in every soil sample collected at the Sewage Lagoons. Concentrations ranged from 627 to 3,300 mg/kg. These high concentrations are expected because of the nature of the material previously deposited in these Sewage Lagoons.

Detections of pesticides occurred mainly in the sludge samples. 4, 4’-DDE and 4, 4-DDT, alpha-chlordane, beta-BHC, dieldrin, gamma-chlordane, and heptachlor epoxide were only detected in

the sludge samples; however, no one pesticide was detected in all locations. Alpha-BHC was only detected at SB-09 in the 4–6-ft interval with a concentration of 2.2 microgram per kilogram (μg/kg). Heptachlor was detected at two locations in the North Lagoon, SB-02 (sludge), and SB-03 (0 to 2 ft), and four locations in the South Lagoon, SB-07 (0 to 2 ft, 4 to 6 ft, 8 to 10 ft), SB-08 (8 to 10 ft), SB-09 (0 to 2 ft, 4 to 6 ft, 8 to 10 ft), and SB-10 (0 to 2 ft, 8 to 10 ft). Concentrations ranged from 0.00054 to 3.4 μg/kg.

VOCs were not detected in any of the soil or sludge samples collected during the CMS field program.

In summary, low levels of pesticides were detected in the sludge of both the north and south Sewage Lagoons. Various metals were detected in the sludge and soil at concentration levels that tend to decrease with depth. A summary of the analytical results is provided in Table B-3.

***Geotechnical Results*—**A total of 11 soil samples were collected for geotechnical analysis. Four samples were collected as undisturbed samples. A summary of the geotechnical results is provided in Table B-4.

In general, the soil consists mostly of clay and sand with some silt and gravel, the amount of gravel in the soil increases with depth. The three samples analyzed from the 8 to 10 ft interval contained 15.9 percent, 30 percent, and 44.2 percent gravel. The percentage of sand in the soil ranged from 27.6 percent to 62.3 percent with an average of 40.6 percent. The percent silt and clay ranged from 21.2 percent to 72.4 percent with an average of 50.3 percent.

Permeability tests were performed on the four undisturbed samples. Three of the samples were taken at the 0 to 2.5-ft interval: one from the North Lagoon at SB-02 and two from the South Lagoon at SB-07 and SB-10. Another sample was taken from the South Lagoon, SB-07 at the 2.5 to 5.0 ft interval. For the 0 to 2.5 ft undisturbed samples, permeability values were as follows: $9x10^{-5}$, $7x10^{-6}$, and $6x10^{-4}$ cm/sec. The sample taken at 2.5 to 5.0 ft had a permeability of $1x10^{-6}$ cm/sec.

5.3 CORRECTIVE ACTION ALTERNATIVES

Three alternatives have been considered during this focused CMS. Alternative 2 was addressed in the *Phase III Sludge Management Compliance Evaluation and Requirements Identification Document* (E&E, 1998). The three alternatives are listed below and are discussed in detail in Section 7 of the report.

1. No Action
2. Sludge Dewatering In-Place, Consolidation, Compaction, and Cover
3. *In situ* bioremediation of the sludge through composting.

Evaluation of the CMS field investigation results indicates the most appropriate corrective action is Alternative 2 where dewatered sludge from both lagoons will be consolidated in the south lagoon, and it will then be compacted and covered with soil and native vegetation. Future use of the north lagoon provides for use as a stormwater overflow basin.

6.0 REFERENCES

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Table B-4. Geotechnical Results for Soil Samples Collected at the Sewage Lagoons

Sample Location	Sample Depth (ft)	USCS Soil Classification	Gravel (%)	Sand (%)	Silt and Clay (%)	Dry Density (pcf)	Permeability (cm/sec)
SB-03	0 - 2.0	CL	0	34.8	65.2	NA	NA
SB-02	0 - 2.5	SM	6.8	62.3	30.9	99.9	$9x10^{-5}$
SB-07	0 - 2.5	CL	0	38.1	61.9	98.1	$7x10^{-6}$
SB-10	0 - 2.5	SC	0	52.8	47.2	100.1	$6x10^{-4}$
SB-02	2 - 2.5	CL	2.4	42.2	55.4	NA	NA
SB-07	2.5 - 5.0	CL	0	27.6	72.4	108.2	$1x10^{-6}$
SB-08	4.0 - 6.0	SC	0	54.7	45.3	NA	NA
SB-04	7.5 - 8.0	CL	0	27.7	72.3	NA	NA
SB-02	8.0 - 10	SC	15.9	35.4	48.7	NA	NA
SB-05	8.0 - 10	SC-SM	30.0	36.8	33.2	NA	NA
SB-06	8.0 - 10	GM	44.2	34.6	21.2	NA	NA
		Averages	**9.0**	**41**	**50**	**102**	**$2x10^{-4}$**

% - Percent

cm/s - Centimeters per second

NA - Parameter not analyzed

pcf - Pounds per cubic foot

Note: SB-01 through SB-05 are located in the North Lagoon; SB-06 through SB-10 are located in the South Lagoon

DATA QUALITY CONTROL SUMMARY REPORT

The analytical program for the field investigation in support of the Corrective Measures Study (CMS) at the Sewage Lagoons consisted of chemical testing performed by EMAX Laboratories, Inc. (EMAX), Torrance, California. Analytical methods for chemical analysis are taken from the latest revision of the United States Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste, SW-846 Third Edition (EPA, 1986). The specific analytical methods used for the CMS are as follows:

- Volatile organic compounds (VOCs)—Method 8260B
- Organochlorine pesticides (OCPs)—Method 8081A
- Polychlorinated biphenyls (PCBs)—Method 8082
- RCRA metals—Methods 6010B/6010B Trace/7471A
- Nitrate nitrogen—Method 300.0
- Total Organic Carbon (TOC)—Walkley Black Method
- Toxicity Characteristic Leaching Procedure—Method 1311/8260B,8081A,6010B,7470A

1.0 DATA VALIDATION

The data validation procedure used for the CMS is in accordance with EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA, 1994). One hundred percent of the analytical data were reviewed for the following criteria:

- Completeness of data deliverables
- Extraction and analysis holding times
- Blank data (method and trip)
- System monitoring compounds (surrogate recoveries)
- Matrix spike/matrix spike duplicate (MS/MSD) recovery
- Laboratory control sample (LCS) recovery
- Overall data assessment

1.1 DATA PRESENTATION AND EVALUATION

EMAX reported the analytical data for the CMS using data qualifiers to identify values reported above the instrument detection limit (IDL) and below the contract required detection limit (CRDL). The J-qualifier was used for organic (VOCs, OCPs, PCBs) and inorganic (metals) data respectively, to signify a detected value above the method

detection limit (MDL) and below the reporting limit (RL). The level of confidence associated with the J-qualified data is less than the 95 percent confidence associated with data reported above the CRDL and therefore, the data are considered estimated. The J-qualified data are included in the analytical results summary tables is provided in Section 3, of this report.

1.2 LABORATORY QA/QC

The types of laboratory quality control (QC) samples associated with the CMS include method blanks, laboratory control sample (LCS), and matrix spike/matrix spike duplicate (MS/MSD) samples. These QC samples are used to measure the analytical method precision and accuracy. The method blank is used to assess laboratory contamination. The results of the laboratory QC sample data are summarized below.

Field QC samples were also collected in support of the remedial investigation. Field duplicate samples were collected to assess the precision associated with the sampling activities and laboratory analyses, as well as to determine data comparability. Equipment blank samples were collected to assess potential cross contamination during sampling activities. The results of the field QC data are summarized below.

1.2.1 Holding Times

Representativeness of the data is determined through review of extraction and analysis holding times in conjunction with review of blank data in accordance with EPA analytical method holding time guidelines. All holding times were met for the CMS samples, with the exception of 11 sample for TOC analysis which were analyzed 24 days outside of the 28 day holding time. The holding time was exceeded due to an oversight which occurred in the field. The TOC detections in sample delivery group (SDG) 00D019 were J-qualified, signifying estimated data.

1.2.2 Laboratory Method Blank Samples

Laboratory method blank samples were analyzed with each batch of field samples for each analytical method. Method blank detections were evaluated as part of the

validation process. No detections were reported in the method blank samples with the exception of methylene chloride. All detections of methylene chloride in the CMS data were B-qualified, signifying blank contamination. The representativeness of the data was 99 percent based on method blank results.

1.2.3 Laboratory Control Samples

Laboratory control samples were analyzed with each sample delivery group (SDG) for each analytical method. LCS spike recoveries reported at concentrations above or below the method-specific control limits resulted in qualification of those analytes in the associated field samples. The LCS data are used in conjunction with the matrix spike recovery data and the system monitoring compound recoveries to determine the accuracy of the analytical data.

The LCS recoveries for all analytical parameters were within the method control limits. LCS recoveries indicate the accuracy of the data was 100 percent.

1.2.4 Matrix Spike Samples

Laboratory MS/MSD samples were analyzed at a frequency of five percent for each analytical method. MS/MSD sample recoveries were evaluated in conjunction with the other batch QC sample recoveries to determine the need for qualification of analytical data. The MS/MSD recoveries were within the method-specific control limits for all samples with the exception of the TOC recoveries. The TOC MS recoveries for SDGs 00D028 and 00D041 were above the method control limit. The TOC detections associated with these SDGs were J-qualified, signifying estimated data.

1.2.5 System Monitoring Compounds

System monitoring compounds, also known as surrogate spike compounds, are used for the gas chromatography (GC) and GC/mass spectrometry analytical methods (8260B, 8081A, 8082) to monitor the performance of an individual sample during extraction and analysis. All system monitoring compound recoveries for the CMS data were within the

method control limits with the exception of one OCP surrogate for second column confirmation for SDG 00D028. As a result, heptachlor detections in 9 samples were J-qualified, signifying estimated data.

1.3 FIELD QA/QC

Field QC samples were collected for each sampling activity conducted in support of the LTM. Field duplicates and QA replicates were collected to assess the precision associated with the sampling and the laboratory analysis. Trip blanks were collected and shipped with rinse blank samples, and analyzed for VOCs to assess potential contamination resulting from shipping and storage. Temperature blanks were included in each cooler containing groundwater samples submitted for laboratory analysis to assure that samples were maintained within the appropriate temperature range during sample shipment to the laboratory.

A total of three United States Army Corps of Engineers (USACE) Chemistry Quality Assurance Branch (CQAB) Laboratory of Waterways Experiment Station replicate samples were collected and analyzed for the LTM. This results in approximately 8 percent of the total samples collected for the LTM. A comparison of the CQAB Laboratory replicate data and the EMAX sample data is not available from USACE at this time.

A total of three field duplicate samples were collected and analyzed for the LTM, resulting in approximately 8 percent of the total samples. The field duplicate samples were collected at the following wells:

- C101SS10
- C101SB01
- C101SB10

There are no required review criteria for field duplicate analyses comparability specified in the EPA Functional Guidelines. An evaluation of the relative percent difference (RPD) values for the field duplicate samples indicates greater than 99 percent of the RPD

values are within a 50 percent RPD criteria. The RPDs for chromium, lead, and silver in sample C101SS10 were above the 50 percent criteria at 51 and 54 percent, respectively. Data reproducibility indicates minimal matrix interference associated with sample analysis, and a high level of precision associated with sampling and analysis.

Four equipment rinse blanks were collected during the field sampling activities. Low-level detections of chloroform, bromodichloromethane, and dibromochloromethane were reported in all rinse blank samples however, they were not detected in any of the field samples.

Temperature blanks were included with each cooler shipment to the laboratory. The EPA recommends sample temperatures be maintained at 4°C ± 2°C during sample shipment and storage at the laboratory to ensure sample integrity. All temperature blanks for the CMS were within the EPA guidelines.

2.0 DATA ASSESSMENT

As a result of the data validation procedure, it was determined that less than one percent of the analytical data for the CMS were qualified as estimated. In addition, less than one percent of the data were B-qualified for method blank contamination. No analytical data were rejected (R-qualified). Analytical data were J- and B-qualified based on the following validation criteria:

- Holding time exceedance – TOC (detects)
  C101SS01, C101SS02, C101SS03, C101SS04, C101SS05, C101SS06, C101SS07, C101SS08, C101SS09, C101SS10, C101SS10Dup

- Matrix spike sample recovery – TOC (detects)
  C101SB0700, C101SB0704, C101SB0708, C101SB0800, C101SB0804, C101SB0808, C101SB0900, C101SB0904, C101SB0908, C101SB1000, C101SB1000Dup, C101SB1004, C101SB1008, C101SB0100, C101SB0100Dup, C101SB0104, C101SB0108, C101SB0200, C101SB0204, C101SB0208, C101SB0300, C101SB0304, C101SB0308, C101SB0400, C101SB0404, C101SB0408, C101SB0500, C101SB00500, C101SB0504, C101SB0508, C101SB0600, C101SB0604, C101SB0608

- Surrogate recovery second column confirmation – Heptachlor (detects)
  C101SB0700, C101SB0708, C101SB0808, C101SB0900, C101SB0904, C101SB0908, C101SB1000, C101SB1000Dup, C101SB1008

- Method blank contamination – Methylene chloride (detects)
  C101SS01, C101SS02, C101SS03, C101SS04, C101SS05, C101SS06, C101SS07, C101SS08, C101SS09, C101SS10, C101SS10Dup, C101SB0700, C101SB0704, C101SB0708, C101SB0800, C101SB0804, C101SB0808, C101SB0900, C101SB0904, C101SB0908, C101SB1000, C101SB1000Dup, C101SB1004, C101SB1008

3.0 DATA USABILITY

Review of the QC data associated with the field sample data indicated project measurement data were reliable and fulfilled project data quality objectives. Sampling and analysis precision and accuracy for the CMS analytical data were acceptable, and valid conclusions may be drawn from the field sample data. Based on the data validation procedure, 54 results were J- qualified (estimated data) but are still usable to meet project data quality objectives. Twenty-two results were B- qualified for method blank contamination and do not meet the project DQOs. A data completeness objective of greater than 99 percent was achieved for the Sewage Lagoon CMS.

Table C-32. List of Plants and Animals Known to Occur on Cannon AFB [a]

	Common Name	Scientific Name
PLANTS		
Trees	Black poplar	*Populus nigra*
	Chinese elm	*Ulmus pumila*
	Fivestamen tamarisk	*Tamarix chinensis*
	Plains cottonwood	*Populus deltoides monilifera*
	Siberian elm	*Ulmus pumila*
Shrubs or Half-Shrubs	Broom snakeweed	*Gutierrezia sarothrae*
	Bushy knotweed	*Polygonum ramosissimum*
	Fourwing saltbush	*Atriplex canescens* [b]
	Honey mesquite	*Prosopis glandulosa*
	Rabbitbrush	*Chrysothamnus* spp.
	Rose sp.	*Rosa* spp.
Grass or Grass-Like	Bald spikerush	*Eleocharis erythropoda*
	Barnyardgrass	*Echinochloa crus-galli*
	Bearded spangletop	*Leptochloa fascicularis*
	Black grama	*Bouteloua eriopoda*
	Blue grama	*Bouteloua gracilis*
	Bluestem	*Bothriochloa* spp.
	Buffalograss	*Buchloe dactyloides*
	Chufa flatsedge	*Cyperus esculentus*
	Gummy lovegrass	*Eragrostis curtipedicellata*
	Hairy tridens	*Erioneuron pilosum*
	Hall's panicgrass	*Panicum halii halii*
	Inland saltgrass	*Distichlis spicata* [b]
	Johnsongrass	*Sorghum halpense*
	Little bluestem	*Schizachyrium scoparium*
	Needle-and-thread	*Stipa comata*
	Redtop bent	*Agrostis stolonifera*
	Silver beardgrass	*Bothriochloa laguroides*
	Six-weeks grama	*Bouteloa barbata*
	Softstem bulrush	*Scirpus tabernaemontani*
	Three-awns	*Aristida* spp.
	Tumble windmill grass	*Chloris verticillata*
	Western wheatgrass	*Agropyron smithii*
	Wheatgrass spp.	*Agropyron* spp. [b]
	Witchgrass	*Panicum capillare* [b]
Forbs	Annual saltmarsh aster	*Aster subulatus*
	Annual sunflower	*Helianthus annuus*
	Aridland goosefoot	*Chenopodium dessicatum*
	Bigbract verbena	*Verbena bracteata*
	Burr ragweed	*Ambrosia grayi*
	Camphorweed	*Heterotheca subaxillaris*
	Careless weed	*Amaranthus palmeri*
	Chocolate daisy	*Berlandiera lyrata*
	Coastal sandbur	*Cenchrus incertus*
	Common devilsclaw	*Proboscidea lousianica*

Table C-32. List of Plants and Animals Known to Occur on Cannon AFB [a]

	Common Name	Scientific Name
Forbs (continued)	Common sage	*Artemisia campestris*
	Coneflowers	*Ratibida* spp.
	Cooley's bundleflower	*Desmanthus cooleyi*
	Curly cup gumweed	*Grindelia squarrosa*
	Curly dock	*Rumex crispus*
	Firewheel	*Gaillardia pulchella*
	Hairy pepperwort	*Marsilea vestita*
	Kochia	*Kiochia scoparia*
	Louisiana sage	*Artemisia ludoviciana*
	Narrowleaf cattail	*Typha angustifoli*
	Nineanther prairieclover	*Dalea enneandra*
	Oakleaf goosefoot	*Chenopodium glaucum*
	Pennsylvania smartweed	*Polygonum pensylvanicum*
	Pitseed goosefoot	*Chenopodium berlandier*
	Poison suckleya	*Suckleya suckleyana*
	Prairie evening primrose	*Oenothera albicaulis*
	Prostrate pigweed	*Amaranthus albus*
	Puncture vine	*Tribulus terrestris*
	Red globemallow	*Sphaeralcea coccinea*
	Rocky Mountain zinnia	*Zinnia grandiflora*
	Rough cockleburr	*Xanthium strumarium*
	Sawtooth daisy	*Prionopsis ciliata*
	Scarlet beeblossom	*Gaura coccinea*
	Silverleaf nightshade	*Solanum elaeagnifolium*
	Spiny golden weed	*Haplopappus spinulosus*
	Spotted evening primrose	*Oenothera canescens*
	Spreading yellowcress	*Rorippa sinuata*
	Sweet clover	*Melilotius* spp. [b]
	Tanseyleaf aster	*Machaeranthera tanacetifolia*
	Texas blueweed	*Helianthus ciliaris*
	Windmill grass	*Chloris verticillata*
	Woodhouse's bahia	*Picradeniopsis woodhousei*
	Yellow sweetclover	*Melilotus officinalis*
	Yellow woolly-white	*Hymenopappus flavescens*
	Yellowspine thistle	*Cirsium ochrocentrum*
Succulents	Yucca	*Yucca glauca*
AMPHIBIANS/REPTILES		
Salamanders	Tiger salamander	*Ambystoma tigrinum*
Toads/Frogs	Great Plains toad	*Bufo cognatus*
	Green toad	*Bufo debilis*
	Red-spotted toad	*Bufo punctatus*
Lizards	Texas horned lizard	*Phrynosoma cornutum*
Snakes	Prairie rattlesnake	*Crotalus viridis viridis*

Table C-32. List of Plants and Animals Known to Occur on Cannon AFB [(a)]

	Common Name	Scientific Name
BIRDS		
Grebes	Eared grebe	*Podiceps nigricollis*
Cormorants	Double-crested cormorant	*Phalacrocorax auritus*
Herons	Black-crowned night-heron	*Nycticorax nycticorax*
	Great blue heron	*Ardea herodias*
Ibis	White-faced ibis	*Plegadis chihi*
Geese/Ducks	American wigeon	*Anas americana*
	Blue-winged teal	*Anas discors*
	Bufflehead	*Bucephala albeola*
	Canada goose	*Branta canadensis*
	Canvasback	*Aythya valisineria*
	Cinnamon teal	*Anas cyanoptera*
	Green-winged teal	*Anas crecca*
	Lesser scaup	*Aythya affinis*
	Mallard	*Anas platyrhynchos*
	Northern pintail	*Anas acuta*
	Northern shoveler	*Anas clypeata*
	Snow goose	*Chen caerulescens*
Hawks/Falcons	Ferruginous hawk	*Buteo regalis*
	Mississippi kite	*Ictinia mississippiensis*
	Northern harrier	*Circus cyaneus*
	Red-tailed hawk	*Buteo jamaicensis*
	Swainson's hawk	*Buteo swainsonii*
Pheasants/Quails	Northern bobwhite	*Colunus virginianus*
	Ring-necked pheasant	*Phasianus colchicus*
Coots	American coot	*Fulica americana*
Plovers	Killdeer	*Charadrius vociferous* [(b)]
Stilts/Avocets	American avocet	*Recurvirostra americana*
	Black-necked stilt	*Himantopus mexicanus*
Sandpipers	Longbilled dowitcher	*Limnodromus scolopaceus*
	Semipalmated sandpiper	*Calidris pusilla*
	Spotted sandpiper	*Actitis macularia*
	Western sandpiper	*Calidris mauri*
	Willet	*Catoptrophorus semipalmatus*
	Wilson's phalarope	*Phalaropus tricolor*
Gulls/Terns	Black tern	*Chlidonias niger*
	Forster's tern	*Sterna forsteri*
	Franklin's gull	*Larus pipixcan*

Table C-32. List of Plants and Animals Known to Occur on Cannon AFB [a]

	Common Name	Scientific Name
Gulls/Terns (continued)	Ring-billed gull	*Larus delawarensis*
Doves	Mourning dove	*Zenaida macroura* [b]
Swallows	Bank swallow	*Riparia riparia*
	Barn swallow	*Hirundo rustica*
	Cliff swallow	*Hirundo pyrrhonta*
Thrashers	Northern mockingbird	*Mimus polyglottos*
Shrikes	Loggerhead shrike	*Lanius ludovicianus*
Warblers/Sparrows	Dark-eyed junco	*Junco hyemalis*
	Lark bunting	*Calamospiza melanocorys*
	White-crowned sparrow	*Zonotrichia leucophrys*
	Yellow-rumped warbler	*Dendroica pensylvanica*
Blackbirds	Great-tailed grackle	*Quiscalus mexicanus*
	Red-winged blackbird	*Agelaius phoeniceus*
	Western meadowlark	*Sturnella magna* [b]
	Yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Old World Sparrows	House sparrow	*Passer domesticus* [b]
MAMMALS		
Hares/Rabbits	Black-tailed jackrabbit	*Lepus californicus*
	Desert cottontail	*Sylvilagus audubonii* [b]
Rodents	Black-tailed prairie dog	*Cynomys ludovicianus*
	Deer mouse	*Peromyscus maniculatus*
	Hispid cotton rat	*Sigmodon hispidus*
	House mouse	*Mus musculus*
	Pocket gopher	*Geomys* spp.
	Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*
	Western harvest mouse	*Reithrodontomys megalotis*
Carnivores	American badger	*Taxidea taxus*
	Coyote	*Canis latranus*
	Red fox	*Vulpes vulpes*
Big Game	Mule deer	*Odocoileus hemionus*
	Pronghorn antelope	*Antilocapra americana*

Notes:
(a) Adopted from USAF 1995,1996
(b) Identified at SWMU 101 during the April 2000 site visit