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TABLE 6-25
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
SURFACE WATER
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	Federal MCL (3)	State MCL (4)	Select As COPC? (5)
Volatiles (ug/L)										
CHLOROMETHANE	1/19	1 - 1	10 - 10	5	RM-SW-HB14-02	2.1	C	-	-	N
Semivolatiles (ug/L)										
CHRYSENE	1/19	0.6 - 0.6	10 - 10	5	RM-SW-HB01-01	9.2	C	-	-	N
DI-N-BUTYL PHTHALATE	1/19	0.8 - 0.8	10 - 10	5	RM-SW-HB06-01	370	N	-	-	N
FLUORANTHENE	1/19	0.5 - 0.5	10 - 10	5	RM-SW-HB01-01	150	N	-	-	N
PYRENE	1/19	0.8 - 0.8	10 - 10	5	RM-SW-HB01-01	18	N	-	-	N
Pesticides/PCBs (ug/L)										
4,4'-DDD	1/19	0.005 - 0.005	0.1 - 0.1	0.05	RM-SW-HB20-03	0.28	C	-	-	N
ALPHA-BHC	3/19	0.0023 - 0.0053	0.05 - 0.05	0.02	RM-SW-HB14-02	0.011	C	-	-	N
AROCLOR-1268	4/19	0.14 - 0.19	0.5 - 1	0.3	RM-SW-HB3A-02	0.034	-	0.5	0.5	Y
BETA-BHC	1/19	0.008 - 0.008	0.05 - 0.05	0.02	RM-SW-HB01-01	0.037	C	-	-	N
DIELDRIN	3/19	0.0023 - 0.0047	0.1 - 0.1	0.04	RM-SW-HB01-02	0.0042	C	-	-	Y
ENDOSULFAN SULFATE	3/19	0.0054 - 0.011	0.1 - 0.1	0.04	RM-SW-HB20-03	-	-	-	-	N
ENDRIN	1/19	0.009 - 0.009	0.1 - 0.1	0.05	RM-SW-HB20-03	1.1	N	2	2	N
ENDRIN ALDEHYDE	1/19	0.005 - 0.005	0.05 - 0.1	0.04	RM-SW-HB21-03	-	-	-	-	N
GAMMA-BHC (LINDANE)	1/19	0.001 - 0.001	0.05 - 0.05	0.02	RM-SW-HB06-04	0.052	C	0.2	0.2	N
METHOXYCHLOR	1/19	0.0026 - 0.0026	0.1 - 0.5	0.2	RM-SW-HB07-01	18	N	40	40	N
Inorganics (ug/L)										
ALUMINUM	12/19	110 - 4010	25 - 130	785	RM-SW-HB12-04	3700	N	-	-	N[6]
ANTIMONY	4/19	4.2 - 29.4	5 - 26.3	7	RM-SW-HB23-04	1.5	N	6	6	Y
ARSENIC	5/19	3.6 - 51.1	1.8 - 33.1	11	RM-SW-HB01-01	0.045	C	50	50	Y
BARIUM	16/19	11.1 - 67.7	7.7 - 8.3	21	RM-SW-HB01-02	260	N	2000	2000	N
CADMIUM	3/19	1.5 - 2.5	1.4 - 2.4	1	RM-SW-HB01-02	1.8	N	5	5	Y
CALCIUM	19/19	109000 - 263000	-	186816	RM-SW-HB06 & 12-04	-	-	-	-	N
CHROMIUM	9/19	6.4 - 59.2	5 - 7	12	RM-SW-HB12-04	11	N	100	100	Y
COBALT	1/19	2 - 2	2 - 5.7	1	RM-SW-HB02-01	220	N	-	-	N
COPPER	13/19	2.4 - 286	3 - 54.1	59	RM-SW-HB01-02	150	N	1300	-	Y
IRON	19/19	149 - 6710	-	1290	RM-SW-HB12-04	1100	N	-	-	N[6]

TABLE 6-25 (continued)
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
SURFACE WATER
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	Federal MCL (3)	State MCL (4)	Select As COPC? (5)
LEAD	11/19	3 - 147	3 - 7.8	27	RM-SW-HB02-01	-	-	15	-	Y
MAGNESIUM	19/19	295000 - 873000	-	574974	RM-SW-HB12-04	-	-	-	-	N
MANGANESE	19/19	18 - 750	-	180	RM-SW-HB12-04	73	N	-	-	Y
MERCURY	3/19	0.57 - 3.5	0.1 - 0.2	0.4	RM-SW-HB12-04	1.1	N	2	2	Y
NICKEL	1/19	41 - 41	3.6 - 15.4	7	RM-SW-HB01-02	73	N	100	100	N
POTASSIUM	19/19	129000 - 344000	-	258974	RM-SW-HB11-02	-	-	-	-	N
SODIUM	19/19	738000 - 7510000	-	5423684	RM-SW-HB10-02	-	-	-	28000[7]	N
THALLIUM	1/19	8.9 - 8.9	4.2 - 9.8	4	RM-SW-HB02-02	0.26	N	2	2	Y
VANADIUM	8/18	2.1 - 16.8	2 - 11.3	4	RM-SW-HB12-04	26	N	-	-	N
ZINC	8/17	23.2 - 128	4.4 - 62	34	RM-SW-HB01-02	1100	N	5000	-	N

Notes:

1) Based on current USEPA Region III guidance (USEPA Region III, 10-1-99). Value for noncarcinogens is based on a target hazard quotient of 0.1. Value for carcinogens is based on a cancer risk of IE-6.
2) COPC screening level based on noncarcinogenic (N)/carcinogenic (C) effects.
3) Maximum Contaminant Level (USEPA, October 1996). Values presented for lead and copper are action levels.
4) Title 19, Health and Safety, the Public Health Code of the State of Connecticut, Chapter 11 Environmental Health.
5) Chemical selected as COPC if maximum detected concentration exceeds screening levels or MCLs.
6) USEPA Region I does not advocate quantitative risk assessment of the health effects of this metal due to lack of an adequate toxicity criteria.
7) This is a state notification level and is not risk based.

- Not available or not applicable.

TABLE 6-26
SELECTION OF RECEPTORS AND EXPOSURE PATHWAYS
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD CONNECTICUT

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soils, Sediments, & Wetland Soils	Soils, Sediments, & Wetland Soils	Exposed Surface Soils, Sediments, & Wetland Soils in the Housatonic Boat Club Wetland Area	Wetland/Marsh Receptor	Adult	Ingestion	Quant	Recreational activities may occur at the site. Adults may be exposed to contaminated soil/sediment through inadvertent contact.
						Dermal	Quant	Recreational activities may occur at the site. Adults may be exposed to contaminated soil/sediment through inadvertent contact.
						Inhalation	Qual	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways. A qualitative comparison of site soil/sediment data to USEPA Generic SSLs will be performed.
					Pre-adolescent	Ingestion	Quant	Recreational activities may occur at the site. Pre-adolescents may be exposed to contaminated soil/sediment through inadvertent contact.
						Dermal	Quant	Recreational activities may occur at the site. Pre-adolescents may be exposed to contaminated soil/sediment through inadvertent contact.
						Inhalation	Qual	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways. A qualitative comparison of site soil/sediment data to USEPA Generic SSLs will be performed.
	Surface Water	Surface Water	Surface Water in Housatonic River and Wetlands	Wetland/Marsh Receptor	Adult	Ingestion	Qual	Recreational activities, such as wading, may occur at the site. Adults may be minimally exposed to contaminated surface water in Housatonic River and wetlands through inadvertent contact.
						Dermal	Quant	Recreational activities, such as wading, may occur at the site. Adults may be exposed to contaminated surface water in Housatonic River through dermal contact.
						Inhalation	None	Inhalation exposures represent a relatively minor exposure relative to dermal pathways.
					Pre-adolescent	Ingestion	Qual	Recreational activities, such as wading, may occur at the site. Pre-adolescents may be minimally exposed to contaminated surface water in Housatonic River and wetlands through inadvertent contact.
						Dermal	Quant	Recreational activities, such as wading, may occur at the site. Pre-adolescents may be exposed to contaminated surface water in Housatonic River and wetlands through dermal contact.
						Inhalation	None	Inhalation exposures represent a relatively minor exposure relative to dermal pathways.

Notes:
Quant - Quantitative Analysis
Qual - Qualitative Analysis

TABLE 6-27
EXPOSURE POINT CONCENTRATIONS
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Wetland/Marsh Receptor (Adult and Pre-adolescent)	
	Surface Soil (0 to 2 Feet bgs)/ Sediment/Wetland Material (mg/kg)	Surface Water (ug/L)
	RME and CTE	RME and CTE
Benzo(a)anthracene	1.7	NA
Benzo(a)pyrene	1.7	NA
Benzo(b)fluoranthene	2.3	NA
Dibenzo(a,h)anthracene	0.5	NA
Indeno(1,2,3-cd)pyrene	1.4	NA
Pesticides/PCBs		
Dieldrin	NA	0.027
Aroclor-1242	ND	NA
Aroclor-1248	ND	NA
Aroclor-1254	ND	NA
Aroclor-1260	0.05	NA
Aroclor-1262	1.3	NA
Aroclor-1268	3.1	0.31
Aroclor, total	11	2
Inorganics [1]		
Antimony	3.7	13.6
Arsenic	9.5	27.1
Barium	1700	NA
Cadmium	NA	1.3
Chromium (total)	516	18.3
Manganese	NA	400
Mercury	NA	0.62
Nickel	62.1	NA
Thallium	2.1	4.1
Zinc	NA	NA
Dioxins		
Toxicity Equivalence Concentration (TEQ)	0.00037	NA

Notes:
1) Exposure point concentrations for lead are presented in Appendix F-12
ND: Contaminant has been selected as a Chemical of Potential Concern (COPC) for this however, this COPC was not detected (ND) in the respective sample subset for this receptor.
NA: Contaminant has not been selected as a COPC for this area/medium; an exposure point concentration is not applicable (NA).
CTE: Central Tendency Exposure - The arithmetic mean risk or median risk at this site.
RME: Reasonable Maximum Exposure - The highest exposure that is reasonably expected to occur at this site.

TABLE 6-28A
SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURE SCENARIO
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risk $>10^{-4}$	Chemicals with Cancer Risk $>10^{-5}$	Chemicals with Cancer Risk $>10^{-6}$	Hazard Index	Chemicals with HI > 1
Wetland/Marsh Receptor Adult (Current/Future)	Exposed Surface Soils, Sediments, and Wetland Soils in Entire Area (0 - 2 ft bgs)	Incidental Ingestion	3.0E-06	--	--	TEQ-Dioxins/Furans	6.4E-02	--
		Dermal Contact	3.6E-06	--	--	Aroclor (total)	1.0E-01	--
		Total	6.6E-06	--	--	Benzo(a)pyrene, TEQ-Dioxins/Furans, Aroclor (total)	1.7E-01	--
	Surface Water in Housatonic River and Wetlands	Dermal Contact	2.6E-05	--	Aroclor (total)	--	1.9E+00	Aroclor (total)
	Total All Routes		3.3E-05	--	Aroclor (total)	Benzo(a)pyrene, TEQ-Dioxins/Furans	2.1E+00	Aroclor (total)
Wetland/Marsh Receptor Pre-Adolescent (Current/Future)	Exposed Surface Soils, Sediments, in Entire Area (0 - 2 ft bgs)	Incidental Ingestion	1.7E-06	--	--	--	1.1E-01	--
		Dermal Contact	3.8E-06	--	--	Aroclor (total)	4.4E-01	--
		Total	5.5E-06	--		Aroclor (total), TEQ-Dioxins/Furans	5.6E-01	--
	Surface Water in Housatonic River and Wetlands	Dermal Contact	8.1E-06	--	--	Aroclor (total)	2.3E+00	Aroclor (total)
	Total All Routes		1.4E-05	--	Aroclor (total)	Benzo(a)pyrene, TEQ-Dioxins/Furans	2.9E+00	Aroclor (total)

TABLE 6-28B
SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURE SCENARIO
AREA C, HOUSATONIC BOAT CLUB WETLANDS AREA
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risk $>10^{-4}$	Chemicals with Cancer Risk $>10^{-5}$	Chemicals with Cancer Risk $>10^{-6}$	Hazard Index	Chemicals with HI > 1
Wetland/Marsh Receptor Adult (Current/Future)	Exposed Surface Soils, Sediments, and Wetland Soils in Entire Area (0 - 2 ft bgs)	Incidental Ingestion	3.9E-07	--	--	--	3.2E-02	--
		Dermal Contact	1.1E-07	--	--	--	1.4E-02	--
		Total	5.1E-07	--	--	--	4.6E-02	--
	Surface Water in Housatonic River and Wetlands	Dermal Contact	3.8E-06	--	--	Aroclor, total	1.9E+00	Aroclor, total
	Total All Routes		4.3E-06	--	--	Aroclor, total	1.9E+00	Aroclor, total
Wetland/Marsh Receptor Pre-adolescent (Current/Future)	Exposed Surface Soils, Sediments, and Wetland Soils in Entire Area (0 - 2 ft bgs)	Incidental Ingestion	2.5E-07	--	--	--	5.7E-02	--
		Dermal Contact	2.0E-07	--	--	--	8.8E-02	--
		Total	4.6E-07	--	--	--	1.5E-01	--
	Surface Water in Housatonic River and Wetlands	Dermal Contact	1.4E-06	--	--	Aroclor, total	2.3E+00	Aroclor, total
	Total All Routes		1.9E-06	--	--	Aroclor, total	2.4E+00	Aroclor, total

TABLE 6-29
SUMMARY OF REMEDIAL INVESTIGATIONS AND RECOMMENDATIONS
AREA C, HOUSTONIC BOAT CLUB WETLANDS AREA
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Area of Concern	Chemicals of Potential Concern			Receptor	Reasonable Maximum Exposure (RME) Risk Estimates						Lead Results [1]	Asbestos Results [2]
					ILCR	Risk Drivers			HI	Risk Drivers		
Area C (Housatonic Boat Club Wetlands Area)	**Surface Soil/Sediment (0 to 2 feet)**			Wetland/Marsh Receptor (adult) (current/future)	6.6E-06	$>10^{-4}$: None	$>10^{-5}$: None	$>10^{-6}$: benzo(a)pyrene dioxins/furans Aroclor (total)	0.17	>1.0: None	Maximum lead concentration was 7,860 mk/kg.	Asbestos was detected at an average concentration of 1%. This equals the 1% concentration which defines an asbestos-containing material. Detections ranged from 0.99 - 60%
	benzo(a)anthracene	antimony	nickel									
	benzo(a)pyrene	arsenic	thallium									
	benzo(b)fluoranthene	barium	Aroclor-1260									
	dibenzo(a,h)anthracene	chromium	Aroclor-1262									
	indeno(1,2,3-cd)pyrene	copper	Aroclor-1268	Wetland/Marsh Receptor User (pre-adolescent) (current/future)	5.5E-06	$>10^{-4}$: None	$>10^{-5}$: None	$>10^{-6}$: Aroclor (total) dioxins/furans	0.56	>1.0: None		
	dioxins/furans	lead										
	asbestos											
	Surface Water			Wetland/Marsh Receptor (adult) (currrent/future) (non-swimmer)	2.6E-05	$>10^{-4}$: None	$>10^{-5}$: Aroclor (total)	$>10^{-6}$: None	1.9	>1.0: Aroclor (total)		
	dieldrin	chromium	manganese									
	antimony		mercury									
	arsenic		thallium									
	cadmium		Aroclor-1268									
				Wetland/Marsh Receptor (pre-adolescent) (currrent/future) (non-swimmer)	8.1E-06	$>10^{-4}$: None	$>10^{-5}$: None	$>10^{-6}$: Aroclor (total)	2.3	>1.0: Aroclor (total)		

Notes:

1) The risk from lead in this area cannot be evaluated using currently accepted models due to the infrequent nature of exposures.
2) The National Emission Standards for Hazardous Air Pollutants - EPA regulation 40 CFR Subpart M, Part 61 (NESHAP) defines asbestos as material containing 0.01 fibers per cubic centimeter and sets this valve as an abatement clearance level.

TABLE 6-30
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
SURFACE SOIL/SEDIMENT
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	SSL Inhalation (3)	State Residential Direct Exposure (4)	State Industrial Direct Exposure (4)	Background Concentration (5)	Select As COPC? (6)
Volatile Organic Compounds (ug/kg)												
2-BUTANONE	1/2	110 - 110	13 - 13	58	RM-SD-SP07-03	4700000	N	-	500000	1000000	-	N
ACETONE	3/4	280 - 620	13 - 13	332	RM-SD-SP07-03	780000	N	100000000	500000	1000000	-	N
BENZENE	1/2	8 - 8	13 - 13	7	RM-SD-SP02-01	22000	C	800	21000	200000	-	N
CARBON DISULFIDE	6/7	13 - 110	13 - 13	36	RM-SD-SP07-03	780000	N	720000	500000	1000000	-	N
Semivolatile Organic Compounds (ug/kg)												
1,2,4-TRICHLOROBENZENE	1/25	12 - 12	350 - 1900	498	RM-SD-SP14-S01	78000	N	3200000	680000	2500000	-	N
2-METHYLNAPHTHALENE	7/25	22 - 52	520 - 1900	436	RM-SD-SP12-S01	160000	N	-	1000000	2500000	-	N
ACENAPHTHENE	8/26	20 - 1200	430 - 1900	463	RM-SD-SP12-S01	470000	N	-	1000000	2500000	-	N
ACENAPHTHYLENE	23/30	30 - 1800	800 - 1700	531	RM-SD-SP06-03	-	-	-	1000000	2500000	-	N
ANTHRACENE	23/29	17 - 2800	800 - 1900	438	RM-SD-SP14-S01	2300000	N	-	1000000	2500000	-	N
BENZO(A)ANTHRACENE	27/31	70 - 3000	800 - 1700	1144	RM-SD-SP15-S01, RM-SD-SP15-S01	880	C	-	1000	7800	-	Y
BENZO(A)PYRENE	28/31	72 - 7700	800 - 1100	2228	RM-SD-SP10-S01	88	C	-	1000	1000	-	Y
BENZO(B)FLUORANTHENE	28/31	97 - 5500	800 - 1100	1735	RM-SD-SP03-01, RM-SD-SP03-01	880	C	-	1000	7800	-	Y
BENZO(G,H,I)PERYLENE	22/26	74 - 2500	800 - 1700	895	RM-SD-SP10-S01	-	-	-	1000000	2500000	-	N
BENZO(K)FLUORANTHENE	25/29	110 - 3900	430 - 1100	1372	RM-SD-SP12-S01	8800	C	-	8400	78000	-	N
BIS(2-ETHYLHEXYL)PHTHALATE	13/31	190 - 3600	350 - 2100	697	RM-SD-SP03-01	46000	C	31000000	44000	410000	-	N
BUTYLBENZYL PHTHALATE	10/25	16 - 1300	430 - 1900	513	RM-SD-SP09-S02	1600000	N	930000	1000000	2500000	-	N
CARBAZOLE	20/28	35 - 770	520 - 1900	319	RM-SD-SP12-S02	32000	C	-	31000	290000	-	N
CHRYSENE	28/31	92 - 4300	800 - 1100	1640	RM-SD-SP12-S01, RM-SD-SP12-S01	88000	C	-	84000	780000	-	N
DI-N-BUTYL PHTHALATE	16/29	71 - 11000	430 - 6500	3300	RM-SD-SP18-S01	780000	N	2300000	1000000	2500000	-	N
DI-N-OCTYL PHTHALATE	4/29	130 - 1800	350 - 2900	603	RM-SD-SP06-03	160000	N	10000000	1000000	2500000	-	N
DIBENZO(A,H)ANTHRACENE	20/29	60 - 4000	430 - 1900	564	RM-SD-SP12-S01	88	C	-	84	780	-	Y
DIBENZOFURAN	9/25	25 - 91	430 - 1900	394	RM-SD-SP12-S01	31000	N	-	270000	2500000	-	N
DIETHYL PHTHALATE	1/25	1400 - 1400	210 - 1900	531	RM-SD-SP09-S02	6300000	N	2000000	1000000	2500000	-	N
DIMETHYL PHTHALATE	3/25	65 - 260	210 - 1900	457	RM-SD-SP19-S01	78000000	N	-	1000000	2500000	-	N
FLUORANTHENE	29/31	42 - 5600	800 - 980	2353	RM-SD-SP06-03	310000	N	-	1000000	2500000	-	N
FLUORENE	14/27	37 - 340	520 - 1900	361	RM-SD-SP06-03	310000	N	-	1000000	2500000	-	N
INDENO(1,2,3-CD)PYRENE	25/29	60 - 2700	800 - 1700	853	RM-SD-SP10-S01	880	C	-	840	7800	-	Y
NAPHTHALENE	7/25	17 - 75	520 - 1900	439	RM-SD-SP15-S01	160000	N	-	1000000	2500000	-	N
PHENANTHRENE	27/31	63 - 2800	800 - 1700	1113	RM-SD-SP06-03	-	-	-	1000000	2500000	-	N
PYRENE	29/31	29 - 5100	800 - 980	2084	RM-SD-SP15-S01	230000	N	-	1000000	2500000	-	N
Pesticides/PCBs (ug/kg)												
4,4'-DDD	18/31	0.39 - 88.3	5.21 - 362	24	RM-SD-SP09-S01	2700	C	-	2600	24000	-	N
4,4'-DDE	22/31	0.41 - 79.1	8.05 - 362	22	RM-SD-SP19-S01	1900	C	-	1800	17000	-	N
4,4'-DDT	21/31	0.69 - 58.7	3.7 - 362	20	RM-SD-SP10-S02	1900	C	-	1800	17000	-	N
ALDRIN	21/31	0.4 - 24	1.9 - 181	10	RM-SD-SP18-S01	38	C	3000	36	340	-	N
ALPHA-BHC	5/31	0.16 - 1.49	1.11 - 181	6	RM-SD-SP09-S01	100	C	800	97	910	-	N
ALPHA-CHLORDANE	11/31	0.068 - 11.4	2.1 - 181	8	RM-SD-SP10-S01	1800	C	20000	490	2200	-	N
AROCLOR-1262	2/31	400 - 581	22.3 - 3615	160	RM-SD-SP16-S01	320	C	-	1000	10000	-	Y
AROCLOR-1268	4/31	40 - 6125	22.3 - 737	361	RM-SD-SP15-S01	320	C	-	1000	10000	-	Y
DIELDRIN	14/31	0.13 - 27.4	5.21 - 362	13	RM-SD-SP12-S01	40	C	1000	38	360	-	N
ENDOSULFAN I	5/31	5.58 - 33.1	1.9 - 181	9	RM-SD-SP09-S01	47000	N	-	410000	1200000	-	N
ENDOSULFAN II	18/31	5.29 - 77.8	3.7 - 17	18	RM-SD-SP12-S01	47000	N	-	410000	1200000	-	N
ENDOSULFAN SULFATE	9/31	2.65 - 44.4	2.23 - 362	13	RM-SD-SP12-S01	-	-	-	410000	1200000	-	N
ENDRIN	14/31	0.14 - 18.7	4.6 - 362	14	RM-SD-SP18-S01	2300	N	-	20000	610000	-	N
ENDRIN ALDEHYDE	17/31	0.17 - 42.9	6.29 - 362	19	RM-SD-SP09-S02	-	-	-	20000	610000	-	N
ENDRIN KETONE	3/31	0.63 - 8	4.1 - 362	13	RM-SD-SP04-03	-	-	-	20000	610000	-	N
GAMMA-BHC (LINDANE)	3/31	0.68 - 1	1.11 - 181	6	RM-SD-SP06-03	490	C	-	20000	610000	-	N
GAMMA-CHLORDANE	10/31	0.098 - 130	2.6 - 36.9	8	RM-SD-SP14-S02	1800	C	20000	490	2200	-	N
HEPTACHLOR	3/31	0.15 - 1.19	1.11 - 181	6	RM-SD-SP17-S01	140	C	100	140	1300	-	N

TABLE 6-30 (continued)
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
SURFACE SOIL/SEDIMENT
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	SSL Inhalation (3)	State Residential Direct Exposure (4)	State Industrial Direct Exposure (4)	Background Concentration (5)	Select As COPC? (6)
HEPTACHLOR EPOXIDE	7/31	0.12 - 2.21	2.6 - 181	6	RM-SD-SP09-S01	70	C	5000	67	630	-	N
METHOXYCHLOR	6/31	13.8 - 50.5	11.1 - 1808	62	RM-SD-SP12-S01	39000	N	-	340000	10000000	-	N
Metals (mg/kg)												
ALUMINUM	31/31	429 - 14100	-	5228	RM-SD-SP07-03, RM-SD-SP04-03	7800	N	-	-	-	22600	N(7)
ANTIMONY	2/25	1.2 - 5.5	1 - 4	1	RM-SD-SP14-S01	3.1	N	-	27	8200	ND	Y
ARSENIC	13/31	2.8 - 23.3	1.6 - 10.6	5	RM-SD-SP06-03	0.43	C	750	10	10	11.6	Y
BARIUM	28/31	2.6 - 853	5.2 - 16.9	99	RM-SD-SP17-S01	550	N	690000	4700	140000	329	Y
CADMIUM	17/31	0.98 - 17.5	0.2 - 5.2	3	RM-SD-SP06-03	7.8	N	1800	34	1000	1.4	Y
CALCIUM	27/31	978 - 33300	5260 - 6390	4491	RM-SD-SP14-S01	-	-	-	-	-	7420	N
CHROMIUM	31/31	3.2 - 374	-	73	RM-SD-SP04-03	23	N	270	100	100	35.2	Y
COBALT	28/31	0.62 - 11.9	0.51 - 0.96	4	RM-SD-SP04-03	470	N	-	1000	2500	12.4	N
COPPER	29/31	4.6 - 1240	7.4 - 9.2	231	RM-SD-SP14-S01	310	N	-	2500	76000	123	Y
IRON	31/31	587 - 41100	-	11428	RM-SD-SP07-03	2300	N	-	-	-	24100	N(7)
LEAD	31/31	5 - 775	-	201	RM-SD-SP06-03	400(8)	N	-	500	1000	344	Y
MAGNESIUM	31/31	1080 - 25900	-	5333	RM-SD-SP03-01	-	-	-	-	-	5690	N
MANGANESE	31/31	9.6 - 336	-	102	RM-SD-SP02-01	160	N	-	1600	47000	660	N(9)
MERCURY	6/29	0.6 - 7.4	0.14 - 1	1	RM-SD-SP13-S01	2.3	N	10	20	610	0.28	Y
NICKEL	30/30	1.4 - 84.8	-	30	RM-SD-SP13-S01	160	N	13000	1400	7500	40.4	N
POTASSIUM	30/31	394 - 5710	4570 - 4570	1686	RM-SD-SP03-01	-	-	-	-	-	2680	N
SELENIUM	3/27	6.6 - 18.4	0.8 - 5.2	2	RM-SD-SP12-S01	39	N	-	340	10000	3.3	N
SILVER	2/25	0.75 - 39	0.4 - 2	2	RM-SD-SP14-S01	39	N	-	340	10000	3.3	N
SODIUM	31/31	2260 - 60500	-	17148	RM-SD-SP03-01	-	-	-	-	-	248	N
VANADIUM	31/31	1.2 - 97.2	-	26	RM-SD-SP04-03	55	N	-	470	14000	81.9	Y
ZINC	29/31	24 - 2550	25.9 - 31.4	520	RM-SD-SP06-03	2300	N	-	20000	610000	604	Y
Dioxin (ug/kg)												
TOXICITY EQUIVALENCY FACTOR	31/31	0.00041 - 1.587	-	0.2533	RM-SD-SP13-S01	0.0043	C	-	-	-	-	Y
Asbestos (%)												
ASBESTOS	5/16	0.99 - 10	0.1 - 0.1	0.97	RM-SD-SP15-S03	-	C	-	-	-	-	Y

Notes:

1) Based on current USEPA Region III guidance (USEPA Region III, 10-1-99). Residential Soil Ingestion is used for soil and sediment. Value for noncarcinogens is based on a target hazard quotient of 0.1. Value for carcinogens is based on a cancer risk of 1E-6.
2) COPC screening level based on noncarcinogenic (N)/carcinogenic (C) effects.
3) USEPA Soil Screening Levels (USEPA, May 1996).
4) CTDEP, January 1996. In some cases, calculated or surrogate or ceiling value presented as detailed in Table 6-1.
5) Maximum background concentrations presented for inorganics only because background concentrations for organics were not used in COPC selection.
6) COPC selection criteria discussed in Section 6.2 and presented/defined in Table 6-1. Chemical was selected as a COPC (Y = yes) if maximum detected concentration exceeded screening levels, except that noncarcinogenic inorganics detected at concentrations exceeding screening levels (based on Region III criteria) but less than Region III risk-based concentrations AND maximum background concentration were not selected as COPCs.
7) USEPA Region I does not advocate quantitative assessment of aluminum or iron.
8) Value is based on OSWER soil screening level for residential land use (USEPA, July 14, 1994).
9) Maximum concentration exceeds COPC screening level, but below Region III RBC AND maximum background concentrations.

ND Compound was not present at detectable concentrations in background samples.
- Not available or not applicable.

TABLE 6-31
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
ALL SOIL/SEDIMENT (0-15')
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	SSL Inhalation (3)	State Residential Direct Exposure (4)	State Industrial Direct Exposure (4)	Background Concentration (5)	Select As COPC? (6)
Volatile Organic Compounds (ug/kg)												
2-BUTANONE	1/2	110 - 110	13 - 13	58	RM-SD-SP07-03	4700000	N	-	500000	1000000	-	N
ACETONE	3/4	280 - 620	13 - 13	332	RM-SD-SP07-03	780000	N	100000000	500000	1000000	-	N
BENZENE	1/2	8 - 8	13 - 13	7	RM-SD-SP02-01	22000	C	800	21000	200000	-	N
CARBON DISULFIDE	6/7	13 - 110	13 - 13	36	RM-SD-SP07-03	780000	N	720000	500000	1000000	-	N
Semivolatile Organic Compounds (ug/kg)												
1,2,4-TRICHLOROBENZENE	1/64	12 - 12	350 - 2500	644	RM-SD-SP14-S01	78000	N	3200000	680000	2500000	-	N
2-METHYLNAPHTHALENE	7/64	22 - 52	400 - 2500	620	RM-SD-SP12-S01	160000	N	-	1000000	2500000	-	N
ACENAPHTHENE	9/65	18 - 1200	400 - 2500	624	RM-SD-SP12-S01	470000	N	-	1000000	2500000	-	N
ACENAPHTHYLENE	27/69	21 - 1800	620 - 2400	620	RM-SD-SP06-03	-	-	-	1000000	2500000	-	N
ANTHRACENE	26/68	17 - 2800	620 - 2500	597	RM-SD-SP14-S01	2300000	N	-	1000000	2500000	-	N
BENZO(A)ANTHRACENE	32/70	35 - 3000	400 - 2400	880	RM-SD-SP15-S01, RM-SD-SP15-S01	880	C	-	1000	7800	-	Y
BENZO(A)PYRENE	34/70	72 - 7700	620 - 2400	1381	RM-SD-SP10-S01	88	C	-	1000	1000	-	Y
BENZO(B)FLUORANTHENE	34/70	80 - 5500	620 - 2400	1151	RM-SD-SP03-01, RM-SD-SP03-01	880	C	-	1000	7800	-	Y
BENZO(G,H,I)PERYLENE	28/65	42 - 2500	620 - 2400	758	RM-SD-SP10-S01	-	-	-	1000000	2500000	-	N
BENZO(K)FLUORANTHENE	31/68	90 - 3900	430 - 2400	978	RM-SD-SP12-S01	8800	C	-	8400	78000	-	N
BIS(2-ETHYLHEXYL)PHTHALATE	28/70	160 - 3600	350 - 2400	644	RM-SD-SP03-01	46000	C	31000000	44000	410000	-	N
BUTYLBENZYL PHTHALATE	19/64	16 - 2600	430 - 2500	679	RM-SD-SP09-S03	1600000	N	930000	1000000	2500000	-	N
CARBAZOLE	23/67	7 - 770	520 - 2500	549	RM-SD-SP12-S02	32000	C	-	31000	290000	-	N
CHRYSENE	34/70	62 - 4300	620 - 2400	1106	RM-SD-SP12-S01, RM-SD-SP12-S01	88000	C	-	84000	780000	-	N
DI-N-BUTYL PHTHALATE	38/68	71 - 23000	430 - 6500	3874	RM-SD-SP08-S04	780000	N	2300000	1000000	2500000	-	N
DI-N-OCTYL PHTHALATE	5/68	37 - 1800	350 - 2900	669	RM-SD-SP06-03	160000	N	10000000	1000000	2500000	-	N
DIBENZO(A,H)ANTHRACENE	23/68	11 - 4000	430 - 2500	651	RM-SD-SP12-S01	88	C	-	84	780	-	Y
DIBENZOFURAN	9/64	25 - 91	400 - 2500	603	RM-SD-SP12-S01	31000	N	-	270000	2500000	-	N
DIETHYL PHTHALATE	3/64	1300 - 1600	210 - 2500	675	RM-SD-SP13-S03	6300000	N	2000000	1000000	2500000	-	N
DIMETHYL PHTHALATE	5/64	65 - 260	210 - 2500	609	RM-SD-SP19-S01	78000000	N	-	1000000	2500000	-	N
FLUORANTHENE	36/70	42 - 5600	620 - 2400	1425	RM-SD-SP06-03	310000	N	-	1000000	2500000	-	N
FLUORENE	16/66	13 - 340	520 - 2500	578	RM-SD-SP06-03	310000	N	-	1000000	2500000	-	N
INDENO(1,2,3-CD)PYRENE	31/68	40 - 2700	620 - 2400	746	RM-SD-SP10-S01	880	C	-	840	7800	-	Y
NAPHTHALENE	7/64	17 - 75	400 - 2500	621	RM-SD-SP15-S01	160000	N	-	1000000	2500000	-	N
PHENANTHRENE	31/70	53 - 2800	620 - 2400	882	RM-SD-SP06-03	-		-	1000000	2500000	-	N
PYRENE	36/70	29 - 5100	620 - 2400	1304	RM-SD-SP15-S01	230000	N	-	1000000	2500000	-	N
Pesticides/PCBs (ug/kg)												
4,4'-DDD	22/70	0.39 - 88.3	4.19 - 362	15	RM-SD-SP09-S01	2700	C	-	2600	24000	-	N
4,4'-DDE	24/70	0.41 - 79.1	4.19 - 362	14	RM-SD-SP19-S01	1900	C	-	1800	17000	-	N
4,4'-DDT	21/70	0.69 - 58.7	3.7 - 362	13	RM-SD-SP10-S02	1900	C	-	1800	17000	-	N
ALDRIN	24/70	0.4 - 24	1.9 - 181	7	RM-SD-SP18-S01	38	C	3000	36	340	-	N
ALPHA-BHC	9/70	0.16 - 8.59	1.11 - 181	5	RM-SD-SP13-S03	100	C	800	97	910	-	N
ALPHA-CHLORDANE	15/70	0.068 - 11.4	2.09 - 181	6	RM-SD-SP10-S01	1800	C	20000	490	2200	-	N
AROCLOR-1262	2/70	400 - 581	22.3 - 3615	114	RM-SD-SP16-S01	320	C	-	1000	10000	-	Y
AROCLOR-1268	4/70	40 - 6125	22.3 - 737	203	RM-SD-SP15-S01	320	C	-	1000	10000	-	Y
DIELDRIN	22/70	0.13 - 27.4	4.19 - 362	10	RM-SD-SP12-S01	40	C	1000	38	360	-	N
ENDOSULFAN I	6/70	1.44 - 33.1	1.9 - 181	6	RM-SD-SP09-S01	47000	N	-	410000	1200000	-	N
ENDOSULFAN II	32/70	1.09 - 77.8	3.7 - 26	12	RM-SD-SP12-S01	47000	N	-	410000	1200000	-	N
ENDOSULFAN SULFATE	9/70	2.65 - 44.4	2.23 - 362	10	RM-SD-SP12-S01	-	-	-	410000	1200000	-	N

TABLE 6-31 (continued)
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
ALL SOIL/SEDIMENT (0-15')
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	SSL Inhalation (3)	State Residential Direct Exposure (4)	State Industrial Direct Exposure (4)	Background Concentration (5)	Select As COPC? (6)
ENDRIN	19/70	0.14 - 18.7	4.19 - 362	10	RM-SD-SP18-S01	2300	N	-	20000	610000	-	N
ENDRIN ALDEHYDE	21/70	0.17 - 42.9	4.19 - 362	13	RM-SD-SP09-S02	-	-	-	20000	610000	-	N
ENDRIN KETONE	3/70	0.63 - 8	4.1 - 362	10	RM-SD-SP04-03	-	-	-	20000	610000	-	N
GAMMA-BHC (LINDANE)	4/70	0.68 - 1	1.11 - 181	5	RM-SD-SP06-03	490	C	-	20000	610000	-	N
GAMMA-CHLORDANE	15/70	0.098 - 130	2.09 - 36.9	6	RM-SD-SP14-S02	1800	C	20000	490	2200	-	N
HEPTACHLOR	3/70	0.15 - 1.19	1.11 - 181	5	RM-SD-SP17-S01	140	C	100	140	1300	-	N
HEPTACHLOR EPOXIDE	10/70	0.12 - 4.34	2.09 - 181	5	RM-SD-SP15-S05	70	C	5000	67	630	-	N
METHOXYCHLOR	6/70	13.8 - 50.5	11.1 - 1808	49	RM-SD-SP12-S01	39000	N	-	340000	10000000	-	N
Metals (mg/kg)												
ALUMINUM	70/70	70.9 - 14100	-	3165	RM-SD-SP07-03, RM-SD-SP04-03	7800	N	-	-	-	22600	N(7)
ANTIMONY	3/64	1.2 - 12.4	1 - 4.9	2	RM-SD-SP17-S05	3 1	N	-	27	8200	ND	Y
ARSENIC	13/70	2.8 - 23.3	1.6 - 10.6	4	RM-SD-SP06-03	0.43	C	750	10	10	11.6	Y
BARIUM	57/70	1.1 - 853	1.8 - 16.9	48	RM-SD-SP17-S01	550	N	690000	4700	140000	329	Y
CADMIUM	17/70	0.98 - 17.5	0.2 - 5.2	1	RM-SD-SP06-03	7.8	N	1800	34	1000	1.4	Y
CALCIUM	66/70	978 - 33300	5260 - 6390	3534	RM-SD-SP14-S01	-	-	-	-	-	7420	N
CHROMIUM	69/70	0.89 - 505	0.41 - 0.41	48	RM-SD-SP09-S03	23	N	270	100	100	35.2	Y
COBALT	43/70	0.61 - 11.9	0.41 - 0.96	2	RM-SD-SP04-03	470	N	-	1000	2500	12.4	N
COPPER	57/70	2.6 - 1240	5.7 - 11.9	107	RM-SD-SP14-S01	310	N	-	2500	76000	123	Y
IRON	69/70	128 - 41100	84.8 - 84.8	6122	RM-SD-SP07-03	2300	N	-	-	-	24100	N(7)
LEAD	62/70	1.1 - 775	1 - 3.9	97	RM-SD-SP06-03	400(8)	N	-	500	1000	344	Y
MAGNESIUM	70/70	1080 - 25900	-	4609	RM-SD-SP03-01	-	-	-	-	-	5690	N
MANGANESE	70/70	3.6 - 336	-	59	RM-SD-SP02-01	160	N	-	1600	47000	660	N(9)
MERCURY	7/68	0.6 - 7.4	0.14 - 1.2	1	RM-SD-SP13-S01	2.3	N	10	20	610	0.28	Y
NICKEL	63/69	1.4 - 395	1.4 - 6.4	26	RM-SD-SP09-S03	160	N	13000	1400	7500	40.4	Y
POTASSIUM	69/70	394 - 5710	4570 - 4570	1312	RM-SD-SP03-01	-	-	-	-	-	2680	N
SELENIUM	4/66	2.2 - 18.4	0.8 - 5.2	2	RM-SD-SP12-S01	39	N	-	340	10000	3.3	N
SILVER	2/64	0.75 - 39	0.4 - 2	1	RM-SD-SP14-S01	39	N	-	340	10000	3.3	N
SODIUM	70/70	2260 - 60500	-	17440	RM-SD-SP03-01	-	-	-	-	-	248	N
VANADIUM	55/70	0.43 - 97.2	0.44 - 0.82	13	RM-SD-SP04-03	55	N	-	470	14000	81.9	Y
ZINC	58/70	11.9 - 2550	9.6 - 34.1	245	RM-SD-SP06-03	2300	N	-	20000	610000	604	Y
Dioxin (ug/kg)												
TOXICITY EQUIVALENCY FACTOR	68/68	0.0004125 - 1.5667	-	0.116	RM-SD-SP13-S01	0 0043	C	-	-	-	-	Y
Asbestos (%)												
ASBESTOS	6/38	0.1 - 10	0.1 - 0.1	0.44	RM-SD-SP15-S03	1	C	-	-	-	-	Y

Notes:

1) Based on current USEPA Region III guidance (USEPA Region III, 10-1-99). Residential Soil Ingestion is used for soil and sediment. Value for noncarcinogens is based on a target hazard quotient of O.I. Value for carcinogens is based on a cancer risk of IE-6.
2) COPC screening level based on noncarcinogenic (N)/carcinogenic (C) effects.
3) USEPA Soil Screening Levels (USEPA, May 1996).
4) CTDEP, January 1996. In some cases, calculated or surrogate or ceiling value presented as detailed in Table 6-1.
5) Maximum background concentrations presented for inorganics only because background concentrations for organics were not used in COPC selection.
6) COPC selection criteria discussed in Section 6.2 and presented/defined in Table 6-1. Chemical was selected as a COPC (Y = yes) if maximum detected concentration exceeded screening levels, except that noncarcinogenic inorganics detected at concentrations exceeding screening levels (based on Region III criteria) but less than Region III risk-based concentrations AND maximum background concentration were not selected as COPCs.

TABLE 6-31 (continued)
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
ALL SOIL/SEDIMENT (0-15')
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	SSL Inhalation (3)	State Residential Direct Exposure (4)	State Industrial Direct Exposure (4)	Background Concentration (5)	Select As COPC? (6)

7) USEPA Region I does not advocate quantitative risk assessment of aluminum or iron.
8) Value is based on OSWER soil screening level for residential land use (USEPA, July 14, 1994).
9) Maximum concentration exceeds COPC screening level, but below Region III RBC AND maximum background concentrations.
ND Compound was not present at detectable concentrations in background samples.
- Not available or not applicable.

TABLE 6-32A
COMPARISON OF MAXIMUM CONCENTRATIONS TO GROUNDWATER PROTECTION BENCHMARKS
AREA F, SELBY POND
SURFACE SOIL/SEDIMENT
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Units	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	SSL Migration To Groundwater (1)	State Pollutant Mobility (GB) (2)
Volatile Organic Compounds (ug/kg)								
2-BUTANONE	UG/KG	1/2	110 - 110	13 - 13	58	RM-SD-SP07-03	-	80000
ACETONE	UG/KG	3/4	280 - 620	13 - 13	332	RM-SD-SP07-03	16000	140000
BENZENE	UG/KG	1/2	8 - 8	13 - 13	7	RM-SD-SP02-01	30	200
CARBON DISULFIDE	UG/KG	6/7	13 - 110	13 - 13	36	RM-SD-SP07-03	32000	140000
Semivolatile Organic Compounds (ug/kg)								
1,2,4-TRICHLOROBENZENE	UG/KG	1/25	12 - 12	350 - 1900	498	RM-SD-SP14-S01	5000	14000
2-METHYLNAPHTHALENE	UG/KG	7/25	22 - 52	520 - 1900	436	RM-SD-SP12-S01	-	56000
ACENAPHTHENE	UG/KG	8/26	20 - 1200	430 - 1900	463	RM-SD-SP12-S01	570000	84000
ACENAPHTHYLENE	UG/KG	23/30	30 - 1800	800 - 1700	531	RM-SD-SP06-03	-	84000
ANTHRACENE	UG/KG	23/29	17 - 2800	800 - 1900	438	RM-SD-SP14-S01	12000000	400000
BENZO(A)ANTHRACENE	UG/KG	27/31	70 - 3000	800 - 1700	1144	RM-SD-SP15-S01, RM-SD-SP15-S01	2000	1000
BENZO(A)PYRENE	UG/KG	28/31	72 - 7700	800 - 1100	2228	RM-SD-SP10-S01	8000	1000
BENZO(B)FLUORANTHENE	UG/KG	28/31	97 - 5500	800 - 1100	1735	RM-SD-SP03-01, RM-SD-SP03-01	5000	1000
BENZO(G,H,I)PERYLENE	UG/KG	22/26	74 - 2500	800 - 1700	895	RM-SD-SP10-S01	-	40000
BENZO(K)FLUORANTHENE	UG/KG	25/29	110 - 3900	430 - 1100	1372	RM-SD-SP12-S01	49000	1000
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	13/31	190 - 3600	350 - 2100	697	RM-SD-SP03-01	3600000	11000
BUTYLBENZYL PHTHALATE	UG/KG	10/25	16 - 1300	430 - 1900	513	RM-SD-SP09-S02	930000	200000
CARBAZOLE	UG/KG	20/28	35 - 770	520 - 1900	319	RM-SD-SP12-S02	600	360
CHRYSENE	UG/KG	28/31	92 - 4300	800 - 1100	1640	RM-SD-SP12-S01, RM-SD-SP12-S01	160000	960
DI-N-BUTYL PHTHALATE	UG/KG	16/29	71 - 11000	430 - 6500	3300	RM-SD-SP18-S01	2300000	140000
DI-N-OCTYL PHTHALATE	UG/KG	4/29	130 - 1800	350 - 2900	603	RM-SD-SP06-03	10000000	20000
DIBENZO(A,H)ANTHRACENE	UG/KG	20/29	60 - 4000	430 - 1900	564	RM-SD-SP12-S01	2000	0 96
DIBENZOFURAN	UG/KG	9/25	25 - 91	430 - 1900	394	RM-SD-SP12-S01	-	5600
DIETHYL PHTHALATE	UG/KG	1/25	1400 - 1400	210 - 1900	531	RM-SD-SP09-S02	470000	1100000
DIMETHYL PHTHALATE	UG/KG	3/25	65 - 260	210 - 1900	457	RM-SD-SP19-S01	-	14000000
FLUORANTHENE	UG/KG	29/31	42 - 5600	800 - 980	2353	RM-SD-SP06-03	4300000	56000
FLUORENE	UG/KG	14/27	37 - 340	520 - 1900	361	RM-SD-SP06-03	560000	56000
INDENO(1,2,3-CD)PYRENE	UG/KG	25/29	60 - 2700	800 - 1700	853	RM-SD-SP10-S01	14000	9 6
NAPHTHALENE	UG/KG	7/25	17 - 75	520 - 1900	439	RM-SD-SP15-S01	84000	56000
PHENANTHRENE	UG/KG	27/31	63 - 2800	800 - 1700	1113	RM-SD-SP06-03	-	40000
PYRENE	UG/KG	29/31	29 - 5100	800 - 980	2084	RM-SD-SP15-S01	4200000	40000
Pesticides/PCBs (ug/kg)								
4,4'-DDD	UG/KG	18/31	0.39 - 88.3	5.21 - 362	24	RM-SD-SP09-S01	16000	29
4,4'-DDE	UG/KG	22/31	0.41 - 79.1	8.05 - 362	22	RM-SD-SP19-S01	54000	21
4,4'-DDT	UG/KG	21/31	0.69 - 58.7	3.7 - 362	20	RM-SD-SP10-S02	32000	21
ALDRIN	UG/KG	21/31	0.4 - 24	1.9 - 181	10	RM-SD-SP18-S01	500	0 41
ALPHA-BHC	UG/KG	5/31	0.16 - 1.49	1.11 - 181	6	RM-SD-SP09-S01	0 5	1 1
ALPHA-CHLORDANE	UG/KG	11/31	0.068 - 11.4	2.1 - 181	8	RM-SD-SP10-S01	10000	66
AROCLOR-1262	UG/KG	2/31	400 - 581	22.3 - 3615	160	RM-SD-SP16-S01	-	-
AROCLOR-1268	UG/KG	4/31	40 - 6125	22.3 - 737	361	RM-SD-SP15-S01	-	-
DIELDRIN	UG/KG	14/31	0.13 - 27.4	5.21 - 362	13	RM-SD-SP12-S01	4	7
ENDOSULFAN I	UG/KG	5/31	5.58 - 33.1	1.9 - 181	9	RM-SD-SP09-S01	18000	8400
ENDOSULFAN II	UG/KG	18/31	5.29 - 77.8	3.7 - 17	18	RM-SD-SP12-S01	18000	8400
ENDOSULFAN SULFATE	UG/KG	9/31	2.65 - 44.4	2.23 - 362	13	RM-SD-SP12-S01	-	8400
ENDRIN	UG/KG	14/31	0.14 - 18.7	4.6 - 362	14	RM-SD-SP18-S01	1000	-

TABLE 6-32A (continued)
COMPARISON OF MAXIMUM CONCENTRATIONS TO GROUNDWATER PROTECTION BENCHMARKS
AREA F, SELBY POND
SURFACE SOIL/SEDIMENT
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Units	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	SSL Migration To Groundwater (1)	State Pollutant Mobility (GB) (2)
ENDRIN ALDEHYDE	UG/KG	17/31	0.17 - 42.9	6.29 - 362	19	RM-SD-SP09-S02	-	-
ENDRIN KETONE	UG/KG	3/31	0.63 - 8	4.1 - 362	13	RM-SD-SP04-03	-	-
GAMMA-BHC (LINDANE)	UG/KG	3/31	0.68 - 1	1.11 - 181	6	RM-SD-SP06-03	9	40
GAMMA-CHLORDANE	UG/KG	10/31	0.098 - 130	2.6 - 36.9	8	RM-SD-SP14-S02	10000	55
HEPTACHLOR	UG/KG	3/31	0.15 - 1.19	1.11 - 181	6	RM-SD-SP17-S01	23000	13
HEPTACHLOR EPOXIDE	UG/KG	7/31	0.12 - 2.21	2.6 - 181	6	RM-SD-SP09-S01	700	20
METHOXYCHLOR	UG/KG	6/31	13.8 - 50.5	11.1 - 1808	62	RM-SD-SP12-S01	160000	8000
Metals (mg/kg)								
ALUMINUM	MG/KG	31/31	429 - 14100	-	5228	RM-SD-SP07-03, RM-SD-SP04-03	-	-
ANTIMONY	MG/KG	2/25	1.2 - 5.5	1 - 4	1	RM-SD-SP14-S01	5	-
ARSENIC	MG/KG	13/31	2.8 - 23.3	1.6 - 10.6	5	RM-SD-SP06-03	29	-
BARIUM	MG/KG	28/31	2.6 - 853	5.2 - 16.9	99	RM-SD-SP17-S01	1600	-
CADMIUM	MG/KG	17/31	0.98 - 17.5	0.2 - 5.2	3	RM-SD-SP06-03	8	-
CALCIUM	MG/KG	27/31	978 - 33300	5260 - 6390	4491	RM-SD-SP14-S01	-	-
CHROMIUM	MG/KG	31/31	3.2 - 374	-	73	RM-SD-SP04-03	38	-
COBALT	MG/KG	28/31	0.62 - 11.9	0.51 - 0.96	4	RM-SD-SP04-03	-	-
COPPER	MG/KG	29/31	4.6 - 1240	7.4 - 9.2	231	RM-SD-SP14-S01	-	-
IRON	MG/KG	31/31	587 - 41100	-	11428	RM-SD-SP07-03	-	-
LEAD	MG/KG	31/31	5 - 775	-	201	RM-SD-SP06-03	-	-
MAGNESIUM	MG/KG	31/31	1080 - 25900	-	5333	RM-SD-SP03-01	-	-
MANGANESE	MG/KG	31/31	9.6 - 336	-	102	RM-SD-SP02-01	-	-
MERCURY	MG/KG	6/29	0.6 - 7.4	0.14 - 1	1	RM-SD-SP13-S01	2	-
NICKEL	MG/KG	30/30	1.4 - 84.8	-	30	RM-SD-SP13-S01	130	-
POTASSIUM	MG/KG	30/31	394 - 5710	4570 - 4570	1686	RM-SD-SP03-01	-	-
SELENIUM	MG/KG	3/27	6.6 - 18.4	0.8 - 5.2	2	RM-SD-SP12-S01	5	-
SILVER	MG/KG	2/25	0.75 - 39	0.4 - 2	2	RM-SD-SP14-S01	34	-
SODIUM	MG/KG	31/31	2260 - 60500	-	17148	RM-SD-SP03-01	-	-
VANADIUM	MG/KG	31/31	1.2 - 97.2	-	26	RM-SD-SP04-03	6000	-
ZINC	MG/KG	29/31	24 - 2550	25.9 - 31.4	520	RM-SD-SP06-03	12000	-
Dioxin (ug/kg)								
TOXICITY EQUIVALENCY FACTOR	UG/KG	31/31	0.00041 - 1.587	-	0.2533	RM-SD-SP13-S01	-	-
Asbestos (%)								
ASBESTOS	%	5/16	0.99 - 10	0.1 - 0.1	0.97	RM-SD-SP15-S03	-	-

Notes:
1) USEPA Soil Screening Levels (USEPA, May 1996). Values associated with dilution and attenuation factor (DAF) of 20 are used.
2) CTDEP, January 1996. State Pollutant Mobility criteria for metals and PCBs are not included since direct comparison of the aqueous SPLP criteria (in ug/L) and the soil analytical results (in ug/kg or mg/kg) cannot be made. TCLP and SPLP results for soil samples are presented in a separate table. In some cases, calculated or surrogate or ceiling value presented as detailed in Table 6-1.
- Not available or not applicable.

TABLE 6-32B
COMPARISON OF MAXIMUM CONCENTRATIONS TO GROUNDWATER PROTECTION BENCHMARKS
AREA F, SELBY POND
ALL SOIL/SEDIMENT (0-15')
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	SSL Migration To Groundwater (1)	State Pollutant Mobility (GB) (2)
Volatile Organic Compounds (ug/kg)							
2-BUTANONE	1/2	110 - 110	13 - 13	58	RM-SD-SP07-03	-	80000
ACETONE	3/4	280 - 620	13 - 13	332	RM-SD-SP07-03	16000	140000
BENZENE	1/2	8 - 8	13 - 13	7	RM-SD-SP02-01	30	200
CARBON DISULFIDE	6/7	13 - 110	13 - 13	36	RM-SD-SP07-03	32000	140000
Semivolatile Organic Compounds (ug/kg)							
1,2,4-TRICHLOROBENZENE	1/64	12 - 12	350 - 2500	644	RM-SD-SP14-S01	5000	14000
2-METHYLNAPHTHALENE	7/64	22 - 52	400 - 2500	620	RM-SD-SP12-S01	-	56000
ACENAPHTHENE	9/65	18 - 1200	400 - 2500	624	RM-SD-SP12-S01	570000	84000
ACENAPHTHYLENE	27/69	21 - 1800	620 - 2400	620	RM-SD-SP06-03	-	84000
ANTHRACENE	26/68	17 - 2800	620 - 2500	597	RM-SD-SP14-S01	12000000	400000
BENZO(A)ANTHRACENE	32/70	35 - 3000	400 - 2400	880	RM-SD-SP15-S01, RM-SD-SP15-S01	2000	1000
BENZO(A)PYRENE	34/70	72 - 7700	620 - 2400	1381	RM-SD-SP10-S01	8000	1000
BENZO(B)FLUORANTHENE	34/70	80 - 5500	620 - 2400	1151	RM-SD-SP03-01, RM-SD-SP03-01	5000	1000
BENZO(G,H,I)PERYLENE	28/65	42 - 2500	620 - 2400	758	RM-SD-SP10-S01	-	40000
BENZO(K)FLUORANTHENE	31/68	90 - 3900	430 - 2400	978	RM-SD-SP12-S01	49000	1000
BIS(2-ETHYLHEXYL)PHTHALATE	28/70	160 - 3600	350 - 2400	644	RM-SD-SP03-01	3600000	11000
BUTYLBENZYL PHTHALATE	19/64	16 - 2600	430 - 2500	679	RM-SD-SP09-S03	930000	200000
CARBAZOLE	23/67	7 - 770	520 - 2500	549	RM-SD-SP12-S02	600	360
CHRYSENE	34/70	62 - 4300	620 - 2400	1106	RM-SD-SP12-S01, RM-SD-SP12-S01	160000	960
DI-N-BUTYL PHTHALATE	38/68	71 - 23000	430 - 6500	3874	RM-SD-SP08-S04	2300000	140000
DI-N-OCTYL PHTHALATE	5/68	37 - 1800	350 - 2900	669	RM-SD-SP06-03	10000000	20000
DIBENZO(A,H)ANTHRACENE	23/68	11 - 4000	430 - 2500	651	RM-SD-SP12-S01	2000	0.96
DIBENZOFURAN	9/64	25 - 91	400 - 2500	603	RM-SD-SP12-S01	-	5600
DIETHYL PHTHALATE	3/64	1300 - 1600	210 - 2500	675	RM-SD-SP13-S03	470000	1100000
DIMETHYL PHTHALATE	5/64	65 - 260	210 - 2500	609	RM-SD-SP19-S01	-	14000000
FLUORANTHENE	36/70	42 - 5600	620 - 2400	1425	RM-SD-SP06-03	4300000	56000
FLUORENE	16/66	13 - 340	520 - 2500	578	RM-SD-SP06-03	560000	56000
INDENO(1,2,3-CD)PYRENE	31/68	40 - 2700	620 - 2400	746	RM-SD-SP10-S01	14000	9.6
NAPHTHALENE	7/64	17 - 75	400 - 2500	621	RM-SD-SP15-S01	84000	56000
PHENANTHRENE	31/70	53 - 2800	620 - 2400	882	RM-SD-SP06-03	-	40000
PYRENE	36/70	29 - 5100	620 - 2400	1304	RM-SD-SP15-S01	4200000	40000
Pesticides/PCBs (ug/kg)							
4,4'-DDD	22/70	0.39 - 88.3	4.19 - 362	15	RM-SD-SP09-S01	16000	29
4,4'-DDE	24/70	0.41 - 79.1	4.19 - 362	14	RM-SD-SP19-S01	54000	21
4,4'-DDT	21/70	0.69 - 58.7	3.7 - 362	13	RM-SD-SP10-S02	32000	21
ALDRIN	24/70	0.4 - 24	1.9 - 181	7	RM-SD-SP18-S01	500	0.41
ALPHA-BHC	9/70	0.16 - 8.59	1.11 - 181	5	RM-SD-SP13-S03	0.5	1.1
ALPHA-CHLORDANE	15/70	0.068 - 11.4	2.09 - 181	6	RM-SD-SP10-S01	10000	66
AROCLOR-1262	2/70	400 - 581	22.3 - 3615	114	RM-SD-SP16-S01	-	-
AROCLOR-1268	4/70	40 - 6125	22.3 - 737	203	RM-SD-SP15-S01	-	-
DIELDRIN	22/70	0.13 - 27.4	4.19 - 362	10	RM-SD-SP12-S01	4	7
ENDOSULFAN I	6/70	1.44 - 33.1	1.9 - 181	6	RM-SD-SP09-S01	18000	8400
ENDOSULFAN II	32/70	1.09 - 77.8	3.7 - 26	12	RM-SD-SP12-S01	18000	8400

TABLE 6-32B (continued)
COMPARISON OF MAXIMUM CONCENTRATIONS TO GROUNDWATER PROTECTION BENCHMARKS
AREA F, SELBY POND
ALL SOIL/SEDIMENT (0-15')
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	SSL Migration To Groundwater (1)	State Pollutant Mobility (GB) (2)
ENDOSULFAN SULFATE	9/70	2.65 - 44.4	2.23 - 362	10	RM-SD-SP12-S01	-	8400
ENDRIN	19/70	0.14 - 18.7	4.19 - 362	10	RM-SD-SP18-S01	1000	-
ENDRIN ALDEHYDE	21/70	0.17 - 42.9	4.19 - 362	13	RM-SD-SP09-S02	-	-
ENDRIN KETONE	3/70	0.63 - 8	4.1 - 362	10	RM-SD-SP04-03	-	-
GAMMA-BHC (LINDANE)	4/70	0.68 - 1	1.11 - 181	5	RM-SD-SP06-03	9	40
GAMMA-CHLORDANE	15/70	0.098 - 130	2.09 - 36.9	6	RM-SD-SP14-S02	10000	66
HEPTACHLOR	3/70	0.15 - 1.19	1.11 - 181	5	RM-SD-SP17-S01	23000	13
HEPTACHLOR EPOXIDE	10/70	0.12 - 4.34	2.09 - 181	5	RM-SD-SP15-S05	700	20
METHOXYCHLOR	6/70	13.8 - 50.5	11.1 - 1808	49	RM-SD-SP12-S01	160000	8000
Metals (mg/kg)							
ALUMINUM	70/70	70.9 - 14100	-	3165	RM-SD-SP07-03, RM-SD-SP04-03	-	-
ANTIMONY	3/64	1.2 - 12.4	1 - 4.9	2	RM-SD-SP17-S05	5	-
ARSENIC	13/70	2.8 - 23.3	1.6 - 10.6	4	RM-SD-SP06-03	29	-
BARIUM	57/70	1.1 - 853	1.8 - 16.9	48	RM-SD-SP17-S01	1600	-
CADMIUM	17/70	0.98 - 17.5	0.2 - 5.2	1	RM-SD-SP06-03	8	-
CALCIUM	66/70	978 - 33300	5260 - 6390	3534	RM-SD-SP14-S01	-	-
CHROMIUM	69/70	0.89 - 505	0.41 - 0.41	48	RM-SD-SP09-S03	38	-
COBALT	43/70	0.61 - 11.9	0.41 - 0.96	2	RM-SD-SP04-03	-	-
COPPER	57/70	2.6 - 1240	5.7 - 11.9	107	RM-SD-SP14-S01	-	-
IRON	69/70	128 - 41100	84.8 - 84.8	6122	RM-SD-SP07-03	-	-
LEAD	62/70	1.1 - 775	1 - 3.9	97	RM-SD-SP06-03	-	-
MAGNESIUM	70/70	1080 - 25900	-	4609	RM-SD-SP03-01	-	-
MANGANESE	70/70	3.6 - 336	-	59	RM-SD-SP02-01	-	-
MERCURY	7/68	0.6 - 7.4	0.14 - 1.2	1	RM-SD-SP13-S01	2	-
NICKEL	63/69	1.4 - 395	1.4 - 6.4	26	RM-SD-SP09-S03	130	-
POTASSIUM	69/70	394 - 5710	4570 - 4570	1312	RM-SD-SP03-01	-	-
SELENIUM	4/66	2.2 - 18.4	0.8 - 5.2	2	RM-SD-SP12-S01	5	-
SILVER	2/64	0.75 - 39	0.4 - 2	1	RM-SD-SP14-S01	34	-
SODIUM	70/70	2260 - 60500	-	17440	RM-SD-SP03-01	-	-
VANADIUM	55/70	0.43 - 97.2	0.44 - 0.82	13	RM-SD-SP04-03	6000	-
ZINC	58/70	11.9 - 2550	9.6 - 34.1	245	RM-SD-SP06-03	12000	-
Dioxin (ug/kg)							
TOXICITY EQUIVALENCY FACTOR	68/68	0.0004125 - 1.5667	-	0.116	RM-SD-SP13-S01	-	-
Asbestos (%)							
ASBESTOS	6/38	0.1 - 10	0.1 - 0.1	0.44	RM-SD-SP15-S03	-	-

Notes:
1) USEPA Soil Screening Levels (USEPA, May 1996). Values associated with dilution and attenuation factor (DAF) of 20 are used.
2) CTDEP, January 1996. State Pollutant Mobility criteria for metals and PCBs are not included since direct comparison of the aqueous SPLP criteria (in ug/L) and the soil analytical results (in ug/kg or mg/kg) cannot be made. TCLP and SPLP results for soil samples are presented in a separate table. In some cases, calculated or surrogate or ceiling value presented as detailed in Table 6-1.

- Not available or not applicable.

TABLE 6-32C
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP08-S01		RM-SD-SP08-S03		RM-SD-SP08-S05		RM-SD-SP09-S01		RM-SD-SP09-S03		RM-SD-SP09-S05		RM-SD-SP10-S01	
		Sample Location	SP08		SP08		SP08		SP09		SP09		SP09		SP10	
Connecticut	Federal	Date Sampled	11/8/96		11/8/96		11/8/96		11/8/96		11/8/96		11/8/96		11/8/96	
TCLP/SPLP	TCLP	QC Type	None		None		None		None		None		None		Field Dup. (3009)	
Criteria	Criteria	MATRIX	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
(ug/L)	(ug/L)	Filtering	UNF		UNF		UNF		UNF		UNF		UNF		UNF	
		Metals (TCLP) (UG/L)														
500	5000	Arsenic	8	U	8	U	8	U	46		8	U	8	U	12.1	
10000	100000	Barium	1	U	3.9		3.8		35.5		7.2		4.3		51.8	
50	1000	Cadmium	1	U	1	U	1	U	3.3		1	U	1	U	2.6	
500	5000	Chromium	1	U	1	U	1	U	4.5		1	U	1	U	2.6	
150	5000	Lead	2	UJ	2	UJ	2	UJ	103	J	2	UJ	2	UJ	134	
20	200	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
500	1000	Selenium	4	UJ	9.6	J	10.7	J	12.7	J	11.3	J	12.8	J	13.4	
360	5000	Silver	2	UJ	2	UJ	2	UJ	2	UJ	2	UJ	2	UJ	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria																
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP																
and Federal TCLP Criteria																

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-32C (continued)
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP10-S03		RM-SD-SP11-S01		RM-SD-SP11-S03		RM-SD-SP11-S05		RM-SD-SP12-S01		RM-SD-SP12-S03		RM-SD-SP12-S05	
		Sample Location	SP10		SP11		SP11		SP11		SP12		SP12		SP12	
Connecticut	Federal	Date Sampled	11/8/96		11/11/96		11/11/96		11/11/96		11/12/96		11/12/96		11/12/96	
TCLP/SPLP	TCLP	QC Type	None		None		None		None		None		None		None	
Criteria	Criteria	MATRIX	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
(ug/L)	(ug/L)	Filtering	UNF		UNF		UNF		UNF		UNF		UNF		UNF	
		Metals (TCLP) (UG/L)														
500	5000	Arsenic	8	U	42.7		8	U	8	U	59.7	J	8	UJ	8	UJ
10000	100000	Barium	7.4		26.3		3.5		3.5		71.6		7.6		8.7	
50	1000	Cadmium	1	U	1	U	1	U	1	U	7.2	J	1	UJ	1	UJ
500	5000	Chromium	1	U	2.7		1	U	1	U	5.3	U	1	U	1	U
150	5000	Lead	2	UJ	40.6	J	2	UJ	2	UJ	**226**	J	8.8	J	2	UJ
20	200	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
500	1000	Selenium	4	UJ	11.8	J	13.2	J	9.8	J	18.4		19.9		18.6	
360	5000	Silver	2	UJ	2	UJ	2	UJ	2	UJ	2	U	2	U	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria																
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP																
and Federal TCLP Criteria																

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-32C (continued)
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP13-S01		RM-SD-SP13-S03		RM-SD-SP13-S05		RM-SD-SP14-S01		RM-SD-SP14-S03		RM-SD-SP14-S05		RM-SD-SP15-S01	
		Sample Location	SP13		SP13		SP13		SP14		SP14		SP14		SP15	
Connecticut	Federal	Date Sampled	11/11/96		11/11/96		11/11/96		11/12/96		11/12/96		11/12/96		11/13/96	
TCLP/SPLP	TCLP	QC Type	None		None		None		None		None		None		None	
Criteria	Criteria	MATRIX	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
(ug/L)	(ug/L)	Filtering	UNF		UNF		UNF		UNF		UNF		UNF		UNF	
		Metals (TCLP) (UG/L)														
500	5000	Arsenic	10.7		8	U	8	U	8	U	9.3		8	U	40.5	J
10000	100000	Barium	17.2		14.5		9		88.7		44.4		4.8		161	
50	1000	Cadmium	1.1		1	U	1	U	1	U	1	U	1	U	24.5	J
500	5000	Chromium	1	U	1	U	1	U	1	U	1.5		1	U	7.4	
150	5000	Lead	43.7	J	2	UJ	2	UJ	74.6	J	19.9	J	2	UJ	**636**	J
20	200	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
500	1000	Selenium	13.1	J	4.8	J	4	UJ	4	UJ	4	UJ	4	UJ	6.6	J
360	5000	Silver	2	UJ	2	UJ	2	UJ	2	UJ	2	UJ	2	UJ	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria																
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP																
and Federal TCLP Criteria																

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-32C (continued)
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP15-S03		RM-SD-SP15-S05		RM-SD-SP15-S06		RM-SD-SP16-S01		RM-SD-SP16-S03		RM-SD-SP16-S05		RM-SD-SP16-S07	
		Sample Location	SP15		SP15		SP15		SP16		SP16		SP16		SP16	
Connecticut	Federal	Date Sampled	11/13/96		11/13/96		11/13/96		11/13/96		11/13/96		11/13/96		11/13/96	
TCLP/SPLP	TCLP	QC Type	None		None		None		None		None		None		None	
Criteria	Criteria	MATRIX	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
(ug/L)	(ug/L)	Filtering	UNF		UNF		UNF		UNF		UNF		UNF		UNF	
		Metals (TCLP) (UG/L)														
500	5000	Arsenic	8	UJ	8	UJ	8	UJ	37.7	J	9	J	8	UJ	8	UJ
10000	100000	Barium	19.5		5.3		9.8		77.2		10.4		6.7		4	
50	1000	Cadmium	1	UJ	1	UJ	1	UJ	22.4	J	1	UJ	1	UJ	1.3	J
500	5000	Chromium	1	U	1	U	1	U	2.6	U	1	U	1	U	1	U
150	5000	Lead	46.2	J	13.3	J	6.5	J	**311**	J	2	UJ	2	UJ	2	UJ
20	200	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
500	1000	Selenium	4	U	4	U	4	U	4	U	4	U	4	U	4	U
360	5000	Silver	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria																
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP																
and Federal TCLP Criteria																

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-32C (continued)
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP17-S01		RM-SD-SP17-S03		RM-SD-SP17-S05		RM-SD-SP18-S01		RM-SD-SP18-S03		RM-SD-SP18-S05		RM-SD-SP19-S01	
		Sample Location	SP17		SP17		SP17		SP18		SP18		SP18		SP19	
Connecticut	Federal	Date Sampled	11/14/96		11/14/96		11/14/96		11/15/96		11/14/96		11/14/96		11/15/96	
TCLP/SPLP	TCLP	QC Type	None		None		None		None		None		None		None	
Criteria	Criteria	MATRIX	SEDIMENT		SEDIMENT		SEDIMENT		WETLAND		WETLAND		WETLAND		WETLAND	
(ug/L)	(ug/L)	Filtering	UNF		UNF		UNF		UNF		UNF		UNF		UNF	
		Metals (TCLP) (UG/L)														
500	5000	Arsenic	8	UJ	9.7	J	8	UJ	14.4	J	8	UJ	8	UJ	14.6	J
10000	100000	Barium	163		171		38.7		17.7		5.1		59.8		8.5	
50	1000	Cadmium	1	UJ	1	UJ	1	UJ	2.3	J	1	UJ	1	UJ	1	U
500	5000	Chromium	1	U	1	U	1	U	1	U	1	U	1	U	1	U
150	5000	Lead	2	UJ	3.7	J	2	UJ	87	J	2	UJ	2	UJ	15.2	J
20	200	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
500	1000	Selenium	4	U	4.5	J	4	U	4	U	4	U	4	U	4	U
360	5000	Silver	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria																
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP																
and Federal TCLP Criteria																

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-32C (continued)
COMPARISON OF LEACHATE CONCENTRATIONS TO TCLP CRITERIA
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

		Sample Number	RM-SD-SP19-S03		RM-SD-SP19-S05	
		Sample Location	SP19		SP19	
Connecticut	Federal	Date Sampled	11/15/96		11/15/96	
TCLP/SPLP	TCLP	QC Type	None		None	
Criteria	Criteria	MATRIX	WETLAND		WETLAND	
(ug/L)	(ug/L)	Filtering	UNF		UNF	
		Metals (TCLP) (UG/L)				
500	5000	Arsenic	8	U	8	U
10000	100000	Barium	7		9.9	
50	1000	Cadmium	1	U	1	U
500	5000	Chromium	1	U	1	U
150	5000	Lead	8.7	J	2	U
20	200	Mercury	0.2	U	0.2	U
500	1000	Selenium	4	U	4	U
360	5000	Silver	2	U	2	U
Values in **BOLD** exceed Connecticut TCLP/SPLP Criteria						
Values in ***BOLD ITALICS*** exceed Connecticut TCLP/SPLP						
and Federal TCLP Criteria						

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

TABLE 6-33
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
SURFACE WATER
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (1)	N/C (2)	Federal MCL (3)	State MCL (4)	Select As COPC? (5)
Pesticides/PCBs (ug/L)										
ENDOSULFAN I	1/4	0.013 - 0.013	0.05 - 0.05	0.02	RM-SW-SP04-03	22	N	-	-	N
ENDOSULFAN SULFATE	1/4	0.028 - 0.028	0.1 - 0.1	0.04	RM-SW-SP04-03	-	-	-	-	N
ENDRIN ALDEHYDE	1/4	0.028 - 0.028	0.1 - 0.1	0.04	RM-SW-SP04-03	-	-	-	-	N
HEPTACHLOR EPOXIDE	1/4	0.003 - 0.003	0.05 - 0.05	0.02	RM-SW-SP01-01	0.0074	C	0.2	0.2	N
Inorganics (ug/L)										
ALUMINUM	2/11	89.7 - 561	40 - 342	95	RM-SW-SP19-04	3700	N	-	-	N(6)
ANTIMONY	1/11	4.4 - 4.4	5 - 26.3	4	RM-SW-SP14-04	1.5	N	6	6	Y
ARSENIC	1/11	6 - 6	1.8 - 11.4	4	RM-SW-SP14-04	0.045	C	50	50	Y
BARIUM	5/11	8.4 - 10.6	14.4 - 21.5	9	RM-SW-SP14-04	260	N	2000	2000	N
BERYLLIUM	1/10	0.75 - 0.75	1 - 1	1	RM-SW-SP14-04	7.3	C	4	4	N
CADMIUM	1/11	0.75 - 0.75	1 - 2.4	1	RM-SW-SP14-04	1.8	N	5	5	N
CALCIUM	11/11	164000 - 280000	-	207636	RM-SW-SP01-01	-	-	-	-	N
CHROMIUM	1/11	2.4 - 2.4	1.4 - 10.4	3	RM-SW-SP14-04	11	N	100	100	N
COBALT	1/7	1 - 1	1 - 7.4	1	RM-SW-SP14-04	220	N	-	-	N
COPPER	1/11	17.3 - 17.3	3 - 46.6	12	RM-SW-SP14-04	150	N	1300	-	N
IRON	5/11	159 - 1450	312 - 1080	430	RM-SW-SP14-04	1100	N	-	-	N(6)
LEAD	1/11	3.3 - 3.3	2 - 27.6	3	RM-SW-SP14-04	-	-	15	-	N
MAGNESIUM	11/11	519000 - 888000	-	654455	RM-SW-SP01-01	-	-	-	-	N
MANGANESE	10/11	26.8 - 149	5 - 5	58	RM-SW-SP03-01	73	N	-	-	Y
MERCURY	1/11	0.15 - 0.15	0.1 - 0.2	0.1	RM-SW-SP14-04	1.1	N	2	2	N
NICKEL	1/7	27.3 - 27.3	10 - 21.9	9	RM-SW-SP14-04	73	N	100	100	N
POTASSIUM	11/11	231500 - 404000	-	339341	RM-SW-SP16-04	-	-	-	-	N
SELENIUM	1/11	3 - 3	2.5 - 4	2	RM-SW-SP14-04	18	N	50	50	N
SILVER	4/11	2.8 - 9	2 - 20.5	4	RM-SW-SP08-04	18	N	100	50	N
SODIUM	11/11	4250000 - 9040000	-	5333636	RM-SW-SP01-01	-	-	-	28000(7)	N
THALLIUM	1/11	6.8 - 6.8	4.9 - 9	4	RM-SW-SP14-04	0.26	N	2	2	Y
VANADIUM	7/11	1.3 - 4	2 - 8.6	2	RM-SW-SP18-04	26	N	-	-	N
ZINC	1/11	48.5 - 48.5	4 - 129	29	RM-SW-SP14-04	1100	N	5000	-	N

Notes:

1) Based on current USEPA Region III guidance (USEPA Region III, 10-1-99). Value for noncarcinogens is based on a target hazard quotient of 0.1. Value for carcinogens is based on a cancer risk of IE-6.
2) COPC screening level based on noncarcinogenic (N)/carcinogenic (C) effects.
3) Maximum Contaminant Level (USEPA, October 1996). Values presented for lead and copper are action levels.
4) Title 19, Health and Safety, the Public Health Code of the State of Connecticut, Chapter 11 Environmental Health.
5) Chemical selected as COPC if maximum detected concentration exceeds screening levels or MCLs.
6) USEPA Region I does not advocate quantitative risk assessment of the health effects of this metal due to lack of an adequate toxicity criteria.
7) This is a state notification level and is not risk based.
- Not available or not applicable.

TABLE 6-34
SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AREA F, SELBY POND
BIOTA[1]
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Parameter	Frequency	Range Of Detects	Range Of Nondetects	Average	Location of Maximum	COPC Screening Level (2)	N/C (3)	Select As COPC? (4)
AMERICAN EEL								
Pesticides/PCBs (ug/kg)								
4,4'-DDD	15/15	0.085 - 0.32	-	0.1442	SP-AE-F-10	0.013	C	Y
4,4'-DDE	15/15	0.12 - 0.39	-	0.2320	SP-AE-F-10	0.0093	C	Y
4,4'-DDT	15/15	0.024 - 0.07	-	0.0421	SP-AE-F-10	0.0093	C	Y
ALDRIN	10/15	0.00039 - 0.0016	0.0002 - 0.0002	0.0008	SP-AE-F-4	0.00019	C	Y
ALPHA-BHC	2/15	0.00083 - 0.0013	0.0005 - 0.0005	0.0004	SP-AE-OF-7	0.0005	C	Y
AROCLOR-1262	15/15	0.1 - 0.52	-	0.2560	SP-AE-F-10	0.0016	C	Y
DIELDRIN	15/15	0.0036 - 0.011	-	0.0055	SP-AE-F-10	0.0002	C	Y
HEPTACHLOR EPOXIDE	5/15	0.0023 - 0.0054	0.0007 - 0.0007	0.0014	SP-AE-F-10	0.00035	C	Y
METHOXYCHLOR	10/15	0.11 - 0.33	0.025 - 0.025	0.1562	SP-AE-OF-7	0.68	N	N
Inorganics (mg/kg)								
LEAD	15/15	0.0624 - 0.288	-	0.1613	SP-AE-OF-10	-	-	N
MERCURY	2/15	0.0071 - 0.0075	0.0047 - 0.0076	0.0036	SP-AE-F-3	0.041	N	N
WHITE PERCH								
Pesticides/PCBs (ug/kg)								
4,4'-DDD	15/15	0.028 - 0.19	-	0.0895	SP-PF-OF-8	0.013	C	Y
4,4'-DDE	15/15	0.04 - 0.38	-	0.1348	SP-PF-OF-8	0.0093	C	Y
4,4'-DDT	8/15	0.0069 - 0.039	0.009 - 0.02	0.0172	SP-PF-OF-5	0.0093	C	Y
ALPHA-BHC	4/15	0.0036 - 0.0077	0.0005 - 0.0005	0.0016	SP-WP-WH-4	0.0005	C	Y
AROCLOR-1262	15/15	0.027 - 0.17	-	0.0819	SP-PF-OF-5	0.0016	C	Y
DIELDRIN	15/15	0.0012 - 0.11	-	0.0111	SP-WP-WH-3	0.0002	C	Y
Inorganics (mg/kg)								
LEAD	14/15	0.0131 - 0.279	0.012 - 0.012	0.0942	SP-WP-WH-7	-	-	N

Notes:
1) COPC selection based on data for fillet and offal samples. Quantitative risk estimates will be based on fillet samples only.
2) Based on current USEPA guidance (USEPA Region III, 10-1-98). Value for noncarcinogens is based on a target hazard quotient of 0.1. Values for carcinogens are based on a cancer risk of IE-6.
3) COPC screening level based on noncarcinogenic (N)/carcinogenic (C) effects.
4) Chemical was selected (Y = Yes; N = No) if maximum detected concentration exceeds screening levels.

TABLE 6-35
SELECTION OF RECEPTORS AND EXPOSURE PATHWAYS
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Sediments	Sediments	Nearshore Surface Sediments along banks of Selby Pond	Frequent Recreational User	Adult	Ingestion	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Adults may be exposed to sediments through inadvertent contact.
						Dermal	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Adults may be exposed to sediments through inadvertent
						Inhalation	Qual	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways. A qualitative comparison of site sediment data to USEPA Generic SSLs will be performed.
					Child	Ingestion	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Children may be exposed to sediments through inadvertent contact.
						Dermal	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Children may be exposed to sediments through inadvertent contact.
						Inhalation	Qual	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways. A qualitative comparison of site sediment data to USEPA Generic SSLs will be performed.
	Surface Water	Surface Water	Surface Water in Selby Pond	Frequent Recreational User	Adult	Ingestion	Qual	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Adults may be minimally exposed to surface water through inadvertent contact.
						Dermal	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Adults may be exposed to surface water through inadvertent contact.
						Inhalation	None	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways.
					Child	Ingestion	Qual	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Children may be minimally exposed to surface water through inadvertent contact.
						Dermal	Quant	Residential properties are located in the vicinity of the site. Selby Pond is primarily used for fishing and boating. Children may be exposed to surface water through inadvertent contact.
						Inhalation	None	Inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways.
Future	Fish	Fish	Eels & White Perch	Local Fisher	Adult	Ingestion	Quant	Currently a Health Advisory is in place limiting ingestion of eels from Selby Pond. In the future, adults may be exposed to contaminated eels and fish from Selby Pond through direct ingestion.
					Child	Ingestion	None	Anticipated exposure is assumed to be similar to adult receptor, negating the need for duplicate evaluation.

Notes:
Quant - Quantitative Analysis
Qual - Qualitative Analysis
SSLs - EPA Soil Screening Levels

TABLE 6-36
EXPOSURE POINT CONCENTRATIONS
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Frequent Recreational User (Adult and Child)				Local Fisher			
	Sediment/Wetland Material (mg/kg)		Surface Water (ug/L)		American Eels (mg/kg)		White Perch (mg/kg)	
	RME	CTE	RME	CTE	RME	CTE	RME	CTE
Semivolatile Organic Compounds								
Benzo(a)anthracene	1.9	0.84	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	4.5	1.2	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	2.8	1.1	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.52	0.38	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.3	0.63	NA	NA	NA	NA	NA	NA
Pesticides/PCBs								
4,4'-DDD	NA	NA	NA	NA	0.00032	0.00017	0.00013	0.000059
4,4'-DDE	NA	NA	NA	NA	0.00039	0.00027	0.00023	0.000093
4,4'-DDT	NA	NA	NA	NA	0.00007	0.000049	0.000031	0.000011
Aldrin	NA	NA	NA	NA	0.0000016	0.0000011	NA	NA
Alpha-BHC	NA	NA	NA	NA	ND	ND	ND	ND
Aroclor-1262	ND	ND	NA	NA	0.00052	0.00032	0.00013	0.000059
Aroclor-1268	ND	ND	NA	NA	NA	NA	NA	NA
Aroclor, total	ND	ND	NA	NA	0.00054	0.00034	0.00015	0.000075
Dieldrin	NA	NA	NA	NA	0.000011	0.000006	0.0000063	0.000003
Heptachlor epoxide	NA	NA	NA	NA	0.0000054	0.0000019	NA	NA
Inorganics [1]								
Antimony	ND	ND	4.4	3.7	NA	NA	NA	NA
Arsenic	23.3	7.8	4.6	4.6	NA	NA	NA	NA
Barium	154	39.6	NA	NA	NA	NA	NA	NA
Cadmium	17.5	4.3	NA	NA	NA	NA	NA	NA
Chromium (total)	374	90.4	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	149	57.7	NA	NA	NA	NA
Mercury	2.2	0.77	NA	NA	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	5.0	5.0	NA	NA	NA	NA
Vanadium	97.2	43.9	NA	NA	NA	NA	NA	NA
Zinc	2550	607	NA	NA	NA	NA	NA	NA
Dioxins								
Toxicity Equivalence Concentration (TEQ)	0.00064	0.000094	NA	NA	NA	NA	NA	NA

Notes:
1) Exposure point concentrations for lead are presented in Appendix F-12
ND: Contaminant has been selected as a Chemical of Potential Concern (COPC) for this area/medium; however, this COPC was not detected (ND) in the respective sample subset for this receptor.
NA: Contaminant has not been selected as a COPC for this area/medium; an exposure point concentration is not applicable (NA).
CTE: Central Tendency Exposure - The arithmetic mean risk or median risk at this site.
RME: Reasonable Maximum Exposure - The highest exposure that is reasonably expected to occur at this site.

TABLE 6-37A
SUMMARY OF CANCER RISKS AND HAZARD INDICES
REASONABLE MAXIMUM EXPOSURE SCENARIO
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risk $>10^{-4}$	Chemicals with Cancer Risk $>10^{-5}$	Chemicals with Cancer Risk $>10^{-6}$	Hazard Index	Chemicals with HI > 1
Frequent Recreational User Adult (Current/Future)	Nearshore Surface Sediments along banks of Selby Pond	Incidental Ingestion	2.1E-05	--	TEQ-Dioxins/Furans	Benzo(a)pyrene, Arsenic	8.9E-02	--
		Dermal Contact	1.9E-05	--	--	Benzo(a)pyrene, Arsenic, Dibrenzo(a,h)anthracene, TEQ-Dioxins/Furans	3.5E-02	--
		Total	4.0E-05	--	Benzo(a)pyrene, TEQ-Dioxins/Furans	Arsenic, Dibrenzo(a,h)anthracene	1.2E-01	--
	Surface Water in Selby Pond	Dermal Contact	3.7E-08	--	--	--	4.3E-03	--
	Total All Routes		4.0E-05	--	Benzo(a)pyrene, TEQ-Dioxin/Furans	Arsenic, Dibenzo(a,h)anthracene	1.3E-01	--
Frequent Recreational User Child (Current/Future)	Nearshore Surface Sediments along banks of Selby Pond	Incidental Ingestion	4.8E-05	--	TEQ-Dioxins/Furans	Benzo(a)pyrene, Dibenzo(a,h)anthracene, Arsenic	4.6E-01	--
		Dermal Contact	3.8E-05	--	Benzo(a)pyrene, TEQ-Dioxins/Furans	Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic	2.8E-01	--
		Total	8.6E-05	--	Benzo(a)pyrene, Arsenic, TEQ-Dioxins/Furans	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	7.4E-01	--
	Surface Water in Selby Pond	Dermal Contact	1.8E-08	--	--	--	6.3E-03	--
	Total All Routes		8.6E-05	--	Benzo(a)pyrene, Arsenic, TEQ-Dioxins/Furans	Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	7.5E-01	--
Local Fisher Adult (Future)	Eels	Ingestion	4.9E-07	--	--	--	2.1E-02	--
	White Perch	Ingestion	1.6E-07	--	--	--	5.9E-03	--

TABLE 6-37B
SUMMARY OF CANCER RISKS AND HAZARD INDICES
CENTRAL TENDENCY EXPOSURE SCENARIO
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risk $>10^{-4}$	Chemicals with Cancer Risk $>10^{-5}$	Chemicals with Cancer Risk $>10^{-6}$	Hazard Index	Chemicals with HI > 1
Frequent Recreational User Adult (Current/Future)	Nearshore Surface Sediments along banks of Selby Pond	Incidental Ingestion	6.9E-07	--	--	--	1.2E-02	--
		Dermal Contact	6.9E-07	--	--	--	1.6E-02	--
		Total	1.4E-06	--	--	--	2.8E-02	--
	Surface Water in Selby Pond	Dermal Contact	1.1E-08	--	--	--	3.1E-03	--
	Total All Routes		1.4E-06	--	--	--	3.1E-02	--
Frequent Recreational User Child (Current/Future)	Nearshore Surface Sediments along banks of Selby Pond	Incidental Ingestion	1.8E-06	--	--	--	7.2E-02	--
		Dermal Contact	6.9E-07	--	--	--	1.6E-02	--
		Total	2.5E-06	--	--	--	8.8E-02	--
	Surface Water in Selby Pond	Dermal Contact	6.2E-09	--	--	--	3.9E-03	--
	Total All Routes		2.5E-06	--	--	--	9.2E-02	--
Local Fisher Adult (Future)	Eels	Ingestion	1.60E-08	--	--	--	2.4E-03	--
	White Perch	Ingestion	2.8E-09	--	--	--	5.2E-04	--

TABLE 6-38
SUMMARY OF REMEDIAL INVESTIGATIONS AND RECOMMENDATIONS
AREA F, SELBY POND
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Area of Concern	Chemicals of Potential Concern			Receptor	Reasonable Maximum Exposure (RME) Risk Estimates						Lead Results [1] [2]	Asbestos Results [3]
					ILCR	Risk Drivers			HI	Risk Drivers		
Area F Selby Pond	**Surface Soil/Sediment (0 to 2 feet)**			Frequent Recreational User (adult) (current/future)	4.0E-05	$>10^{-4}$ None	$>10^{-5}$ benzo(a)pyrene dioxins/furans	$>10^{-6}$ dibenzo(a,h)anthracene arsenic	0.12	>1.0 None	Slope Factor Approach - 0.89% probability that fetal blood lead level will exceed the established level of concern (10 ug/dl).	Asbestos was detected at an average concentration of 0.44%. This is less than the 1% concentration which defines an asbestos-containing material. Detections ranged from 0.99 - 10%. Moist conditions make this asbestos unlikely to pose an inhalation hazard.
	benzo(a)anthracene	dioxins/furans	copper									
	benzo(a)pyrene	arsenic	lead									
	benzo(b)fluoranthene	barium	mercury									
	dibenzo(a,h)anthracene	cadmium	vanadium									
	indeno(1,2,3-cd)pyrene	chromium, total	zinc	Frequent Recreational User (child) (current/future)	8.6E-05	$>10^{-4}$ None	$>10^{-5}$ benzo(a)pyrene arsenic dioxins/furans	$>10^{-6}$ benzo(a)anthracene benzo(b)fluoranthene dibenzo(a,h)anthracene	0.74	>1.0 None	IEUBK - 1.76% probability that a child's blood lead level will exceed the established level of concern (10 ug/dl).	
	Surface Water			Frequent Recreational User (adult) (current/future)	3.7E-08	$>10^{-4}$ None	$>10^{-5}$ None	$>10^{-6}$ None	0.0043	>1.0 None		
	antimony											
	arsenic											
	manganese											
	thallium			Frequent Recreational User (child) (current/future)	1.8E-08	$>10^{-4}$ None	$>10^{-5}$ None	$>10^{-6}$ None	0.0063	>1.0 None		
	Biota - American Eel			Local Fisher (future)	4.9E-07	$>10^{-4}$ None	$>10^{-5}$ None	$>10^{-6}$ None	0.021	>1.0 None		
	4,4'-DDD	aldrin	dieldrin									
	4,4'-DDE	Aroclor-1262	heptachlor epoxide									
	4,4'-DDT											
	Biota - White Perch			Local Fisher (future)	1.6E-07	$>10^{-4}$ None	$>10^{-5}$ None	$>10^{-6}$ None	0.0059	>1.0 None		
	4,4'-DDD	4,4'-DDT	Aroclor-1262									
	4,4'-DDE		dieldrin									

Notes:
1) The risk from lead for an adult was evaluated following "Recommendations of the Technical Review Workgroup for Lead for the Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil", USEPA, December 1996.
2) The risk from lead exposure for a residential child was evaluated with the Integrated Exposure Uptake Biokinetic Model (IEUBK), EPA/540/R-93/081, 1994.
3) The National Emission Standards for Hazardous Air Pollutants - EPA regulation 40 CFR Subpart M, Part 61 (NESHAP) defines asbestos as material containing 0.01 fibers per cubic centimeter and sets this valve as an abatement clearance level.

TABLE 7-1
RAYMARK TOTAL ORGANIC CARBON STATISTICS
SURFACE SEDIMENT SAMPLES
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

AOC	Sediment TOC, %				n
	min	median	mean	max	
B	0.4	4.9	5.5	26.2	50
C	0.3	4.8	5.3	17.3	44
F	0.01	14.3	15.7	38.8	25
BKG	0.5	4.4	3.5	4.8	4

TABLE 7-2
RAYMARK SEDIMENT AVS-SEM STATISTICS
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

	Summed SEM - AVS				
	umole/g (dry)				
AOC	minimum	median	mean	maximum	Frequency < 0
B	-96.5	-26.2	-30.6	0.1	17/18
C	-19.0	4.6	4.1	36.4	4/13
F	-112.1	-63.7	-60.5	-5.8	3/3
BKG	-27.5	1.9	-6.7	5.5	1/3
	Difference between duplicates				
QC	1.3	10.3	12.0	27.6	1/5[a]

[a]Frequency with which one duplicate is positive and one is negative

TABLE 7-3
CONTAMINANTS OF CONCERN[1]
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

CONTAMINANTS OF CONCERN				
	PAHs	**Dioxins and Furans**	**Pesticides**	**PCBs**
Arsenic	Acenaphthene	Penta- through hepta-chlorodioxins and furans	4,4'-DDD	Aroclor 1016
Cadmium	Acenaphthylene		4,4'-DDE	Aroclor 1221
Chromium	Anthracene		4,4'-DDT	Aroclor 1232
Copper	Benzo(a)anthracene			Aroclor 1242
Lead	Benzo(a)pyrene			Aroclor 1248
Mercury	Benzo(b)fluoranthene			Aroclor 1254
Nickel	Chrysene			Aroclor 1260
Silver	Dibenz(a,h)fluoranthene			Aroclor 1262
Zinc	Fluoranthene			Aroclor 1268
	Fluorene			
	2-Methylnaphthalene			
	Naphthalene			
	Phenanthrene			
	Pyrene			

[1] COCs evaluated in the Phase II Ecological Risk Assessment (NOAA, 1998).

TABLE 7-4
ASSESSMENT AND MEASUREMENT ENDPOINTS
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Assessment Endpoint	Indicator Species or Group	Measurement Endpoints
Benthic community	Benthic infauna Fiddler crab	• Maximum Acceptable Tissue Concentrations (MATCs) for invertebrates • Threshold Effects Levels (TELs) for chemicals in sediment • Community characteristics • Amphipod survival tests
Oysters	Eastern oyster	As above; also: • Bivalve development tests
Fish	Mummichog	• Criteria for chemicals in water • MATCs for fish
Fish-eating birds	Back-crowned night heron	• Toxicity Reference Values (TRVs) for birds
Semi-aquatic mammals	Raccoon	• TRVs for mammals

TABLE 7-5
COMPARISON OF AWQC FOR COCs WITH MEASURED WATER CONCENTRATIONS (UG/L)
EXCEEDING CRITERIA
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

COC	Chronic AWQC [a]		Concentration (ug/L)	Qualifier	AOC	Sample ID
	Freshwater	Marine				
CHROMIUM	11	50 (Cr^{+6})	13.55		B	RM-SW-SD19-04
	74 +	10300(Cr^{+3})	13.4		B	RM-SW-SD25-04
			13.8		B	RM-SW-SD29-04
			11.8		B	RM-SW-SD30-04
			16.4		B	RM-SW-SD31-04
			15.5		B	RM-SW-SD32-04
			22.3		BKG	RM-SW-GM07-04
			35.2		C	RM-SW-HB01
			14.1		C	RM-SW-HB02
			30.8		C	RM-SW-HB12
			12.1		C	RM-SW-HB23-04
COPPER	11.8 +	2.9	14.8		B	RM-SW-SD08
			20.5		B	RM-SW-SD09
			65.4	J	B	RM-SW-SD20-03
			18		BKG	RM-SW-GM03
			35.4	J	BKG	RM-SW-GM04-02
			51.8	J	BKG	RM-SW-GM05-02
			13.1	J	BKG	RM-SW-GM06-02
			145		C	RM-SW-HB01
			109		C	RM-SW-HB02
			11.4		C	RM-SW-HB06
			64.3	J	C	RM-SW-HB10-02
			45	J	C	RM-SW-HB11-02
			94.4		C	RM-SW-HB12
			148		C	RM-SW-HB20-03
			66.2	J	C	RM-SW-HB22-03
			25.8	J	C	RM-SW-HB3A-02
			17.3		F	RM-SW-SP14-04
LEAD	3.2 +	8.5	11.4	J	B	RRM-SW-SD19-03
			16.7	J	B	RM-SW-SD20-03
			3.2	J	B	RM-SW-SD29-04
			64		C	RM-SW-HB01
			84.6		C	RM-SW-HB02
			3.4		C	RM-SW-HB06
			23.1		C	RM-SW-HB10-02
			19.4		C	RM-SW-HB12
			93.9	J	C	RM-SW-HB20-03
			12	J	C	RM-SW-HB21-03
			18.5	J	C	RM-SW-HB22-03
			3.3		F	RM-SW-SP14-04

TABLE 7-5 (Cont.)
COMPARISON OF AWQC FOR COCs WITH MEASURED WATER CONCENTRATIONS (UG/L)
EXCEEDING CRITERIA
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

COC	Chronic AWQC [a]		Concentration (ug/L)	Qualifier	AOC	Sample ID
	Freshwater	Marine				
MERCURY	0.012	0.025	0.55		B	RM-SW-SD07
			0.2		B	RM-SW-SD10
			1.95		B	RM-SW-SD19-04
			1.2		B	RM-SW-SD25-04
			0.8	J	B	RM-SW-SD28-04
			1.9		B	RM-SW-SD29-04
			0.29	J	B	RM-SW-SD30-04
			0.27	J	B	RM-SW-SD32-04
			0.74		B	RM-SW-SD36-04
			0.31	J	B	RM-SW-SD37-04
			0.49	J	BKG	RM-SW-GM07-04
			1.2		C	RM-SW-HB06
			1.8		C	RM-SW-HB12
			0.57	J	C	RM-SW-HB23-04
			0.15		F	RM-SW-SP14-04
NICKEL	158 +	8.3	23		C	RM-SW-HB01
			27.3		F	RM-SW-SP14-04
SILVER	3.4	1.9	5.4	J	F	RM-SW-SP01-01
			9		F	RM-SW-SP08-04
			2.8		F	RM-SW-SP14-04
			5.6		F	RM-SW-SP19-04
ZINC	106 +	86	179		B	RM-SW-SD20-03
			90.2		C	RM-SW-HB01
			91.9		C	RM-SW-HB20-03
AROCLOR, TOTAL	0.014	0.03	3.67		C	RM-SW-HB01
			2.43		C	RM-SW-HB10-02
			2.4		C	RM-SW-HB20-03
			2.44		C	RM-SW-HB3A-02
4,4'-DDD	0.001	0.001	0.038		B	RM-SW-SD09
4,4'-DDD			0.002	J	B	RM-SW-SD19-03
4,4'-DDD			0.003	J	B	RM-SW-SD28-04
4,4'-DDD			0.003	J	B	RM-SW-SD30-04
4,4'-DDD			0.005	J	C	RM-SW-HB20-03

Notes:
Only detected concentrations are presented.
J - estimated
[a] - All AWQC are in ug/L. A + indicates that the AWQC is hardness dependent; the value at 100 mg/L CaCO3 shown.

TABLE 7-6
CONCENTRATIONS OF CONTAMINANTS DETECTED IN SEDIMENT SAMPLES
(DRY WEIGHT BASIS)
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

	Area B					Area C					Area F					Reference Area			
Chemical	Detection Frequency	Avg.	Max.	Avg. HQ_{TEL}	Avg. HQ_{PEL}	Detection Frequency	Avg.	Max.	Avg. HQ_{TEL}	Avg. HQ_{PEL}	Detection Frequency	Avg.	Max.	Avg. HQ_{TEL}	Avg. HQ_{PEL}	Avg. (No.)[a]	Max.	Avg. HQ_{TEL}	Avg. HQ_{PEL}
Metals (mg/kg)																			
Arsenic	53/56	7.5	18.6	1.0	0.2	39/47	7.3	18.2	1.0	0.2	16/34	5.4	23.3	0.7	0.1	6.8	11.2	0.9	0.2
Cadmium	30/56	2.7	13.3	4.0	0.6	20/41	0.8	5.2	1.1	0.2	19/34	2.3	17.5	3.4	0.5	1.2	1.6	1.8	0.3
Chromium	52/56	164	799	3.1	1.0	48/48	183	823	3.5	1.1	34/34	80.9	390	1.5	0.5	200	304	3.8	1.3
Copper	53/60	490	2360	26.2	4.5	50/50	2030	36400	108.6	18.8	32/34	241	1240	12.9	2.2	652.5	1260	34.9	6
Lead	74/75	450	1470	14.9	4.0	64/69	1020	26500	33.8	9.1	34/34	215	775	7.1	1.9	97.7	141	3.2	0.9
Mercury	35/56	0.54	2.7	4.2	0.8	32/46	0.46	1.4	3.5	0.7	9/32	0.65	7.4	5.0	0.9	0.6	0.91	4.6	1.3
Nickel	56/56	45.7	177	2.9	1.1	48/48	42.9	386	2.7	1.0	33/33	30.3	84.8	1.9	0.7	29	38.1	1.9	0.7
Silver	23/56	1.7	6.4	2.3	1.0	17/40	1.7	24.2	2.3	1.0	5/28	1.9	39	2.6	1.1		ND		
Zinc	55/56	371	1550	3.0	1.4	48/48	321	2320	2.6	1.2	32/34	520	2550	4.2	1.9	306.5	551	2.5	1.1
Pest/PCBs (µg/kg)																			
4,4'-DDD	32/52	8	32	6.6	1.0	23/48	5	20	4.1	0.6	21/34	28	120	23.0	3.6	28 (1)	99	1.3	0.1
4,4'-DDE	39/52	4.9	12	2.4	0.0	26/48	3.4	29	1.6	0.0	24/34	24	99	11.6	0.1	3.78 (1)	9	3.1	0.5
4,4'-DDT	22/51	8.8	66	7.4	1.8	20/48	8.6	190	7.2	1.8	23/34	16	58.7	13.4	3.4	0.72 (2)	1.8	0.3	0
Total PCBs	47/53	1500	16860	69.4	7.9	26/36	2700	39263	125.0	14.3	6/31	1100	19413	50.9	5.8	1.1 (1)	4.4	0.9	0.5
PAHS (µg/kg)																			
Total PAHs	45/46	21000	106770	12.5	1.3	37/37	11000	43238	6.5	0.7	32/34	20000	116010	11.9	1.2	14467	72700	8.6	0.9
Dioxins (ng/kg)																			
2,3,7,8-TCDD TEQ	40/40	49	348	9800	1960	33/33	120	1830	24000	4800	33/34	230	1587	46000	9200	6.6	16.3	1.3	0.3

Notes:

ND = not detected
a = Number in parentheses is the number of samples with levels below the detection limit
b = TCDD TEQs were calculated using dioxin and furan data; a benchmark of 0.005 ug/kg was used for HQTEL and 0.025 for HQPEL.

TABLE 7-7
CONCENTRATIONS OF METALS, PCBs, DDTs, AND PAHs IN INVERTEBRATE TISSUES (wet weight)
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

	Area D		Reference Area
	Mussel		Crab
Chemical	Min	Max	
Trace Elements (mg/kg)			
Arsenic	1.60	3.6	1.7
Cadmium	0.49	1.1	0.088
Chromium	0.85	2.8	3.73
Copper	16.70	29.8	52.6
Lead	0.69	1.6	3.66
Mercury	0.09	0.14	0.023
Nickel	0.50	0.75	2.75
Silver	0.65	1.1	ND
Zinc	58.4	70	23.5
Pest/PCBs (µg/kg)			
4,4'-DDD	<2.15	16	<3
4,4'-DDE	<2.15	8.4	<2
4,4'-DDT	<1.95	<2.6	<2
Total PCBs	38	266.8	80
PAHS (µg/kg)			
Total PAHs	608	1095	37
Dioxins (ng/kg)			
2,3,7,8-TCDD TEQ	NA	NA	2.29
%Lipids	2	4	1.06
%Solids	NA	NA	32.7

NA = Not Available (not analyzed or not reported)
ND = Not Detected

TABLE 7-8
CONCENTRATIONS OF METALS, PCBs, DDTs, AND PAHs IN CRAB AND MOLLUSC TISSUES (wet weight)
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Chemical	Area B			Area C			Reference Areas
		Mollusc			Mussel		
	Crab	Min	Max	Crab	Min	Max	Crab
Trace Elements (mg/kg)							
Arsenic	1.55	NA	NA	2.00	2.000	2.2	1.70
Cadmium	0.222	0.463	1.18	0.052	0.440	0.67	0.088
Chromium	2.32	NA	NA	2.29	1.200	2.3	3.73
Copper	57.0	NA	NA	103	24.200	42.6	52.6
Lead	6.12	0.029	0.353	52.5	1.100	2.2	3.66
Mercury	0.016	0.0172	0.0485	0.016	0.100	0.11	0.023
Nickel	2.90	0.215	0.628	2.58	0.620	0.84	2.75
Silver	ND	NA	NA	ND	1.100	1.9	ND
Zinc	27.1	NA	NA	27.1	58.200	68.2	23.5
Pest/PCBs (µg/kg)							
4,4'-DDD	<2	<13	<13	<2	<2.15	6.8	<3
4,4'-DDT	<3	<9	<9	<20	<2.15	<2.2	<2
4,4'-DDE	<2	<9	<9	<2	<2.15	<2.2	<2
Total PCBs	180	19.4	31	1800	<2.3	54.4	80
PAHS (µg/kg)							
Total PAHs	188	<10	36.3	43	558	859	37
Dioxins (ng/kg)							
2,3,7,8-TCDD TEQ	2.52	NA	NA	15.7	NA	NA	2.29
%Lipids	1.21	NA	NA	0.93	1.4	2.8	1.06
%Solids	32.2	NA	NA	32.2	NA	NA	32.7

NA = Not Available (not analyzed or not reported)
ND = Not Detected

TABLE 7-9
HAZARD QUOTIENTS FOR WILDLIFE BASED ON MAXIMUM CONTAMINANT CONCENTRATIONS AND NOAELs[1]
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Chemical	Black-crowned Night Heron				Raccoon			
	Area B	Area C	Area F	Reference	Area B	Area C	Area F	Reference
Trace Elements								
Arsenic	0.08	0.22	0.02	0.08	**1.29**	**3.98**	0.74	**1.89**
Cadmium	0.09	0.08	0.03	0.01	0.22	0.12	0.07	0.02
Chromium	**2.30**	**2.65**	**1.01**	**1.34**	**1.01**	**1.14**	0.48	0.52
Copper	0.31	**3.84**	0.11	0.24	**1.02**	**13.39**	0.42	0.90
Lead	**2.04**	**35.40**	**1.01**	0.31	0.78	**13.59**	0.39	0.12
Mercury	0.44	0.73	0.70	0.20	0.62	0.77	**1.04**	0.22
Nickel	0.01	0.02	0.00	0.00	0.02	0.04	0.01	0.01
Silver	0.00	0.03	0.01	0.00	0.01	0.21	0.09	0.00
Zinc	0.95	**1.65**	0.58	0.88	0.05	0.13	0.06	0.04
Pesticides and PCBs								
4,4'-DDD	0.21	0.40	**27.79**	0.40	0.00	0.00	0.00	0.00
4,4'-DDE	0.34	0.18	**33.79**	0.63	0.00	0.00	0.01	0.00
4,4'-DDT	0.01	0.03	**6.15**	0.19	0.00	0.00	0.00	0.00
Total PCBs	0.39	**1.35**	**1.00**	0.51	0.59	**1.80**	**1.32**	0.25
PAHs								
Total PAHs	0.01	0.01	0.01	0.01	0.44	0.30	0.46	0.29
Dioxins								
2,3,7,8-TCDD TEQ	0.08	0.42	0.29	0.03	0.00	0.01	0.01	0.00

[1] Quotients indicate the extent to which toxicity reference values are exceeded. A quotient greater than one indicates potential risk. Quotients were obtained by dividing the dose for each contaminant by the toxicity reference value, a no-observed-adverse-effect. Bold numbers on table indicate potential ecological risk.

TABLE 7-10
HAZARD QUOTIENTS FOR WILDLIFE BASED ON MEAN CONTAMINANT CONCENTRATIONS AND NOAELs[1]
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Chemical	Black-crowned Night Heron				Raccoon			
	Area B	Area C	Area F	Reference	Area B	Area C	Area F	Reference
Trace Elements								
Arsenic	0.06	0.20	0.01	0.07	0.87	**3.51**	0.17	**1.73**
Cadmium	0.05	0.06	0.00	0.01	0.11	0.09	0.01	0.01
Chromium	0.62	0.91	0.21	0.96	0.24	0.33	0.10	0.38
Copper	0.13	0.65	0.02	0.18	0.38	**1.56**	0.08	0.69
Lead	0.73	**3.29**	0.29	0.24	0.26	0.86	0.11	0.10
Mercury	0.20	0.60	0.09	0.16	0.25	0.59	0.11	0.18
Nickel	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.01
Silver	0.00	0.02	0.00	0.00	0.00	0.12	0.00	0.00
Zinc	0.65	**1.11**	0.12	0.79	0.02	0.07	0.01	0.04
Pesticides and PCBs								
4,4'-DDD	0.15	0.13	**11.27**	0.27	0.00	0.00	0.00	0.00
4,4'-DDE	0.24	0.01	**17.40**	0.44	0.00	0.00	0.00	0.00
4,4'-DDT	0.00	0.00	**3.05**	0.12	0.00	0.00	0.00	0.00
Total PCBs	0.11	0.82	0.30	0.17	0.13	0.76	0.34	0.12
PAHs								
Total PAHs	0.00	0.00	0.00	0.00	0.09	0.15	0.08	0.06
Dioxins								
2,3,7,8-TCDD TEQ	0.02	0.10	0.04	0.02	0.00	0.00	0.00	0.00

(1) Quotients indicate the extent to which toxicity reference values are exceeded. A quotient greater than one indicates potential risk. Quotients were obtained by dividing the dose for each contaminant by the toxicity reference value, a no-observed-adverse-effect level (NOAEL). Bold numbers on table indicate potential ecological risk.

TABLE 7-11
SEDIMENT TOXICITY TEST RESULTS
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Area	Sample ID	Amphipod Survival *Leptocheirus* Mean Survival (%)	Amphipod Survival *Leptocheirus* Toxic	Bivalve Development *Crassostrea* Mortality (%)	Bivalve Development *Crassostrea* Toxic	Reference
B	SD-07	30.0	Yes	NT	NT	NOAA (1998)
	SD-10	92.0	No	34.7	No	
	SD-19	79.0	No	NT	NT	
C	HB-06	98.0	No	NT	NT	
	HB-12	88.0	No	NT	NT	
	HB-23	78.0	No	83.7	Yes	
Ref	RF-01	99.0	na	NT	NT	
	RF-02	83.0	na	43.7	na	
	RF-03	78.0	na	NT	NT	
--	Control Sediment	92.5		3.1, 4.3[a]	na	
		Ampelisca		*Mulinia*		
		Survival (% of control)	Rank	% porewater at EC20	Rank	
B	SD07	79.0	+	7.20	+++	SAIC (1998)
	SD08	81.0	-	3.20	+++	
	SD28	79.0	+	55.7	+	
	SD37	84.0	-	7.39	+++	
	SD26	100	-	NT	NT	
	SD31	95.0	-	NT	NT	
	SD33	86.0	-	NT	NT	
C	CSD1	81.0	-	11.7	++	
	HB3A	8.26	+++	8.26	+++	
Ref	GM08	72.0	+	14.8	++	
C	C-1	53.3	++			SAIC (1999a)
	C-2	53.3	++			
	C-3	6.5	+++			
F	F-1	59.8	++			
	F-2	82.6	-			
	F-3	70.7	+			

na not applicable
[a]Results for two seawater controls
NT Not tested
Ranks: - not toxic, + low toxicity, ++ moderate toxicity, +++ severe toxicity

TABLE 7-12
CORRELATION COEFFICIENTS FOR COCS IN TOXICITY TEST SAMPLES
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

AOC B Toxicity Test Samples

Correlation coefficients at $p < 0.005$. 7 samples.

Chemical	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	PAHs	PCBs	TCDD
Arsenic	1											
Cadmium		1		0.93	0.97							
Chromium			1				0.91	0.93				
Copper		0.93		1	0.91		0.94					
Lead		0.97		0.91	1		0.94					
Mercury						1						
Nickel			0.91	0.94	0.94		1					
Silver			0.93					1				
Zinc									1			
Total PAHs										1		
Total PCBs											1	
2,3,7,8-TCDD TEQ												1

AOC C Toxicity Test Samples

Correlation coefficients at $p < 0.005$. 8 samples.

Chemical	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	PAHs	PCBs	TCDD
Arsenic	1					0.95						
Cadmium		1						0.95				
Chromium			1					0.91				
Copper				1	0.99		0.98		0.99		0.92	0.95
Lead				0.99	1		0.98		0.97		0.95	0.93
Mercury	0.95					1						
Nickel				0.98	0.98		1		0.98		0.97	0.87
Silver		0.95	0.91					1				
Zinc				0.99	0.97		0.98		1		0.91	0.90
Total PAHs										1		
Total PCBs				0.92	0.95		0.97		0.91		1	
2,3,7,8-TCDD TEQ				0.95	0.93		0.87		0.90			1

AOC F Toxicity Test Samples

Correlation coefficients at $p < 0.05$. Alpha level increased because of low number of samples, 3.

Chemical	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	PAHs	PCBs	TCDD
Arsenic	1				1.00		1.00	1.00	1.00			
Cadmium		1										
Chromium			1									
Copper				1								1.00
Lead	1.00				1		1.00	1.00	1.00			
Mercury						1						
Nickel	1.00				1.00		1	1.00	1.00			
Silver	1.00				1.00		1.00	1	1.00			
Zinc	1.00				1.00		1.00	1.00	1			
Total PAHs										1		
Total PCBs											1	
2,3,7,8-TCDD TEQ				1.00								1

TABLE 7-12 (cont.)
CORRELATION COEFFICIENTS FOR COCS IN TOXICITY TEST SAMPLES
DRAFT FINAL REMEDIAL INVESTIGATION - AREA II
RAYMARK - FERRY CREEK - OU3
STRATFORD, CONNECTICUT

Reference Toxicity Test Samples

Correlation coefficients at $p < 0.05$. Alpha level increased because of low number of samples, 4.

Chemical	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	PAHs	PCBs	TCDD
Arsenic	1	0.95										
Cadmium	0.95	1										
Chromium			1	0.98					0.96			
Copper			0.98	1		0.95			0.99			
Lead					1							
Mercury				0.95		1						
Nickel							1			-0.98	0.98	
Silver								1				
Zinc			0.96	0.99					1			
Total PAHs							-0.98			1	-0.99	
Total PCBs							0.98			-0.99	1	
2,3,7,8-TCDD TEQ												1

All Sediment Data Associated With Toxicity Tests

Correlation coefficients at $p < 0.005$. 43 samples.

Chemical	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Zinc	PAHs	PCBs	TCDD
Arsenic	1		0.76	0.51	0.45	0.70	0.60	0.56	0.53			
Cadmium		1		0.50	0.49		0.55		0.62			
Chromium	0.76		1	0.75	0.58	0.70	0.62	0.70	0.72		0.44	
Copper	0.51	0.50	0.75	1	0.88	0.45	0.79	0.61	0.87		0.66	0.68
Lead	0.45	0.49	0.58	0.88	1		0.88	0.60	0.87		0.84	0.81
Mercury	0.70		0.70	0.45		1		0.45				
Nickel	0.60	0.55	0.62	0.79	0.88		1	0.57	0.84		0.74	0.63
Silver	0.56		0.70	0.61	0.60	0.45	0.57	1	0.53		0.62	0.46
Zinc	0.53	0.62	0.72	0.87	0.87		0.84	0.53	1	0.50	0.65	0.60
Total PAHs									0.50	1		
Total PCBs			0.44	0.66	0.84		0.74	0.62	0.65		1	0.82
2,3,7,8-TCDD TEQ				0.68	0.81		0.63	0.46	0.60		0.82	1

TABLE 7-13
RISK SUMMARY
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK – FERRY CREEK - OU3
STRATFORD, CONNECTICUT

AOC	Direct Effect Measurements			Potential Effects Based on Exposure Measurements				
	Benthic Community Analysis	Sediment Toxicity Tests	Bivalve Development Tests	Maximum Sediment TEL Hazard Quotient[1]	Inverte-brate MATC Exceeded	Water Quality Criteria Exceeded (No./sample)	Fish MATC Exceeded	Wildlife Threshold Dose Exceeded[1]
B	degraded in diversity, no. of species, dominance	3 toxic of 10 samples	4 toxic of 5 samples	metals 26.2 pest./PCBs 69.4 dioxins 9,800 PAHs 12.5	copper Max. HQ = 3.2	metals 1.21 PCBs 0 DDD 0.21	none	none at average exposure
C	degraded in diversity, no. of species, dominance	4 toxic of 8 samples	3 toxic of 3 samples	metals 109 pest./PCBs 125 dioxins 24,000 PAHs 6.5	copper, lead Max. HQ = 5.8	metals 1.80 PCBs 0.27 DDD 0.07	no data	lead, zinc (birds) Max. HQ = 3.3 arsenic, copper (mammals) Max. HQ = 3.5
F	no data	2 toxic of 3 samples	no data	metals 12.9 pest./PCBs 50.9 dioxins 46,000 PAHs 11.9	no data	metals 2.00 PCBs 0 DDD 0	PCBs in eels; Max. HQ = 2.7	DDT (birds) Max. HQ = 17.4
Ref.	not degraded	1 toxic of 4 samples	1 toxic of 2 samples	metals 1.3 pest./PCBs 0.5 dioxins 0.3 PAHs 0.9	copper Max. HQ = 3.0	metals 0.86 PCBs 0 DDD 0	none	arsenic (mammals) Max. HQ = 1.7

[1] at mean contaminant concentrations
HQ = hazard quotient

TABLE 8-1
SUMMARY OF CONTAMINANTS
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK – FERRY CREEK - OU3
STRATFORD, CONNECTICUT

LOCATION	VOCs	SVOCs	Pesticides	PCBs	Dioxins/ Furans	Metals	Asbestos
SURFACE WATERS							
Area B	I	I	I	ND	NA	F	NA
Area C	I	ND	ND	ND	NA	F	NA
Area F	ND	ND	ND	ND	NA	F	NA
SEDIMENTS							
Area B	I	F	F	F	I	F	F
Area C	I	I	F	F	F	F	F
Area F	I	F	F	I	F	F	I
SOILS							
Area B	I	F	F	F	I	F	I
Area C	NA	NA	NA	I	NA	I	I
Area F	NA	NA	NA	NA	NA	NS	NA
BIOTA							
Area B	NA	F	I	F	NA	F	NA
Area C	NA	I	I	I	NA	F	NA
Area F	NA	ND	F	F	NA	F	NA

I = Infrequent
F = Frequent
ND = Not Detected
NA = Not Analyzed

TABLE 8-2
SUMMARY OF RISKS
DRAFT FINAL REMEDIAL INVESTIGATION – AREA II
RAYMARK – FERRY CREEK - OU3
STRATFORD, CONNECTICUT

AREA	MATRIX	HUMAN HEALTH RISK					ECOLOGICAL RISK			
		NON-CARCINOGENIC	CARCINOGENIC	LEAD	ASBESTOS	COMMENTS	BENTHOS	FISH	WILDLIFE	COMMENTS
B	SURFACE SOIL	No	No	No	Yes	CT DEP target cancer risk exceeded.	-	-	-	Benthos: moderate Fish: moderate Wildlife: low
	SUBSURFACE SOIL	Yes	Yes	No	Yes	CT DEP target cancer risk exceeded.	-	-	-	
	SEDIMENT	No	No	-	No	CT DEP target cancer risk exceeded.	Yes	-	No[2]	
	SURFACE WATER	No	No	No	-		-	Yes	No[2]	
	BIOTA	No	No		-	CT DEP target cancer risk exceeded.	Yes[1]	No	No[2]	
	TOXICITY TESTS	-	-	-	-		Yes	-	-	
C	SURFACE WATER	Yes	No	No	-	CT DEP target cancer risk exceeded.	-	Yes	Yes	Benthos: high (some locations) Fish: moderate Wildlife: moderate
	SEDIMENT	No	No	No	Yes	CT DEP target cancer risk exceeded.	Yes	-	Yes	
	BIOTA	-	-	-	-		Yes	-	Yes	
	TOXICITY TESTS	-	-	-	-		Yes	-	-	
F	SURFACE SOIL	No	Yes	No	No	CT DEP target risk exceeded.	-	-	-	Benthos: moderate Fish: moderate Wildlife: moderate
	BIOTA	No	No	-	-		-	Yes	Yes	
	SEDIMENT	No	No	No	No	CT DEP target risk exceeded.	Yes	-	Yes	
	SURFACE WATER	No	No	No	-		-	Yes	Yes	
	TOXICITY TESTS	-	-	-	-		Yes	-	-	

Notes:
- = not evaluated
[1] There was a similar risk level at background/reference location
[2] Risk is acceptable at average contaminant concentrations, not at maximum concentrations

Human Health Risk Assessment:
Non-Carcinogenic: Yes = HI $\geq$1 No = HI<1
Carcinogenic: Yes = Cancer Risk >10^{-4} No = Cancer Risk <10^{-4}
Lead: Yes = Greater than 5% probability that blood lead levels exceed 10 µg/dL
Asbestos: Yes = average asbestos $\geq$ 1%
CT DEP Target Level is 10^{-6} for single contaminants and total risk no greater than 10^{-5} for multiple contaminants