APPENDIX C

RISK ASSESSMENT

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Appendix C-1

Human Health Risk Assessment RAGs D Tables

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil 0 to 15 feet bgs	Stratford Landfill	Commercial Worker	Adult	Ingestion	Quant	Commercial workers are expected to be exposed to soil through inadvertent contact.
					Dermal	Quant	Commercial workers are expected to be exposed to soil through inadvertent contact.
					Inhalation	Qual	Commercial workers may be exposed to soil through inhalation of fugitive dust. A qualitative comparsion of soil concentrations to SSLs for inhalation will be performed.
	Surface Soil 0 to 2 feet bgs	Short Beach Park - Raymark Waste Areas	Recreational Visitor	Adult/Child	Ingestion	Quant	Current use of this site is as a recreational complex. Recreational visitors are expected to visit the Site for recreational purposes. Adults and children are expected to be exposed to soil through inadvertent contact.
					Dermal	Quant	Current use of this site is as a recreational complex. Recreational visitors are expected to visit the Site for recreational purposes. Adults and children are expected to be exposed to soil through inadvertent contact.
					Inhalation	Qual	Current use of this site is as a recreational complex. Recreational visitors may be exposed to soil through inhalation of fugitive dust. A qualitative comparsion of soil concentrations to SSLs for inhalation will be performed.
	Soil 0 feet bgs to water table	Short Beach Park - Raymark Waste Areas	Commercial Worker/ Groundskeeper	Adult	Ingestion	Quant	Commercial workers/groundskeepers are expected to be exposed to soil through inadvertent contact.
					Dermal	Quant	Commercial workers/groundskeepers are expected to be exposed to soil through inadvertent contact.
					Inhalation	Qual	Commercial workers/groundskeepers may be exposed to soil through inhalation of fugitive dust. A qualitative comparsion of soil concentrations to SSLs for inhalation will be performed.
Future	Soil 0 feet bgs to water table	Short Beach Park - Raymark Waste Areas	Residents	Adult/Child	Ingestion	Quant	Current use of this site is as a recreational complex, however, to be protective of all future uses, residential exposures are considered. Future residents, adults and children, are expected to be exposed to soil currently located at depth through inadvertent contact.
					Dermal	Quant	Current use of this site is as a recreational complex, however, to be protective of all future uses, residential exposures are considered. Future residents, adults and children, are expected to be exposed to soil currently located at depth through inadvertent contact.
					Inhalation	Qual	Current use of this site is as a recreational complex, however, to be protective of all future uses, residential exposures are considered. Future residents, adults and children, may be exposed to soil through inhalation of fugitive dust. A qualitative comparsion of soil concentrations to SSLs for inhalation will be performed.

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
STRATFORD LANDFILL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (4)
95-50-1	1,2-Dichlorobenzene	2	J	2	J	ug/kg	SBP-SO-532A-0406	1/7	8 - 26	2		370000 sat	600000	SSLI	NO	BSL
106-46-7	1,4-Dichlorobenzene	2	J	6	J	ug/kg	SBP-SO-532A-0406	2/7	8 - 26	6		7900 ca		SSLI	NO	BSL
78-93-3	2-Butanone	3	J	13	J	ug/kg	SBP-SO-532A-0406	4/7	10 - 26	13		2700000 nc		SSLI	NO	BSL
67-64-1	Acetone	3	J	40		ug/kg	SBP-SO-532A-0406	3/7	10 - 32	40		600000 nc		SSLI	NO	BSL
71-43-2	Benzene	3	J	3	J	ug/kg	SBP-SO-528A-0204	1/7	8 - 21	3		1300 ca*	800	SSLI	NO	BSL
75-15-0	Carbon Disulfide	5	J	8	J	ug/kg	SBP-SO-528A-0608	2/7	8 - 16	8		120000 nc	720000	SSLI	NO	BSL
108-90-7	Chlorobenzene	5	J	41	J	ug/kg	SBP-SO-532A-0204	4/7	10 - 15	41		53000 nc	130000	SSLI	NO	BSL
100-41-4	Ethylbenzene	2	J	35		ug/kg	SBP-SO-528A-0204	2/7	10 - 21	35		20000 ca	400000	SSLI	NO	BSL
98-82-8	Isopropylbenzene	2	J	8	J	ug/kg	SBP-SO-528A-0204	4/7	10 - 15	8		200000 nc		SSLI	NO	BSL
108-87-2	Methylcyclohexane	3	J	5	J	ug/kg	SBP-SO-528A-0204	2/7	8 - 16	5		870000 nc		SSLI	NO	BSL
108-88-3	Toluene	3	J	38		ug/kg	SBP-SO-528A-0204	2/7	8 - 16	38		220000 nc	650000	SSLI	NO	BSL
1330-20-7	Total Xylenes	10	J	190		ug/kg	SBP-SO-528A-0204	3/7	10 - 16	190		90000 nc		SSLI	NO	BSL
92-52-4	1,1'-Biphenyl	46		970		ug/kg	SBP-SO-528A-0204	4/7	28 - 30	970		350000 sat		SSLI	NO	BSL
105-67-9	2,4-Dimethylphenol	380	J	380	J	ug/kg	SBP-SO-532A-0204	1/7	370 - 480	380		1200000 nc		SSLI	NO	BSL
91-57-6	2-Methylnaphthalene	430		1000		ug/kg	SBP-SO-528A-0608, SBP-SO-532A-0406	5/7	28 - 29	1000		19000 nc		SSLI	NO	BSL
95-48-7	2-Methylphenol	73	J	600		ug/kg	SBP-SO-528A-0204	2/7	370 - 480	600		3100000 nc		SSLI	NO	BSL
106-44-5	4-Methylphenol	78	J	900		ug/kg	SBP-SO-528A-0204	4/7	370 - 400	900		310000 nc		SSLI	NO	BSL
83-32-9	Acenaphthene	370		1400		ug/kg	SBP-SO-532A-0406	5/7	28 - 29	1400		2900000 nc		SSLI	NO	BSL
208-96-8	Acenaphthylene	30		2200		ug/kg	SBP-SO-532A-0204	6/7	28 - 28	2200		19000 nc		SSLI	NO	BSL
120-12-7	Anthracene	400		2700	*	ug/kg	SBP-SO-532A-0204	5/7	28 - 29	2700		24000000 nc		SSLI	NO	BSL
100-52-7	Benzaldehyde	370	JEB	580	JEB	ug/kg	SBP-SO-532A-0204	3/7	370 - 440	580		6200000 nc		SSLI	NO	BSL
56-55-3	Benzo(a)anthracene	91	J	7100	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	7100		2100 ca		SSLI	YES	ASL
50-32-8	Benzo(a)pyrene	100	J	5800	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	5800		210 ca		SSLI	YES	ASL
205-99-2	Benzo(b)fluoranthene	110	J	7800	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	7800		2100 ca		SSLI	YES	ASL
191-24-2	Benzo(g,h,i)perylene	45	J	1500		ug/kg	SBP-SO-528A-0204	7/7	0 - 0	1500		2900000 nc		SSLI	NO	BSL
207-08-9	Benzo(k)fluoranthene	48	J	2900		ug/kg	SBP-SO-528A-0204	7/7	0 - 0	2900		21000 ca		SSLI	NO	BSL
117-81-7	bis(2-Ethylhexyl)phthalate	170	JEB	100000	*EB	ug/kg	SBP-SO-532A-0406	5/7	380 - 440	100000		120000 ca		SSLI	NO	BSL
86-74-8	Carbazole	78	J	1600		ug/kg	SBP-SO-532A-0204	5/7	370 - 380	1600		86000 ca		SSLI	NO	BSL
218-01-9	Chrysene	99	J	7600	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	7600		210000 ca		SSLI	NO	BSL
53-70-3	Dibenzo(a,h)anthracene	67		1100		ug/kg	SBP-SO-532A-0204	6/7	28 - 28	1100		210 ca		SSLI	YES	ASL
132-64-9	Dibenzofuran	270		1100		ug/kg	SBP-SO-528A-0608	5/7	28 - 29	1100		310000 nc		SSLI	NO	BSL
84-74-2	Di-n-Butylphthalate	50	J	170	J	ug/kg	SBP-SO-532A-0406	2/7	370 - 440	170		6200000 nc		SSLI	NO	BSL
206-44-0	Fluoranthene	170	J	16000	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	16000		2200000 nc		SSLI	NO	BSL
86-73-7	Fluorene	530		2400		ug/kg	SBP-SO-532A-0204	5/7	28 - 29	2400		2600000 nc		SSLI	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	60	J	3600	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	3600		2100 ca		SSLI	YES	ASL
91-20-3	Naphthalene	160		840		ug/kg	SBP-SO-528A-0204	5/7	28 - 29	840		19000 nc	170000	SSLI	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
STRATFORD LANDFILL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (4)
86-30-6	N-Nitroso-diphenylamine	220	J	330	J	ug/kg	SBP-SO-532A-0204	2/7	370 - 440	330		350000 ca		SSLI	NO	BSL
85-01-8	Phenanthrene	77	J	16000	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	16000		24000000 nc		SSLI	NO	BSL
108-95-2	Phenol	62	JEB	1900		ug/kg	SBP-SO-528A-0204	4/7	370 - 400	1900		37000000 nc		SSLI	NO	BSL
129-00-0	Pyrene	170	J	17000	*	ug/kg	SBP-SO-532A-0204	7/7	0 - 0	17000		2900000 nc		SSLI	NO	BSL
72-54-8	4,4'-DDD	5.6	#	11	#	ug/kg	SBP-SO-528A-0204	3/7	3.7 - 4.8	11	4.6	10000 ca		SSLI	NO	BSL
72-55-9	4,4'-DDE	3.8	J	9.8	J#	ug/kg	SBP-SO-532A-0406	4/7	3.7 - 4	9.8	16.7	7000 ca		SSLI	NO	BSL
50-29-3	4,4'-DDT	17	#	140	*#	ug/kg	SBP-SO-528A-0204	2/7	3.7 - 4.8	140	29.1	7000 ca*		SSLI	NO	BSL
53469-21-9	Aroclor-1242	61		61		ug/kg	SL-SO-304-0608	1/11	37 - 500	61	46.1	740 ca		SSLI	NO	BSL
11097-69-1	Aroclor-1254	700		700		ug/kg	SBP-SO-532A-0406	1/12	37 - 500	700	46.1	740 ca*		SSLI	NO	BSL
37324-23-5	Aroclor-1262	600		60000		ug/kg	SL-SO-TP02-1.92.6	16/35	37 - 1000	60000	36.8	740 ca		SSLI	YES	ASL
11100-14-4	Aroclor-1268	290		41000		ug/kg	SL-SO-TP02-1.92.6	18/36	37 - 1000	41000	46.1	740 ca		SSLI	YES	ASL
AROCLORTOTC	Aroclor, Total (Conservative)	225		101000		ug/kg	SL-SO-TP02-1.92.6	20/36	37 - 1000	101000		1000 ca		SSLI	YES	ASL
1031-07-8	Endosulfan Sulfate	6	#	6	#	ug/kg	SBP-SO-528A-0608	1/7	3.7 - 4.8	6	4.69	370000 nc		SSLI	NO	BSL
7421-93-4	Endrin Aldehyde	5.2		260	*	ug/kg	SBP-SO-528A-0204	2/7	3.7 - 4.8	260	4.56	18000 nc		SSLI	NO	BSL
5103-74-2	gamma-Chlordane	3.1	#	7.7		ug/kg	SBP-SO-528A-0204	3/7	1.9 - 2.1	7.7	2.67	6500 ca*	72000	SSLI	NO	BSL
72-43-5	Methoxychlor	43		43		ug/kg	SBP-SO-528A-0204	1/7	19 - 25	43	22.3	310000 nc		SSLI	NO	BSL
TE	Toxicity Equivalency	0.33	J	1.2	J	ug/kg	SBP-SO-532A-0204	2/2	0 - 0	1.2		0.016 ca		SSLI	YES	ASL
7429-90-5	Aluminum	4580	J	13900	J	mg/kg	SBP-SO-532A-0406	7/7	0 - 0	13900	12900			SSLI	NO	EPA-I
7440-38-2	Arsenic	4.9		14.5		mg/kg	SBP-SO-528A-0608	5/7	0.96 - 1.1	14.5	5.67	1.6 ca	770	SSLI	YES	ASL
7440-39-3	Barium	59.9		4970		mg/kg	SBP-SO-528A-0204	7/7	0 - 0	4970	57.5	6700 nc	710000	SSLI	NO	BSL
7440-41-7	Beryllium	0.16		0.67		mg/kg	SBP-SO-528A-0002	4/7	0.2 - 0.33	0.67	0.719	1900 ca**	1400	SSLI	NO	BSL
7440-43-9	Cadmium	0.24		1.3		mg/kg	SBP-SO-532A-0406	3/7	0.041 - 0.047	1.3	0.397	45 nc	1800	SSLI	NO	BSL
7440-70-2	Calcium	1720		4560	J	mg/kg	SBP-SO-532A-0002	7/7	0 - 0	4560	1600			SSLI	NO	NUT
7440-47-3	Chromium	8.4	J	102	J	mg/kg	SBP-SO-528A-0204	7/7	0 - 0	102	17	64 ca	280	SSLI	YES	ASL
7440-48-4	Cobalt	5.5		17.6		mg/kg	SBP-SO-528A-0204	7/7	0 - 0	17.6	6.35			SSLI	NO	EPA-I
7440-50-8	Copper	26.3	J	25700		mg/kg	SL-SO-TP02-1.92.6	73/164	150 - 150	25700	28.8			SSLI	NO	EPA-I
7439-89-6	Iron	10200		58600		mg/kg	SBP-SO-528A-0608	7/7	0 - 0	58600	16000			SSLI	NO	EPA-I
7439-92-1	Lead	13.3	J	28700		mg/kg	SL-SO-TP04-0203	143/165	40 - 40	28700	80.8	750 nc		SSLI	YES	ASL
7439-95-4	Magnesium	2720	J	32100		mg/kg	SBP-SO-528A-0204	7/7	0 - 0	32100	3250			SSLI	NO	NUT
7439-96-5	Manganese	288	J	462	J	mg/kg	SBP-SO-532A-0002	7/7	0 - 0	462	306	1900 nc		SSLI	NO	BSL
7439-97-6	Mercury	0.096	J	0.19	J	mg/kg	SBP-SO-532A-0406	2/7	0.049 - 0.067	0.19	0.111	31 nc	10	SSLI	NO	BSL
7440-02-0	Nickel	8.6		277	J	mg/kg	SBP-SO-528A-0204	7/7	0 - 0	277	12.5	2000 nc	14000	SSLI	NO	BSL
7440-09-7	Potassium	761		1790		mg/kg	SBP-SO-532A-0204	7/7	0 - 0	1790	961			SSLI	NO	NUT
7782-49-2	Selenium	0.48	J	1.9	J	mg/kg	SBP-SO-528A-0608	5/7	0.45 - 1.4	1.9	0.499	510 nc		SSLI	NO	BSL
7440-22-4	Silver	2.3		8		mg/kg	SBP-SO-532A-0406	2/6	0.14 - 1.4	8	0.508	510 nc		SSLI	NO	BSL
7440-23-5	Sodium	101		236		mg/kg	SBP-SO-532A-0204	2/7	46.8 - 343	236	76.4			SSLI	NO	NUT

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
STRATFORD LANDFILL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (4)
7440-62-2	Vanadium	16.8		32.6		mg/kg	SBP-SO-532A-0002	7/7	0 - 0	32.6	34.2	720 nc		SSLI	NO	BSL
7440-66-6	Zinc	34	J	1360	J	mg/kg	SBP-SO-528A-0204	7/7	0 - 0	1360	112	31000 nc		SSLI	NO	BSL
ASBESTOS	Asbestos	0.9	*	48	*	%	SBP-SO-528A-0204	36/39	0.1 - 0.9	48	0.99	1		SSLI	YES	ASL

(1) Minimum/maximum detected concentration.

(2) N/A - Refer to supporting information for background discussion.
Background values are the average of off-site background soil concentrations.

(3) Region IX PRG residential soil October 2002. Region IX PRGs for non-carcinogens have been adjusted by a factor of 0.1 to correspond to an HI of 0.1. The Region IX PRG October 2000 is used for acetophenone.

(4) Rationale Codes Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- ca = Carcinogenic
- nc = Non-Carcinogenic
- EB = present in equipment blank
- nc_1 = Region IX PRG for this non-carcinogen was based on a ceiling limit or saturation. The value shown is 1/10 of the original Region IX PRG.

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK - 0 to 2 FEET
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK - 0 to 2 FEET

CAS Number	Chemical	(1) Minimum Concentration	Minimum Qualifier	(1) Maximum Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	(2) Background Value	(3) Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	(4) Rationale for Contaminant Deletion or Selection
75-34-3	1,1-Dichloroethane	1	J	1	J	ug/kg	SBP-SO-622A-0002	1/35	2 - 32	1		51000 nc	1200000	SSLI	NO	BSL
78-93-3	2-Butanone	1	J	84		ug/kg	SBP-SO-407A-0002	13/35	2 - 16	84		730000 nc		SSLI	NO	BSL
67-64-1	Acetone	2	J	7300	J	ug/kg	SBP-SS-333A-000.5	11/35	2 - 48	7300		160000 nc		SSLI	NO	BSL
71-43-2	Benzene	7	J	7	J	ug/kg	SBP-SO-407A-0002	1/35	2 - 32	7		600 ca*	800	SSLI	NO	BSL
75-15-0	Carbon Disulfide	1	J	5	J	ug/kg	SBP-SO-407A-0002	4/35	2 - 32	5		36000 nc	720000	SSLI	NO	BSL
108-90-7	Chlorobenzene	1	J	3	J	ug/kg	SBP-SO-407A-0002	4/35	2 - 32	3		15000 nc	130000	SSLI	NO	BSL
156-59-2	cis-1,2-Dichloroethene	1	J	28		ug/kg	SBP-SO-622A-0002	2/35	2 - 32	28		4300 nc		SSLI	NO	BSL
110-82-7	Cyclohexane	10		10		ug/kg	SBP-SO-407A-0002	1/35	2 - 32	10		140000 sat		SSLI	NO	BSL
100-41-4	Ethylbenzene	1	J	1	J	ug/kg	SBP-SO-407A-0002	1/35	2 - 32	1		8900 ca	400000	SSLI	NO	BSL
98-82-8	Isopropylbenzene	22		22		ug/kg	SBP-SO-407A-0002	1/35	2 - 32	22		57000 nc		SSLI	NO	BSL
108-87-2	Methylcyclohexane	2	J	7	J	ug/kg	SBP-SO-407A-0002	2/35	2 - 32	7		260000 nc		SSLI	NO	BSL
100-42-5	Styrene	1	J	2	J	ug/kg	SBP-SO-482A-0002	2/35	2 - 32	2		440000 nc	1500000	SSLI	NO	BSL
108-88-3	Toluene	2	J	17		ug/kg	SBP-SO-622A-0002	5/35	2 - 17	17		66000 nc	650000	SSLI	NO	BSL
1330-20-7	Total Xylenes	1	J	10		ug/kg	SBP-SO-407A-0002	4/35	2 - 32	10		27000 nc		SSLI	NO	BSL
156-60-5	trans-1,2-Dichloroethene	1	J	1	J	ug/kg	SBP-SO-622A-0002	1/35	2 - 32	1		6900 nc		SSLI	NO	BSL
79-01-6	Trichloroethene	1	J	1	J	ug/kg	SBP-SO-622A-0002	1/35	2 - 32	1		53 ca	5000	SSLI	NO	BSL
75-01-4	Vinyl Chloride	2	J	2	J	ug/kg	SBP-SO-622A-0002	1/35	2 - 32	2		79 ca	600	SSLI	NO	BSL
105-67-9	2,4-Dimethylphenol	36	J	440	J	ug/kg	SBP-SO-622A-0002	6/35	350 - 470	440		120000 nc		SSLI	NO	BSL
91-57-6	2-Methylnaphthalene	95		95		ug/kg	SBP-SO-504A-0002	1/35	26 - 36	95		5600 nc		SSLI	NO	BSL
95-48-7	2-Methylphenol	31	J	490		ug/kg	SBP-SO-622A-0002	5/35	350 - 470	490		310000 nc		SSLI	NO	BSL
106-47-8	4-Chloroaniline	48	J	170	J	ug/kg	SBP-SS-501A-000.5	5/35	350 - 470	170		24000 nc		SSLI	NO	BSL
106-44-5	4-Methylphenol	34	J	400		ug/kg	SBP-SO-622A-0002	6/35	350 - 470	400		31000 nc		SSLI	NO	BSL
83-32-9	Acenaphthene	71		71		ug/kg	SBP-SO-504A-0002	1/35	26 - 36	71		370000 nc		SSLI	NO	BSL
208-96-8	Acenaphthylene	89		320	J	ug/kg	SBP-SO-451A-0002-MAX	4/35	26 - 36	320		5600 nc		SSLI	NO	BSL
98-86-2	Acetophenone	42	J	190	J	ug/kg	SBP-SO-431A-0002	6/35	350 - 470	190		49 nc		SSLI	NO	BSL
120-12-7	Anthracene	34		340		ug/kg	SBP-SO-504A-0002	7/35	26 - 36	340		2200000 nc		SSLI	NO	BSL
100-52-7	Benzaldehyde	41	J	160	JEB	ug/kg	SBP-SO-501A-0002-MAX	3/35	350 - 470	160		610000 nc		SSLI	NO	BSL
56-55-3	Benzo(a)anthracene	35		980	J	ug/kg	SBP-SO-451A-0002-MAX	25/35	28 - 36	980		620 ca		SSLI	YES	ASL
50-32-8	Benzo(a)pyrene	38		920		ug/kg	SBP-SO-451A-0002-MAX	25/35	28 - 36	920		62 ca		SSLI	YES	ASL
205-99-2	Benzo(b)fluoranthene	38		1300	J	ug/kg	SBP-SO-451A-0002-MAX	30/35	28 - 36	1300		620 ca		SSLI	YES	ASL
191-24-2	Benzo(g,h,i)perylene	32	J	830	J	ug/kg	SBP-SO-451A-0002-MAX	19/35	27 - 36	830		230000 nc		SSLI	NO	BSL
207-08-9	Benzo(k)fluoranthene	37		500	J	ug/kg	SBP-SO-451A-0002-MAX	16/35	27 - 36	500		6200 ca		SSLI	NO	BSL
111-44-4	Bis(2-Chloroethyl)ether	270	J	270	J	ug/kg	SBP-SS-501A-000.5	1/35	350 - 470	270		210 ca		SSLI	YES	ASL
117-81-7	bis(2-Ethylhexyl)phthalate	37	J	930		ug/kg	SBP-SO-622A-0002	27/35	380 - 550	930		35000 ca		SSLI	NO	BSL
85-68-7	Butylbenzylphthalate	70	J	70	J	ug/kg	SBP-SO-561A-0002	1/35	350 - 470	70		1200000 nc		SSLI	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK - 0 to 2 FEET
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK - 0 to 2 FEET

CAS Number	Chemical	(1) Minimum Concentration	Minimum Qualifier	(1) Maximum Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	(2) Background Value	(3) Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	(4) Rationale for Contaminant Deletion or Selection
86-74-8	Carbazole	37	J	82	J	ug/kg	SBP-SO-504A-0002	3/35	350 - 470	82		24000 ca		SSLI	NO	BSL
218-01-9	Chrysene	32		1100		ug/kg	SBP-SO-451A-0002-MAX	27/35	28 - 36	1100		62000 ca		SSLI	NO	BSL
53-70-3	Dibenzo(a,h)anthracene	30		210	J	ug/kg	SBP-SO-451A-0002-MAX	5/35	26 - 36	210		62 ca		SSLI	YES	ASL
132-64-9	Dibenzofuran	79		79		ug/kg	SBP-SO-504A-0002	1/35	26 - 36	79		29000 nc		SSLI	NO	BSL
84-74-2	Di-n-Butylphthalate	43	JEB	55	J	ug/kg	SBP-SO-333A-0002	4/35	350 - 470	55		610000 nc		SSLI	NO	BSL
117-84-0	Di-n-octylphthalate	360	J	360	J	ug/kg	SBP-SO-482A-0002	1/35	350 - 470	360		240000 nc		SSLI	NO	BSL
206-44-0	Fluoranthene	48		1900		ug/kg	SBP-SO-504A-0002	31/35	28 - 36	1900		230000 nc		SSLI	NO	BSL
86-73-7	Fluorene	46		300		ug/kg	SBP-SO-504A-0002	3/35	26 - 36	300		270000 nc		SSLI	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	29		690	J	ug/kg	SBP-SO-451A-0002-MAX	18/35	27 - 36	690		620 ca		SSLI	YES	ASL
91-20-3	Naphthalene	110		110		ug/kg	SBP-SO-504A-0002	1/35	26 - 36	110		5600 nc	170000	SSLI	NO	BSL
87-86-5	Pentachlorophenol	80	J	80	J	ug/kg	SBP-SO-333A-0002	1/35	880 - 1200	80		3000 ca		SSLI	NO	BSL
85-01-8	Phenanthrene	31		2200		ug/kg	SBP-SO-504A-0002	25/35	28 - 36	2200		2200000 nc		SSLI	NO	BSL
108-95-2	Phenol	49	JEB	260	JEB	ug/kg	SBP-SS-701A-000.5	9/35	350 - 470	260		3700000 nc		SSLI	NO	BSL
129-00-0	Pyrene	30		2200		ug/kg	SBP-SO-504A-0002	33/35	32 - 36	2200		230000 nc		SSLI	NO	BSL
72-54-8	4,4'-DDD	1.9	J	47		ug/kg	SBP-SO-741A-0002	5/35	3.5 - 4.7	47	4.6	2400 ca		SSLI	NO	BSL
72-55-9	4,4'-DDE	1.4	J	200	*	ug/kg	SBP-SO-622A-0002	26/35	3.5 - 4.7	200	16.7	1700 ca		SSLI	NO	BSL
50-29-3	4,4'-DDT	1.1	J	28	#	ug/kg	SBP-SO-504A-0002	19/35	3.5 - 4.7	28	29.1	1700 ca*		SSLI	NO	BSL
5103-71-9	alpha-Chlordane	1.6	J	10	J	ug/kg	SBP-SO-501A-0002-MAX	10/35	1.8 - 2.4	10	4.88	1600 ca	72000	SSLI	NO	BSL
11097-69-1	Aroclor-1254	73		73		ug/kg	SBP-SO-451A-0002-MAX	1/39	35 - 410	73	46.1	220 ca*		SSLI	NO	BSL
37324-23-5	Aroclor-1262	32	J	4000	*	ug/kg	SBP-SO-504-0002	23/48	35 - 500	4000	36.8	220 ca		SSLI	YES	ASL
11100-14-4	Aroclor-1268	56		2500		ug/kg	SBP-SO-504-0002	20/50	35 - 500	2500	46.1	220 ca		SSLI	YES	ASL
AROCLORTOTC	Aroclor, Total (Conservative)	212		6500		ug/kg	SBP-SO-504-0002	26/50	35 - 500	6500		220 ca		SSLI	YES	ASL
319-85-7	beta-BHC	2.8		2.8		ug/kg	SBP-SO-504A-0002	1/35	1.8 - 2.4	2.8	2.39	320 ca	6000	SSLI	NO	BSL
60-57-1	Dieldrin	5		6		ug/kg	SBP-SO-501A-0002-MAX	3/35	3.5 - 4.7	6	13.1	30 ca	1000	SSLI	NO	BSL
1031-07-8	Endosulfan Sulfate	3.9	#	15	#	ug/kg	SBP-SO-622A-0002	4/35	3.5 - 4.7	15	4.69	37000 nc		SSLI	NO	BSL
72-20-8	Endrin	27	J	27	J	ug/kg	SBP-SO-451A-0002-MAX	1/35	3.5 - 4.7	27	4.77	1800 nc		SSLI	NO	BSL
7421-93-4	Endrin Aldehyde	1.9	J	3.9		ug/kg	SBP-SO-482A-0002	2/35	3.5 - 4.7	3.9	4.56	1800 nc		SSLI	NO	BSL
5103-74-2	gamma-Chlordane	1.1	J	6.6		ug/kg	SBP-SO-501A-0002-MAX, SBP-SS-501A-000.5	9/35	1.8 - 2.4	6.6	2.67	1600 ca	72000	SSLI	NO	BSL
1024-57-3	Heptachlor Epoxide	4.3		4.3		ug/kg	SBP-SO-501A-0002-MAX	1/35	1.8 - 2.4	4.3	2.33	53 ca*	5000	SSLI	NO	BSL
72-43-5	Methoxychlor	4.6	J	6.2	J	ug/kg	SBP-SO-521A-0002	2/35	18 - 24	6.2	22.3	31000 nc		SSLI	NO	BSL
TE	Toxicity Equivalency	0.0032	J	0.047	J	ug/kg	SBP-SS-503A-000.5	9/9	0 - 0	0.047		0.0039 ca		SSLI	YES	ASL
7429-90-5	Aluminum	2030		16300		mg/kg	SBP-SS-707A-000.5	36/36	0 - 0	16300	12900			SSLI	NO	EPA-I
7440-38-2	Arsenic	0.43	J	10.7		mg/kg	SBP-SO-451A-0002-MAX	21/36	0.44 - 2.8	10.7	5.67	0.39 ca	770	SSLI	YES	ASL
7440-39-3	Barium	9.6		2330		mg/kg	SBP-SO-482A-0002	36/36	0 - 0	2330	57.5	540 nc	710000	SSLI	YES	ASL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK - 0 to 2 FEET
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK - 0 to 2 FEET

CAS Number	Chemical	(1) Minimum Concentration	Minimum Qualifier	(1) Maximum Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	(2) Background Value	(3) Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	(4) Rationale for Contaminant Deletion or Selection
7440-41-7	Beryllium	0.051	J	3.7		mg/kg	SBP-SO-569A-0002	25/36	0.098 - 0.73	3.7	0.719	15 ca**	1400	SSLI	NO	BSL
7440-43-9	Cadmium	0.059		3.5		mg/kg	SBP-SS-501A-000.5	11/36	0.036 - 0.66	3.5	0.397	3.7 nc	1800	SSLI	NO	BSL
7440-70-2	Calcium	1110		48000		mg/kg	SBP-SO-353A-0002	36/36	0 - 0	48000	1600			SSLI	NO	NUT
7440-47-3	Chromium	11		40.6		mg/kg	SBP-SS-482A-000.5	36/36	0 - 0	40.6	17	30 ca	280	SSLI	YES	ASL
7440-48-4	Cobalt	1.2		15.5		mg/kg	SBP-SO-451A-0002-MAX	36/36	0 - 0	15.5	6.35			SSLI	NO	EPA-I
7440-50-8	Copper	20.2	J	10300		mg/kg	SBP-SO-492-0002	64/132	150 - 150	10300	28.8			SSLI	NO	EPA-I
7439-89-6	Iron	1110		20700		mg/kg	SBP-SS-707A-000.5	36/36	0 - 0	20700	16000			SSLI	NO	EPA-I
7439-92-1	Lead	7.3	J	3520		mg/kg	SBP-SO-492-0002	87/134	40 - 40	3520	80.8	400 nc		SSLI	YES	ASL
7439-95-4	Magnesium	1060		9530		mg/kg	SBP-SO-622A-0002	36/36	0 - 0	9530	3250			SSLI	NO	NUT
7439-96-5	Manganese	48.1		545		mg/kg	SBP-SS-707A-000.5	36/36	0 - 0	545	306	180 nc		SSLI	YES	ASL
7439-97-6	Mercury	0.059	J	0.51		mg/kg	SBP-SO-741A-0002	13/31	0.045 - 0.071	0.51	0.111	2.3 nc	10	SSLI	NO	BSL
7440-02-0	Nickel	4.7		72		mg/kg	SBP-SO-622A-0002	36/36	0 - 0	72	12.5	160 nc	14000	SSLI	NO	BSL
7440-09-7	Potassium	225		3200		mg/kg	SBP-SO-707A-0002-MAX	36/36	0 - 0	3200	961			SSLI	NO	NUT
7782-49-2	Selenium	0.49	J	1	J	mg/kg	SBP-SS-701A-000.5	9/36	0.42 - 1.1	1	0.499	39 nc		SSLI	NO	BSL
7440-22-4	Silver	0.69		11.1		mg/kg	SBP-SS-501A-000.5	13/36	0.11 - 6.5	11.1	0.508	39 nc		SSLI	NO	BSL
7440-23-5	Sodium	63		1970		mg/kg	SBP-SO-501A-0002-MAX	19/36	48.6 - 292	1970	76.4			SSLI	NO	NUT
7440-28-0	Thallium	0.66	J	0.66	J	mg/kg	SBP-SO-480A-0002	1/36	0.38 - 1.3	0.66	0.368	0.52 nc		SSLI	YES	ASL
7440-62-2	Vanadium	4.7		38.5		mg/kg	SBP-SS-707A-000.5	36/36	0 - 0	38.5	34.2	55 nc		SSLI	NO	BSL
7440-66-6	Zinc	36.1		598		mg/kg	SBP-SS-701A-000.5	36/36	0 - 0	598	112	2300 nc		SSLI	NO	BSL
ASBESTOS	Asbestos	0.9	*	32	*	%	SBP-SO-482-0002, SBP-SO-701-0002	37/50	0.1 - 0.1	32	0.99	1		SSLI	YES	ASL

(1) Minimum/maximum detected concentration.

(2) N/A - Refer to supporting information for background discussion.
Background values are the average of off-site background soil concentrations.

(3) Region IX PRG residential soil October 2002. Region IX PRGs for non-carcinogens have been adjusted by a factor of 0.1 to correspond to an HI of 0.1. The Region IX PRG October 2000 is used for acetophenone.

(4) Rationale Codes Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- ca = Carcinogenic
- nc = Non-Carcinogenic
- EB = present in equipment blank
- nc_1 = Region IX PRG for this non-carcinogen was based on a ceiling limit or saturation. The value shown is 1/10 of the original Region IX PRG.

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
71-55-6	1,1,1-Trichloroethane	0.9	J	8	J	ug/kg	SBP-SO-480A-0204	3/99	2 - 1900	8		200000 nc	1200000	SSLI	NO	BSL
75-34-3	1,1-Dichloroethane	1	J	21	J	ug/kg	SBP-SO-486A-0406	10/99	2 - 1900	21		51000 nc	1200000	SSLI	NO	BSL
75-35-4	1,1-Dichloroethene	2	J	2	J	ug/kg	SBP-SO-504A-0204	1/99	2 - 1900	2		12000 nc	70	SSLI	NO	BSL
95-50-1	1,2-Dichlorobenzene	1	J	51		ug/kg	SBP-SO-519A-0810	8/99	2 - 1900	51		110000 nc	600000	SSLI	NO	BSL
541-73-1	1,3-Dichlorobenzene	3	J	18	J	ug/kg	SBP-SO-519A-0810	3/99	2 - 1900	18		1600 nc		SSLI	NO	BSL
106-46-7	1,4-Dichlorobenzene	2	J	120		ug/kg	SBP-SO-519A-0810	13/99	2 - 1900	120		3400 ca		SSLI	NO	BSL
78-93-3	2-Butanone	1	J	190		ug/kg	SBP-SO-519A-0810	64/99	2 - 1900	190		730000 nc		SSLI	NO	BSL
108-10-1	4-Methyl-2-Pentanone	2600		2600		ug/kg	SBP-SO-482A-0204-MAX	1/99	2 - 49	2600		79000 nc		SSLI	NO	BSL
67-64-1	Acetone	2	J	7300	J	ug/kg	SBP-SS-333A-000.5	37/99	2 - 88	7300		160000 nc		SSLI	NO	BSL
71-43-2	Benzene	0.7	J	21		ug/kg	SBP-SO-622A-0406	24/99	2 - 49	21		600 ca*	800	SSLI	NO	BSL
75-15-0	Carbon Disulfide	0.7	J	56		ug/kg	SBP-SO-519A-0810	45/99	2 - 38	56		36000 nc	720000	SSLI	NO	BSL
108-90-7	Chlorobenzene	0.8	J	730	*	ug/kg	SBP-SO-519A-0810	33/99	2 - 38	730		15000 nc	130000	SSLI	NO	BSL
75-00-3	Chloroethane	3	J	55	J	ug/kg	SBP-SO-486A-0406	6/99	2 - 49	55		3000 ca		SSLI	NO	BSL
74-87-3	Chloromethane	2	J	2	J	ug/kg	SBP-SO-355A-0204	1/99	2 - 1900	2		1200 ca		SSLI	NO	BSL
156-59-2	cis-1,2-Dichloroethene	1	J	49	J	ug/kg	SBP-SO-622A-0204	12/99	2 - 38	49		4300 nc		SSLI	NO	BSL
110-82-7	Cyclohexane	0.7	J	55		ug/kg	SBP-SO-504A-0406	13/99	2 - 1900	55		140000 sat		SSLI	NO	BSL
75-71-8	Dichlorodifluoromethane	4	J	4	J	ug/kg	SBP-SO-407A-0204	1/99	2 - 1900	4		9400 nc		SSLI	NO	BSL
100-41-4	Ethylbenzene	0.8	J	160	J	ug/kg	SBP-SO-486A-0406	19/99	2 - 38	160		8900 ca	400000	SSLI	NO	BSL
98-82-8	Isopropylbenzene	1	J	230	J	ug/kg	SBP-SO-482A-0204-MAX	28/99	2 - 37	230		57000 nc		SSLI	NO	BSL
79-20-9	Methyl Acetate	2	J	5	J	ug/kg	SBP-SO-707A-0608	2/99	2 - 1900	5		2200000 nc		SSLI	NO	BSL
108-87-2	Methylcyclohexane	0.8	J	3000	*	ug/kg	SBP-SO-486A-0406	35/99	2 - 37	3000		260000 nc		SSLI	NO	BSL
75-09-2	Methylene Chloride	6	J	14	J	ug/kg	SBP-SO-501A-0406	2/99	2 - 1900	14		9100 ca	13000	SSLI	NO	BSL
100-42-5	Styrene	1	J	3	J	ug/kg	SBP-SO-482A-0608	3/99	2 - 1900	3		440000 nc	1500000	SSLI	NO	BSL
127-18-4	Tetrachloroethene	2	J	2	J	ug/kg	SBP-SO-480A-0204	1/99	2 - 1900	2		1500 ca*	10000	SSLI	NO	BSL
108-88-3	Toluene	0.5	J	15000	*J	ug/kg	SBP-SO-482A-0204-MAX	35/99	2 - 37	15000		66000 nc	650000	SSLI	NO	BSL
1330-20-7	Total Xylenes	0.9	J	540	J	ug/kg	SBP-SO-486A-0406	34/99	2 - 33	540		27000 nc		SSLI	NO	BSL
156-60-5	trans-1,2-Dichloroethene	1	J	2	J	ug/kg	SBP-SO-480A-0204, SBP-SO-622A-0204, SBP-SO-622A-0406	4/99	2 - 1900	2		6900 nc		SSLI	NO	BSL
79-01-6	Trichloroethene	0.8	J	53		ug/kg	SBP-SO-480A-0204	10/99	2 - 1900	53		53 ca	5000	SSLI	NO	BSL
75-69-4	Trichlorofluoromethane	3	J	3	J	ug/kg	SBP-SO-482A-0608	1/99	2 - 1900	3		39000 nc		SSLI	NO	BSL
75-01-4	Vinyl Chloride	2	J	5	J	ug/kg	SBP-SO-622A-0204	2/99	2 - 1900	5		79 ca	600	SSLI	NO	BSL
92-52-4	1,1'-Biphenyl	33		1500		ug/kg	SBP-SO-480A-0406	35/99	26 - 41	1500		300000 nc		SSLI	NO	BSL
120-83-2	2,4-Dichlorophenol	47	J	47	J	ug/kg	SBP-SO-357A-1012	1/99	350 - 630	47		18000 nc		SSLI	NO	BSL
105-67-9	2,4-Dimethylphenol	36	J	6500	*	ug/kg	SBP-SO-365A-0406	33/99	350 - 540	6500		120000 nc		SSLI	NO	BSL
91-58-7	2-Chloronaphthalene	360	J	360	J	ug/kg	SBP-SO-622A-0608	1/99	350 - 630	360		490000 nc		SSLI	NO	BSL
91-57-6	2-Methylnaphthalene	34	J	12000	*	ug/kg	SBP-SO-622A-0406	47/99	26 - 41	12000		5600 nc		SSLI	YES	ASL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
95-48-7	2-Methylphenol	31	J	1000		ug/kg	SBP-SO-486A-0406	27/99	350 - 540	1000		310000 nc		SSLI	NO	BSL
106-47-8	4-Chloroaniline	48	J	170	J	ug/kg	SBP-SS-501A-000.5	6/99	350 - 630	170		24000 nc		SSLI	NO	BSL
106-44-5	4-Methylphenol	34	J	2500		ug/kg	SBP-SO-480A-0204	36/99	350 - 540	2500		31000 nc		SSLI	NO	BSL
83-32-9	Acenaphthene	30		8300	*	ug/kg	SBP-SO-480A-0406	40/99	26 - 47	8300		370000 nc		SSLI	NO	BSL
208-96-8	Acenaphthylene	36		12000	*	ug/kg	SBP-SO-480A-0406	49/99	26 - 47	12000		5600 nc		SSLI	YES	ASL
98-86-2	Acetophenone	42	J	420	J	ug/kg	SBP-SO-622A-0204	27/99	350 - 630	420		49 nc		SSLI	YES	ASL
120-12-7	Anthracene	34		28000	*	ug/kg	SBP-SO-480A-0406	55/99	26 - 47	28000		2200000 nc		SSLI	NO	BSL
100-52-7	Benzaldehyde	41	J	530	JEB	ug/kg	SBP-SO-337A-0204	22/99	350 - 630	530		610000 nc		SSLI	NO	BSL
56-55-3	Benzo(a)anthracene	34		33000	*	ug/kg	SBP-SO-480A-0406	84/99	27 - 47	33000		620 ca		SSLI	YES	ASL
50-32-8	Benzo(a)pyrene	36		24000	*	ug/kg	SBP-SO-480A-0406	84/99	27 - 47	24000		62 ca		SSLI	YES	ASL
205-99-2	Benzo(b)fluoranthene	30		31000	*	ug/kg	SBP-SO-480A-0406	92/99	28 - 47	31000		620 ca		SSLI	YES	ASL
191-24-2	Benzo(g,h,i)perylene	31		12000	*	ug/kg	SBP-SO-480A-0406	71/99	27 - 47	12000		230000 nc		SSLI	NO	BSL
207-08-9	Benzo(k)fluoranthene	31		12000	*	ug/kg	SBP-SO-480A-0406	70/99	27 - 47	12000		6200 ca		SSLI	YES	ASL
111-44-4	Bis(2-Chloroethyl)ether	270	J	270	J	ug/kg	SBP-SS-501A-000.5	1/99	350 - 630	270		210 ca		SSLI	YES	ASL
117-81-7	bis(2-Ethylhexyl)phthalate	37	J	12000	*	ug/kg	SBP-SO-357A-1012	76/99	350 - 11000	12000		35000 ca		SSLI	NO	BSL
85-68-7	Butylbenzylphthalate	38	J	40000	*J	ug/kg	SBP-SO-561A-0406	10/99	350 - 5700	40000		1200000 nc		SSLI	NO	BSL
105-60-2	Caprolactam	140	J	450		ug/kg	SBP-SO-622A-0406	3/99	350 - 630	450		3100000 nc		SSLI	NO	BSL
86-74-8	Carbazole	37	J	18000	*	ug/kg	SBP-SO-480A-0406	45/99	350 - 630	18000		24000 ca		SSLI	NO	BSL
218-01-9	Chrysene	27		32000	*	ug/kg	SBP-SO-480A-0406	90/99	28 - 36	32000		62000 ca		SSLI	NO	BSL
53-70-3	Dibenzo(a,h)anthracene	30		4300	*	ug/kg	SBP-SO-480A-0406	45/99	26 - 47	4300		62 ca		SSLI	YES	ASL
132-64-9	Dibenzofuran	31		13000	*	ug/kg	SBP-SO-480A-0406	42/99	26 - 47	13000		29000 nc		SSLI	NO	BSL
84-66-2	Diethylphthalate	430	J	430	J	ug/kg	SBP-SO-451A-0204-MAX	1/99	350 - 630	430		4900000 nc		SSLI	NO	BSL
131-11-3	Dimethylphthalate	75	J	200	J	ug/kg	SBP-SO-486A-0406	7/99	350 - 620	200		61000000 nc		SSLI	NO	BSL
84-74-2	Di-n-Butylphthalate	39	J	140	J	ug/kg	SBP-SO-355A-0406, SBP-SO-486A-0406	23/99	350 - 580	140		610000 nc		SSLI	NO	BSL
117-84-0	Di-n-octylphthalate	360	J	360	J	ug/kg	SBP-SO-482A-0002	1/99	350 - 11000	360		240000 nc		SSLI	NO	BSL
206-44-0	Fluoranthene	45		88000	*	ug/kg	SBP-SO-480A-0406	95/99	28 - 36	88000		230000 nc		SSLI	NO	BSL
86-73-7	Fluorene	39		30000	*	ug/kg	SBP-SO-480A-0406	52/99	26 - 39	30000		270000 nc		SSLI	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	29		13000	*	ug/kg	SBP-SO-480A-0406	69/99	27 - 47	13000		620 ca		SSLI	YES	ASL
91-20-3	Naphthalene	33		8400	*	ug/kg	SBP-SO-357A-0608	47/99	26 - 41	8400		5600 nc	170000	SSLI	YES	ASL
621-64-7	N-Nitroso-di-n-propylamine	420		420		ug/kg	SBP-SO-357A-0810	1/99	350 - 630	420		69 ca		SSLI	YES	ASL
86-30-6	N-Nitroso-diphenylamine	44	J	3700	*	ug/kg	SBP-SO-357A-1012	14/99	350 - 630	3700		99000 ca		SSLI	NO	BSL
87-86-5	Pentachlorophenol	56	J	89	J	ug/kg	SBP-SO-337A-0406	3/99	870 - 1600	89		3000 ca		SSLI	NO	BSL
85-01-8	Phenanthrene	31		130000	*	ug/kg	SBP-SO-480A-0406	87/99	27 - 36	130000		2200000 nc		SSLI	NO	BSL
108-95-2	Phenol	40	J	8200	*	ug/kg	SBP-SO-486A-0406	48/99	350 - 540	8200		3700000 nc		SSLI	NO	BSL
129-00-0	Pyrene	30		69000	*	ug/kg	SBP-SO-480A-0406	97/99	32 - 36	69000		230000 nc		SSLI	NO	BSL
72-54-8	4,4'-DDD	1.9	J	290	*	ug/kg	SBP-SO-561A-0608	35/99	3.5 - 40	290	4.6	2400 ca		SSLI	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
72-55-9	4,4'-DDE	1.2	J	590	*	ug/kg	SBP-SO-482A-0204-MAX	79/99	3.5 - 6	590	16.7	1700 ca		SSLI	NO	BSL
50-29-3	4,4'-DDT	1.1	J	53	#	ug/kg	SBP-SO-337A-0204	46/99	3.5 - 8.5	53	29.1	1700 ca*		SSLI	NO	BSL
309-00-2	Aldrin	4.2		4.2		ug/kg	SBP-SO-745A-0406	1/99	1.8 - 21	4.2	2.41	29 ca	3000	SSLI	NO	BSL
319-84-6	alpha-BHC	2.5		2.5		ug/kg	SBP-SO-506A-0204	1/99	1.8 - 21	2.5	2.41	90 ca	700	SSLI	NO	BSL
5103-71-9	alpha-Chlordane	1.2	J	45		ug/kg	SBP-SO-622A-0608	22/99	1.8 - 21	45	4.88	1600 ca	72000	SSLI	NO	BSL
53469-21-9	Aroclor-1242	2400	*J	2400	*J	ug/kg	SBP-SO-745A-0608-MAX	1/104	35 - 410	2400	46.1	220 ca		SSLI	YES	ASL
12672-29-6	Aroclor-1248	88		44000	*J	ug/kg	SBP-SO-745A-0608-MAX	2/104	35 - 410	44000	46.1	220 ca		SSLI	YES	ASL
11097-69-1	Aroclor-1254	72	J	1300		ug/kg	SBP-SO-519A-0810	11/106	35 - 410	1300	46.1	220 ca*		SSLI	YES	ASL
11096-82-5	Aroclor-1260	23	J	1100		ug/kg	SBP-SO-357A-0810	8/106	35 - 410	1100	46.1	220 ca		SSLI	YES	ASL
37324-23-5	Aroclor-1262	32	J	47000		ug/kg	SBP-SO-697-0204	82/156	35 - 1000	47000	36.8	220 ca		SSLI	YES	ASL
11100-14-4	Aroclor-1268	51		44000		ug/kg	SBP-SO-697-0204	73/158	35 - 1000	44000	46.1	220 ca		SSLI	YES	ASL
AROCLORTOTC	Aroclor, Total (Conservative)	212		91000		ug/kg	SBP-SO-697-0204	98/158	35 - 1000	91000		220 ca		SSLI	YES	ASL
319-85-7	beta-BHC	2		43		ug/kg	SBP-SO-745A-0608-MAX	10/99	1.8 - 4.6	43	2.39	320 ca	6000	SSLI	NO	BSL
60-57-1	Dieldrin	1.1	J	420	J	ug/kg	SBP-SO-745A-0608-MAX	7/99	3.5 - 8.9	420	13.1	30 ca	1000	SSLI	YES	ASL
959-98-8	Endosulfan I	6.1	J	73	J	ug/kg	SBP-SO-745A-0608-MAX	3/99	1.8 - 4.6	73	4.52	37000 nc		SSLI	NO	BSL
33213-65-9	Endosulfan II	11		11		ug/kg	SBP-SO-482A-0204-MAX	1/99	3.5 - 40	11	4.72	37000 nc		SSLI	NO	BSL
1031-07-8	Endosulfan Sulfate	3.9	#	130	J	ug/kg	SBP-SO-745A-0608-MAX	19/99	3.5 - 8.5	130	4.69	37000 nc		SSLI	NO	BSL
72-20-8	Endrin	27	J	58		ug/kg	SBP-SO-745A-0608-MAX	2/99	3.5 - 8.9	58	4.77	1800 nc		SSLI	NO	BSL
7421-93-4	Endrin Aldehyde	1.9	J	14		ug/kg	SBP-SO-353A-0406	10/99	3.5 - 40	14	4.56	1800 nc		SSLI	NO	BSL
53494-70-5	Endrin Ketone	5.1		20		ug/kg	SBP-SO-519A-0406	7/99	3.5 - 40	20	5.31	1800 nc		SSLI	NO	BSL
5103-74-2	gamma-Chlordane	0.88	J	230	J	ug/kg	SBP-SO-745A-0608-MAX	18/99	1.8 - 4.4	230	2.67	1600 ca	72000	SSLI	NO	BSL
76-44-8	Heptachlor	2.7		3.5		ug/kg	SBP-SO-482A-0204-MAX	2/99	1.8 - 21	3.5	2.19	110 ca	4000	SSLI	NO	BSL
1024-57-3	Heptachlor Epoxide	2.7		8.2		ug/kg	SBP-SO-506A-0810	5/99	1.8 - 21	8.2	2.33	53 ca*	5000	SSLI	NO	BSL
72-43-5	Methoxychlor	4.6	J	62	J	ug/kg	SBP-SO-622A-0406	9/99	18 - 46	62	22.3	31000 nc		SSLI	NO	BSL
TE	Toxicity Equivalency	0.0011	J	0.38	J	ug/kg	SBP-SO-480A-0204	22/22	0 - 0	0.38		0.0039 ca		SSLI	YES	ASL
7429-90-5	Aluminum	1840		16900		mg/kg	SBP-SO-451A-0204-MAX	100/100	0 - 0	16900	12900			SSLI	NO	EPA-I
7440-36-0	Antimony	1.4	J	38.6		mg/kg	SBP-SO-707A-0608	3/95	0.35 - 5.2	38.6	2.86	3.1 nc		SSLI	YES	ASL
7440-38-2	Arsenic	0.43	J	31.3	J	mg/kg	SBP-SO-451A-0204-MAX	72/100	0.44 - 6	31.3	5.67	0.39 ca	770	SSLI	YES	ASL
7440-39-3	Barium	9.6		9900		mg/kg	SBP-SO-745A-0406	100/100	0 - 0	9900	57.5	540 nc	710000	SSLI	YES	ASL
7440-41-7	Beryllium	0.051	J	3.7		mg/kg	SBP-SO-569A-0002	54/99	0.037 - 0.73	3.7	0.719	15 ca**	1400	SSLI	NO	BSL
7440-43-9	Cadmium	0.059		4.7	J	mg/kg	SBP-SO-519A-0810	41/99	0.036 - 1.1	4.7	0.397	3.7 nc	1800	SSLI	YES	ASL
7440-70-2	Calcium	1110		48000		mg/kg	SBP-SO-353A-0002	100/100	0 - 0	48000	1600			SSLI	NO	NUT
7440-47-3	Chromium	7.5	J	267		mg/kg	SBP-SO-355A-0204	100/100	0 - 0	267	17	30 ca	280	SSLI	YES	ASL
7440-48-4	Cobalt	1.2		30.7	J	mg/kg	SBP-SO-745A-0406	100/100	0 - 0	30.7	6.35			SSLI	NO	EPA-I
7440-50-8	Copper	13.6	J	32500		mg/kg	SBP-SO-745A-0406	188/301	150 - 150	32500	28.8			SSLI	NO	EPA-I
7439-89-6	Iron	1110		98400		mg/kg	SBP-SO-451A-0204-MAX	100/100	0 - 0	98400	16000			SSLI	NO	EPA-I
7439-92-1	Lead	5.2	J	20500		mg/kg	SBP-SO-745A-0406	239/303	40 - 40	20500	80.8	400 nc		SSLI	YES	ASL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SHORT BEACH PARK
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: SHORT BEACH PARK

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
7439-95-4	Magnesium	1060		81700		mg/kg	SBP-SO-355A-0204	100/100	0 - 0	81700	3250			SSLI	NO	NUT
7439-96-5	Manganese	48.1		869	J	mg/kg	SBP-SO-741A-0204	100/100	0 - 0	869	306	180 nc		SSLI	YES	ASL
7439-97-6	Mercury	0.045	J	2.4	J	mg/kg	SBP-SO-519A-0810	56/91	0.04 - 0.081	2.4	0.111	2.3 nc	10	SSLI	YES	ASL
7440-02-0	Nickel	4.7		647		mg/kg	SBP-SO-355A-0204	100/100	0 - 0	647	12.5	160 nc	14000	SSLI	YES	ASL
7440-09-7	Potassium	225		3200		mg/kg	SBP-SO-707A-0002-MAX	98/100	250 - 302	3200	961			SSLI	NO	NUT
7782-49-2	Selenium	0.45	J	43.7	J	mg/kg	SBP-SO-451A-0204-MAX	37/100	0.35 - 2	43.7	0.499	39 nc		SSLI	YES	ASL
7440-22-4	Silver	0.29		11.1		mg/kg	SBP-SS-501A-000.5	48/99	0.1 - 6.5	11.1	0.508	39 nc		SSLI	NO	BSL
7440-23-5	Sodium	63		1970		mg/kg	SBP-SO-501A-0002-MAX	35/99	46.7 - 292	1970	76.4			SSLI	NO	NUT
7440-28-0	Thallium	0.66	J	5.7	J	mg/kg	SBP-SO-451A-0204-MAX	3/100	0.35 - 2.1	5.7	0.368	0.52 nc		SSLI	YES	ASL
7440-62-2	Vanadium	4.7		1220	J	mg/kg	SBP-SO-480A-0204	100/100	0 - 0	1220	34.2	55 nc		SSLI	YES	ASL
7440-66-6	Zinc	31.5	J	12000		mg/kg	SBP-SO-431A-0204	100/100	0 - 0	12000	112	2300 nc		SSLI	YES	ASL
ASBESTOS	Asbestos	0.9	*	48	*	%	SBP-SO-480-0204, SBP-SO-745A-0406	137/157	0.1 - 0.9	48	0.99	1		SSLI	YES	ASL

(1) Minimum/maximum detected concentration.

(2) N/A - Refer to supporting information for background discussion.

Background values are the average of off-site background soil concentrations.

(3) Region IX PRG residential soil October 2002. Region IX PRGs for non-carcinogens have been adjusted by a factor of 0.1 to correspond to an HI of 0.1. The Region IX PRG October 2000 is used for acetophenone.

(4) Rationale Codes Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- ca = Carcinogenic
- nc = Non-Carcinogenic
- EB = present in equipment blank
- nc_1 = Region IX PRG for this non-carcinogen was based on a ceiling limit or saturation. The value shown is 1/10 of the original Region IX PRG.

TABLE 3.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
STRATFORD LANDFILL - AREA OF RAYMARK WASTE
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface and Subsurface)
Exposure Point: STRATFORD LANDFILL

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Benzo(a)anthracene	ug/kg	2000	5920	7100	*	ug/kg	5920	Approximate Gamma 95% UCL	--	5920	Approximate Gamma 95% UCL	--
Benzo(a)pyrene	ug/kg	1700	4600	5800	*	ug/kg	4600	Approximate Gamma 95% UCL	--	4600	Approximate Gamma 95% UCL	--
Benzo(b)fluoranthene	ug/kg	2200	6218	7800	*	ug/kg	6218	Approximate Gamma 95% UCL	--	6218	Approximate Gamma 95% UCL	--
Dibenzo(a,h)anthracene	ug/kg	280	821	1100		ug/kg	821	Approximate Gamma 95% UCL	--	821	Approximate Gamma 95% UCL	--
Indeno(1,2,3-cd)pyrene	ug/kg	970	2723	3600	*	ug/kg	2723	Approximate Gamma 95% UCL	--	2723	Approximate Gamma 95% UCL	--
Aroclor, Total (Conservative)	ug/kg	7151	36116	101000		ug/kg	36116	97.5% Chebyshev(MVUE) UCL	--	36116	97.5% Chebyshev(MVUE) UCL	--
Toxicity Equivalency	ug/kg	0.76	NA	1.2	J	ug/kg	1.2	Max	(3)	0.76	Average	(3)
Arsenic	mg/kg	5.9	9.44	15		mg/kg	9.44	Student-t	--	9.44	Student-t	--
Chromium	mg/kg	35.4	60.1	102	J	mg/kg	60.1	Student-t	--	60.1	Student-t	--
Lead	mg/kg	625	1914	28700		mg/kg	1914	97.5% Chebyshev(Mean, Std) UCL	--	1914	97.5% Chebyshev(Mean, Std) UCL	--
Asbestos	%	12	33.2	48	*	%	33.2	99% Chebyshev(Mean, Std) UCL	--	33.2	99% Chebyshev(Mean, Std) UCL	--

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 3.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SHORT BEACH PARK 0 TO 2 FEET - AREA OF RAYMARK WASTE
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface)
Exposure Point: SHORT BEACH PARK 0 TO 2 FEET

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Acetophenone	ug/kg	180	190	190	J	ug/kg	190	Max	(2)	180	Average	(2)
Benzo(a)anthracene	ug/kg	130	510	980	J	ug/kg	510	99% Chebyshev(Mean, Std) UCL	--	510	99% Chebyshev(Mean, Std) UCL	--
Benzo(a)pyrene	ug/kg	130	468	920		ug/kg	468	99% Chebyshev(Mean, Std) UCL	--	468	99% Chebyshev(Mean, Std) UCL	--
Benzo(b)fluoranthene	ug/kg	190	653	1300	J	ug/kg	653	99% Chebyshev(Mean, Std) UCL	--	653	99% Chebyshev(Mean, Std) UCL	--
Bis(2-Chloroethyl)ether	ug/kg	190	199	270	J	ug/kg	199	Student-t or Modified-t UCL	(1)	199	Student-t or Modified-t UCL	(1)
Dibenzo(a,h)anthracene	ug/kg	26	54.7	210	J	ug/kg	54.7	95% Chebyshev(Mean, Std) UCL	--	54.7	95% Chebyshev(Mean, Std) UCL	--
Indeno(1,2,3-cd)pyrene	ug/kg	81	311	690	J	ug/kg	311	99% Chebyshev(Mean, Std) UCL	--	311	99% Chebyshev(Mean, Std) UCL	--
Aroclor, Total (Conservative)	ug/kg	723	1901	6500		ug/kg	1901	97.5% Chebyshev(Mean, Std) UCL	--	1901	97.5% Chebyshev(Mean, Std) UCL	--
Toxicity Equivalency	ug/kg	0.013	0.024	0.047	J	ug/kg	0.024	Approximate Gamma 95% UCL	--	0.024	Approximate Gamma 95% UCL	--
Arsenic	mg/kg	1.7	2.23	11		mg/kg	2.23	Approximate Gamma 95% UCL	(1)	2.23	Approximate Gamma 95% UCL	(1)
Barium	mg/kg	247	1041	2330		mg/kg	1041	99% Chebyshev(Mean, Std) UCL	--	1041	99% Chebyshev(Mean, Std) UCL	--
Chromium	mg/kg	22.6	24.9	41		mg/kg	24.9	Approximate Gamma 95% UCL	--	24.9	Approximate Gamma 95% UCL	--
Lead	mg/kg	220	499	3520		mg/kg	499	97.5% Chebyshev(Mean, Std) UCL	--	499	97.5% Chebyshev(Mean, Std) UCL	--
Manganese	mg/kg	240	297	545		mg/kg	297	Approximate Gamma 95% UCL	--	297	Approximate Gamma 95% UCL	--
Thallium	mg/kg	0.43	0.470	0.66	J	mg/kg	0.470	Student-t or Modified-t UCL	(1)	0.470	Student-t or Modified-t UCL	(1)
Asbestos	%	6	20.3	32	*	%	20.3	99% Chebyshev(Mean, Std) UCL	--	20.3	99% Chebyshev(Mean, Std) UCL	--

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SHORT BEACH PARK - AREA OF RAYMARK WASTE
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface and Subsurface)
Exposure Point: SHORT BEACH PARK

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Acenaphthylene	ug/kg	340	1136	12000	*	ug/kg	1136	97.5% Chebyshev(Mean, Std) UCL	--	1136	97.5% Chebyshev(Mean, Std) UCL	--
Acetophenone	ug/kg	190	205	420	J	ug/kg	205	Student-t or Modified-t UCL	(1)	205	Student-t or Modified-t UCL	(1)
Benzo(a)anthracene	ug/kg	1700	5937	33000	*	ug/kg	5937	99% Chebyshev(Mean, Std) UCL	--	5937	99% Chebyshev(Mean, Std) UCL	--
Benzo(a)pyrene	ug/kg	1400	3369	24000	*	ug/kg	3369	97.5% Chebyshev(Mean, Std) UCL	--	3369	97.5% Chebyshev(Mean, Std) UCL	--
Benzo(b)fluoranthene	ug/kg	1800	4296	31000	*	ug/kg	4296	97.5% Chebyshev(Mean, Std) UCL	--	4296	97.5% Chebyshev(Mean, Std) UCL	--
Benzo(k)fluoranthene	ug/kg	700	1708	12000	*	ug/kg	1708	97.5% Chebyshev(Mean, Std) UCL	--	1708	97.5% Chebyshev(Mean, Std) UCL	--
Bis(2-Chloroethyl)ether	ug/kg	210	213	270	J	ug/kg	213	Student-t or Modified-t UCL	(1)	213	Student-t or Modified-t UCL	(1)
Dibenzo(a,h)anthracene	ug/kg	210	542	4300	*	ug/kg	542	97.5% Chebyshev(Mean, Std) UCL	--	542	97.5% Chebyshev(Mean, Std) UCL	--
Indeno(1,2,3-cd)pyrene	ug/kg	670	1688	13000	*	ug/kg	1688	97.5% Chebyshev(Mean, Std) UCL	--	1688	97.5% Chebyshev(Mean, Std) UCL	--
2-Methylnaphthalene	ug/kg	403	1277	12000	*	ug/kg	1277	97.5% Chebyshev(Mean, Std) UCL	--	1277	97.5% Chebyshev(Mean, Std) UCL	--
Naphthalene	ug/kg	400	1169	8400	*	ug/kg	1169	97.5% Chebyshev(Mean, Std) UCL	--	1169	97.5% Chebyshev(Mean, Std) UCL	--
N-Nitroso-di-n-propylamine	ug/kg	210	216	420		ug/kg	216	Student-t or Modified-t UCL	(1)	216	Student-t or Modified-t UCL	(1)
Aroclor, Total (Conservative)	ug/kg	2538	9440	91000		ug/kg	9440	99% Chebyshev(Mean, Std) UCL	--	9440	99% Chebyshev(Mean, Std) UCL	--
Dieldrin	ug/kg	6.5	24.9	420	J	ug/kg	24.9	95% Chebyshev(Mean, Std) UCL	--	24.9	95% Chebyshev(Mean, Std) UCL	--
Toxicity Equivalency	ug/kg	0.043	0.091	0.38	J	ug/kg	0.091	95% Chebyshev(MVUE) UCL	--	0.091	95% Chebyshev(MVUE) UCL	--
Antimony	mg/kg	0.99	2.78	39		mg/kg	2.78	95% Chebyshev(Mean, Std) UCL	(1)	2.78	95% Chebyshev(Mean, Std) UCL	(1)
Arsenic	mg/kg	4.9	8.08	31	J	mg/kg	8.08	97.5% Chebyshev(Mean, Std) UCL	--	8.08	97.5% Chebyshev(Mean, Std) UCL	--
Barium	mg/kg	1220	2586	9900		mg/kg	2586	97.5% Chebyshev(Mean, Std) UCL	--	2586	97.5% Chebyshev(Mean, Std) UCL	--
Cadmium	mg/kg	0.62	1.20	4.7	J	mg/kg	1.20	97.5% Chebyshev(Mean, Std) UCL	--	1.20	97.5% Chebyshev(Mean, Std) UCL	--
Chromium	mg/kg	43.2	63.5	267		mg/kg	63.5	95% Chebyshev(Mean, Std) UCL	--	63.5	95% Chebyshev(Mean, Std) UCL	--
Lead	mg/kg	1170	2763	20500		mg/kg	2763	99% Chebyshev(Mean, Std) UCL	--	2763	99% Chebyshev(Mean, Std) UCL	--
Manganese	mg/kg	242	271	869	J	mg/kg	271	Approximate Gamma 95% UCL	--	271	Approximate Gamma 95% UCL	--
Mercury	mg/kg	0.19	0.428	2.4	J	mg/kg	0.428	97.5% Chebyshev(Mean, Std) UCL	--	0.428	97.5% Chebyshev(Mean, Std) UCL	--
Nickel	mg/kg	77.2	159	647		mg/kg	159	97.5% Chebyshev(Mean, Std) UCL	--	159	97.5% Chebyshev(Mean, Std) UCL	--
Selenium	mg/kg	1	2.93	44	J	mg/kg	2.93	95% Chebyshev(Mean, Std) UCL	--	2.93	95% Chebyshev(Mean, Std) UCL	--
Thallium	mg/kg	0.49	0.583	5.7	J	mg/kg	0.583	Student-t or Modified-t UCL	(1)	0.583	Student-t or Modified-t UCL	(1)
Vanadium	mg/kg	38	96.2	1220	J	mg/kg	96.2	95% Chebyshev(Mean, Std) UCL	--	96.2	95% Chebyshev(Mean, Std) UCL	--
Zinc	mg/kg	828	1870	12000		mg/kg	1870	97.5% Chebyshev(Mean, Std) UCL	--	1870	97.5% Chebyshev(Mean, Std) UCL	--
Asbestos	%	10	19.4	48	*	%	19.4	99% Chebyshev(Mean, Std) UCL	--	19.4	99% Chebyshev(Mean, Std) UCL	--

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
ADULT COMMERCIAL WORKER EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Area of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) = (CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 1991	50	EPA, 1997	
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	2,555	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) = (CS x CF1 x SA x SSAF x DABS x EF x ED)/ (BW x AT)
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	SA	Skin Surface Area Available for Contact	cm2/day	3,300	EPA, 2001	3,300	EPA, 2001	
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.2	EPA, 2001	0.02	EPA, 2001	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	3,285	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund - Volume I: Human Health Evaluation Manual - Supplemental Guidance - "Standard Default Exposure Factors" - Interim Final. OSWER Directive 9285.6-03. Office of Emergency and Remedial Response. March 25.

EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 4.2A
VALUES USED FOR DAILY INTAKE CALCULATIONS
ADULT RECREATIONAL EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Surface Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 1991	50	EPA, 1997	(CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	150	EPA, 1994	150	EPA, 1994	
	ED	Exposure Duration	years	24	EPA, 1997	7	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	2,555	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Surface Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) =
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	(CS x CF1 x SA x SSAF x DABS x EF x ED)/
	SA	Skin Surface Area Available for Contact	cm2/day	5,700	EPA, 2001	5,700	EPA, 1997	(BW x AT)
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.07	EPA, 2001	0.01	EPA, 1997	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	150	EPA, 1994	150	EPA, 1994	
	ED	Exposure Duration	years	24	EPA, 1997	7	EPA, 1997	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	2,555	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund - Volume I: Human Health Evaluation Manual - Supplemental Guidance - "Standard Default Exposure Factors" - Interim Final. OSWER Directive 9285.6-03. Office of Emergency and Remedial Response. March 25.

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EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 4.2B
VALUES USED FOR DAILY INTAKE CALCULATIONS
CHILD RECREATIONAL EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Surface Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	200	EPA, 1997	100	EPA, 1997	(CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	150	EPA, 1994	150	EPA, 1994	
	ED	Exposure Duration	years	6	EPA, 1997	2	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	15	EPA, 1997	15	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	730	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Surface Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) =
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	(CS x CF1 x SA x SSAF x DABS x EF x ED)/
	SA	Skin Surface Area Available for Contact	cm2/day	2,800	EPA, 2001	2,800	EPA, 1997	(BW x AT)
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.2	EPA, 2001	0.04	EPA, 1997	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	150	EPA, 1994	150	EPA, 1994	
	ED	Exposure Duration	years	6	EPA, 1997	2	EPA, 1997	
	BW	Body Weight	kg	15	EPA, 1997	15	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	730	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1994: USEPA Region I Waste Management Division, USEPA Risk Update No. 2, Aug. 1994.
EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 4.3
VALUES USED FOR DAILY INTAKE CALCULATIONS
ADULT COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 1991	50	EPA, 1997	(CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	2,555	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) =
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	(CS x CF1 x SA x SSAF x DABS x EF x ED)/
	SA	Skin Surface Area Available for Contact	cm2/day	3,300	EPA, 2001	3,300	EPA, 2001	(BW x AT)
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.2	EPA, 2001	0.02	EPA, 2001	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	3,285	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund - Volume I: Human Health Evaluation Manual - Supplemental Guidance - "Standard Default Exposure Factors" - Interim Final. OSWER Directive 9285.6-03. Office of Emergency and Remedial Response. March 25.

EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 4.4A
VALUES USED FOR DAILY INTAKE CALCULATIONS
ADULT RESIDENTIAL EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 1991	50	EPA, 1997	(CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	350	EPA, 1994	350	EPA, 1994	
	ED	Exposure Duration	years	24	EPA, 1997	7	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	2,555	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) =
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	(CS x CF1 x SA x SSAF x DABS x EF x ED)/
	SA	Skin Surface Area Available for Contact	cm2/day	5,700	EPA, 2001	5,700	EPA, 2001	(BW x AT)
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.07	EPA, 2001	0.01	EPA, 2001	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	350	EPA, 1994	350	EPA, 1994	
	ED	Exposure Duration	years	24	EPA, 1997	7	EPA, 1997	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	2,555	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund - Volume I: Human Health Evaluation Manual - Supplemental Guidance - "Standard Default Exposure Factors" - Interim Final. OSWER Directive 9285.6-03. Office of Emergency and Remedial Response. March 25.

EPA, 1994: USEPA Region I Waste Management Division, USEPA Risk Update No. 2, Aug. 1994.

EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 4.4B
VALUES USED FOR DAILY INTAKE CALCULATIONS
CHILD RESIDENTIAL EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) = (CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	IR-S	Ingestion Rate of Soil	mg/day	200	EPA, 1997	100	EPA, 1997	
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	350	EPA, 1994	350	EPA, 1994	
	ED	Exposure Duration	years	6	EPA, 1997	2	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	15	EPA, 1997	15	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	730	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) = (CS x CF1 x SA x SSAF x DABS x EF x ED)/ (BW x AT)
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	SA	Skin Surface Area Available for Contact	cm2/day	2,800	EPA, 2001	2,800	EPA, 2001	
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.2	EPA, 2001	0.04	EPA, 2001	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	350	EPA, 1994	350	EPA, 1994	
	ED	Exposure Duration	years	6	EPA, 1997	2	EPA, 1997	
	BW	Body Weight	kg	15	EPA, 1997	15	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	730	EPA, 1989	

(1) Professional Judgement.
EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1994: USEPA Region I Waste Management Division, USEPA Risk Update No. 2, Aug. 1994.
EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 5.1
NON-CANCER CHRONIC TOXICITY DATA -- ORAL/DERMAL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value (1)	Oral RfD Units	GI Absorption in Toxicity Study	Adjusted Dermal RfD (2)	Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ (MM/DD/YY)	Dermal Absorption Factor for Soils (DABS)	Oral Absorption Factor for Soils (OABS)
Acenaphthylene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	Prof judg	N/A	0.13	1.0
Acetophenone	Chronic	1.00E-01	mg/kg-day	1.0E+00	1.00E-01	mg/kg-day	General	3000	IRIS	9/10/2004	0.1	1.0
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Bis-2 chloroethyl ether	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1.0
Dibenzo(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
2-Methylnaphthalene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	Prof judg	N/A	0.13	1.0
Naphthalene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	IRIS	9/10/2004	0.13	1.0
N-Nitroso-di-n-propylamine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1.0
Aroclor, Total (Conservative)	Chronic	2.00E-05	mg/kg-day	1.0E+00	2.00E-05	N/A	Skin/Eyes/Immune	300	IRIS	9/10/2004	0.14	1.0
Dieldrin	Chronic	5.00E-05	mg/kg-day	1.0E+00	5.00E-05	N/A	Liver	100	IRIS	9/10/2004	NA	1.0
Dioxin TEQ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	0.5
Antimony	Chronic	4.00E-04	mg/kg-day	1.5E-01	6.00E-05	N/A	Blood	1000	IRIS	9/10/2004	NA	1.0
Arsenic	Chronic	3.00E-04	mg/kg-day	1.0E+00	3.00E-04	N/A	Skin	3	IRIS	9/10/2004	0.03	1.0
Barium	Chronic	7.00E-02	mg/kg-day	7.0E-02	4.90E-03	N/A	Kidney	3	IRIS	9/10/2004	NA	1.0
Cadmium	Chronic	1.00E-03	mg/kg-day	2.5E-02	2.50E-05	N/A	Blood	10	IRIS	9/10/2004	0.001	1.0
Chromium VI	Chronic	3.00E-03	mg/kg-day	2.5E-02	7.50E-05	N/A	None	900	IRIS	9/10/2004	NA	1.0
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0
Manganese	Chronic	1.40E-01	mg/kg-day	4.0E-02	5.60E-03	mg/kg-day	CNS	3	IRIS	9/10/2004	NA	1.0
Mercury	Chronic	3.00E-04	mg/kg-day	1.0E+00	3.00E-04	mg/kg-day	CNS	30	EPA-NCEA	2002	NA	1.0
Nickel	Chronic	2.00E-02	mg/kg-day	4.0E-02	8.00E-04	mg/kg-day	Body Weight	300	IRIS	9/10/2004	NA	1.0
Selenium	Chronic	5.00E-03	mg/kg-day	1.0E+00	5.00E-03	mg/kg-day	General	3	IRIS	9/10/2004	NA	1.0
Thallium	Chronic	8.00E-05	mg/kg-day	1.0E+00	8.00E-05	mg/kg-day	None	3000	IRIS	9/10/2004	NA	1.0
Vanadium	Chronic	7.00E-03	mg/kg-day	2.6E-02	1.82E-04	mg/kg-day	Hair	100	HEAST	1997	NA	1.0
Zinc	Chronic	3.00E-01	mg/kg-day	1.0E+00	3.00E-01	mg/kg-day	Blood	3	IRIS	9/10/2004	NA	1.0
Asbestos	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0

N/A = Not Applicable

(1) To be used for oral pathway only. Based on administered dose.

(2) Adjusted RfD = oral RfD x GI absorption value in toxicity study upon which the RfD is based. To be used for dermal pathway only.

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Oral Cancer Slope Factor (1)	GI Absorption in Toxicity Study	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (MM/DD/YY)	Dermal Absorption Factor for Soils (DABS)	Oral Absorption Factor for Soils (OABS)
Acenaphthylene	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	0.13	1.0
Acetophenone	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Benzo(a)anthracene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Benzo(a)pyrene	7.3E+00	1.0E+00	7.3E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.13	1.0
Benzo(b)fluoranthene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Benzo(k)fluoranthene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Bis-2 chloroethyl ether	1.1E+00	1.0E+00	1.1E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.1	1.0
Dibenzo(a,h)anthracene	7.3E+00	1.0E+00	7.3E+00	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Indeno(1,2,3-cd)pyrene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0
Naphthalene	N/A	N/A	N/A	N/A	C	IRIS	9/10/2004	NA	1.0
N-Nitroso-di-n-propylamine	7.0E+00	1.0E+00	7.0E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.1	1.0
Aroclor, Total (Conservative)	2.0E+00	1.0E+00	2.0E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.14	1.0
Dieldrin	1.6E+01	1.0E+00	1.60E+01	1/(mg/kg-day)	B2	IRIS	9/10/2004	N/A	1.0
Dioxin TEQ	1.5E+05	1.0E+00	1.5E+05	1/(mg/kg-day)	B2	HEAST	1997	0.03	0.5
Dioxin TEQ(3)	1.0E+06	1.0E+00	1.0E+06	1/(mg/kg-day)	B2	EPA (3)	2001	0.03	0.5
Antimony	N/A	N/A	N/A	N/A	B2	N/A	N/A	N/A	1.0
Arsenic	1.5E+00	1.0E+00	1.5E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.03	1.0
Barium	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	N/A	1.0
Cadmium	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	0.001	1.0
Chromium VI	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Lead	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	NA	1.0
Manganese	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Mercury	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Nickel	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Selenium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Thallium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Vanadium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Zinc	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Asbestos	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0

IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
NCEA=National Center for Environnmental Assessment
(1) To be used for oral pathway only. Based on administered dose.
(2) Adjusted slope factor (SF) = oral SF x GI absorption value in toxicity study upon which the SF is based. To be used for dermal pathway only.
(3) Proposed Dioxin CSF per Draft Dioxin Reassessment, EPA, 2001

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

TABLE 7.1 RME
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	5.79E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	4.50E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	6.08E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	8.03E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.66E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	3.53E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	1.77E+00
	Dioxin TEQ	1.2	µg/kg	1.2	µg/kg	M	5.87E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	9.24E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	3.08E-02
	Chromium	60.1	mg/kg	60.1	mg/kg	M	5.88E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	1.96E-02
	Lead	1914	mg/kg	1914	mg/kg	M	1.87E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												1.82E+00
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	4.97E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	3.86E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	5.22E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	6.89E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.29E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	3.27E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	1.63E+00
	Dioxin TEQ	1.2	µg/kg	1.2	µg/kg	M	2.32E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	1.83E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	6.10E-03
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												1.64E+00
												Total of Routes	3.46E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.1 CTE
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	2.54E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.97E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	2.66E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	3.52E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	1.17E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	1.55E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	7.74E-01
	Dioxin TEQ	0.76	µg/kg	0.76	µg/kg	M	1.63E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	4.05E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.35E-02
	Chromium	60.1	mg/kg	60.1	mg/kg	M	2.58E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	8.59E-03
	Lead	1914	mg/kg	1914	mg/kg	M	8.20E-04	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												7.96E-01
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	4.35E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	3.38E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	4.57E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	6.04E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.00E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	2.86E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	1.43E-01
	Dioxin TEQ	0.76	µg/kg	0.76	µg/kg	M	1.29E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	1.60E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	5.34E-04
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												1.44E-01
												Total of Routes	9.40E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.2A RME
CALCULATION OF NON-CANCER HAZARDS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	1.12E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.12E-06
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.99E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.75E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	3.83E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.17E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	3.21E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.83E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	1.12E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	5.58E-02
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	7.05E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.31E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	4.36E-03
	Barium	1041	mg/kg	1041	mg/kg	M	6.11E-04	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	8.73E-03
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.46E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	4.87E-03
	Lead	499	mg/kg	499	mg/kg	M	2.93E-04	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	1.74E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	1.25E-03
	Thallium	0.470	mg/kg	0.470	mg/kg	M	2.76E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	3.45E-03
	(Total)												7.85E-02
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	4.45E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	4.45E-07
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.55E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.43E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.99E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	4.66E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.67E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	9.47E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	6.23E-07	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	3.12E-02
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	1.69E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.57E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	5.22E-04
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	(Total)												3.17E-02
												Total of Routes	1.10E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.2A CTE
CALCULATION OF NON-CANCER HAZARDS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	5.28E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	5.28E-07
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.50E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.37E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.92E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	5.84E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.61E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	9.13E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	5.58E-07	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	2.79E-02
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	3.52E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	6.55E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	2.18E-03
	Barium	1041	mg/kg	1041	mg/kg	M	3.06E-04	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	4.37E-03
	Chromium	24.9	mg/kg	24.9	mg/kg	M	7.31E-06	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	2.44E-03
	Lead	499	mg/kg	499	mg/kg	M	1.46E-04	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	8.72E-05	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	6.23E-04
	Thallium	0.470	mg/kg	0.470	mg/kg	M	1.38E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	1.72E-03
	(Total)												3.92E-02
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	6.02E-09	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	6.02E-08
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.22E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.04E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	2.84E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	6.66E-09	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.38E-09	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.35E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.91E-08	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.45E-03
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.41E-13	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	2.24E-08	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	7.46E-05
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	(Total)												4.53E-03
												Total of Routes	4.38E-02

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.2B RME
CALCULATION OF NON-CANCER HAZARDS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	1.04E-06	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.04E-05
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.79E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.56E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	3.58E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.09E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	3.00E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.70E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	1.04E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	5.21E-01
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	6.58E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.22E-05	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	4.07E-02
	Barium	1041	mg/kg	1041	mg/kg	M	5.70E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	8.15E-02
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.36E-04	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	4.55E-02
	Lead	499	mg/kg	499	mg/kg	M	2.73E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	1.63E-03	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	1.16E-02
	Thallium	0.470	mg/kg	0.470	mg/kg	M	2.58E-06	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	3.22E-02
	(Total)												7.32E-01
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	2.92E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	2.92E-06
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.02E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	9.33E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.30E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	3.05E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.09E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	6.20E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	4.08E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	2.04E-01
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	1.10E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.03E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	3.42E-03
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	(Total)												2.08E-01
												Total of Routes	9.40E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.2B CTE
CALCULATION OF NON-CANCER HAZARDS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation [1]	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	4.93E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	4.93E-06
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.40E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.28E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.79E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	5.45E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.50E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	8.52E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	5.21E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	2.60E-01
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	3.29E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	6.11E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	2.04E-02
	Barium	1041	mg/kg	1041	mg/kg	M	2.85E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	4.07E-02
	Chromium	24.9	mg/kg	24.9	mg/kg	M	6.82E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	2.27E-02
	Lead	499	mg/kg	499	mg/kg	M	1.37E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	8.14E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	5.81E-03
	Thallium	0.470	mg/kg	0.470	mg/kg	M	1.29E-06	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	1.61E-02
	(Total)												3.66E-01
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	5.52E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	5.52E-07
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.03E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.87E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	2.60E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	6.11E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.18E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.24E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.17E-07	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.08E-02
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.21E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	2.05E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	6.84E-04
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	(Total)												4.15E-02
												Total of Routes	4.08E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.3 RME
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation [1]	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.11E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.56E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	2.01E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	2.01E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	5.81E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.30E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.20E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.67E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	2.08E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.30E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.65E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.25E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	6.25E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.14E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.72E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	2.11E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	9.24E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.62E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	2.44E-08	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	4.87E-04
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	4.45E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	2.72E-06	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	6.80E-03
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	7.91E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	2.64E-02
	Barium	2586	mg/kg	2586	mg/kg	M	2.53E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	3.61E-02
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	1.17E-06	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	1.17E-03
	Chromium	63.5	mg/kg	63.5	mg/kg	M	6.21E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	2.07E-02
	Lead	2763	mg/kg	2763	mg/kg	M	2.70E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	2.65E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	1.89E-03
	Mercury	0.428	mg/kg	0.428	mg/kg	M	4.19E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.40E-03
	Nickel	159	mg/kg	159	mg/kg	M	1.56E-04	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	7.78E-03
	Selenium	2.93	mg/kg	2.93	mg/kg	M	2.87E-06	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	5.73E-04
	Thallium	0.583	mg/kg	0.583	mg/kg	M	5.70E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	7.13E-03
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	9.41E-05	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	1.34E-02
	Zinc	1870	mg/kg	1870	mg/kg	M	1.83E-03	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	6.10E-03
	(Total)												5.92E-01
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	9.54E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.77E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	1.32E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.32E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.98E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.83E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	3.61E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.43E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.38E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	4.55E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.42E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.07E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.36E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	9.81E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.91E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.39E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	8.53E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.27E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.76E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.57E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	5.22E-03
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	7.75E-09	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	3.10E-04
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												4.32E-01
												Total of Routes	1.02E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.3 CTE
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	4.87E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.43E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	8.79E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	8.79E-07
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.54E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.44E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.84E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	7.32E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	9.13E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.32E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	7.23E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	5.47E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.74E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	5.01E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.51E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	9.26E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.05E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	2.02E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.07E-08	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	2.13E-04
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.95E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.19E-06	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	2.98E-03
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	3.46E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.15E-02
	Barium	2586	mg/kg	2586	mg/kg	M	1.11E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	1.58E-02
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	5.14E-07	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	5.14E-04
	Chromium	63.5	mg/kg	63.5	mg/kg	M	2.72E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	9.07E-03
	Lead	2763	mg/kg	2763	mg/kg	M	1.18E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	1.16E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	8.30E-04
	Mercury	0.428	mg/kg	0.428	mg/kg	M	1.83E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	6.11E-04
	Nickel	159	mg/kg	159	mg/kg	M	6.81E-05	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	3.41E-03
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.26E-06	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	2.51E-04
	Thallium	0.583	mg/kg	0.583	mg/kg	M	2.50E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	3.12E-03
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	4.12E-05	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	5.89E-03
	Zinc	1870	mg/kg	1870	mg/kg	M	8.01E-04	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	2.67E-03
	(Total)												2.59E-01
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	8.35E-08	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.18E-06
	Acetophenone	205	µg/kg	205	µg/kg	M	1.16E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.16E-07
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.37E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.48E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	3.16E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.26E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.20E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.99E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.24E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	9.39E-08	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.70E-06
	Naphthalene	1169	µg/kg	1169	µg/kg	M	8.60E-08	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.30E-06
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.22E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	7.48E-07	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	3.74E-02
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.54E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.37E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	4.57E-04
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	6.79E-10	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	2.72E-05
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												3.79E-02
												Total of Routes	2.97E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.4A RME
CALCULATION OF NON-CANCER HAZARDS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation [1]	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.56E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	7.78E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	2.81E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	2.81E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	8.13E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	4.62E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	5.88E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	2.34E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	2.92E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	7.42E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	2.31E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.75E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	8.75E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.60E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	8.01E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	2.96E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.29E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	6.47E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	3.41E-08	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	6.82E-04
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	6.23E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	3.81E-06	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	9.52E-03
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.11E-05	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	3.69E-02
	Barium	2586	mg/kg	2586	mg/kg	M	3.54E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	5.06E-02
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	1.64E-06	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	1.64E-03
	Chromium	63.5	mg/kg	63.5	mg/kg	M	8.70E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	2.90E-02
	Lead	2763	mg/kg	2763	mg/kg	M	3.78E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	3.71E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	2.65E-03
	Mercury	0.428	mg/kg	0.428	mg/kg	M	5.86E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.95E-03
	Nickel	159	mg/kg	159	mg/kg	M	2.18E-04	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	1.09E-02
	Selenium	2.93	mg/kg	2.93	mg/kg	M	4.01E-06	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	8.03E-04
	Thallium	0.583	mg/kg	0.583	mg/kg	M	7.99E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	9.98E-03
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.32E-04	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	1.88E-02
	Zinc	1870	mg/kg	1870	mg/kg	M	2.56E-03	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	8.54E-03
	(Total)												8.29E-01
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	8.07E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.04E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	1.12E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.12E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.22E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.39E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	3.05E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.21E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.16E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.85E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.20E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	9.07E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.54E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	8.31E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.15E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.18E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	7.22E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	3.61E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.49E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.32E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	4.42E-03
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	6.56E-09	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	2.62E-04
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												3.66E-01
												Total of Routes	1.19E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.4A CTE
CALCULATION OF NON-CANCER HAZARDS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	7.78E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	3.89E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	1.40E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.40E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.07E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.31E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.94E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.17E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.46E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.71E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.16E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	8.75E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.37E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	8.01E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.00E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.48E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	6.47E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	3.23E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.71E-08	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	3.41E-04
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	3.12E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.90E-06	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	4.76E-03
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.53E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.84E-02
	Barium	2586	mg/kg	2586	mg/kg	M	1.77E-03	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	2.53E-02
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.22E-07	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	8.22E-04
	Chromium	63.5	mg/kg	63.5	mg/kg	M	4.35E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	1.45E-02
	Lead	2763	mg/kg	2763	mg/kg	M	1.89E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	1.86E-04	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	1.33E-03
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.93E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	9.77E-04
	Nickel	159	mg/kg	159	mg/kg	M	1.09E-04	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.45E-03
	Selenium	2.93	mg/kg	2.93	mg/kg	M	2.01E-06	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	4.01E-04
	Thallium	0.583	mg/kg	0.583	mg/kg	M	3.99E-07	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	4.99E-03
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	6.59E-05	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	9.41E-03
	Zinc	1870	mg/kg	1870	mg/kg	M	1.28E-03	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	4.27E-03
	(Total)												4.14E-01
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.15E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.77E-06
	Acetophenone	205	µg/kg	205	µg/kg	M	1.60E-08	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.60E-07
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	6.03E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.42E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.36E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.73E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.66E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.50E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.71E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.30E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	6.48E-06
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.19E-07	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.93E-06
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.69E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.03E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	5.16E-02
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.13E-12	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.89E-07	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	6.31E-04
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	9.37E-10	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	3.75E-05
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												5.23E-02
												Total of Routes	4.67E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.4B RME
CALCULATION OF NON-CANCER HAZARDS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.45E-05	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	7.26E-04
	Acetophenone	205	µg/kg	205	µg/kg	M	2.62E-06	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	2.62E-05
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	7.59E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	4.31E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	5.49E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	2.18E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	2.72E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	6.93E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	2.16E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.63E-05	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	8.16E-04
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.49E-05	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	7.47E-04
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	2.76E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.21E-04	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	6.03E+00
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	3.18E-07	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	6.37E-03
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.82E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	3.55E-05	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	8.89E-02
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.03E-04	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	3.44E-01
	Barium	2586	mg/kg	2586	mg/kg	M	3.31E-02	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	4.72E-01
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	1.53E-05	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	1.53E-02
	Chromium	63.5	mg/kg	63.5	mg/kg	M	8.12E-04	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	2.71E-01
	Lead	2763	mg/kg	2763	mg/kg	M	3.53E-02	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	3.46E-03	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	2.47E-02
	Mercury	0.428	mg/kg	0.428	mg/kg	M	5.47E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.82E-02
	Nickel	159	mg/kg	159	mg/kg	M	2.03E-03	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	1.02E-01
	Selenium	2.93	mg/kg	2.93	mg/kg	M	3.75E-05	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	7.49E-03
	Thallium	0.583	mg/kg	0.583	mg/kg	M	7.45E-06	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	9.32E-02
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.23E-03	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	1.76E-01
	Zinc	1870	mg/kg	1870	mg/kg	M	2.39E-02	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	7.97E-02
	(Total)												7.74E+00
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	5.29E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.64E-04
	Acetophenone	205	µg/kg	205	µg/kg	M	7.34E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	7.34E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.76E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.57E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.00E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	7.95E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	7.63E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.52E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	7.86E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	5.94E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.97E-04
	Naphthalene	1169	µg/kg	1169	µg/kg	M	5.44E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	2.72E-04
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	7.73E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.73E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	2.37E+00
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	9.77E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	8.68E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	2.89E-02
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	4.30E-08	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	1.72E-03
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												2.40E+00
												Total of Routes	1.01E+01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.4B CTE
CALCULATION OF NON-CANCER HAZARDS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	7.26E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	3.63E-04
	Acetophenone	205	µg/kg	205	µg/kg	M	1.31E-06	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.31E-05
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	3.80E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.15E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.75E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.09E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.36E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.46E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.08E-05	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	8.16E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	4.08E-04
	Naphthalene	1169	µg/kg	1169	µg/kg	M	7.47E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	3.74E-04
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.38E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	6.03E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	3.02E+00
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.59E-07	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	3.18E-03
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.91E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.78E-05	mg/kg-day	4.00E-04	mg/kg-day	N/A	N/A	4.44E-02
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.17E-05	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	1.72E-01
	Barium	2586	mg/kg	2586	mg/kg	M	1.65E-02	mg/kg-day	7.00E-02	mg/kg-day	N/A	N/A	2.36E-01
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	7.67E-06	mg/kg-day	1.00E-03	mg/kg-day	N/A	N/A	7.67E-03
	Chromium	63.5	mg/kg	63.5	mg/kg	M	4.06E-04	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	1.35E-01
	Lead	2763	mg/kg	2763	mg/kg	M	1.77E-02	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	1.73E-03	mg/kg-day	1.40E-01	mg/kg-day	N/A	N/A	1.24E-02
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.74E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	9.12E-03
	Nickel	159	mg/kg	159	mg/kg	M	1.02E-03	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.08E-02
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.87E-05	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	3.75E-03
	Thallium	0.583	mg/kg	0.583	mg/kg	M	3.73E-06	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	4.66E-02
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	6.15E-04	mg/kg-day	7.00E-03	mg/kg-day	N/A	N/A	8.79E-02
	Zinc	1870	mg/kg	1870	mg/kg	M	1.20E-02	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	3.98E-02
	(Total)												3.87E+00
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.06E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.29E-05
	Acetophenone	205	µg/kg	205	µg/kg	M	1.47E-07	mg/kg-day	1.00E-01	mg/kg-day	N/A	N/A	1.47E-06
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	5.53E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.14E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.00E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.59E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.53E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.04E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.57E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.19E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.94E-05
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.09E-06	mg/kg-day	2.00E-02	mg/kg-day	N/A	N/A	5.44E-05
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.55E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	9.46E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.73E-01
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	5.00E-05	mg/kg-day	N/A	N/A	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.95E-11	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	6.00E-05	mg/kg-day	N/A	N/A	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.74E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	5.79E-03
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	4.90E-03	mg/kg-day	N/A	N/A	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.59E-09	mg/kg-day	2.50E-05	mg/kg-day	N/A	N/A	3.44E-04
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	5.60E-03	mg/kg-day	N/A	N/A	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	8.00E-04	mg/kg-day	N/A	N/A	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	5.00E-03	mg/kg-day	N/A	N/A	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	8.00E-05	mg/kg-day	N/A	N/A	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	1.82E-04	mg/kg-day	N/A	N/A	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	3.00E-01	mg/kg-day	N/A	N/A	--
	(Total)												4.79E-01
												Total of Routes	4.35E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 8.1 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	2.2E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.59E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.09E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	9.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.95E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	1.3E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.52E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	2.1E-10	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.15E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	3.3E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.95E-06
	Chromium	60.1	mg/kg	60.1	mg/kg	M	2.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	6.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										7.93E-05
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.4E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.01E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.36E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.80E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	8.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.96E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	1.2E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.33E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	8.3E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.25E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	6.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										5.19E-05
										Total of Routes	1.31E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.1 CTE
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 -Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	3.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.38E-07
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.85E-06
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	3.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.50E-07
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	4.5E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.30E-07
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	1.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.10E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	2.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	3.98E-06
	Dioxin TEQ(2)	0.76	µg/kg	0.76	µg/kg	M	2.1E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.14E-06
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	5.2E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	7.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	3.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	1.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.07E-05
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	5.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.09E-08
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	4.3E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.18E-07
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	5.9E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.29E-08
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	7.8E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.67E-08
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.88E-08
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	3.7E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.36E-07
	Dioxin TEQ(2)	0.76	µg/kg	0.76	µg/kg	M	1.7E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	2.49E-07
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	2.1E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	3.09E-08
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.49E-06
										Total of Routes	1.22E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2A RME
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	3.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.49E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	9.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.88E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.60E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	4.0E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.41E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.1E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	8.04E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	6.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.57E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	3.8E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.65E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.4E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.62E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.73E-07
	Barium	1041	mg/kg	1041	mg/kg	M	2.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	5.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	1.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	6.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	9.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.83E-06
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	1.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	5.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.89E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	4.9E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.57E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	6.8E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.98E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.76E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	5.7E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.17E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	3.2E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.37E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	2.1E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.27E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	5.8E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	8.67E-08
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	5.4E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.06E-08
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.12E-06
										Total of Routes	3.95E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2A CTE
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	5.3E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.09E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.00E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.9E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.40E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	5.8E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	6.43E-09
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.6E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	9.1E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.66E-09
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	5.6E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.12E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	3.5E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	5.28E-08
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	6.5E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.82E-08
	Barium	1041	mg/kg	1041	mg/kg	M	3.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	7.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	1.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	8.7E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										4.13E-07
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	6.0E-10	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.2E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.62E-09
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.0E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.49E-08
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	2.8E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.07E-09
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	6.7E-10	mg/kg-day	1.1E+00	1/(mg/kg-day)	7.33E-10
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.4E-10	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.74E-09
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.4E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.88E-10
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.9E-09	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.78E-08
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.4E-14	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.61E-09
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	2.2E-09	mg/kg-day	1.5E+00	1/(mg/kg-day)	3.36E-09
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										4.68E-08
										Total of Routes	4.59E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2B RME
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	8.9E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.75E-07
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.60E-06
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.24E-07
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	9.3E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.03E-07
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.6E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.88E-07
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.07E-07
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.9E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.79E-06
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	5.6E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	8.45E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.0E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.57E-06
	Barium	1041	mg/kg	1041	mg/kg	M	4.9E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	2.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	1.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.60E-06
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	2.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	8.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.36E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	8.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.84E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.15E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	2.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	2.88E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	9.4E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.83E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	5.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.88E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	3.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.00E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	9.5E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.42E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	8.8E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.32E-07
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.84E-06
										Total of Routes	8.44E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2B CTE
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	4.0E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.91E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	3.7E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.67E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	5.1E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.73E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.71E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	4.3E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.13E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	2.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.78E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	1.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.98E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	9.4E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.41E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.7E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.62E-07
	Barium	1041	mg/kg	1041	mg/kg	M	8.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.9E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	3.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	2.3E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	3.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.10E-06
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	1.6E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	5.8E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.24E-09
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	5.3E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.89E-08
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	7.4E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.43E-09
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.7E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.92E-09
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	6.2E-10	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.55E-09
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	3.5E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.59E-09
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	2.3E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.67E-08
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	6.3E-14	mg/kg-day	1.5E+05	1/(mg/kg-day)	9.47E-09
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	5.9E-09	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.80E-09
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.23E-07
										Total of Routes	1.22E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.3 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	4.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	7.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.2E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	8.59E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.5E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.10E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	6.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.36E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	7.4E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	8.19E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.38E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	5.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.31E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	4.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	4.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	7.5E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	5.28E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	3.3E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	6.60E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	8.7E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	1.39E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.6E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	2.39E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	9.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	2.8E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.24E-06
	Barium	2586	mg/kg	2586	mg/kg	M	9.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	4.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	2.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	9.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	9.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	1.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	5.6E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	3.4E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	6.5E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.74E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	3.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	4.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.0E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	7.37E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.3E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.40E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	5.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.74E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.9E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	5.40E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.6E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.19E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	5.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.69E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	3.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	5.0E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	3.49E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	3.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	6.10E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	6.3E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	9.44E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.6E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.39E-07
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.8E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.98E-05
										Total of Routes	4.72E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.3 CTE
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	6.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	3.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.39E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.36E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.73E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	9.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.87E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.2E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.29E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.18E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	9.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.79E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	7.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	6.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.2E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	8.33E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	5.2E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.04E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.4E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	2.20E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.5E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.76E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.68E-07
	Barium	2586	mg/kg	2586	mg/kg	M	1.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	6.6E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	3.5E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.5E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	8.8E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.6E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	3.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	5.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	1.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										4.32E-06
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.5E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	5.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.10E-08
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.2E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.33E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.1E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.97E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.18E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.5E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.70E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.1E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.74E-08
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.17E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.6E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.10E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	9.6E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.92E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.0E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	2.98E-08
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.8E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.64E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.7E-11	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.25E-07
										Total of Routes	4.95E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4A RME
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	5.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	9.6E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.04E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.16E-05
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.0E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.47E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	8.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.86E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.0E-07	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.10E-07
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.86E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	7.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.79E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	6.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	5.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.0E-07	mg/kg-day	7.0E+00	1/(mg/kg-day)	7.10E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.4E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	8.87E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.2E-08	mg/kg-day	1.6E+01	1/(mg/kg-day)	1.87E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.1E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.21E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	3.8E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	5.69E-06
	Barium	2586	mg/kg	2586	mg/kg	M	1.2E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	5.6E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	3.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.3E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	7.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.4E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	2.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	4.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	8.8E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										3.69E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	2.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	3.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.4E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.06E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	8.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.99E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.0E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.64E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	4.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.04E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.0E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.39E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.3E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	9.64E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	4.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.00E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	2.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	4.0E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	2.83E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	2.5E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.95E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.1E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	7.67E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.81E-07
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.2E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.61E-05
										Total of Routes	5.30E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4A CTE
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	7.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.97E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.3E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.68E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.15E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.54E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.5E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.60E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.7E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.71E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.44E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	8.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	8.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.5E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.04E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	6.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.29E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.7E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	2.73E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	3.1E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	4.67E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.9E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.30E-07
	Barium	2586	mg/kg	2586	mg/kg	M	1.8E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	4.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.9E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.9E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	1.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	4.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	6.6E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	1.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										5.37E-06
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.6E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	6.0E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.40E-08
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.50E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.18E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.27E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.7E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.83E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.5E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.02E-08
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.25E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.7E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.18E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.0E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.06E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.1E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.20E-08
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.9E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.84E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	9.4E-11	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.71E-07
										Total of Routes	6.05E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4B RME
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.2E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	6.5E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.75E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.7E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.70E-05
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.7E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.44E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.37E-06
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	2.3E-07	mg/kg-day	1.1E+00	1/(mg/kg-day)	2.57E-07
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.34E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.35E-06
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.4E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	2.4E-07	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.66E-06
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.0E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.07E-05
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	2.7E-08	mg/kg-day	1.6E+01	1/(mg/kg-day)	4.37E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.0E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	7.48E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	3.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	8.9E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.33E-05
	Barium	2586	mg/kg	2586	mg/kg	M	2.8E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	7.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	3.0E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	3.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	4.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	1.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	3.2E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	6.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	2.0E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										8.60E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	4.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	6.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.4E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.73E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.3E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	9.81E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.7E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.25E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	6.8E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.97E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	6.5E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	7.19E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.58E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	6.7E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.92E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	5.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	4.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	6.6E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	4.64E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.1E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	8.11E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	8.4E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.26E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	7.4E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.12E-06
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	3.7E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.64E-05
										Total of Routes	1.12E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4B CTE
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	2.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	3.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.92E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	6.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.49E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	7.8E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.73E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.28E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	3.9E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.28E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	9.9E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	7.23E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.25E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	2.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	2.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	3.9E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	2.76E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.7E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	3.45E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	4.5E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	7.28E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	8.3E-12	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.25E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	5.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.5E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.21E-06
	Barium	2586	mg/kg	2586	mg/kg	M	4.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	1.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	5.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	4.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	7.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	2.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	5.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	1.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.8E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	3.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.43E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	3.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	4.2E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.6E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.15E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	9.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.54E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.34E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	4.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.32E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.4E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.79E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.05E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	4.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.28E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	3.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	4.4E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	3.09E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	2.7E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	5.41E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.6E-13	mg/kg-day	1.5E+05	1/(mg/kg-day)	8.38E-08
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.0E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	7.44E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.5E-10	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.76E-06
										Total of Routes	1.61E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 9.1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.17E-05	--	1.01E-05	2.18E-05	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.59E-06	--	1.36E-06	2.95E-06	Benzo(b)fluoranthene	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	2.09E-06	--	1.80E-06	3.89E-06	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.95E-07	--	5.96E-07	1.29E-06	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total	2.52E-05	--	2.33E-05	4.86E-05	Aroclor, Total	Skin/Eyes/Immune	1.77E+00	--	1.63E+00	3.40E+00
			Dioxin TEQ	3.15E-05	--	1.25E-05	4.39E-05	Dioxin TEQ	N/A	--	--	--	--
			Arsenic	4.95E-06	--	9.80E-07	5.93E-06	Arsenic	Skin	3.08E-02	--	6.10E-03	3.69E-02
			Chromium	--	--	--	--	Chromium	None	1.96E-02	--	--	1.96E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	7.93E-05	0.00E+00	5.19E-05	1.31E-04	(Total)		1.82E+00	0.00E+00	1.64E+00	3.46E+00

Total Risk Across Soil	1.31E-04
Total Risk Across All Media and All Exposure Routes	1.31E-04
Total Hazard Index Across Soil	3.46E+00
Total Hazard Index Across All Media and All Exposure Routes	3.46E+00
Total Skin HI =	3.44E+00
Total Eye/Immune HI =	3.40E+00

Existing dioxin CSF used for risk calculation.

TABLE 9.1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	2.38E-07	--	4.09E-08	2.79E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.85E-06	--	3.18E-07	2.17E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.50E-07	--	4.29E-08	2.93E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	3.30E-07	--	5.67E-08	3.87E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.10E-07	--	1.88E-08	1.28E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total	3.98E-06	--	7.36E-07	4.72E-06	Aroclor, Total	Skin/Eyes/Immune	7.74E-01	--	1.43E-01	9.17E-01
			Dioxin TEQ	3.14E-06	--	2.49E-07	3.39E-06	Dioxin TEQ	N/A	--	--	--	--
			Arsenic	7.80E-07	--	3.09E-08	8.11E-07	Arsenic	Skin	1.35E-02	--	5.34E-04	1.40E-02
			Chromium	--	--	--	--	Chromium	None	8.59E-03	--	--	8.59E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	1.07E-05	0.00E+00	1.49E-06	1.22E-05	(Total)		7.96E-01	0.00E+00	1.44E-01	9.40E-01

Total Risk Across Soil: 1.22E-05
Total Risk Across All Media and All Exposure Routes: 1.22E-05

Total Hazard Index Across Soil: 9.40E-01
Total Hazard Index Across All Media and All Exposure Routes: 9.40E-01

Total Skin HI = 9.31E-01
Total Eye/Immune HI = 9.17E-01

Existing dioxin CSF used for risk calculation.

TABLE 9.2A RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	1.12E-06	--	4.45E-07	1.56E-06
			Benzo(a)anthracene	7.49E-08	--	3.89E-08	1.14E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	6.88E-07	--	3.57E-07	1.04E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	9.60E-08	--	4.98E-08	1.46E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	4.41E-08	--	1.76E-08	6.16E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	8.04E-08	--	4.17E-08	1.22E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4.57E-08	--	2.37E-08	6.94E-08	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	7.65E-07	--	4.27E-07	1.19E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	5.58E-02	--	3.12E-02	8.70E-02
			Toxicity Equivalency	3.62E-07	--	8.67E-08	4.49E-07	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	6.73E-07	--	8.06E-08	7.54E-07	Arsenic	Skin	4.36E-03	--	5.22E-04	4.89E-03
			Barium	--	--	--	--	Barium	Kidney	8.73E-03	--	--	8.73E-03
			Chromium	--	--	--	--	Chromium	None	4.87E-03	--	--	4.87E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	1.25E-03	--	--	1.25E-03
			Thallium	--	--	--	--	Thallium	None	3.45E-03	--	--	3.45E-03
			(Total)	2.83E-06	0.00E+00	1.12E-06	3.95E-06	(Total)		7.85E-02	0.00E+00	3.17E-02	1.10E-01

Total Risk Across Soil	3.95E-06
Total Risk Across All Media and All Exposure Routes	3.95E-06

Total Hazard Index Across Soil	1.10E-01
Total Hazard Index Across All Media and All Exposure Routes	1.10E-01

Total Skin HI =	9.19E-02
Total Eye/Immune HI =	8.70E-02
Total Kidney HI =	8.73E-03
Total General HI =	1.56E-06
Total CNS HI =	1.25E-03

Existing dioxin CSF used for risk calculation.

TABLE 9.2A CTE

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL

CENTRAL TENDENCY EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	5.28E-07	--	6.02E-08	5.89E-07
			Benzo(a)anthracene	1.09E-08	--	1.62E-09	1.25E-08	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.00E-07	--	1.49E-08	1.15E-07	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.40E-08	--	2.07E-09	1.61E-08	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	6.43E-09	--	7.33E-10	7.16E-09	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	1.17E-08	--	1.74E-09	1.35E-08	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.66E-09	--	9.88E-10	7.65E-09	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	1.12E-07	--	1.78E-08	1.29E-07	Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.79E-02	--	4.45E-03	3.24E-02
			Toxicity Equivalency	5.28E-08	--	3.61E-09	5.65E-08	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	9.82E-08	--	3.36E-09	1.02E-07	Arsenic	Skin	2.18E-03	--	7.46E-05	2.26E-03
			Barium	--	--	--	--	Barium	Kidney	4.37E-03	--	--	4.37E-03
			Chromium	--	--	--	--	Chromium	None	2.44E-03	--	--	2.44E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	6.23E-04	--	--	6.23E-04
			Thallium	--	--	--	--	Thallium	None	1.72E-03	--	--	1.72E-03
			(Total)	4.13E-07	0.00E+00	4.68E-08	4.59E-07	(Total)		3.92E-02	0.00E+00	4.53E-03	4.38E-02
						Total Risk Across Soil	4.59E-07					Total Hazard Index Across Soil	4.38E-02
						Total Risk Across All Media and All Exposure Routes	4.59E-07					Total Hazard Index Across All Media and All Exposure Routes	4.38E-02

Total Skin HI =	3.46E-02
Total Eye/Immune HI =	3.24E-02
Total Kidney HI =	4.37E-03
Total General HI =	5.89E-07
Total CNS HI =	6.23E-04

Existing dioxin CSF used for risk calculation.

TABLE 9.2B RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL

REASONABLE MAXIMUM EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	1.04E-05	--	2.92E-06	1.33E-05
			Benzo(a)anthracene	1.75E-07	--	6.36E-08	2.39E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.60E-06	--	5.84E-07	2.19E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.24E-07	--	8.15E-08	3.05E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.03E-07	--	2.88E-08	1.32E-07	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	1.88E-07	--	6.83E-08	2.56E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.07E-07	--	3.88E-08	1.45E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	1.79E-06	--	7.00E-07	2.49E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	5.21E-01	--	2.04E-01	7.25E-01
			Toxicity Equivalency	8.45E-07	--	1.42E-07	9.87E-07	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	1.57E-06	--	1.32E-07	1.70E-06	Arsenic	Skin	4.07E-02	--	3.42E-03	4.42E-02
			Barium	--	--	--	--	Barium	Kidney	8.15E-02	--	--	8.15E-02
			Chromium	--	--	--	--	Chromium	None	4.55E-02	--	--	4.55E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	1.16E-02	--	--	1.16E-02
			Thallium	--	--	--	--	Thallium	None	3.22E-02	--	--	3.22E-02
			(Total)	6.60E-06	0.00E+00	1.84E-06	8.44E-06	(Total)		7.32E-01	0.00E+00	2.08E-01	9.40E-01

Total Risk Across Soil	8.44E-06
Total Risk Across All Media and All Exposure Routes	8.44E-06

Total Hazard Index Across Soil	9.40E-01
Total Hazard Index Across All Media and All Exposure Routes	9.40E-01

Total Skin HI =	7.69E-01
Total Eye/Immune HI =	7.25E-01
Total Kidney HI =	8.15E-02
Total General HI =	1.33E-05
Total CNS HI =	1.16E-02

Existing dioxin CSF used for risk calculation.

TABLE 9.2B CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	4.93E-06	--	5.52E-07	5.48E-06
			Benzo(a)anthracene	2.91E-08	--	4.24E-09	3.34E-08	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	2.67E-07	--	3.89E-08	3.06E-07	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.73E-08	--	5.43E-09	4.27E-08	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.71E-08	--	1.92E-09	1.91E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	3.13E-08	--	4.55E-09	3.58E-08	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.78E-08	--	2.59E-09	2.04E-08	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	2.98E-07	--	4.67E-08	3.44E-07	Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.60E-01	--	4.08E-02	3.01E-01
			Toxicity Equivalency	1.41E-07	--	9.47E-09	1.50E-07	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	2.62E-07	--	8.80E-09	2.71E-07	Arsenic	Skin	2.04E-02	--	6.84E-04	2.10E-02
			Barium	--	--	--	--	Barium	Kidney	4.07E-02	--	--	4.07E-02
			Chromium	--	--	--	--	Chromium	None	2.27E-02	--	--	2.27E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	5.81E-03	--	--	5.81E-03
			Thallium	--	--	--	--	Thallium	None	1.61E-02	--	--	1.61E-02
			(Total)	1.10E-06	0.00E+00	1.23E-07	1.22E-06	(Total)		3.66E-01	0.00E+00	4.15E-02	4.08E-01

Total Risk Across Soil	1.22E-06
Total Risk Across All Media and All Exposure Routes	1.22E-06

Total Hazard Index Across Soil	4.08E-01
Total Hazard Index Across All Media and All Exposure Routes	4.08E-01

Total Skin HI =	3.22E-01
Total Eye/Immune HI =	3.01E-01
Total Kidney HI =	4.07E-02
Total General HI =	5.48E-06
Total CNS HI =	5.81E-03

Existing dioxin CSF used for risk calculation.

TABLE 9.3 RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL

REASONABLE MAXIMUM EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06
			Benzo(a)pyrene	8.59E-06	--	7.37E-06	1.60E-05
			Benzo(b)fluoranthene	1.10E-06	--	9.40E-07	2.04E-06
			Benzo(k)fluoranthene	4.36E-07	--	3.74E-07	8.10E-07
			Bis(2-Chloroethyl)ether	8.19E-08	--	5.40E-08	1.36E-07
			Dibenzo(a,h)anthracene	1.38E-06	--	1.19E-06	2.57E-06
			Indeno(1,2,3-cd)pyrene	4.31E-07	--	3.69E-07	8.00E-07
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	5.28E-07	--	3.49E-07	8.77E-07
			Aroclor, Total (Conservative)	6.60E-06	--	6.10E-06	1.27E-05
			Dieldrin	1.39E-07	--	--	1.39E-07
			Toxicity Equivalency	2.39E-06	--	9.44E-07	3.33E-06
			Antimony	--	--	--	--
			Arsenic	4.24E-06	--	8.39E-07	5.07E-06
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	2.74E-05	0.00E+00	1.98E-05	4.72E-05
						Total Risk Across Soil	4.72E-05
						Total Risk Across All Media and All Exposure Routes	4.72E-05

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	5.56E-05	--	4.77E-05	1.03E-04
Acetophenone	General	2.01E-06	--	1.32E-06	3.33E-06
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	6.25E-05	--	5.36E-05	1.16E-04
Naphthalene	General	5.72E-05	--	4.91E-05	1.06E-04
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	4.62E-01	--	4.27E-01	8.89E-01
Dieldrin	Liver	4.87E-04	--	--	4.87E-04
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	6.80E-03	--	--	6.80E-03
Arsenic	Skin	2.64E-02	--	5.22E-03	3.16E-02
Barium	Kidney	3.61E-02	--	--	3.61E-02
Cadmium	Blood	1.17E-03	--	3.10E-04	1.48E-03
Chromium	None	2.07E-02	--	--	2.07E-02
Lead	N/A	--	--	--	--
Manganese	CNS	1.89E-03	--	--	1.89E-03
Mercury	CNS	1.40E-03	--	--	1.40E-03
Nickel	Body Weight	7.78E-03	--	--	7.78E-03
Selenium	General	5.73E-04	--	--	5.73E-04
Thallium	None	7.13E-03	--	--	7.13E-03
Vanadium	Hair	1.34E-02	--	--	1.34E-02
Zinc	Blood	6.10E-03	--	--	6.10E-03
(Total)		5.92E-01	0.00E+00	4.32E-01	1.02E+00
				Total Hazard Index Across Soil	1.02E+00
				Total Hazard Index Across All Media and All Exposure Routes	1.02E+00

Total Skin HI =	9.20E-01
Total Eye/Immune HI =	8.89E-01
Total Liver HI =	4.87E-04
Total Kidney HI =	3.61E-02
Total General HI =	9.02E-04
Total Blood HI =	1.44E-02
Total CNS HI =	3.29E-03
Total Body Weight HI =	7.78E-03
Total Hair HI =	1.34E-02

Existing dioxin CSF used for risk calculation.

TABLE 9.3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	2.43E-05	--	4.18E-06	2.85E-05
			Acetophenone	--	--	--	--	Acetophenone	General	8.79E-07	--	1.16E-07	9.95E-07
			Benzo(a)anthracene	2.39E-07	--	4.10E-08	2.80E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.36E-06	--	2.33E-07	1.59E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.73E-07	--	2.97E-08	2.02E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	6.87E-08	--	1.18E-08	8.05E-08	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.29E-08	--	1.70E-09	1.46E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	2.18E-07	--	3.74E-08	2.55E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.79E-08	--	1.17E-08	7.96E-08	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	2.74E-05	--	4.70E-06	3.21E-05
			Naphthalene	--	--	--	--	Naphthalene	General	2.51E-05	--	4.30E-06	2.93E-05
			N-Nitroso-di-n-propylamine	8.33E-08	--	1.10E-08	9.43E-08	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	1.04E-06	--	1.92E-07	1.23E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.02E-01	--	3.74E-02	2.40E-01
			Dieldrin	2.20E-08	--	--	2.20E-08	Dieldrin	Liver	2.13E-04	--	--	2.13E-04
			Toxicity Equivalency	3.76E-07	--	2.98E-08	4.06E-07	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	2.98E-03	--	--	2.98E-03
			Arsenic	6.68E-07	--	2.64E-08	6.94E-07	Arsenic	Skin	1.15E-02	--	4.57E-04	1.20E-02
			Barium	--	--	--	--	Barium	Kidney	1.58E-02	--	--	1.58E-02
			Cadmium	--	--	--	--	Cadmium	Blood	5.14E-04	--	2.72E-05	5.41E-04
			Chromium	--	--	--	--	Chromium	None	9.07E-03	--	--	9.07E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	8.30E-04	--	--	8.30E-04
			Mercury	--	--	--	--	Mercury	CNS	6.11E-04	--	--	6.11E-04
			Nickel	--	--	--	--	Nickel	Body Weight	3.41E-03	--	--	3.41E-03
			Selenium	--	--	--	--	Selenium	General	2.51E-04	--	--	2.51E-04
			Thallium	--	--	--	--	Thallium	None	3.12E-03	--	--	3.12E-03
			Vanadium	--	--	--	--	Vanadium	Hair	5.89E-03	--	--	5.89E-03
			Zinc	--	--	--	--	Zinc	Blood	2.67E-03	--	--	2.67E-03
			(Total)	4.32E-06	0.00E+00	6.25E-07	4.95E-06	(Total)		2.59E-01	0.00E+00	3.79E-02	2.97E-01
						Total Risk Across Soil	4.95E-06					Total Hazard Index Across Soil	2.97E-01
						Total Risk Across All Media and All Exposure Routes	4.95E-06					Total Hazard Index Across All Media and All Exposure Routes	2.97E-01

Total Skin HI =	2.52E-01
Total Eye/Immune HI =	2.40E-01
Total Liver HI =	2.13E-04
Total Kidney HI =	1.58E-02
Total General HI =	3.42E-04
Total Blood HI =	6.19E-03
Total CNS HI =	1.44E-03
Total Body Weight HI =	3.41E-03
Total Hair HI =	5.89E-03

Existing dioxin CSF used for risk calculation.

TABLE 9.4A RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL

REASONABLE MAXIMUM EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	7.78E-05	--	4.04E-05	1.18E-04
			Acetophenone	--	--	--	--	Acetophenone	General	2.81E-06	--	1.12E-06	3.93E-06
			Benzo(a)anthracene	2.04E-06	--	1.06E-06	3.09E-06	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.16E-05	--	5.99E-06	1.75E-05	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.47E-06	--	7.64E-07	2.24E-06	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	5.86E-07	--	3.04E-07	8.89E-07	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.10E-07	--	4.39E-08	1.54E-07	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	1.86E-06	--	9.64E-07	2.82E-06	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5.79E-07	--	3.00E-07	8.79E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	8.75E-05	--	4.54E-05	1.33E-04
			Naphthalene	--	--	--	--	Naphthalene	General	8.01E-05	--	4.15E-05	1.22E-04
			N-Nitroso-di-n-propylamine	7.10E-07	--	2.83E-07	9.93E-07	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	8.87E-06	--	4.95E-06	1.38E-05	Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.47E-01	--	3.61E-01	1.01E+00
			Dieldrin	1.87E-07	--	--	1.87E-07	Dieldrin	Liver	6.82E-04	--	--	6.82E-04
			Toxicity Equivalency	3.21E-06	--	7.67E-07	3.97E-06	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	9.52E-03	--	--	9.52E-03
			Arsenic	5.69E-06	--	6.81E-07	6.37E-06	Arsenic	Skin	3.69E-02	--	4.42E-03	4.13E-02
			Barium	--	--	--	--	Barium	Kidney	5.06E-02	--	--	5.06E-02
			Cadmium	--	--	--	--	Cadmium	Blood	1.64E-03	--	2.62E-04	1.91E-03
			Chromium	--	--	--	--	Chromium	None	2.90E-02	--	--	2.90E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	2.65E-03	--	--	2.65E-03
			Mercury	--	--	--	--	Mercury	CNS	1.95E-03	--	--	1.95E-03
			Nickel	--	--	--	--	Nickel	Body Weight	1.09E-02	--	--	1.09E-02
			Selenium	--	--	--	--	Selenium	General	8.03E-04	--	--	8.03E-04
			Thallium	--	--	--	--	Thallium	None	9.98E-03	--	--	9.98E-03
			Vanadium	--	--	--	--	Vanadium	Hair	1.88E-02	--	--	1.88E-02
			Zinc	--	--	--	--	Zinc	Blood	8.54E-03	--	--	8.54E-03
			(Total)	3.69E-05	0.00E+00	1.61E-05	5.30E-05	(Total)		8.29E-01	0.00E+00	3.66E-01	1.19E+00
						Total Risk Across Soil	5.30E-05					Total Hazard Index Across Soil	1.19E+00
						Total Risk Across All Media and All Exposure Routes	5.30E-05					Total Hazard Index Across All Media and All Exposure Routes	1.19E+00

Total Skin HI =	1.05E+00
Total Eye/Immune HI =	1.01E+00
Total Liver HI =	6.82E-04
Total Kidney HI =	5.06E-02
Total General HI =	1.18E-03
Total Blood HI =	2.00E-02
Total CNS HI =	4.61E-03
Total Body Weight HI =	1.09E-02
Total Hair HI =	1.88E-02

Existing dioxin CSF used for risk calculation.

TABLE 9.4A CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	3.89E-05	--	5.77E-06	4.47E-05
			Acetophenone	--	--	--	--	Acetophenone	General	1.40E-06	--	1.60E-07	1.56E-06
			Benzo(a)anthracene	2.97E-07	--	4.40E-08	3.41E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.68E-06	--	2.50E-07	1.93E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.15E-07	--	3.18E-08	2.47E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	8.54E-08	--	1.27E-08	9.81E-08	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.60E-08	--	1.83E-09	1.79E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	2.71E-07	--	4.02E-08	3.11E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8.44E-08	--	1.25E-08	9.69E-08	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	4.37E-05	--	6.48E-06	5.02E-05
			Naphthalene	--	--	--	--	Naphthalene	General	4.00E-05	--	5.93E-06	4.60E-05
			N-Nitroso-di-n-propylamine	1.04E-07	--	1.18E-08	1.15E-07	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	1.29E-06	--	2.06E-07	1.50E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	3.23E-01	--	5.16E-02	3.75E-01
			Dieldrin	2.73E-08	--	--	2.73E-08	Dieldrin	Liver	3.41E-04	--	--	3.41E-04
			Toxicity Equivalency	4.67E-07	--	3.20E-08	4.99E-07	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	4.76E-03	--	--	4.76E-03
			Arsenic	8.30E-07	--	2.84E-08	8.59E-07	Arsenic	Skin	1.84E-02	--	6.31E-04	1.91E-02
			Barium	--	--	--	--	Barium	Kidney	2.53E-02	--	--	2.53E-02
			Cadmium	--	--	--	--	Cadmium	Blood	8.22E-04	--	3.75E-05	8.59E-04
			Chromium	--	--	--	--	Chromium	None	1.45E-02	--	--	1.45E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	1.33E-03	--	--	1.33E-03
			Mercury	--	--	--	--	Mercury	CNS	9.77E-04	--	--	9.77E-04
			Nickel	--	--	--	--	Nickel	Body Weight	5.45E-03	--	--	5.45E-03
			Selenium	--	--	--	--	Selenium	General	4.01E-04	--	--	4.01E-04
			Thallium	--	--	--	--	Thallium	None	4.99E-03	--	--	4.99E-03
			Vanadium	--	--	--	--	Vanadium	Hair	9.41E-03	--	--	9.41E-03
			Zinc	--	--	--	--	Zinc	Blood	4.27E-03	--	--	4.27E-03
			(Total)	5.37E-06	0.00E+00	6.71E-07	6.05E-06	(Total)		4.14E-01	0.00E+00	5.23E-02	4.67E-01
						Total Risk Across Soil	6.05E-06					Total Hazard Index Across Soil	4.67E-01
						Total Risk Across All Media and All Exposure Routes	6.05E-06					Total Hazard Index Across All Media and All Exposure Routes	4.67E-01

Total Skin HI =	3.94E-01
Total Eye/Immune HI =	3.75E-01
Total Liver HI =	3.41E-04
Total Kidney HI =	2.53E-02
Total General HI =	5.44E-04
Total Blood HI =	9.89E-03
Total CNS HI =	2.30E-03
Total Body Weight HI =	5.45E-03
Total Hair HI =	9.41E-03

Existing dioxin CSF used for risk calculation.

TABLE 9.4B RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	7.26E-04	--	2.64E-04	9.91E-04
			Acetophenone	--	--	--	--	Acetophenone	General	2.62E-05	--	7.34E-06	3.35E-05
			Benzo(a)anthracene	4.75E-06	--	1.73E-06	6.48E-06	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	2.70E-05	--	9.81E-06	3.68E-05	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.44E-06	--	1.25E-06	4.69E-06	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.37E-06	--	4.97E-07	1.86E-06	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	2.57E-07	--	7.19E-08	3.29E-07	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	4.34E-06	--	1.58E-06	5.91E-06	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.35E-06	--	4.92E-07	1.84E-06	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	8.16E-04	--	2.97E-04	1.11E-03
			Naphthalene	--	--	--	--	Naphthalene	General	7.47E-04	--	2.72E-04	1.02E-03
			N-Nitroso-di-n-propylamine	1.66E-06	--	4.64E-07	2.12E-06	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	2.07E-05	--	8.11E-06	2.88E-05	Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.03E+00	--	2.37E+00	8.40E+00
			Dieldrin	4.37E-07	--	--	4.37E-07	Dieldrin	Liver	6.37E-03	--	--	6.37E-03
			Toxicity Equivalency	7.48E-06	--	1.26E-06	8.74E-06	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	8.89E-02	--	--	8.89E-02
			Arsenic	1.33E-05	--	1.12E-06	1.44E-05	Arsenic	Skin	3.44E-01	--	2.89E-02	3.73E-01
			Barium	--	--	--	--	Barium	Kidney	4.72E-01	--	--	4.72E-01
			Cadmium	--	--	--	--	Cadmium	Blood	1.53E-02	--	1.72E-03	1.71E-02
			Chromium	--	--	--	--	Chromium	None	2.71E-01	--	--	2.71E-01
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	2.47E-02	--	--	2.47E-02
			Mercury	--	--	--	--	Mercury	CNS	1.82E-02	--	--	1.82E-02
			Nickel	--	--	--	--	Nickel	Body Weight	1.02E-01	--	--	1.02E-01
			Selenium	--	--	--	--	Selenium	General	7.49E-03	--	--	7.49E-03
			Thallium	--	--	--	--	Thallium	None	9.32E-02	--	--	9.32E-02
			Vanadium	--	--	--	--	Vanadium	Hair	1.76E-01	--	--	1.76E-01
			Zinc	--	--	--	--	Zinc	Blood	7.97E-02	--	--	7.97E-02
			(Total)	8.60E-05	0.00E+00	2.64E-05	1.12E-04	(Total)		7.74E+00	0.00E+00	2.40E+00	1.01E+01
						Total Risk Across Soil	1.12E-04					Total Hazard Index Across Soil	1.01E+01
						Total Risk Across All Media and All Exposure Routes	1.12E-04					Total Hazard Index Across All Media and All Exposure Routes	1.01E+01

Total Skin HI =	8.77E+00
Total Eye/Immune HI =	8.40E+00
Total Liver HI =	6.37E-03
Total Kidney HI =	4.72E-01
Total General HI =	1.06E-02
Total Blood HI =	1.86E-01
Total CNS HI =	4.30E-02
Total Body Weight HI =	1.02E-01
Total Hair HI =	1.76E-01

Existing dioxin CSF used for risk calculation.

TABLE 9.4B CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	3.63E-04	--	5.29E-05	4.16E-04
			Acetophenone	--	--	--	--	Acetophenone	General	1.31E-05	--	1.47E-06	1.46E-05
			Benzo(a)anthracene	7.92E-07	--	1.15E-07	9.07E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	4.49E-06	--	6.54E-07	5.15E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.73E-07	--	8.34E-08	6.56E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.28E-07	--	3.32E-08	2.61E-07	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	4.28E-08	--	4.79E-09	4.76E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	7.23E-07	--	1.05E-07	8.28E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.25E-07	--	3.28E-08	2.58E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	4.08E-04	--	5.94E-05	4.68E-04
			Naphthalene	--	--	--	--	Naphthalene	General	3.74E-04	--	5.44E-05	4.28E-04
			N-Nitroso-di-n-propylamine	2.76E-07	--	3.09E-08	3.07E-07	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	3.45E-06	--	5.41E-07	3.99E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	3.02E+00	--	4.73E-01	3.49E+00
			Dieldrin	7.28E-08	--	--	7.28E-08	Dieldrin	Liver	3.18E-03	--	--	3.18E-03
			Toxicity Equivalency	8.31E-06	--	5.58E-07	8.87E-06	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	4.44E-02	--	--	4.44E-02
			Arsenic	2.21E-06	--	7.44E-08	2.29E-06	Arsenic	Skin	1.72E-01	--	5.79E-03	1.78E-01
			Barium	--	--	--	--	Barium	Kidney	2.36E-01	--	--	2.36E-01
			Cadmium	--	--	--	--	Cadmium	Blood	7.67E-03	--	3.44E-04	8.01E-03
			Chromium	--	--	--	--	Chromium	None	1.35E-01	--	--	1.35E-01
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	1.24E-02	--	--	1.24E-02
			Mercury	--	--	--	--	Mercury	CNS	9.12E-03	--	--	9.12E-03
			Nickel	--	--	--	--	Nickel	Body Weight	5.08E-02	--	--	5.08E-02
			Selenium	--	--	--	--	Selenium	General	3.75E-03	--	--	3.75E-03
			Thallium	--	--	--	--	Thallium	None	4.66E-02	--	--	4.66E-02
			Vanadium	--	--	--	--	Vanadium	Hair	8.79E-02	--	--	8.79E-02
			Zinc	--	--	--	--	Zinc	Blood	3.98E-02	--	--	3.98E-02
			(Total)	2.14E-05	0.00E+00	2.23E-06	2.36E-05	(Total)		3.87E+00	0.00E+00	4.79E-01	4.35E+00
						Total Risk Across Soil	2.36E-05					Total Hazard Index Across Soil	4.35E+00
			Total Risk Across All Media and All Exposure Routes				2.36E-05					Total Hazard Index Across All Media and All Exposure Routes	4.35E+00

Total Skin HI =	3.67E+00
Total Eye/Immune HI =	3.49E+00
Total Liver HI =	3.18E-03
Total Kidney HI =	2.36E-01
Total General HI =	5.07E-03
Total Blood HI =	9.23E-02
Total CNS HI =	2.15E-02
Total Body Weight HI =	5.08E-02
Total Hair HI =	8.79E-02

TABLE 10.1 RME
RISK ASSESSMENT SUMMARY - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06						
			Benzo(a)pyrene	1.17E-05	--	1.01E-05	2.18E-05						
			Benzo(b)fluoranthene	1.59E-06	--	1.36E-06	2.95E-06						
			Dibenzo(a,h)anthracene	2.09E-06	--	1.80E-06	3.89E-06						
			Indeno(1,2,3-cd)pyrene	6.95E-07	--	5.96E-07	1.29E-06						
			Aroclor, Total	2.52E-05	--	2.33E-05	4.86E-05	Aroclor, Total	Skin/Eyes/Immune	1.77E+00	--	1.63E+00	3.40E+00
			Dioxin TEQ	3.15E-05	--	1.25E-05	4.39E-05						
			Arsenic	4.95E-06	--	9.80E-07	5.93E-06						
			(Total)	7.93E-05	0.00E+00	5.19E-05	1.31E-04	(Total)		1.77E+00	0.00E+00	1.63E+00	3.40E+00
						Total Risk Across Soil	1.31E-04					Total Hazard Index Across Soil	3.40E+00
						Total Risk Across All Media and All Exposure Routes	1.31E-04					Total Hazard Index Across All Media and All Exposure Routes	3.40E+00

Total Skin HI = 3.40E+00
Total Eye/Immune HI = 3.40E+00

Existing dioxin CSF used for risk calculation.

TABLE 10.1 CTE
RISK ASSESSMENT SUMMARY - COMMERCIAL WORKER EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)pyrene	1.85E-06	--	3.18E-07	2.17E-06						
			Aroclor, Total	3.98E-06	--	7.36E-07	4.72E-06						
			Dioxin TEQ	3.14E-06	--	2.49E-07	3.39E-06						
			(Total)	8.97E-06	0.00E+00	1.30E-06	1.03E-05	(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
						Total Risk Across Soil	1.03E-05					Total Hazard Index Across Soil	0.00E+00
						Total Risk Across All Media and All Exposure Routes	1.03E-05					Total Hazard Index Across All Media and All Exposure Routes	0.00E+00

Existing dioxin CSF used for risk calculation.

TABLE 10.2A RME
RISK ASSESSMENT SUMMARY- RECREATIONAL VISITOR EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)pyrene	6.88E-07	--	3.57E-07	1.04E-06						
			Aroclor, Total (Conservative)	7.65E-07	--	4.27E-07	1.19E-06						
			(Total)	1.45E-06	0.00E+00	7.84E-07	2.24E-06	(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
						Total Risk Across Soil	2.24E-06					Total Hazard Index Across Soil	0.00E+00
						Total Risk Across All Media and All Exposure Routes	2.24E-06					Total Hazard Index Across All Media and All Exposure Routes	0.00E+00

TABLE 10.2B RME

RISK ASSESSMENT SUMMARY- RECREATIONAL VISITOR EXPOSURE TO SOIL

REASONABLE MAXIMUM EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--						
			Benzo(a)pyrene	1.60E-06	--	5.84E-07	2.19E-06						
			Aroclor, Total (Conservative)	1.79E-06	--	7.00E-07	2.49E-06						
			Arsenic	1.57E-06	--	1.32E-07	1.57E-06						
			(Total)	4.96E-06	0.00E+00	1.42E-06	6.25E-06	(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Total Risk Across Soil 6.25E-06						Total Hazard Index Across Soil 0.00E+00
							Total Risk Across All Media and All Exposure Routes 6.25E-06						Total Hazard Index Across All Media and All Exposure Routes 0.00E+00

TABLE 10.3 RME
RISK ASSESSMENT SUMMARY - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06						
			Benzo(a)pyrene	8.59E-06	--	7.37E-06	1.60E-05						
			Benzo(b)fluoranthene	1.10E-06	--	9.40E-07	2.04E-06						
			Dibenzo(a,h)anthracene	1.38E-06	--	1.19E-06	2.57E-06						
			Aroclor, Total (Conservative)	6.60E-06	--	6.10E-06	1.27E-05						
			Toxicity Equivalency	2.39E-06	--	9.44E-07	3.33E-06						
			Arsenic	4.24E-06	--	8.39E-07	4.24E-06						
			(Total)	2.58E-05	0.00E+00	1.87E-05	4.36E-05	(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
						Total Risk Across Soil	4.36E-05					Total Hazard Index Across Soil	0.00E+00
						Total Risk Across All Media and All Exposure Routes	4.36E-05					Total Hazard Index Across All Media and All Exposure Routes	0.00E+00

Existing dioxin CSF used for risk calculation.

TABLE 10.3 CTE

RISK ASSESSMENT SUMMARY - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL

CENTRAL TENDENCY EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)pyrene	1.36E-06	--	2.33E-07	1.59E-06
			Aroclor, Total (Conservative)	1.04E-06	--	1.92E-07	1.23E-06
			(Total)	2.40E-06	0.00E+00	4.25E-07	2.82E-06
						Total Risk Across Soil	2.82E-06
						Total Risk Across All Media and All Exposure Routes	2.82E-06

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Total Hazard Index Across Soil	0.00E+00
				Total Hazard Index Across All Media and All Exposure Routes	0.00E+00

TABLE 10.4A RME

RISK ASSESSMENT SUMMARY - RESIDENT EXPOSURE TO SOIL

REASONABLE MAXIMUM EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	2.04E-06	--	1.06E-06	3.09E-06						
			Benzo(a)pyrene	1.16E-05	--	5.99E-06	1.75E-05						
			Benzo(b)fluoranthene	1.47E-06	--	7.64E-07	2.24E-06						
			Dibenzo(a,h)anthracene	1.86E-06	--	9.64E-07	2.82E-06						
			Aroclor, Total (Conservative)	8.87E-06	--	4.95E-06	1.38E-05	Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.47E-01	--	3.61E-01	1.01E+00
			Toxicity Equivalency	3.21E-06	--	7.67E-07	3.97E-06						
			Arsenic	5.69E-06	--	6.81E-07	5.69E-06						
			(Total)	3.47E-05	0.00E+00	1.52E-05	4.92E-05	(Total)		6.47E-01	0.00E+00	3.61E-01	1.01E+00
						Total Risk Across Soil	4.92E-05					Total Hazard Index Across Soil	1.01E+00
						Total Risk Across All Media and All Exposure Routes	4.92E-05					Total Hazard Index Across All Media and All Exposure Routes	1.01E+00

Existing dioxin CSF used for risk calculation.

Total Skin HI = 1.01E+00
Total Eye/Immune HI = 1.01E+00

TABLE 10.4A CTE
RISK ASSESSMENT SUMMARY - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)pyrene	1.68E-06	--	2.50E-07	1.93E-06						
			Aroclor, Total (Conservative)	1.29E-06	--	2.06E-07	1.50E-06						
			(Total)	2.98E-06	0.00E+00	4.56E-07	3.43E-06	(Total)		0.00E+00	0.00E+00	0.00E+00	0.00E+00
						Total Risk Across Soil	3.43E-06					Total Hazard Index Across Soil	0.00E+00
						Total Risk Across All Media and All Exposure Routes	3.43E-06					Total Hazard Index Across All Media and All Exposure Routes	0.00E+00

TABLE 10.4B RME
RISK ASSESSMENT SUMMARY - RESIDENT EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	4.75E-06	--	1.73E-06	6.48E-06						
			Benzo(a)pyrene	2.70E-05	--	9.81E-06	3.68E-05						
			Benzo(b)fluoranthene	3.44E-06	--	1.25E-06	4.69E-06						
			Benzo(k)fluoranthene	1.37E-06	--	4.97E-07	1.86E-06						
			Dibenzo(a,h)anthracene	4.34E-06	--	1.58E-06	5.91E-06						
			Indeno(1,2,3-cd)pyrene	1.35E-06	--	4.92E-07	1.84E-06						
			N-Nitroso-di-n-propylamine	1.66E-06	--	4.64E-07	2.12E-06						
			Aroclor, Total (Conservative)	2.07E-05	--	8.11E-06	2.88E-05	Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.03E+00	--	2.37E+00	8.40E+00
			Toxicity Equivalency	7.48E-06	--	1.26E-06	8.74E-06						
			Arsenic	1.33E-05	--	1.12E-06	1.33E-05						
			(Total)	8.53E-05	0.00E+00	2.63E-05	1.10E-04	(Total)		6.03E+00	0.00E+00	2.37E+00	8.40E+00
						Total Risk Across Soil	1.10E-04					Total Hazard Index Across Soil	8.40E+00
						Total Risk Across All Media and All Exposure Routes	1.10E-04					Total Hazard Index Across All Media and All Exposure Routes	8.40E+00

Existing dioxin CSF used for risk calculation.

TABLE 10.4B CTE
RISK ASSESSMENT SUMMARY - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)pyrene	4.49E-06	--	6.54E-07	5.15E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	3.02E+00	--	4.73E-01	3.49E+00
			Aroclor, Total (Conservative)	3.45E-06	--	5.41E-07	3.99E-06						
			Toxicity Equivalency	1.25E-06	--	8.38E-08	1.33E-06						
			Arsenic	2.21E-06	--	7.44E-08	2.21E-06						
			(Total)	1.14E-05	0.00E+00	1.35E-06	1.27E-05	(Total)		3.02E+00	0.00E+00	4.73E-01	3.49E+00
						Total Risk Across Soil	1.27E-05					Total Hazard Index Across Soil	3.49E+00
						Total Risk Across All Media and All Exposure Routes	1.27E-05					Total Hazard Index Across All Media and All Exposure Routes	3.49E+00

Existing dioxin CSF used for risk calculation.

Total Skin HI = 3.49E+00
Total Eye/Immune HI = 3.49E+00

Appendix C-2

Sample Lists

TABLE 1
SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBB2 FF-250	09-Jun-93	SBB2 FF-250	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SO-499-0002	06-Jan-04	SB-499	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-499-0204	06-Jan-04	SB-499	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-508-0002	06-Jan-04	SB-508	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-508-0204	06-Jan-04	SB-508	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-508A-0406	28-Jan-04	SB-508	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-508A-0608	28-Jan-04	SB-508	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-514-0002	06-Jan-04	SB-514	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-514-0204	06-Jan-04	SB-514	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-516-0002	06-Jan-04	SB-516	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-516-0204	06-Jan-04	SB-516	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-516A-0406	29-Jan-04	SB-516	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-516A-0608	29-Jan-04	SB-516	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-518-0002	06-Jan-04	SB-518	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-518-0204	06-Jan-04	SB-518	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-520-0002	06-Jan-04	SB-520	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-520-0204	06-Jan-04	SB-520	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-522-0002	06-Jan-04	SB-522	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-522-0204	06-Jan-04	SB-522	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-524-0002	06-Jan-04	SB-524	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-524-0204	06-Jan-04	SB-524	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-526-0002	06-Jan-04	SB-526	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-526-0204	06-Jan-04	SB-526	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528-0002	06-Jan-04	SB-528	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-528-0204	06-Jan-04	SB-528	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528A-0002	28-Jan-04	SB-528	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-528A-0204	28-Jan-04	SB-528	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528A-0406	28-Jan-04	SB-528	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-528A-0608	28-Jan-04	SB-528	None	6	8	NORMAL	TRUE	TRUE
SBP-SO-530-0002	06-Jan-04	SB-530	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-530-0204	06-Jan-04	SB-530	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-532-0002	06-Jan-04	SB-532	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-532-0204	06-Jan-04	SB-532	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-532A-0002	27-Jan-04	SB-532	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-532A-0204	27-Jan-04	SB-532	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-532A-0406	27-Jan-04	SB-532	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-694-0002	15-Jan-04	SB-694	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-694-0204	15-Jan-04	SB-694	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-698-0002	15-Jan-04	SB-698	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-698-0204	15-Jan-04	SB-698	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-735-0002	22-Jan-04	SB-735	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-735-0204-MAX	22-Jan-04	SB-735	Field Dup. SBP-SO-735-0204	2	4	MAX	TRUE	TRUE
SBP-SO-736-0002	22-Jan-04	SB-736	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-736-0204	22-Jan-04	SB-736	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-737-0002	22-Jan-04	SB-737	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-737-0204	22-Jan-04	SB-737	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-746-0002	23-Jan-04	SB-746	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-746-0204	23-Jan-04	SB-746	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-747-0002	23-Jan-04	SB-747	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-747-0204	23-Jan-04	SB-747	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-748-0002	23-Jan-04	SB-748	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-748-0204	23-Jan-04	SB-748	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-749-0002	23-Jan-04	SB-749	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-749-0204	23-Jan-04	SB-749	None	2	4	NORMAL	FALSE	TRUE

TABLE 1
SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-753-0002	27-Jan-04	SB-753	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-753-0204	27-Jan-04	SB-753	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-754-0002	27-Jan-04	SB-754	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-754-0204	27-Jan-04	SB-754	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-755-0002	27-Jan-04	SB-755	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-755-0204	27-Jan-04	SB-755	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-756-0002	27-Jan-04	SB-756	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-756-0204	27-Jan-04	SB-756	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-757-0002	27-Jan-04	SB-757	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-757-0204	27-Jan-04	SB-757	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-766-0002	03-Feb-04	SB-766	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-766-0204	03-Feb-04	SB-766	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-767-0002	03-Feb-04	SB-767	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-767-0204	03-Feb-04	SB-767	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-768-0002	03-Feb-04	SB-768	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-768-0204	03-Feb-04	SB-768	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-769-0002	03-Feb-04	SB-769	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-769-0204	03-Feb-04	SB-769	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-770-0002	03-Feb-04	SB-770	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-770-0204	03-Feb-04	SB-770	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-771-0002	03-Feb-04	SB-771	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-771-0204	03-Feb-04	SB-771	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-772-0002	03-Feb-04	SB-772	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-772-0204	03-Feb-04	SB-772	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-773-0002	03-Feb-04	SB-773	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-773-0204	03-Feb-04	SB-773	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-774-0002	03-Feb-04	SB-774	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-774-0204	03-Feb-04	SB-774	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-779-0002	04-Feb-04	SB-779	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-779-0204	04-Feb-04	SB-779	None	2	4	NORMAL	FALSE	TRUE
SL-SO-300-0002	15-Jan-04	SL-SB300	None	0	2	NORMAL	FALSE	TRUE
SL-SO-300-0204	15-Jan-04	SL-SB300	None	2	4	NORMAL	FALSE	TRUE
SL-SO-300-0406	15-Jan-04	SL-SB300	None	4	6	NORMAL	FALSE	TRUE
SL-SO-300-0608	15-Jan-04	SL-SB300	None	6	8	NORMAL	FALSE	TRUE
SL-SO-300-1012	15-Jan-04	SL-SB300	None	10	12	NORMAL	FALSE	TRUE
SL-SO-301-0002	19-Jan-04	SL-SB301	None	0	2	NORMAL	FALSE	TRUE
SL-SO-301-0204	19-Jan-04	SL-SB301	None	2	4	NORMAL	FALSE	TRUE
SL-SO-301-0406	19-Jan-04	SL-SB301	None	4	6	NORMAL	FALSE	TRUE
SL-SO-301-0608	19-Jan-04	SL-SB301	None	6	8	NORMAL	FALSE	TRUE
SL-SO-301-0810	19-Jan-04	SL-SB301	None	8	10	NORMAL	FALSE	TRUE
SL-SO-301-1012	19-Jan-04	SL-SB301	None	10	12	NORMAL	TRUE	TRUE
SL-SO-301-1416	20-Jan-04	SL-SB301	None	14	16	NORMAL	FALSE	TRUE
SL-SO-302-0002	22-Jan-04	SL-SB302	None	0	2	NORMAL	FALSE	TRUE
SL-SO-302-0203	22-Jan-04	SL-SB302	None	2	3	NORMAL	FALSE	TRUE
SL-SO-302-0305	22-Jan-04	SL-SB302	None	3	5	NORMAL	FALSE	TRUE
SL-SO-302-0507	22-Jan-04	SL-SB302	None	5	7	NORMAL	FALSE	TRUE
SL-SO-302A-0002	26-Jan-04	SL-SB302	None	0	2	NORMAL	FALSE	TRUE
SL-SO-302A-0305	26-Jan-04	SL-SB302	None	3	5	NORMAL	TRUE	TRUE
SL-SO-302A-0507	26-Jan-04	SL-SB302	None	5	7	NORMAL	TRUE	TRUE
SL-SO-303-0002	22-Jan-04	SL-SB303	None	0	2	NORMAL	FALSE	TRUE
SL-SO-303-0204	22-Jan-04	SL-SB303	None	2	4	NORMAL	FALSE	TRUE
SL-SO-303-0406	22-Jan-04	SL-SB303	None	4	6	NORMAL	FALSE	TRUE
SL-SO-303-0608	22-Jan-04	SL-SB303	None	6	8	NORMAL	FALSE	TRUE
SL-SO-303-0810	22-Jan-04	SL-SB303	None	8	10	NORMAL	FALSE	TRUE
SL-SO-303-1012	22-Jan-04	SL-SB303	None	10	12	NORMAL	FALSE	TRUE

TABLE 1
SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SL-SO-303-1214	22-Jan-04	SL-SB303	None	12	14	NORMAL	FALSE	TRUE
SL-SO-303-1416	22-Jan-04	SL-SB303	None	14	16	NORMAL	FALSE	TRUE
SL-SO-304-0002	26-Jan-04	SL-SB304	None	0	2	NORMAL	FALSE	TRUE
SL-SO-304-0406	26-Jan-04	SL-SB304	None	4	6	NORMAL	FALSE	TRUE
SL-SO-304-0608	26-Jan-04	SL-SB304	None	6	8	NORMAL	FALSE	TRUE
SL-SO-304-0810	26-Jan-04	SL-SB304	None	8	10	NORMAL	FALSE	TRUE
SL-SO-304-1416	27-Jan-04	SL-SB304	None	14	16	NORMAL	FALSE	TRUE
SL-SO-307-0002	27-Jan-04	SL-SB307	None	0	2	NORMAL	FALSE	TRUE
SL-SO-307-0204	27-Jan-04	SL-SB307	None	2	4	NORMAL	FALSE	TRUE
SL-SO-307-0406	27-Jan-04	SL-SB307	None	4	6	NORMAL	FALSE	TRUE
SL-SO-307-0608	27-Jan-04	SL-SB307	None	6	8	NORMAL	FALSE	TRUE
SL-SO-307-1214	27-Jan-04	SL-SB307	None	12	14	NORMAL	FALSE	TRUE
SL-SO-307-1416	27-Jan-04	SL-SB307	None	14	16	NORMAL	FALSE	TRUE
SL-SO-309-0002	28-Jan-04	SL-SB309	None	0	2	NORMAL	FALSE	TRUE
SL-SO-309-0204	28-Jan-04	SL-SB309	None	2	4	NORMAL	FALSE	TRUE
SL-SO-309-0810	28-Jan-04	SL-SB309	None	8	10	NORMAL	FALSE	TRUE
SL-SO-309-1012	28-Jan-04	SL-SB309	None	10	12	NORMAL	FALSE	TRUE
SL-SO-309-1214	28-Jan-04	SL-SB309	None	12	14	NORMAL	FALSE	TRUE
SL-SO-309-1416	28-Jan-04	SL-SB309	None	14	16	NORMAL	FALSE	TRUE
SL-SO-310-0002	28-Jan-04	SL-SB310	None	0	2	NORMAL	FALSE	TRUE
SL-SO-310-0204	28-Jan-04	SL-SB310	None	2	4	NORMAL	FALSE	TRUE
SL-SO-310-0810	28-Jan-04	SL-SB310	None	8	10	NORMAL	FALSE	TRUE
SL-SO-310-1012	28-Jan-04	SL-SB310	None	10	12	NORMAL	FALSE	TRUE
SL-SO-310-1214	28-Jan-04	SL-SB310	None	12	14	NORMAL	FALSE	TRUE
SL-SO-310-1416	28-Jan-04	SL-SB310	None	14	16	NORMAL	FALSE	TRUE
SL-SO-311-0002	29-Jan-04	SL-SB-311	None	0	2	NORMAL	FALSE	TRUE
SL-SO-311-0204	29-Jan-04	SL-SB-311	None	2	4	NORMAL	FALSE	TRUE
SL-SO-311-0608	29-Jan-04	SL-SB-311	None	6	8	NORMAL	FALSE	TRUE
SL-SO-311-0810	29-Jan-04	SL-SB-311	None	8	10	NORMAL	FALSE	TRUE
SL-SO-312-0002	29-Jan-04	SL-SB312	None	0	2	NORMAL	FALSE	TRUE
SL-SO-312-0204	29-Jan-04	SL-SB312	None	2	4	NORMAL	FALSE	TRUE
SL-SO-312-0608	29-Jan-04	SL-SB312	None	6	8	NORMAL	FALSE	TRUE
SL-SO-312-0810-MAX	30-Jan-04	SL-SB312	Field Dup. SL-SO-312-0810	8	10	MAX	FALSE	TRUE
SL-SO-312-1012	30-Jan-04	SL-SB312	None	10	12	NORMAL	FALSE	TRUE
SL-SO-312-1214	30-Jan-04	SL-SB312	None	12	14	NORMAL	FALSE	TRUE
SL-SO-312-1416	30-Jan-04	SL-SB312	None	14	16	NORMAL	FALSE	TRUE
SL-SO-313-0002	02-Feb-04	SL-SB313	None	0	2	NORMAL	FALSE	TRUE
SL-SO-313-0204	02-Feb-04	SL-SB313	None	2	4	NORMAL	FALSE	TRUE
SL-SO-313-0406	02-Feb-04	SL-SB313	None	4	6	NORMAL	FALSE	TRUE
SL-SO-313-0608	02-Feb-04	SL-SB313	None	6	8	NORMAL	FALSE	TRUE
SL-SO-313-0810	02-Feb-04	SL-SB313	None	8	10	NORMAL	FALSE	TRUE
SL-SO-313-1012	02-Feb-04	SL-SB313	None	10	12	NORMAL	FALSE	TRUE
SL-SO-313-1214	02-Feb-04	SL-SB313	None	12	14	NORMAL	FALSE	TRUE
SL-SO-313-1416	02-Feb-04	SL-SB313	None	14	16	NORMAL	FALSE	TRUE
SL-SO-314-0002	02-Feb-04	SL-SB314	None	0	2	NORMAL	FALSE	TRUE
SL-SO-314-0204	02-Feb-04	SL-SB314	None	2	4	NORMAL	FALSE	TRUE
SL-SO-314-0406	02-Feb-04	SL-SB314	None	4	6	NORMAL	FALSE	TRUE
SL-SO-314-0608	02-Feb-04	SL-SB314	None	6	8	NORMAL	FALSE	TRUE
SL-SO-314-0810	02-Feb-04	SL-SB314	None	8	10	NORMAL	FALSE	TRUE
SL-SO-314-1012	02-Feb-04	SL-SB314	None	10	12	NORMAL	FALSE	TRUE
SL-SO-314-1214	02-Feb-04	SL-SB314	None	12	14	NORMAL	FALSE	TRUE
SL-SO-314-1416	02-Feb-04	SL-SB314	None	14	16	NORMAL	FALSE	TRUE
SL-SO-TP01-0204	13-Jan-04	SL-SO-TP01	None	2	4	NORMAL	TRUE	TRUE
SL-SO-TP02-1.92.6	13-Jan-04	SL-SO-TP02	None	1.9	2.6	NORMAL	TRUE	TRUE

TABLE 1
SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SL-SO-TP03-2.83.3	13-Jan-04	SL-SO-TP03	None	2.8	3.3	NORMAL	FALSE	TRUE
SL-SO-TP04-0203	13-Jan-04	SL-SO-TP04	None	2	3	NORMAL	TRUE	TRUE
SL-SO-TP05-2.73.3	13-Jan-04	SL-SO-TP05	None	2.7	3.3	NORMAL	FALSE	TRUE
SL-SO-TP06-0407	13-Jan-04	SL-SO-TP06	None	4	7	NORMAL	FALSE	TRUE
SL-SO-TP07-0506	13-Jan-04	SL-SO-TP07	None	5	6	NORMAL	TRUE	TRUE

TABLE 2
SAMPLE LIST
SHORT BEACH PARK - 0 TO 2 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SB 925-0	08-Jun-93	SB 925-O	None	0	0.5	NORMAL	FALSE	TRUE
SB 925-B	08-Jun-93	SB 925-B	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SO-326-0002	08-Dec-03	SB-326	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-327-0002	08-Dec-03	SB-327	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-330-0002	08-Dec-03	SB-330	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-333-0002	09-Dec-03	SB-333	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-333A-0002	20-Jan-04	SB-333	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-334-0002	09-Dec-03	SB-334	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-336-0002	09-Dec-03	SB-336	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-337-0002	09-Dec-03	SB-337	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-337A-0002	27-Jan-04	SB-337	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-353-0002	10-Dec-03	SB-353	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-353A-0002	21-Jan-04	SB-353	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-355-0002	10-Dec-03	SB-355	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-355A-0002	21-Jan-04	SB-355	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-357-0002	10-Dec-03	SB-357	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-357A-0002	21-Jan-04	SB-357	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-359-0002	10-Dec-03	SB-359	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-361-0002	10-Dec-03	SB-361	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-363-0002	10-Dec-03	SB-363	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-364-0002	10-Dec-03	SB-364	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-365-0002	10-Dec-03	SB-365	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-366-0002	10-Dec-03	SB-366	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-368-0002	10-Dec-03	SB-368	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-369-0002	10-Dec-03	SB-369	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-370-0002	10-Dec-03	SB-370	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-371-0002	10-Dec-03	SB-371	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-395-0002	12-Dec-03	SB-395	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-397-0002	12-Dec-03	SB-397	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-405-0002	12-Dec-03	SB-405	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-406-0002	12-Dec-03	SB-406	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-407-0002	12-Dec-03	SB-407	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-407A-0002	26-Jan-04	SB-407	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-408-0002	12-Dec-03	SB-408	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-409-0002	12-Dec-03	SB-409	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-410-0002	12-Dec-03	SB-410	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-411-0002	15-Dec-03	SB-411	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-413-0002	15-Dec-03	SB-413	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-415-0002	15-Dec-03	SB-415	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-416-0002	15-Dec-03	SB-416	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-431-0002	16-Dec-03	SB-431	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-431A-0002	20-Jan-04	SB-431	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-442-0002	17-Dec-03	SB-442	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-444-0002	17-Dec-03	SB-444	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-446-0002	17-Dec-03	SB-446	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-447-0002	17-Dec-03	SB-447	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-448-0002	17-Dec-03	SB-448	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-449-0002	17-Dec-03	SB-449	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-450-0002	17-Dec-03	SB-450	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-451-0002	17-Dec-03	SB-451	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-451A-0002-MAX	28-Jan-04	SB-451	Field Dup. SBP-SO-451A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-453-0002	17-Dec-03	SB-453	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-457-0002	17-Dec-03	SB-457	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-459-0002	17-Dec-03	SB-459	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-460-0002	17-Dec-03	SB-460	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-461-0002	17-Dec-03	SB-461	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-480-0002	19-Dec-03	SB-480	None	0	2	NORMAL	FALSE	TRUE

TABLE 2
SAMPLE LIST
SHORT BEACH PARK - 0 TO 2 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-480A-0002	22-Jan-04	SB-480	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-482-0002	19-Dec-03	SB-482	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-482A-0002	20-Jan-04	SB-482	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-484-0002	19-Dec-03	SB-484	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-486-0002	19-Dec-03	SB-486	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-486A-0002	22-Jan-04	SB-486	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-488-0002	19-Dec-03	SB-488	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-492-0002	19-Dec-03	SB-492	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-492A-0002	20-Jan-04	SB-492	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-501-0002	05-Jan-04	SB-501	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-501A-0002-MAX	26-Jan-04	SB-501	Field Dup. SBP-SO-501A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-502-0002	05-Jan-04	SB-502	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-503-0002	05-Jan-04	SB-503	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-504-0002	05-Jan-04	SB-504	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-504A-0002	26-Jan-04	SB-504	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-505-0002	05-Jan-04	SB-505	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-506-0002	05-Jan-04	SB-506	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-506A-0002-MAX	23-Jan-04	SB-506	Field Dup. SBP-SO-506A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-507-0002	05-Jan-04	SB-507	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-519-0002	06-Jan-04	SB-519	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-519A-0002	21-Jan-04	SB-519	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-521-0002	06-Jan-04	SB-521	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-521A-0002	27-Jan-04	SB-521	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-527-0002	06-Jan-04	SB-527	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-555-0002	07-Jan-04	SB-555	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-557-0002	07-Jan-04	SB-557	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-559-0002	07-Jan-04	SB-559	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-561-0002	07-Jan-04	SB-561	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-561A-0002	26-Jan-04	SB-561	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-563-0002	07-Jan-04	SB-563	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-565-0002	07-Jan-04	SB-565	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-567-0002	07-Jan-04	SB-567	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-569-0002	08-Jan-04	SB-569	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-569A-0002	27-Jan-04	SB-569	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-581-0002	08-Jan-04	SB-581	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-585-0002	08-Jan-04	SB-585	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-602-0002	08-Jan-04	SB-602	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-615-0002	09-Jan-04	SB-615	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-622-0002	12-Jan-04	SB-622	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-622A-0002	19-Jan-04	SB-622	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-624-0002	12-Jan-04	SB-624	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-628-0002	12-Jan-04	SB-628	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-629-0002	12-Jan-04	SB-629	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-697-0002	15-Jan-04	SB-697	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-699-0002-MAX	15-Jan-04	SB-699	Field Dup. SBP-SO-699-0002	0	2	MAX	FALSE	TRUE
SBP-SO-701-0002	15-Jan-04	SB-701	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-703-0002	15-Jan-04	SB-703	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-707-0002	15-Jan-04	SB-707	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-707A-0002-MAX	22-Jan-04	SB-707	Field Dup. SBP-SO-707A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-718-0002	20-Jan-04	SB-718	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-719-0002	20-Jan-04	SB-719	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-720-0002	20-Jan-04	SB-720	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-722-0002	21-Jan-04	SB-722	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-723-0002	21-Jan-04	SB-723	None	0	2	NORMAL	TRUE	TRUE

TABLE 2
SAMPLE LIST
SHORT BEACH PARK - 0 TO 2 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-725-0002	21-Jan-04	SB-725	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-733-0002	22-Jan-04	SB-733	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-738-0002	22-Jan-04	SB-738	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-739-0002	22-Jan-04	SB-739	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-740-0002	22-Jan-04	SB-740	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-741-0002	22-Jan-04	SB-741	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-741A-0002	29-Jan-04	SB-741	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-745-0002	22-Jan-04	SB-745	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-745A-0002	23-Jan-04	SB-745	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-762-0002	29-Jan-04	SB-762	None	0	2	NORMAL	FALSE	TRUE
SBP-SS-333A-000.5	20-Jan-04	SB-333	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-337A-000.5-MAX	20-Jan-04	SB-337	Field Dup. SBP-SS-337A-000.5	0	0.5	MAX	FALSE	TRUE
SBP-SS-407A-000.5	22-Jan-04	SB-407	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-451A-000.5	22-Jan-04	SB-451	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-482A-000.5	20-Jan-04	SB-482	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-492A-000.5	19-Jan-04	SB-492	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-501A-000.5	22-Jan-04	SB-501	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-503A-000.5	22-Jan-04	SB-503	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-504A-000.5	22-Jan-04	SB-504	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SS-701A-000.5	22-Jan-04	SB-701	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SS-707A-000.5	21-Jan-04	SB-707	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-720A-000.5	04-Feb-04	SB-720	None	0	0.5	NORMAL	FALSE	TRUE

TABLE 3
SAMPLE LIST
SHORT BEACH PARK - 0 TO 15 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SB 925-0	08-Jun-93	SB 925-O	None	0	0.5	NORMAL	FALSE	TRUE
SB 925-B	08-Jun-93	SB 925-B	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SO-326-0002	08-Dec-03	SB-326	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-326-0204	08-Dec-03	SB-326	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-327-0002	08-Dec-03	SB-327	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-327-0204	08-Dec-03	SB-327	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-330-0002	08-Dec-03	SB-330	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-330-0204	08-Dec-03	SB-330	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-333-0002	09-Dec-03	SB-333	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-333-0204	09-Dec-03	SB-333	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-333A-0002	20-Jan-04	SB-333	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-333A-0204	20-Jan-04	SB-333	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-333A-0406	20-Jan-04	SB-333	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-334-0002	09-Dec-03	SB-334	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-334-0204	09-Dec-03	SB-334	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-336-0002	09-Dec-03	SB-336	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-336-0204	09-Dec-03	SB-336	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-337-0002	09-Dec-03	SB-337	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-337-0204	09-Dec-03	SB-337	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-337A-0002	27-Jan-04	SB-337	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-337A-0204	27-Jan-04	SB-337	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-337A-0406	27-Jan-04	SB-337	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-353-0002	10-Dec-03	SB-353	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-353-0204	10-Dec-03	SB-353	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-353A-0002	21-Jan-04	SB-353	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-353A-0204	21-Jan-04	SB-353	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-353A-0406	21-Jan-04	SB-353	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-353A-0608	21-Jan-04	SB-353	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-353A-0810	21-Jan-04	SB-353	None	8	10	NORMAL	TRUE	TRUE
SBP-SO-355-0002	10-Dec-03	SB-355	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-355-0204	10-Dec-03	SB-355	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-355A-0002	21-Jan-04	SB-355	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-355A-0204	21-Jan-04	SB-355	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-355A-0406	21-Jan-04	SB-355	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-357-0002	10-Dec-03	SB-357	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-357-0204	10-Dec-03	SB-357	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-357A-0002	21-Jan-04	SB-357	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-357A-0204	21-Jan-04	SB-357	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-357A-0406	21-Jan-04	SB-357	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-357A-0608	21-Jan-04	SB-357	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-357A-0810	21-Jan-04	SB-357	None	8	10	NORMAL	FALSE	TRUE
SBP-SO-357A-1012	21-Jan-04	SB-357	None	10	12	NORMAL	TRUE	TRUE
SBP-SO-359-0002	10-Dec-03	SB-359	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-359-0204	10-Dec-03	SB-359	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-361-0002	10-Dec-03	SB-361	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-361-0204	10-Dec-03	SB-361	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-363-0002	10-Dec-03	SB-363	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-363-0204	10-Dec-03	SB-363	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-364-0002	10-Dec-03	SB-364	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-364-0204	10-Dec-03	SB-364	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-365-0002	10-Dec-03	SB-365	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-365-0204	10-Dec-03	SB-365	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-366-0002	10-Dec-03	SB-366	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-366-0204	10-Dec-03	SB-366	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-368-0002	10-Dec-03	SB-368	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-368-0204	10-Dec-03	SB-368	None	2	4	NORMAL	FALSE	TRUE

TABLE 3
SAMPLE LIST
SHORT BEACH PARK - 0 TO 15 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-368A-0406	27-Jan-04	SB-368	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-368A-0608	27-Jan-04	SB-368	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-369-0002	10-Dec-03	SB-369	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-369-0204	10-Dec-03	SB-369	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-370-0002	10-Dec-03	SB-370	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-370-0204	10-Dec-03	SB-370	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-371-0002	10-Dec-03	SB-371	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-371-0204	10-Dec-03	SB-371	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-395-0002	12-Dec-03	SB-395	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-395-0204	12-Dec-03	SB-395	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-397-0002	12-Dec-03	SB-397	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-397-0204	12-Dec-03	SB-397	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-405-0002	12-Dec-03	SB-405	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-405-0204	12-Dec-03	SB-405	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-405A-0406	02-Feb-04	SB-405	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-405A-0608	02-Feb-04	SB-405	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-406-0002	12-Dec-03	SB-406	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-406-0204	12-Dec-03	SB-406	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-407-0002	12-Dec-03	SB-407	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-407-0204	12-Dec-03	SB-407	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-407A-0002	26-Jan-04	SB-407	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-407A-0204	26-Jan-04	SB-407	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-407A-0406	26-Jan-04	SB-407	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-408-0002	12-Dec-03	SB-408	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-408-0204	12-Dec-03	SB-408	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-409-0002	12-Dec-03	SB-409	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-409-0204	12-Dec-03	SB-409	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-410-0002	12-Dec-03	SB-410	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-410-0204	12-Dec-03	SB-410	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-411-0002	15-Dec-03	SB-411	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-411-0204-MAX	15-Dec-03	SB-411	Field Dup. SBP-SO-411-0204	2	4	MAX	TRUE	TRUE
SBP-SO-413-0002	15-Dec-03	SB-413	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-413-0204	15-Dec-03	SB-413	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-415-0002	15-Dec-03	SB-415	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-415-0204	15-Dec-03	SB-415	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-416-0002	15-Dec-03	SB-416	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-416-0204	15-Dec-03	SB-416	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-416A-0406	30-Jan-04	SB-416	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-416A-0608	30-Jan-04	SB-416	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-416A-0810	30-Jan-04	SB-416	None	8	10	NORMAL	FALSE	TRUE
SBP-SO-416A-1012	30-Jan-04	SB-416	None	10	12	NORMAL	FALSE	TRUE
SBP-SO-431-0002	16-Dec-03	SB-431	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-431-0204	16-Dec-03	SB-431	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-431A-0002	20-Jan-04	SB-431	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-431A-0204	21-Jan-04	SB-431	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-431A-0406	21-Jan-04	SB-431	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-442-0002	17-Dec-03	SB-442	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-442-0204	17-Dec-03	SB-442	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-444-0002	17-Dec-03	SB-444	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-444-0204	17-Dec-03	SB-444	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-446-0002	17-Dec-03	SB-446	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-446-0204	17-Dec-03	SB-446	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-447-0002	17-Dec-03	SB-447	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-447-0204	17-Dec-03	SB-447	None	2	4	NORMAL	FALSE	TRUE

TABLE 3
SAMPLE LIST
SHORT BEACH PARK - 0 TO 15 FEET
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NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-448-0002	17-Dec-03	SB-448	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-448-0204	17-Dec-03	SB-448	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-449-0002	17-Dec-03	SB-449	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-449-0204	17-Dec-03	SB-449	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-450-0002	17-Dec-03	SB-450	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-450-0204	17-Dec-03	SB-450	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-451-0002	17-Dec-03	SB-451	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-451-0204	17-Dec-03	SB-451	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-451A-0002-MAX	28-Jan-04	SB-451	Field Dup. SBP-SO-451A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-451A-0204-MAX	28-Jan-04	SB-451	Field Dup. SBP-SO-451A-0204	2	4	MAX	FALSE	TRUE
SBP-SO-451A-0406	28-Jan-04	SB-451	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-451A-0608	28-Jan-04	SB-451	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-453-0002	17-Dec-03	SB-453	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-453-0204	17-Dec-03	SB-453	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-457-0002	17-Dec-03	SB-457	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-457-0204	17-Dec-03	SB-457	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-459-0002	17-Dec-03	SB-459	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-459-0204	17-Dec-03	SB-459	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-460-0002	17-Dec-03	SB-460	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-460-0204	17-Dec-03	SB-460	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-461-0002	17-Dec-03	SB-461	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-461-0204	17-Dec-03	SB-461	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-480-0002	19-Dec-03	SB-480	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-480-0204	19-Dec-03	SB-480	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-480A-0002	22-Jan-04	SB-480	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-480A-0204	22-Jan-04	SB-480	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-480A-0406	22-Jan-04	SB-480	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-480A-0608	22-Jan-04	SB-480	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-482-0002	19-Dec-03	SB-482	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-482-0204	19-Dec-03	SB-482	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-482A-0002	20-Jan-04	SB-482	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-482A-0204-MAX	20-Jan-04	SB-482	Field Dup. SBP-SO-482A-0204	2	4	MAX	TRUE	TRUE
SBP-SO-482A-0406	20-Jan-04	SB-482	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-482A-0608	20-Jan-04	SB-482	None	6	8	NORMAL	TRUE	TRUE
SBP-SO-484-0002	19-Dec-03	SB-484	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-484-0204	19-Dec-03	SB-484	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-486-0002	19-Dec-03	SB-486	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-486-0204	19-Dec-03	SB-486	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-486A-0002	22-Jan-04	SB-486	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-486A-0204	22-Jan-04	SB-486	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-486A-0406	22-Jan-04	SB-486	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-488-0002	19-Dec-03	SB-488	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-488-0204	19-Dec-03	SB-488	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-492-0002	19-Dec-03	SB-492	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-492-0204-MAX	19-Dec-03	SB-492	Field Dup. SBP-SO-492-0204	2	4	MAX	TRUE	TRUE
SBP-SO-492A-0002	20-Jan-04	SB-492	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-492A-0204	20-Jan-04	SB-492	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-492A-0406	20-Jan-04	SB-492	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-501-0002	05-Jan-04	SB-501	None	0	2	NORMAL	TRUE	TRUE

TABLE 3
SAMPLE LIST
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NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-501-0204	05-Jan-04	SB-501	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-501A-0002-MAX	26-Jan-04	SB-501	Field Dup. SBP-SO-501A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-501A-0204	26-Jan-04	SB-501	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-501A-0406	26-Jan-04	SB-501	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-501A-0608	26-Jan-04	SB-501	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-502-0002	05-Jan-04	SB-502	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-502-0204	05-Jan-04	SB-502	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-503-0002	05-Jan-04	SB-503	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-503-0204	05-Jan-04	SB-503	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-504-0002	05-Jan-04	SB-504	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-504-0204	05-Jan-04	SB-504	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-504A-0002	26-Jan-04	SB-504	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-504A-0204	26-Jan-04	SB-504	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-504A-0406	26-Jan-04	SB-504	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-505-0002	05-Jan-04	SB-505	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-505-0204-MAX	05-Jan-04	SB-505	Field Dup. SBP-SO-505-0204	2	4	MAX	TRUE	TRUE
SBP-SO-506-0002	05-Jan-04	SB-506	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-506-0204	05-Jan-04	SB-506	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-506A-0002-MAX	23-Jan-04	SB-506	Field Dup. SBP-SO-506A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-506A-0204	23-Jan-04	SB-506	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-506A-0406	23-Jan-04	SB-506	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-506A-0608	23-Jan-04	SB-506	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-506A-0810	23-Jan-04	SB-506	None	8	10	NORMAL	FALSE	TRUE
SBP-SO-507-0002	05-Jan-04	SB-507	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-507-0204	05-Jan-04	SB-507	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-519-0002	06-Jan-04	SB-519	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-519-0204	06-Jan-04	SB-519	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-519A-0002	21-Jan-04	SB-519	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-519A-0204	21-Jan-04	SB-519	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-519A-0406	21-Jan-04	SB-519	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-519A-0608	22-Jan-04	SB-519	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-519A-0810	22-Jan-04	SB-519	None	8	10	NORMAL	FALSE	TRUE
SBP-SO-521-0002	06-Jan-04	SB-521	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-521-0204	06-Jan-04	SB-521	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-521A-0002	27-Jan-04	SB-521	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-521A-0204	27-Jan-04	SB-521	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-521A-0406	27-Jan-04	SB-521	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-521A-0608	27-Jan-04	SB-521	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-527-0002	06-Jan-04	SB-527	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-527-0204	06-Jan-04	SB-527	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-555-0002	07-Jan-04	SB-555	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-555-0204	07-Jan-04	SB-555	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-557-0002	07-Jan-04	SB-557	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-557-0204	07-Jan-04	SB-557	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-559-0002	07-Jan-04	SB-559	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-559-0204	07-Jan-04	SB-559	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-561-0002	07-Jan-04	SB-561	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-561-0204	07-Jan-04	SB-561	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-561A-0002	26-Jan-04	SB-561	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-561A-0204	26-Jan-04	SB-561	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-561A-0406	27-Jan-04	SB-561	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-561A-0608	27-Jan-04	SB-561	None	6	8	NORMAL	FALSE	TRUE

TABLE 3
SAMPLE LIST
SHORT BEACH PARK - 0 TO 15 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-561A-0810	30-Jan-04	SB-561	None	8	10	NORMAL	FALSE	TRUE
SBP-SO-563-0002	07-Jan-04	SB-563	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-563-0204	07-Jan-04	SB-563	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-565-0002	07-Jan-04	SB-565	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-565-0204	07-Jan-04	SB-565	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-567-0002	07-Jan-04	SB-567	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-567-0204	07-Jan-04	SB-567	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-569-0002	08-Jan-04	SB-569	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-569-0204	08-Jan-04	SB-569	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-569A-0002	27-Jan-04	SB-569	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-569A-0204	27-Jan-04	SB-569	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-569A-0406	27-Jan-04	SB-569	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-569A-0608	27-Jan-04	SB-569	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-581-0002	08-Jan-04	SB-581	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-581-0204	08-Jan-04	SB-581	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-585-0002	08-Jan-04	SB-585	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-585-0204	08-Jan-04	SB-585	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-602-0002	08-Jan-04	SB-602	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-602-0204	08-Jan-04	SB-602	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-615-0002	09-Jan-04	SB-615	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-615-0204	09-Jan-04	SB-615	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-622-0002	12-Jan-04	SB-622	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-622-0204	12-Jan-04	SB-622	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-622A-0002	19-Jan-04	SB-622	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-622A-0204	19-Jan-04	SB-622	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-622A-0406	19-Jan-04	SB-622	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-622A-0608	20-Jan-04	SB-622	None	6	8	NORMAL	TRUE	TRUE
SBP-SO-624-0002	12-Jan-04	SB-624	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-624-0204	12-Jan-04	SB-624	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-628-0002	12-Jan-04	SB-628	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-628-0204	12-Jan-04	SB-628	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-629-0002	12-Jan-04	SB-629	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-629-0204	12-Jan-04	SB-629	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-697-0002	15-Jan-04	SB-697	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-697-0204	15-Jan-04	SB-697	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-699-0002-MAX	15-Jan-04	SB-699	Field Dup. SBP-SO-699-0002	0	2	MAX	FALSE	TRUE
SBP-SO-699-0204	15-Jan-04	SB-699	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-701-0002	15-Jan-04	SB-701	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-701-0204	15-Jan-04	SB-701	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-703-0002	15-Jan-04	SB-703	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-703-0204	15-Jan-04	SB-703	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-707-0002	15-Jan-04	SB-707	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-707-0204	15-Jan-04	SB-707	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-707A-0002-MAX	22-Jan-04	SB-707	Field Dup. SBP-SO-707A-0002	0	2	MAX	FALSE	TRUE
SBP-SO-707A-0204	22-Jan-04	SB-707	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-707A-0406	22-Jan-04	SB-707	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-707A-0608	22-Jan-04	SB-707	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-718-0002	20-Jan-04	SB-718	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-718-0204	20-Jan-04	SB-718	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-719-0002	20-Jan-04	SB-719	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-719-0204	20-Jan-04	SB-719	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-720-0002	20-Jan-04	SB-720	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-720-0204	20-Jan-04	SB-720	None	2	4	NORMAL	TRUE	TRUE

TABLE 3
SAMPLE LIST
SHORT BEACH PARK - 0 TO 15 FEET
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-722-0002	21-Jan-04	SB-722	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-722-0204	21-Jan-04	SB-722	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-723-0002	21-Jan-04	SB-723	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-723-0204	21-Jan-04	SB-723	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-725-0002	21-Jan-04	SB-725	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-725-0204	21-Jan-04	SB-725	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-733-0002	22-Jan-04	SB-733	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-733-0204	22-Jan-04	SB-733	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-738-0002	22-Jan-04	SB-738	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-738-0204	22-Jan-04	SB-738	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-739-0002	22-Jan-04	SB-739	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-739-0204	22-Jan-04	SB-739	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-740-0002	22-Jan-04	SB-740	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-740-0204	22-Jan-04	SB-740	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-741-0002	22-Jan-04	SB-741	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-741-0204	22-Jan-04	SB-741	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-741A-0002	29-Jan-04	SB-741	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-741A-0204	29-Jan-04	SB-741	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-745-0002	22-Jan-04	SB-745	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-745-0204	22-Jan-04	SB-745	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-745A-0002	23-Jan-04	SB-745	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-745A-0204	23-Jan-04	SB-745	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-745A-0406	23-Jan-04	SB-745	None	4	6	NORMAL	TRUE	TRUE
SBP-SO-745A-0608-MAX	26-Jan-04	SB-745	Field Dup. SBP-SO-745A-0608	6	8	MAX	TRUE	TRUE
SBP-SO-762-0002	29-Jan-04	SB-762	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-762-0204	29-Jan-04	SB-762	None	2	4	NORMAL	TRUE	TRUE
SBP-SS-333A-000.5	20-Jan-04	SB-333	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-337A-000.5-MAX	20-Jan-04	SB-337	Field Dup. SBP-SS-337A-000.5	0	0.5	MAX	FALSE	TRUE
SBP-SS-407A-000.5	22-Jan-04	SB-407	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-451A-000.5	22-Jan-04	SB-451	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-482A-000.5	20-Jan-04	SB-482	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-492A-000.5	19-Jan-04	SB-492	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-501A-000.5	22-Jan-04	SB-501	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-503A-000.5	22-Jan-04	SB-503	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-504A-000.5	22-Jan-04	SB-504	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SS-701A-000.5	22-Jan-04	SB-701	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SS-707A-000.5	21-Jan-04	SB-707	None	0	0.5	NORMAL	FALSE	TRUE
SBP-SS-720A-000.5	04-Feb-04	SB-720	None	0	0.5	NORMAL	FALSE	TRUE

Appendix C-3

Dioxin and Furan Toxicity Equivalent Factors

TABLE 1
DIOXIN AND FURAN TOXICITY EQUIVALENT FACTORS[a]
RAYMARK OU9
STRATFORD, CONNECTICUT

Compound	TEF
Dioxins	
Mono-, Di-, and Trichlorodibenzo-p-dioxins	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1
Other TCDDs	0
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDDs)	1
Other PeCDDs	0
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
Other HxCDDs	0
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01
Other HpCDDs	0
Octachlorodibenzo-p-dioxin (OCDD)	0.0001
Furans	
Mono-, Di-, and Trichlorodibenzo-p-furans	0
2,3,7,8-Tetrachlorodibenzo-p-furan (TCDF)	0.1
Other TCDFs	0
1,2,3,7,8-Pentachlorodibenzo-p-furan (PeCDF)	0.05
2,3,4,7,8-Pentachlorodibenzo-p-furans (PeCDF)	0.5
Other PeCDFs	0
1,2,3,4,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
1,2,3,6,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
1,2,3,7,8,9-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
2,3,4,6,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
Other HxCDFs	0
1,2,3,4,6,7,8-Heptachlorodibenzo-p-furans (HpCDFs)	0.01
1,2,3,4,7,8,9-Heptachlorodibenzo-p-furans (HpCDFs)	0.01
Other HpCDFs	0
Octachlorodibenzo-p-furan (OCDF)	0.0001

[a]Van de Berg et al., "Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and Wildlife, " Environmental Health Perspectives 106: pp, 775-792, December, 1998.

Appendix C-4

Comparison to CTRSRs for Pollutant Mobility

TABLE 1
STRATFORD LANDFILL COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CrtBasis	CTPMGB	CTPMGBx
Asbestos	%	36	39	12	0.9	*	48	*	SBP-SO-528A-0204			
Toxicity Equivalency	UG/KG	2	2	0.76	0.33	J	1.2	J	SBP-SO-532A-0204	ca		
Aluminum	MG/KG	7	7	8500	4580	J	13900	J	SBP-SO-532A-0406	max		
Arsenic	MG/KG	5	7	5.9	4.9		14.5		SBP-SO-528A-0608	ca		
Barium	MG/KG	7	7	1120	59.9		4970		SBP-SO-528A-0204	nc		
Beryllium	MG/KG	4	7	0.27	0.16		0.67		SBP-SO-528A-0002	ca**		
Cadmium	MG/KG	3	7	0.35	0.24		1.3		SBP-SO-532A-0406	nc		
Calcium	MG/KG	7	7	3420	1720		4560	J	SBP-SO-532A-0002			
Chromium	MG/KG	7	7	35.4	8.4	J	102	J	SBP-SO-528A-0204	ca		
Cobalt	MG/KG	7	7	10.1	5.5		17.6		SBP-SO-528A-0204	ca*		
Copper	MG/KG	73	164	627	26.3	J	25700		SL-SO-TP02-1.92.6	nc		
Iron	MG/KG	7	7	22400	10200		58600		SBP-SO-528A-0608	max		
Lead	MG/KG	143	165	625	13.3	J	28700		SL-SO-TP04-0203	nc		
Magnesium	MG/KG	7	7	8990	2720	J	32100		SBP-SO-528A-0204			
Manganese	MG/KG	7	7	365	288	J	462	J	SBP-SO-532A-0002	nc		
Mercury	MG/KG	2	7	0.061	0.096	J	0.19	J	SBP-SO-532A-0406	nc		
Nickel	MG/KG	7	7	65.8	8.6		277	J	SBP-SO-528A-0204	nc		
Potassium	MG/KG	7	7	1270	761		1790		SBP-SO-532A-0204			
Selenium	MG/KG	5	7	0.8	0.48	J	1.9	J	SBP-SO-528A-0608	nc		
Silver	MG/KG	2	6	1.9	2.3		8		SBP-SO-532A-0406	nc		
Sodium	MG/KG	2	7	109	101		236		SBP-SO-532A-0204			
Vanadium	MG/KG	7	7	25.4	16.8		32.6		SBP-SO-532A-0002	nc		
Zinc	MG/KG	7	7	390	34	J	1360	J	SBP-SO-528A-0204	max		
Arsenic	UG/L	1	2	1.7	2.4	J	2.4	J	SBP-SO-532A-0204		500	0
Barium	UG/L	2	2	77.3	60.1		94.5		SBP-SO-528A-0204		10000	0
Beryllium	UG/L	1	2	0.16	0.23	J	0.23	J	SBP-SO-532A-0204		40	0
Chromium	UG/L	1	2	2.8	5.3		5.3		SBP-SO-532A-0204		500	0
Copper	UG/L	2	2	520	248		793		SBP-SO-528A-0204		13000	0
Lead	UG/L	2	2	264	231		296		SBP-SO-528A-0204		150	2
Nickel	UG/L	2	2	7.6	6.5		8.7		SBP-SO-532A-0204		1000	0
Vanadium	UG/L	1	2	3.5	6.6		6.6		SBP-SO-532A-0204		500	0
Zinc	UG/L	2	2	108	57.1		159		SBP-SO-532A-0204		50000	0
1,1'-Biphenyl	UG/KG	4	7	220	46		970		SBP-SO-528A-0204	sat		
2,4-Dimethylphenol	UG/KG	1	7	230	380	J	380	J	SBP-SO-532A-0204	nc	28000	0
2-Methylnaphthalene	UG/KG	5	7	520	430		1000		SBP-SO-528A-0608, SBP-SO-532A-0406		9800	0
2-Methylphenol	UG/KG	2	7	240	73	J	600		SBP-SO-528A-0204	nc	70000	0
4-Methylphenol	UG/KG	4	7	300	78	J	900		SBP-SO-528A-0204	nc	7000	0
Acenaphthene	UG/KG	5	7	640	370		1400		SBP-SO-532A-0406	nc	84000	0

TABLE 1
STRATFORD LANDFILL COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CritBasis	CTPMGB	CTPMGBx
Acenaphthylene	UG/KG	6	7	660	30		2200		SBP-SO-532A-0204		84000	0
Anthracene	UG/KG	5	7	1000	400		2700	*	SBP-SO-532A-0204	max	400000	0
Benzaldehyde	UG/KG	3	7	330	370	JEB	580	JEB	SBP-SO-532A-0204	nc		
Benzo(a)anthracene	UG/KG	7	7	2000	91	J	7100	*	SBP-SO-532A-0204	ca	1000	3
Benzo(a)pyrene	UG/KG	7	7	1700	100	J	5800	*	SBP-SO-532A-0204	ca	1000	3
Benzo(b)fluoranthene	UG/KG	7	7	2200	110	J	7800	*	SBP-SO-532A-0204	ca	1000	4
Benzo(g,h,i)perylene	UG/KG	7	7	630	45	J	1500		SBP-SO-528A-0204		42000	0
Benzo(k)fluoranthene	UG/KG	7	7	1200	48	J	2900		SBP-SO-528A-0204	ca	1000	3
bis(2-Ethylhexyl)phthalate	UG/KG	5	7	15000	170	JEB	100000	*EB	SBP-SO-532A-0406	ca	11000	1
Carbazole	UG/KG	5	7	500	78	J	1600		SBP-SO-532A-0204	ca	360	3
Chrysene	UG/KG	7	7	2300	99	J	7600	*	SBP-SO-532A-0204	ca	1000	3
Dibenzo(a,h)anthracene	UG/KG	6	7	280	67		1100		SBP-SO-532A-0204	ca	1000	1
Dibenzofuran	UG/KG	5	7	570	270		1100		SBP-SO-528A-0608	nc	5600	0
Di-n-Butylphthalate	UG/KG	2	7	180	50	J	170	J	SBP-SO-532A-0406	nc	140000	0
Fluoranthene	UG/KG	7	7	4700	170	J	16000	*	SBP-SO-532A-0204	nc	56000	0
Fluorene	UG/KG	5	7	1200	530		2400		SBP-SO-532A-0204	nc	56000	0
Indeno(1,2,3-cd)pyrene	UG/KG	7	7	970	60	J	3600	*	SBP-SO-532A-0204	ca	1000	2
Naphthalene	UG/KG	5	7	390	160		840		SBP-SO-528A-0204	nc	56000	0
N-Nitroso-diphenylamine	UG/KG	2	7	220	220	J	330	J	SBP-SO-532A-0204	ca	1400	0
Phenanthrene	UG/KG	7	7	5400	77	J	16000	*	SBP-SO-532A-0204		40000	0
Phenol	UG/KG	4	7	560	62	JEB	1900		SBP-SO-528A-0204	max	800000	0
Pyrene	UG/KG	7	7	4500	170	J	17000	*	SBP-SO-532A-0204	nc	40000	0
1,2-Dichlorobenzene	UG/KG	1	7	7	2	J	2	J	SBP-SO-532A-0406	sat	3100	0
1,4-Dichlorobenzene	UG/KG	2	7	6	2	J	6	J	SBP-SO-532A-0406	ca	15000	0
2-Butanone	UG/KG	4	7	8	3	J	13	J	SBP-SO-532A-0406	nc	80000	0
Acetone	UG/KG	3	7	15	3	J	40		SBP-SO-532A-0406	nc	140000	0
Benzene	UG/KG	1	7	6	3	J	3	J	SBP-SO-528A-0204	ca*	200	0
Carbon Disulfide	UG/KG	2	7	6	5	J	8	J	SBP-SO-528A-0608	sat	140000	0
Chlorobenzene	UG/KG	4	7	15	5	J	41	J	SBP-SO-532A-0204	nc	20000	0
Ethylbenzene	UG/KG	2	7	11	2	J	35		SBP-SO-528A-0204	ca	10100	0
Isopropylbenzene	UG/KG	4	7	5	2	J	8	J	SBP-SO-528A-0204	nc		
Methylcyclohexane	UG/KG	2	7	6	3	J	5	J	SBP-SO-528A-0204	nc		
Toluene	UG/KG	2	7	10	3	J	38		SBP-SO-528A-0204	sat	67000	0
Total Xylenes	UG/KG	3	7	35	10	J	190		SBP-SO-528A-0204	sat	19500	0
4,4'-DDD	UG/KG	3	7	4.4	5.6	#	11	#	SBP-SO-528A-0204	ca	29	0
4,4'-DDE	UG/KG	4	7	4.7	3.8	J	9.8	J#	SBP-SO-532A-0406	ca	21	0
4,4'-DDT	UG/KG	2	7	24	17	#	140	*#	SBP-SO-528A-0204	ca*	21	1
Aroclor-1242	UG/KG	1	11	70	61		61		SL-SO-304-0608	ca		
Aroclor-1254	UG/KG	1	11	130	700		700		SBP-SO-532A-0406	ca*		

TABLE 1
STRATFORD LANDFILL COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	*MaxLocation	CrtBasis	CTPMGb	CTPMGBx
Aroclor-1262	UG/KG	5	11	3800	2400		15000		SBP-SO-774-0002	ca		
Aroclor-1268	UG/KG	6	11	1700	790		7900		SBP-SO-774-0002	ca		
Endosulfan Sulfate	UG/KG	1	7	2.6	6	#	6	#	SBP-SO-528A-0608		8400	0
Endrin Aldehyde	UG/KG	2	7	39	5.2		260	*	SBP-SO-528A-0204			
gamma-Chlordane	UG/KG	3	7	2.8	3.1	#	7.7		SBP-SO-528A-0204		66	0
Methoxychlor	UG/KG	1	7	15	43		43		SBP-SO-528A-0204	nc	8000	0

TABLE 2
SHORT BEACH PARK COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CritBasis	CTPMGB	CTPMGBx
Asbestos	%	137	157	10	0.9	*	48	*	SBP-SO-480-0204, SBP-SO-745A-0406			
Toxicity Equivalency	UG/KG	22	22	0.043	0.0011	J	0.38	J	SBP-SO-480A-0204	ca		
Aluminum	MG/KG	100	100	6740	1840		16900		SBP-SO-451A-0204-MAX	max		
Antimony	MG/KG	3	95	0.99	1.4	J	38.6		SBP-SO-707A-0608	nc		
Arsenic	MG/KG	72	100	4.9	0.43	J	31.3	J	SBP-SO-451A-0204-MAX	ca		
Barium	MG/KG	100	100	1220	9.6		9900		SBP-SO-745A-0406	nc		
Beryllium	MG/KG	54	99	0.41	0.051	J	3.7		SBP-SO-569A-0002	ca**		
Cadmium	MG/KG	41	99	0.62	0.059		4.7	J	SBP-SO-519A-0810	nc		
Calcium	MG/KG	100	100	11000	1110		48000		SBP-SO-353A-0002			
Chromium	MG/KG	100	100	43.2	7.5	J	267		SBP-SO-355A-0204	ca		
Cobalt	MG/KG	100	100	7.6	1.2		30.7	J	SBP-SO-745A-0406	ca*		
Copper	MG/KG	188	301	2738	13.6	J	32500		SBP-SO-745A-0406	nc		
Iron	MG/KG	100	100	15600	1110		98400		SBP-SO-451A-0204-MAX	max		
Lead	MG/KG	239	303	1170	5.2	J	20500		SBP-SO-745A-0406	nc		
Magnesium	MG/KG	100	100	9530	1060		81700		SBP-SO-355A-0204			
Manganese	MG/KG	100	100	242	48.1		869	J	SBP-SO-741A-0204	nc		
Mercury	MG/KG	56	91	0.19	0.045	J	2.4	J	SBP-SO-519A-0810	nc		
Nickel	MG/KG	100	100	77.2	4.7		647		SBP-SO-355A-0204	nc		
Potassium	MG/KG	98	100	935	225		3200		SBP-SO-707A-0002-MAX			
Selenium	MG/KG	37	100	1	0.45	J	43.7	J	SBP-SO-451A-0204-MAX	nc		
Silver	MG/KG	48	99	1.4	0.29		11.1		SBP-SS-501A-000.5	nc		
Sodium	MG/KG	35	99	135	63		1970		SBP-SO-501A-0002-MAX			
Thallium	MG/KG	3	100	0.49	0.66	J	5.7	J	SBP-SO-451A-0204-MAX	nc		
Vanadium	MG/KG	100	100	38	4.7		1220	J	SBP-SO-480A-0204	nc		
Zinc	MG/KG	100	100	828	31.5	J	12000		SBP-SO-431A-0204	max		
Arsenic	UG/L	3	14	1.5	2	J	4.1		SBP-SO-451A-0204-MAX		500	0
Barium	UG/L	14	14	198	27		437		SBP-SO-355A-0204		10000	0
Cadmium	UG/L	1	14	0.11	0.23	J	0.23	J	SBP-SO-501A-0204		50	0
Chromium	UG/L	10	14	1.5	0.41	J	5.3		SBP-SO-492A-0204		500	0
Copper	UG/L	12	14	984	281		2080		SBP-SO-355A-0204		13000	0
Lead	UG/L	14	14	278	6.7	J	663		SBP-SO-355A-0204		150	9
Nickel	UG/L	14	14	9.3	1.8		19		SBP-SO-355A-0204		1000	0
Vanadium	UG/L	2	14	6.5	3.3		81.5		SBP-SO-480A-0204		500	0
Zinc	UG/L	13	14	146	20		259		SBP-SO-482A-0204-MAX		50000	0
1,1'-Biphenyl	UG/KG	35	99	78	33		1500		SBP-SO-480A-0406	sat		
2,4-Dichlorophenol	UG/KG	1	99	210	47	J	47	J	SBP-SO-357A-1012	nc		
2,4-Dimethylphenol	UG/KG	33	99	480	36	J	6500	*	SBP-SO-355A-0406	nc	28000	0
2-Chloronaphthalene	UG/KG	1	99	210	360	J	360	J	SBP-SO-622A-0608	nc		

TABLE 2
SHORT BEACH PARK COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CritBasis	CTPMGB	CTPMGBx
2-Methylnaphthalene	UG/KG	47	99	400	34	, J	12000	*	SBP-SO-622A-0406		9800	1
2-Methylphenol	UG/KG	27	99	240	31	J	1000		SBP-SO-486A-0406	nc	70000	0
4-Chloroaniline	UG/KG	6	99	200	48	J	170	J	SBP-SS-501A-000.5	nc	5600	0
4-Methylphenol	UG/KG	36	99	310	34	J	2500		SBP-SO-480A-0204	nc	7000	0
Acenaphthene	UG/KG	40	99	470	30		8300	*	SBP-SO-480A-0406	nc	84000	0
Acenaphthylene	UG/KG	49	99	340	36		12000	*	SBP-SO-480A-0406		84000	0
Acetophenone	UG/KG	27	99	190	42	J	420	J	SBP-SO-622A-0204	nc		
Anthracene	UG/KG	55	99	980	34		28000	*	SBP-SO-480A-0406	max	400000	0
Benzaldehyde	UG/KG	22	99	190	41	J	530	JEB	SBP-SO-337A-0204	nc		
Benzo(a)anthracene	UG/KG	84	99	1700	34		33000	*	SBP-SO-480A-0406	ca	1000	27
Benzo(a)pyrene	UG/KG	84	99	1400	36		24000	*	SBP-SO-480A-0406	ca	1000	26
Benzo(b)fluoranthene	UG/KG	92	99	1800	30		31000	*	SBP-SO-480A-0406	ca	1000	29
Benzo(g,h,i)perylene	UG/KG	71	99	650	31		12000	*	SBP-SO-480A-0406		42000	0
Benzo(k)fluoranthene	UG/KG	70	99	700	31		12000	*	SBP-SO-480A-0406	ca	1000	16
Bis(2-Chloroethyl)ether	UG/KG	1	99	210	270	J	270	J	SBP-SS-501A-000.5	ca		
bis(2-Ethylhexyl)phthalate	UG/KG	76	99	800	37	J	12000	*	SBP-SO-357A-1012	ca	11000	1
Butylbenzylphthalate	UG/KG	10	99	660	38	J	40000	*J	SBP-SO-561A-0406	max	200000	0
Caprolactam	UG/KG	3	99	210	140	J	450		SBP-SO-622A-0406	max		
Carbazole	UG/KG	45	99	480	37	J	18000	*	SBP-SO-480A-0406	ca	360	10
Chrysene	UG/KG	90	99	1900	27		32000	*	SBP-SO-480A-0406	ca	1000	29
Dibenzo(a,h)anthracene	UG/KG	45	99	210	30		4300	*	SBP-SO-480A-0406	ca	1000	5
Dibenzofuran	UG/KG	42	99	380	31		13000	*	SBP-SO-480A-0406	nc	5600	1
Diethylphthalate	UG/KG	1	99	210	430	J	430	J	SBP-SO-451A-0204-MAX	max	1100000	0
Dimethylphthalate	UG/KG	7	99	200	75	J	200	J	SBP-SO-486A-0406	max	1100000	0
Di-n-Butylphthalate	UG/KG	23	99	170	39	J	140	J	SBP-SO-355A-0406, SBP-SO-486A-0406	nc	140000	0
Di-n-octylphthalate	UG/KG	1	99	320	360	J	360	J	SBP-SO-482A-0002	nc	20000	0
Fluoranthene	UG/KG	95	99	4100	45		88000	*	SBP-SO-480A-0406	nc	56000	1
Fluorene	UG/KG	52	99	970	39		30000	*	SBP-SO-480A-0406	nc	56000	0
Indeno(1,2,3-cd)pyrene	UG/KG	69	99	670	29		13000	*	SBP-SO-480A-0406	ca	1000	15
Naphthalene	UG/KG	47	99	400	33		8400	*	SBP-SO-357A-0608	nc	56000	0
N-Nitroso-di-n-propylamine	UG/KG	1	99	210	420		420		SBP-SO-357A-0810	ca	1000	0
N-Nitroso-diphenylamine	UG/KG	14	99	240	44	J	3700	*	SBP-SO-357A-1012	ca	1400	1
Pentachlorophenol	UG/KG	3	99	510	56	J	89	J	SBP-SO-337A-0406	ca	1000	0
Phenanthrene	UG/KG	87	99	4500	31		130000	*	SBP-SO-480A-0406		40000	2
Phenol	UG/KG	48	99	600	40	J	8200	*	SBP-SO-486A-0406	max	800000	0
Pyrene	UG/KG	97	99	4100	30		69000	*	SBP-SO-480A-0406	nc	40000	2
1,1,1-Trichloroethane	UG/KG	3	99	16	0.9	J	8	J	SBP-SO-480A-0204	sat	40000	0
1,1-Dichloroethane	UG/KG	10	99	16	1	J	21	J	SBP-SO-486A-0406	nc	14000	0

TABLE 2
SHORT BEACH PARK COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CritBasis	CTPMGB	CTPMGBx
1,1-Dichloroethene	UG/KG	1	99	16	2	J	2	J	SBP-SO-504A-0204	nc	1400	0
1,2-Dichlorobenzene	UG/KG	8	99	17	1	J	51		SBP-SO-519A-0810	sat	3100	0
1,3-Dichlorobenzene	UG/KG	3	99	16	3	J	18	J	SBP-SO-519A-0810	nc		
1,4-Dichlorobenzene	UG/KG	13	99	18	2	J	120		SBP-SO-519A-0810	ca	15000	0
2-Butanone	UG/KG	64	99	26	1	J	190		SBP-SO-519A-0810	nc	80000	0
4-Methyl-2-Pentanone	UG/KG	1	99	32	2600		2600		SBP-SO-482A-0204-MAX	nc	14000	0
Acetone	UG/KG	37	99	180	2	J	7300	J	SBP-SS-333A-000.5	nc	140000	0
Benzene	UG/KG	24	99	6	0.7	J	21		SBP-SO-622A-0406	ca*	200	0
Carbon Disulfide	UG/KG	45	99	7	0.7	J	56		SBP-SO-519A-0810	sat	140000	0
Chlorobenzene	UG/KG	33	99	20	0.8	J	730	*	SBP-SO-519A-0810	nc	20000	0
Chloroethane	UG/KG	6	99	6	3	J	55	J	SBP-SO-486A-0406	ca	2400	0
Chloromethane	UG/KG	1	99	16	2	J	2	J	SBP-SO-355A-0204	ca	540	0
cis-1,2-Dichloroethene	UG/KG	12	99	7	1	J	49	J	SBP-SO-622A-0204	nc		
Cyclohexane	UG/KG	13	99	16	0.7	J	55		SBP-SO-504A-0406	sat		
Dichlorodifluoromethane	UG/KG	1	99	16	4	J	4	J	SBP-SO-407A-0204	nc		
Ethylbenzene	UG/KG	19	99	8	0.8	J	160	J	SBP-SO-486A-0406	ca	10100	0
Isopropylbenzene	UG/KG	28	99	10	1	J	230	J	SBP-SO-482A-0204-MAX	nc		
Methyl Acetate	UG/KG	2	99	16	2	J	5	J	SBP-SO-707A-0608	nc		
Methylcyclohexane	UG/KG	35	99	40	0.8	J	3000	*	SBP-SO-486A-0406	nc		
Methylene Chloride	UG/KG	2	99	17	6	J	14	J	SBP-SO-501A-0406	ca	1000	0
Styrene	UG/KG	3	99	16	1	J	3	J	SBP-SO-482A-0608	sat	20000	0
Tetrachloroethene	UG/KG	1	99	16	2	J	2	J	SBP-SO-480A-0204	ca*	1000	0
Toluene	UG/KG	35	99	550	0.5	J	15000	*J	SBP-SO-482A-0204-MAX	sat	67000	0
Total Xylenes	UG/KG	34	99	18	0.9	J	540	J	SBP-SO-486A-0406	sat	19500	0
trans-1,2-Dichloroethene	UG/KG	4	99	16	1	J	2	J	SBP-SO-480A-0204, SBP-SO-622A-0204, SBP-SO-622A-0406	nc		
Trichloroethene	UG/KG	10	99	16	0.8	J	53		SBP-SO-480A-0204	ca	1000	0
Trichlorofluoromethane	UG/KG	1	99	16	3	J	3	J	SBP-SO-482A-0608	sat		
Vinyl Chloride	UG/KG	2	99	16	2	J	5	J	SBP-SO-622A-0204	ca	400	0
4,4'-DDD	UG/KG	35	99	11	1.9	J	290	*	SBP-SO-561A-0608	ca	29	8
4,4'-DDE	UG/KG	79	99	32	1.2	J	590	*	SBP-SO-482A-0204-MAX	ca	21	18
4,4'-DDT	UG/KG	46	99	5.8	1.1	J	53	#	SBP-SO-337A-0204	ca*	21	5
Aldrin	UG/KG	1	99	1.2	4.2		4.2		SBP-SO-745A-0406	ca	0.41	1
alpha-BHC	UG/KG	1	99	1.2	2.5		2.5		SBP-SO-506A-0204	ca	1.1	1
alpha-Chlordane	UG/KG	22	99	2.2	1.2	J	45		SBP-SO-622A-0608		66	0
Aroclor-1242	UG/KG	1	104	49	2400	*J	2400	*J	SBP-SO-745A-0608-MAX	ca		
Aroclor-1248	UG/KG	2	104	450	88		44000	*J	SBP-SO-745A-0608-MAX	ca		
Aroclor-1254	UG/KG	11	104	74	72	J	1300		SBP-SO-519A-0810	ca*		
Aroclor-1260	UG/KG	8	104	44	23	J	1100		SBP-SO-357A-0810	ca		

TABLE 2
SHORT BEACH PARK COMPARISON TO CT RSRS FOR POLLUTANT MOBILITY GB
RAYMARK - OU9
STRATFORD, CONNECTICUT

PARAMETER	Units	Detects	Count	Average	MinOfDetects	MinQual	MaxOfDetects	MaxQual	MaxLocation	CritBasis	CTPMGB	CTPMGBx
Aroclor-1262	UG/KG	50	102	560	32	J	8900	*	SBP-SO-337A-0204	ca		
Aroclor-1268	UG/KG	40	102	510	51		6700		SBP-SO-353-0204	ca		
beta-BHC	UG/KG	10	99	1.8	2		43		SBP-SO-745A-0608-MAX	ca	3.9	4
Dieldrin	UG/KG	7	99	6.5	1.1	J	420	J	SBP-SO-745A-0608-MAX	ca	7	2
Endosulfan I	UG/KG	3	99	2.1	6.1	J	73	J	SBP-SO-745A-0608-MAX		8400	0
Endosulfan II	UG/KG	1	99	2.4	11		11		SBP-SO-482A-0204-MAX		8400	0
Endosulfan Sulfate	UG/KG	19	99	5.9	3.9	#	130	J	SBP-SO-745A-0608-MAX		8400	0
Endrin	UG/KG	2	99	2.9	27	J	58		SBP-SO-745A-0608-MAX	nc		
Endrin Aldehyde	UG/KG	10	99	2.8	1.9	J	14		SBP-SO-353A-0406			
Endrin Ketone	UG/KG	7	99	2.9	5.1		20		SBP-SO-519A-0406			
gamma-Chlordane	UG/KG	18	99	5.8	0.88	J	230	J	SBP-SO-745A-0608-MAX		66	3
Heptachlor	UG/KG	2	99	1.2	2.7		3.5		SBP-SO-482A-0204-MAX	ca	13	0
Heptachlor Epoxide	UG/KG	5	99	1.4	2.7		8.2		SBP-SO-506A-0810	ca*	20	0
Methoxychlor	UG/KG	9	99	13	4.6	J	62	J	SBP-SO-622A-0406	nc	8000	0

Appendix C-5

Soil Background Data

SUMMARY OF BACKGROUND CONCENTRATIONS IN SOIL
AT LOCATIONS THROUGH STRATFORD
REMEDIAL INVESTIGATION
RAYMARK - OU9
STRATFORD, CONNECTICUT

Parameter	Number of Detections	Number of Samples Analyzed	Average Concentration[1]	Minimum Detected Concentration	Maximum Detected Concentration
Metals (mg/kg)					
Aluminum	39	39	12917.59	926 J	22600
Antimony	0	34	2.86 U	ND	ND
Arsenic	39	39	5.67	0.62 J	11.6
Barium	39	39	57.47	5.3	329 J
Beryllium	34	39	0.72	0.26 J	1.3
Cadmium	8	39	0.40	0.43 J	1.4 J
Calcium	39	39	1597.62	161 J	7420 J
Chromium	39	39	16.97	6.2	35.2
Cobalt	29	39	6.35	2.4 J	12.4
Copper	38	39	28.79	9.2 J	123 J
Iron	39	39	16045.13	3110 J	24100
Lead	36	38	80.76	3.7 J	344 J
Magnesium	39	39	3251.49	368 J	5690
Manganese	39	39	306.39	35.8 J	660 J
Mercury	25	39	0.11	0.07 J	0.28
Nickel	29	39	12.52	5.4 J	40.4 J
Potassium	24	39	961.14	517	2680
Selenium	6	39	0.50	0.95 J	3.3 J
Silver	2	39	0.51	0.58 J	3.3 J
Sodium	21	34	76.43	66.4 J	246
Thallium	0	39	0.37	ND	ND
Vanadium	38	39	34.21	6.5 J	81.9
Zinc	39	39	112.32	9.8 J	604 J
Pesticides (µg/kg)					
4,4'-DDD	0	35	4.60	ND	ND
4,4'-DDE	12	34	16.71	2.2 J	240 J
4,4'-DDT	13	34	29.09	2	400 J
Aldrin	0	36	2.41	ND	ND
alpha-BHC	0	36	2.41	ND	ND
alpha-Chlordane	9	35	4.88	1.3 J	44 J
beta-BHC	0	35	2.39	ND	ND
delta-BHC	1	36	2.32 U	1.3 J	1.3 J
Dieldrin	8	33	13.09	2.6 J	190 J
Endosulfan I	3	35	4.52	22	47 J
Endosulfan II	5	36	4.72	1.8 J	6 J
Endosulfan Sulfate	0	36	4.69	ND	ND
Endrin	1	36	4.77	4.5 J	4.5 J
Endrin Aldehyde	1	36	4.56	3.7 J	3.7 J
Endrin Ketone	4	35	5.31	1.8 J	9.5 J
gamma-BHC	0	36	2.41	ND	ND
gamma-Chlordane	6	33	2.67	1 J	13 J
Heptachlor	1	35	2.19	1 J	1 J
Heptachlor Epoxide	2	35	2.33	1.6 J	2.3 J
Methoxychlor	4	34	22.25 U	4.1 J	18 J
Toxaphene	2	36	236.45 U	1.4 J	5.7 J

SUMMARY OF BACKGROUND CONCENTRATIONS IN SOIL
AT LOCATIONS THROUGH STRATFORD
REMEDIAL INVESTIGATION
RAYMARK - OU9
STRATFORD, CONNECTICUT

Parameter	Number of Detections	Number of Samples Analyzed	Average Concentration(1)	Minimum Detected Concentration	Maximum Detected Concentration
PCBs (µg/kg)					
Aroclor-1016	0	37	49.93	ND	ND
Aroclor-1221	0	37	93.03	ND	ND
Aroclor-1232	0	37	47.05	ND	ND
Aroclor-1242	0	37	46.11	ND	ND
Aroclor-1248	0	37	46.11	ND	ND
Aroclor-1254	0	37	46.11	ND	ND
Aroclor-1260	0	37	46.11	ND	ND
Aroclor-1262	0	27	36.81	ND	ND
Aroclor-1268	0	37	46.11	ND	ND

Notes:

(1) The locations and numbers of background samples collected were determined in concurrence with EPA. The frequency of detection denotes the number of times the compound/analyte was detected per the total number of samples that were analyzed.

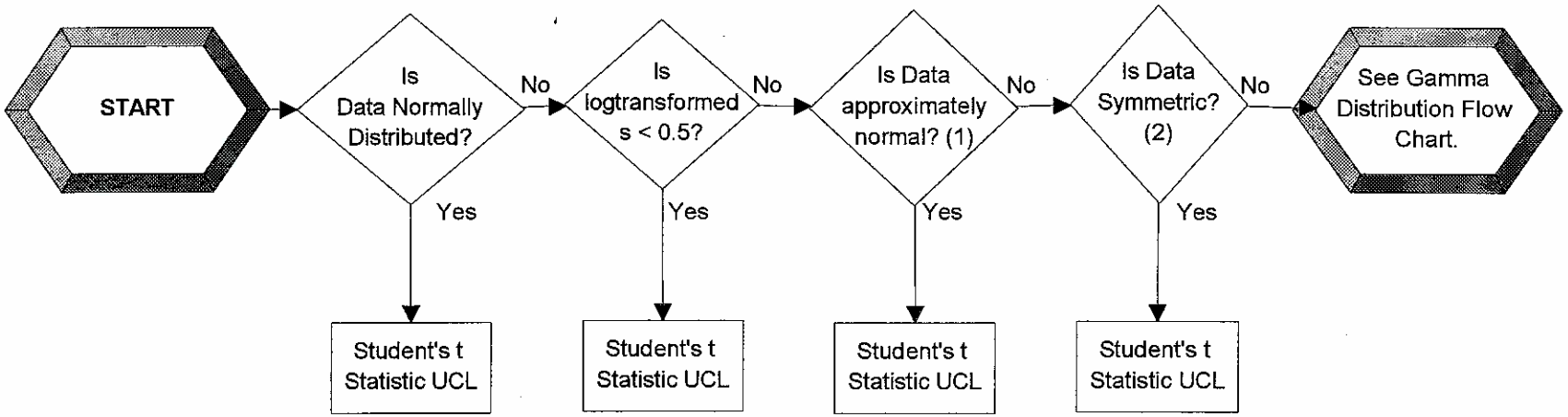
(2) Average Concentrations are calculated using the sum of the detected values and 1/2 of the detection limits for non-detected values. If the compound is not detected, the average is generated using the sum of 1/2 of the detection limits. This method of calculation may result in an average concentration higher than the maximum detected value.

J - Quantitation approximate
ND - Not Detected

Appendix C-6

ProUCL Flow Charts

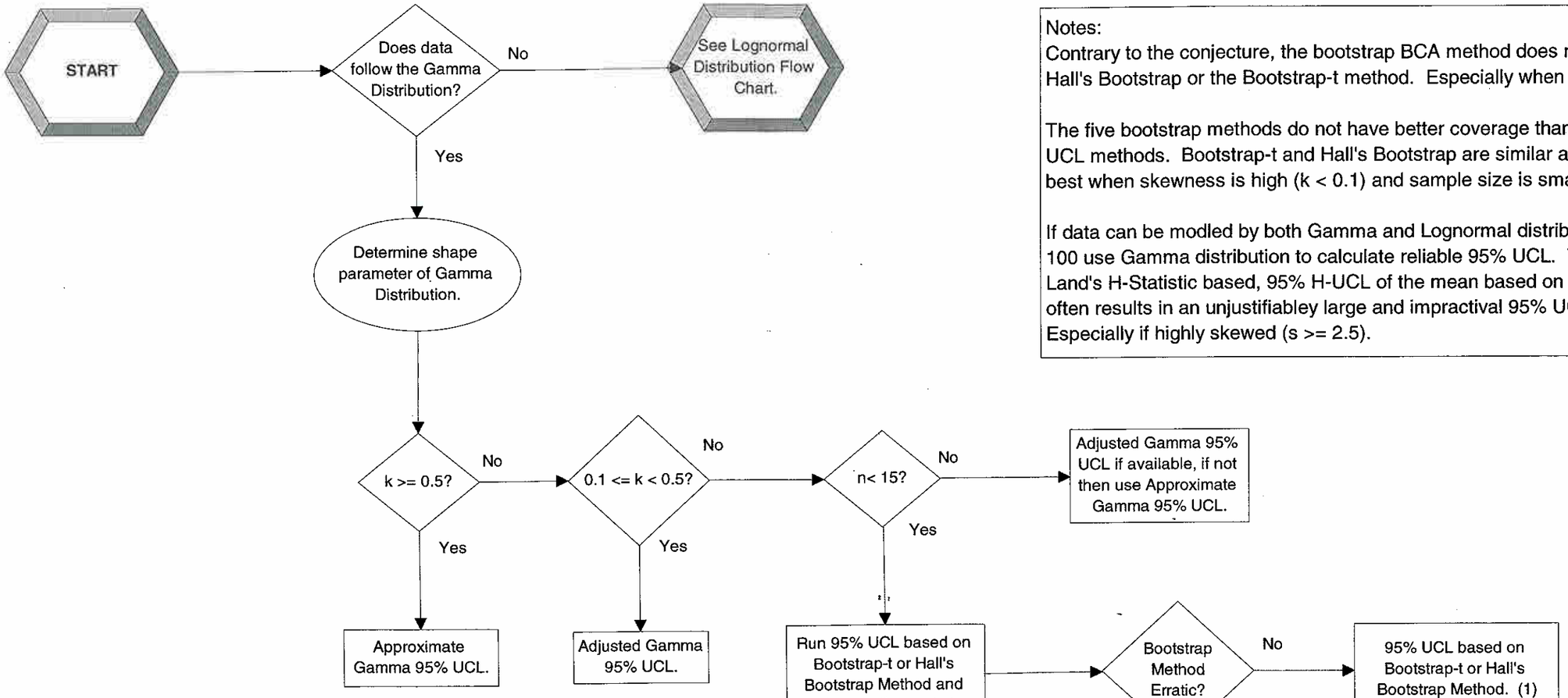
FIGURE 1
NORMAL DISTRIBUTION FLOW CHART
RAYMARK OU9
STRATFORD, CONNECTICUT



(1) Data is approximately normal if the Q-Q Plot displays a linear pattern without jumps or outliers and the correlation coefficient is greater than or equal to 0.95.

This flow chart is for normal or approximately normal datasets that are symmetric and positively skewed for an unknown population mean. Applicable to full datasets without censored and nondetect observations. Methods should be analyzed if nondetected/censored data is contained within the dataset.

FIGURE 2
GAMMA DISTRIBUTION FLOW CHART
RAYMARK OU9
STRATFORD, CONNECTICUT



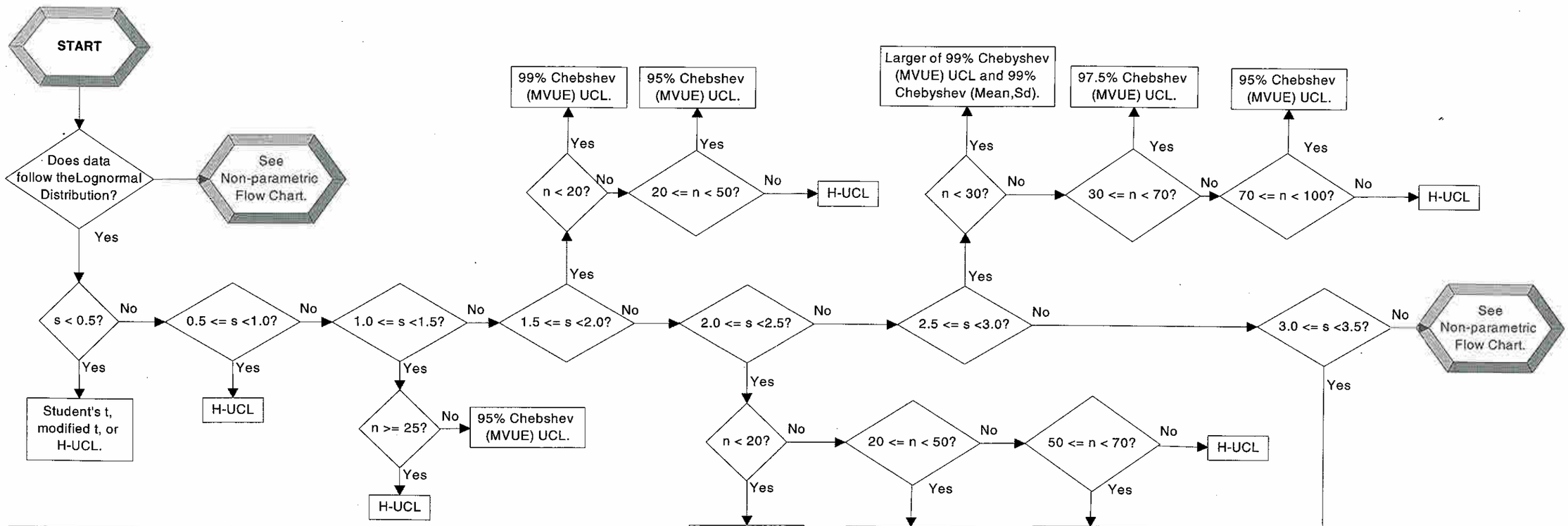
Notes:
Contrary to the conjecture, the bootstrap BCA method does not outperform the Hall's Bootstrap or the Bootstrap-t method. Especially when n < 15 and k < 0.1.

The five bootstrap methods do not have better coverage than the two Gamma UCL methods. Bootstrap-t and Hall's Bootstrap are similar and they perform best when skewness is high (k < 0.1) and sample size is small (n < 15).

If data can be modled by both Gamma and Lognormal distributions when n < 100 use Gamma distribution to calculate reliable 95% UCL. This is because Land's H-Statistic based, 95% H-UCL of the mean based on Lognormal model often results in an unjustifiabley large and impractival 95% UCL value. Especially if highly skewed (s >= 2.5).

(1) Sometimes in practice these two bootstrap methods yield erratic inflated values (orders of magnitude higher than other UCL values) when dealing with individual highly skewed datasets of small sizes. This is especially true when potential outliers are present in the dataset. In this case the 95% UCL of the mean should be computed based upon the Adjusted Gamma 95% UCL.

FIGURE 3
LOGNORMAL DISTRIBUTION FLOW CHART
RAYMARK OU9
STRATFORD, CONNECTICUT

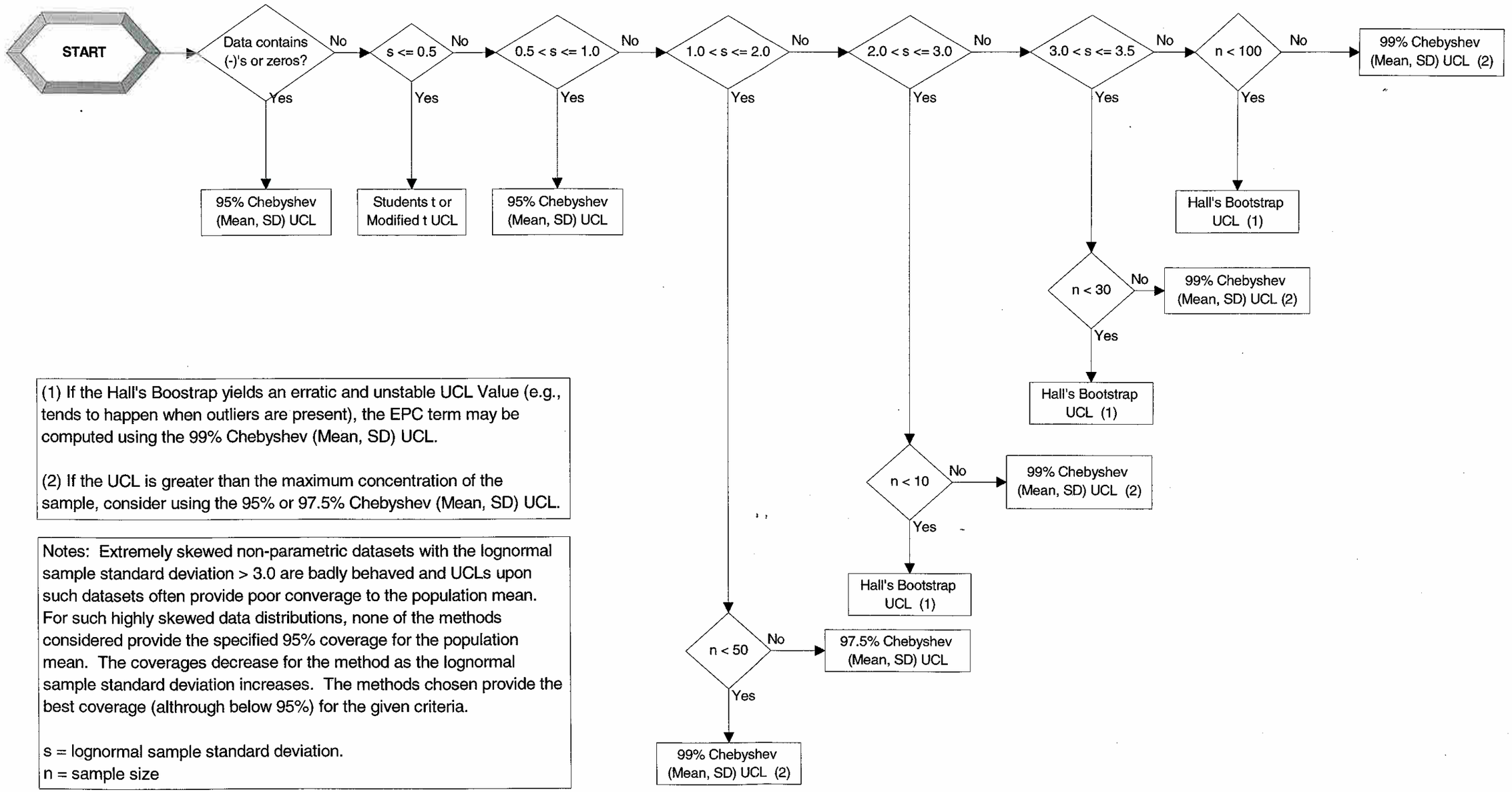


(1) If the Hall's Boostrap yields an erratic and unstable UCL Value (e.g., tends to happen when outliers are present), the EPC term may be computed using the 99% Chebyshev (Mean, SD) UCL.

s = lognormal sample standard deviation.
n = sample size

Notes: H-UCL often results in unjustifiably large UCL values which do not occur in practice. The problem associated with the use of a lognormal distribution is that the population mean of a lognormal model becomes impractically large for larger values of s, which in turn results in inflated H-UCL of the population mean. Since the population mean of a lognormal model becomes too large, none of the other methods except for the inflated H-UCL provides the specified 95% coverage. This is especially true when sample size is small and skewness is high (e.g. s> 2.0). Therefore, alternative UCL computation methods such as the use of a gamma distribution, the use of a UCL based upon non-parametric bootstrap methods or Chebyshev inequality based methods, are desirable.

FIGURE 4
NON-PARAMETRIC DISTRIBUTION FLOW CHART
RAYMARK OU9
STRATFORD, CONNECTICUT



(1) If the Hall's Boostrap yields an erratic and unstable UCL Value (e.g., tends to happen when outliers are present), the EPC term may be computed using the 99% Chebyshev (Mean, SD) UCL.

(2) If the UCL is greater than the maximum concentration of the sample, consider using the 95% or 97.5% Chebyshev (Mean, SD) UCL.

Notes: Extremely skewed non-parametric datasets with the lognormal sample standard deviation > 3.0 are badly behaved and UCLs upon such datasets often provide poor converage to the population mean. For such highly skewed data distributions, none of the methods considered provide the specified 95% coverage for the population mean. The coverages decrease for the method as the lognormal sample standard deviation increases. The methods chosen provide the best coverage (althrough below 95%) for the given criteria.

s = lognormal sample standard deviation.
n = sample size

Appendix C-7

Sample Intake and Risk Calculations

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE ____ OF ____

CLIENT: EPA/Raymark OU9	JOB NUMBER: N1369-0710
SUBJECT: Sample Calculations of Intake - CommWorker-Ingestion - RME	
BASED ON: RAGS Part A	DRAWING NUMBER:
BY: C. Woods / CHECKED BY:	APPROVED BY: / DATE: 9/23/04

Comm Worker ~~SBP~~ Stratford Landfill Total Aroclors

$$\text{Intake} = \frac{EPC \times IR \times OABS \times EF \times ED \times CF}{BW \times AT}$$

			Values
where: EPC	= Exposure Point Concentration in Soil	(mg/kg)	24.353
IR	= Ingestion Rate	(mg/day)	100
OABS	= Oral Absorption, chem-specific	(unitless)	1.0
EF	= Exposure Frequency	(days/yr)	250
ED	= Exposure Duration	(yrs)	25
CF	= Conversion Factor	(kg/mg)	1×10^{-6}
BW	= Body Weight	(kg)	70
AT	= Averaging Time	(days)	
	cancer 70yr × 365 d/yr		25,550
	non-cancer = ED × 365 d/yr		9125

$$\text{Cancer Intake} = \frac{24.353 \times 100 \times 1 \times 250 \times 25 \times 1 \times 10^{-6}}{70 \times 25550} = 8.5 \times 10^{-6}$$

$$\text{Cancer Risk} = \text{Intake} \times CSF = 8.5 \times 10^{-6} \times 2.0 \times 10^{0} = 1.7 \times 10^{-5}$$

$$\text{Non-cancer Intake} = \frac{24.353 \times 100 \times 1 \times 250 \times 25 \times 10^{-6}}{70 \times 25 \times 365} = 2.4 \times 10^{-5}$$

$$HQ = \frac{\text{Intake}}{RfD} = \frac{2.4 \times 10^{-5}}{2 \times 10^{-5}} = 1.2$$

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE ____ OF ____

CLIENT: EPA/Raymark OU9	JOB NUMBER: N 1369 - 0710
SUBJECT: Sample Calculation of Intake - Groundskeeper - Dermal - RME	
BASED ON: RAGS Part A	DRAWING NUMBER:
BY: C. Woods / CHECKED BY:	APPROVED BY: / DATE: 9/23/04

Groundskeeper Short Beach Park Arsenic

$$Intake_{Dermal} = \frac{EPC \times CF \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$$

Where:

		Values
EPC = Exposure Point Concentration	(mg/kg)	8.08 ~~9.474~~
CF = Conversion Factor	(kg/mg)	1×10^{-6}
SA = Surface Area Available	(cm^2/day)	3,300
SSAF = Soil to Skin Adherence Factor	(mg/cm^2)	0.2
DABS = Dermal Absorption Factor (chem. specific)	(unitless)	0.03
EF = Exposure Frequency	(days/yr)	250
ED = Exposure Duration	(yrs)	25
BW = Body Weight	(kg)	70
AT = Averaging Time	(days)	
cancer	70 yr × 365 days/yr	25550
non-cancer	ED × 365 days/yr	9125

$$\text{Cancer Intake} = \frac{8.08 \times 1\times10^{-6} \times 3300 \times 0.2 \times 0.03 \times 250 \times 25}{70 \times 25550} = 5.6\times10^{-7}$$

$$CR = \text{Intake} \times CSF = 5.6\times10^{-7} \times 1.5E+0 = 8.4\times10^{-7}$$

$$\text{Non-cancer Intake} = \frac{8.08 \times 1\times10^{-6} \times 3300 \times 0.2 \times 0.03 \times 250 \times 25}{70 \times 9125} = 1.6\times10^{-6}$$

$$HQ = \frac{Intake}{RfD} = \frac{1.6\times10^{-6}}{3.0\times10^{-4}} = 0.0052$$

Appendix C-8

Brief Summaries of Toxicological Profiles

TOXICITY SUMMARIES FOR CHEMICALS OF POTENTIAL CONCERN
RAYMARK OU9
STRATFORD CONNECTICUT

1.0 INTRODUCTION

This appendix contains brief summaries of the toxicological profiles for the identified COPCs. The majority of these profiles were obtained from the Oak Ridge National Laboratories web site at http://risk.lsd.ornl.gov/tox/rap_toxp.shtml. These profiles present a summary of the available literature on carcinogenic and non-carcinogenic effects associated with human exposure to the chemical. For more in depth information see www.epa.gov/iris/indes.html or www.atsdr.cdc.gov/toxpro2.html.

1.1 Asbestos

Asbestos is the name that's used for a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in soil and rocks in some areas. Asbestos fibers vary in length and may be straight or curled. Chrysotile is the only asbestos in the curled (serpentine) group, whereas the straight (amphibole) group is represented by actinolite, amosite, anthophyllite, crocidolite, and tremolite. Asbestos fibers are chemically inert, or nearly so. They do not evaporate, dissolve, burn, or undergo significant reactions with other chemicals. The essential characteristic of asbestos minerals is their fibrous nature. The gross fibers, which are visible to the naked eye, are actually bundles of much finer fibrils that are submicroscopic in size. Asbestos has been widely used because it is noncombustible and nonconducting and has a relatively high chemical resistance. Asbestos was introduced in the late 1800s to make heat- and acid-resistant fabrics. It is now used in a variety of applications such as in the building industry to strengthen cement and plastics; for heat insulation and sound absorption; in brake shoes and clutch plates; and as asbestos cloths for fire protection, including the cladding of structural steel beams. Asbestos also has valuable filtration properties. In 1991, a U.S. federal court overturned an EPA regulation that banned most uses of asbestos by 1997. Presently, only asbestos-containing products that were not being manufactured, imported, or processed after July 1989, remain subject to the prohibition requirements of the EPA regulation.

Asbestos mainly affects the lungs. Changes in the membrane surrounding the lung are quite common in workers exposed to asbestos. These are also sometimes found in people living in areas with high levels of asbestos in the air, but effects on breathing usually aren't serious. Breathing very high levels of asbestos may result in a slow buildup of scar-like tissue in the lungs and in the membrane that surrounds the lungs. This disease is called asbestosis, and is usually found in asbestos workers and not in the general public. It has been estimated that cumulative exposures of 17-75 fibers-year/mL would result in fibrotic lung lesions, and cumulative exposures of 3.5-300 fibers-year/mL would cause death in humans. People with asbestosis have shortness of breath, often along with a cough and sometimes heart enlargement. This is a serious disease and can eventually lead to disability or death.

It is known that asbestos causes cancer in people. There are two types of cancer caused by exposure to high levels of asbestos: cancer of the lung tissue itself and mesothelioma, a cancer of the membrane that surrounds the lung and other internal organs. Both of these are usually fatal. These diseases don't develop immediately, but show up only after many years. Interactions between cigarette smoke and asbestos increase your chances of getting lung cancer. Studies of workers suggest that breathing asbestos can increase the chances of getting cancer in other parts of the body (stomach, intestines, esophagus, pancreas, kidneys), but this is not certain. People who are exposed to lower levels of asbestos may also have an increased risk of developing cancer, but the risks are usually small and are difficult to measure.

Based on EPA guidelines, asbestos was assigned to weight-of-evidence group A, human carcinogen. Based on observations of increased mortality and incidence of lung cancer, mesotheliomas, and gastrointestinal cancer in occupationally exposed workers are consistent across investigators and study populations.

1.2 Polychlorinated Biphenyls (PCBs)

PCBs are a group of synthetic organic chemicals that contain 209 individual compounds (known as congeners). Mixtures of PCBs, or Aroclors, were manufactured for use in industry as coolants and lubricants in electrical equipment before their manufacture in the United States was ended in 1977. Some PCB congeners are considered dioxin-like.

Polychlorinated biphenyl (PCB) mixtures are inert, thermally and physically stable, and have dielectric properties. They have been used in closed systems such as heat transfer liquids, hydraulic fluids and lubricants, and in open systems such as plasticizers, surface coatings, inks, adhesives, pesticide extenders, and for microencapsulation of dyes for carbonless duplicating papers. In the environment, the behavior of PCB mixtures is directly correlated to the degree of chlorination. Aroclor® is strongly sorbed to soil and remains immobile when leached with water; however, the mixture is highly mobile in the presence of organic solvents. PCBs are resistant to chemical degradation by oxidation or hydrolysis. PCBs have high bioconcentration factors, and tend to accumulate in the fat of fish, birds, mammals, and humans. In humans, relatively greater amounts of PCBs have also been identified in skin, liver, and breast milk.

PCBs are absorbed after oral, inhalation, or dermal exposure and are stored in adipose tissue. Accidental human poisonings and data from occupational exposure to PCBs suggest initial dermal and mucosal disturbances followed by systemic effects that may manifest themselves several years post-exposure. Initial effects are enlargement and hypersecretion of the Meibomian gland of the eye, swelling of the eyelids, pigmentation of the fingernails and mucous membranes, fatigue, and nausea. These effects were followed by hyperkeratosis, darkening of the skin, acneform eruptions, edema of the arms and legs, neurological symptoms, such as headache and limb numbness, and liver disturbance. Hepatotoxicity is a prominent effect of PCBs that has been well characterized. Effects include hepatic microsomal enzyme induction, increased serum levels of liver-related enzymes (indicative of hepatocellular damage), liver enlargement, lipid deposition, fibrosis, and necrosis.

Data are suggestive but not conclusive concerning the carcinogenicity of PCBs in humans. However, hepatocellular carcinomas in three strains of rats and two strains of mice have led the EPA to classify PCBs as group B2, probable human carcinogen.

1.3 Dioxins

The term "dioxins" refers to a group of 30 chemical compounds that share chemical structure and similar biological mechanisms of action. These compounds are members of three closely related families of chemicals: the chlorinated dibenzo-p-dioxins (CDDs), chlorinated dibenzofurans (CDFs), and certain polychlorinated biphenyls (PCBs).

Dioxins are known to occur naturally, and are also produced by human activities. They are naturally produced from the incomplete combustion of organic material by forest fires or volcanic activity. Dioxins are not intentionally manufactured by industry, except in small amounts for research purposes. They are unintentionally produced by industrial, municipal, and domestic incineration and combustion processes. Currently, it is believed that dioxin emissions associated with human incineration and combustion activities are the predominant environmental source.

Dioxins (mainly 2,3,7,8-TCDD) may be formed during the chlorine bleaching process used by pulp and paper mills. Dioxins occur as a contaminant in the manufacturing process of certain chlorinated organic chemicals, such as chlorinated phenols.

Dioxins are released into the air in emissions from municipal solid waste and industrial incinerators. Exhaust from vehicles powered with leaded and unleaded gasoline and diesel fuel also release dioxins to the air. Other sources of dioxins in air include: emissions from oil- or coal-fired power plants, burning of chlorinated compounds such as PCBs, and cigarette smoke. Dioxins occur as a contaminant in the manufacture of various chlorinated pesticides and herbicides, and releases to the environment have occurred during the use of these chemicals. Because dioxins remain in the environment for a long time, contamination from past pesticide and herbicide use may still be of concern.

Dioxins are released in waste waters from pulp and paper mills that use chlorine or chlorine-containing chemicals in the bleaching process. Because dioxins do not dissolve easily in water, most of the dioxins in water will attach strongly to small particles of soil or organic matter and eventually settle to the bottom.

Dioxins enter the ecological food web by being deposited from the atmosphere, either directly from air-emissions or indirectly by processes that return dioxins already in the environment to the atmosphere. Dioxins are highly persistent in the environment and can accumulate in the tissues of animals.

Dioxins are potent animal toxicants with a potential to produce a broad spectrum of adverse effects in humans. Dioxins can alter the fundamental growth and development of cells in ways that have the potential to lead to many kinds of impacts, including adverse effects upon

reproduction and development; suppression of the immune system; chloracne (a severe acne-like condition that sometimes persists for many years); and cancer. The most studied and one of the most toxic dioxins is 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). The results of the oral animal studies suggest that the most sensitive effects (effects that will occur at the lowest doses) are immune, endocrine, and developmental effects. It is reasonable to assume that these will also be the most sensitive effects in humans.

The most obvious health effect in people exposed to relatively large amounts of 2,3,7,8-TCDD is chloracne. Chloracne is a severe skin disease characterized by acne-like lesions. Chloracne generally occurs on the face and upper body, but may occur elsewhere on the body. Other effects to the skin, such as erythematous or red skin rashes, discoloration, and excessive body hair, have been reported to occur in people following exposure to high concentrations of 2,3,7,8-TCDD. Changes in blood and urine that may indicate liver damage have been observed in people. Alterations in the ability of the liver to metabolize (or breakdown) hemoglobin, lipids, sugar, and protein have been reported in people exposed to relatively high concentrations of 2,3,7,8-TCDD. Most of the effects are considered mild and were reversible. However, in some people these effects may last for many years. Slight increases in the risk of diabetes and abnormal glucose tolerance have been observed in some studies of people exposed to 2,3,7,8-TCDD. We do not have enough information to know if exposure to 2,3,7,8-TCDD will result in reproductive or developmental effects in people, but animal studies suggest that this is a potential health concern.

EPA characterizes 2,3,7,8-TCDD as a "human carcinogen", class A, based on evidence of animal and human studies and characterizes other dioxins as "likely human carcinogens", class B2. Risk estimates for dioxins were evaluated through the use of dioxin TEQs as described in Section 6.2.1. Dioxin TEQs are used in conjunction with the toxicity value for 2,3,7,8-TCDD in determining cancer risk.

1.4 Polyaromatic Hydrocarbons (PAHs)

Benzo(a)pyrene is the most widely studied chemical among the carcinogenic PAHs. It is used as the basis for defining the toxicity of other potentially carcinogenic PAHs.

Benzo[a]pyrene is one of many chemicals known as polycyclic aromatic hydrocarbons (PAH). It exists as yellowish plates and needles. Benzo[a]pyrene is practically insoluble in water but is soluble in benzene, toluene, xylene and sparingly soluble in alcohol and methanol. No current commercial production or use of benzo[a]pyrene is known. It occurs ubiquitously in products of incomplete combustion and in fossil fuels. It has been identified in surface water, tap water, rain water, groundwater, waste water, and sewage sludge. Benzo[a]pyrene is primarily released to the air and removed from the atmosphere by photochemical oxidation and dry deposition to land or water. Biodegradation is the most important transformation process in soil or sediment.

No data are available on the systemic (non-carcinogenic) effects of benzo[a]pyrene in humans. Benzo[a]pyrene is readily absorbed following inhalation, oral, and dermal routes of administration. Following inhalation exposure, benzo[a]pyrene is rapidly distributed to several tissues in rats. The metabolism of benzo[a]pyrene is complex and includes the formation of a proposed ultimate carcinogen, benzo[a]pyrene 7,8 diol-9,10-epoxide. Dietary administration of doses as low as 10 mg/kg during gestation caused reduced fertility and reproductive capacity in mice offspring, and treatment by gavage with 120 mg/kg/day during gestation caused stillbirths, resorptions, and malformations.

Numerous epidemiologic studies have shown a clear association between exposure to various mixtures of PAHs containing benzo[a]pyrene (e.g., coke oven emissions, roofing tar emissions, and cigarette smoke) and increased risk of lung cancer and other tumors. However, each of the mixtures also contained other potentially carcinogenic PAHs; therefore, it is not possible to evaluate the contribution of benzo[a]pyrene to the carcinogenicity of these mixtures. Based on United States Environmental Protection Agency (EPA) guidelines, benzo[a]pyrene was assigned to weight-of-evidence group B2, probable human carcinogen.

The non-carcinogenic PAHs appear to affect the liver, kidneys, and blood of exposed laboratory animals. Considered exposure routes include ingestion and inhalation, and exposure has resulted in anemia and mild liver lesions, and occasionally renal disease. The effects vary for the individual compounds. RfDs are available for several PAHs.

Naphthalene is a white solid that is found naturally in fossil fuels and that exhibits a typical mothball odor. Naphthalene is a polycyclic aromatic hydrocarbon composed of two fused benzene rings. Burning tobacco or wood produces naphthalene. It occurs in crude oil, from

which it may be recovered directly as white flakes; it can also be isolated from cracked petroleum, coke-oven emissions, or from high-temperature carbonization of bituminous coal. The major products made from naphthalene are moth repellents. It is also used for making dyes, resins, leather, tanning agents, and the insecticide carbaryl.

Naphthalene can be absorbed by the oral, inhalation, and dermal routes of exposure and can cross the placenta in amounts sufficient to cause fetal toxicity. Exposure to large amounts of naphthalene may damage or destroy some red blood cells, causing a low level until the body replaces the destroyed cells. People, particularly children, have developed this problem after eating naphthalene-containing mothballs or deodorant blocks. Some of the symptoms of this problem are fatigue, lack of appetite, restlessness, and pale skin. Exposure to large amounts of naphthalene may also cause neurotoxic effects (confusion, lethargy, listlessness, vertigo), gastrointestinal distress, hepatic effects (jaundice, hepatomegaly, elevated serum enzyme levels), renal effects, and ocular effects (cataracts, optical atrophy). The estimated lethal dose of naphthalene is 5-15 g for adults and 2-3 g for children. Animals sometimes develop cloudiness in their eyes after swallowing naphthalene. It is not clear if this also develops in people. When mice were repeatedly exposed to naphthalene vapors for 2 years, their noses and lungs became inflamed and irritated.

Available cancer bioassays were insufficient to assess the carcinogenicity of naphthalene. Using the EPA's 1996 Proposed Guidelines for Carcinogen Risk Assessment, the human carcinogenic potential of naphthalene via the oral or inhalation routes "cannot be determined" at this time based on human and animal data. However, there is suggestive evidence (observations of benign respiratory tumors and one carcinoma in female mice only exposed to naphthalene by inhalation) that naphthalene may cause cancer. Additional support includes increase in respiratory tumors associated with exposure to 1-methylnaphthalene.

1.5 Acetophenone

Acetophenone is used as a specialty solvent for plastics and resins; a flavoring agent in non-alcoholic beverages, ice cream, candy, baked goods, gelatins and puddings, chewing gum; fragrance ingredient in soaps, detergents, creams, lotions, perfumes; and a solvent for synthesis of pharmaceuticals, rubber, chemicals, dyestuffs and corrosion inhibitors. In the past, acetophenone was used as an analgesic agent and anesthetic in human medicine. Little is

known of its toxicity. Effects on human beings have been examined as a result of its use as a sedative with fairly high dosage. A slight depression on pulse and hemoglobin levels was observed. Skin contact may result in irritation. There are reports of rash to the face, neck, arms, and legs, eye and throat irritation, headaches, dizziness, and nausea. Its vapors are not expected to present a problem unless it is heated.

An RfD for chronic oral exposure has been calculated by EPA based on an animal NOAEL. The NOAEL was determined from an epidemiological study of small rat populations.

Acetophenone has not been tested for carcinogenicity, teratogenicity, or for reproductive effects. Based on U.S. EPA guidelines, acetophenone was assigned to weight-of-evidence Group D, not classifiable as to human carcinogenicity, on the basis of no human data and no animal data.

References:

Hazardous Substances Databank at http://toxnet.nlm.nih.gov

1.6 Bis-2- chloroethyl ether

Bis(2-ethylhexyl)phthalate or di(2-ethylhexyl)phthalate (DEHP) is a clear oily liquid and is practically insoluble in water. Bis(2-ethylhexyl)phthalate is primarily used in the plastics industry as a plasticizer with such varied applications as wire insulation, food packaging and biomedical applications such as tubing and blood containers. Other uses include vacuum pump oil and as a dielectric fluid in capacitors. The combined annual production of dioctyl phthalates in the United States exceeds 300 million pounds. The wide-spread uses of bis(2-ethylhexyl)phthalate have made the compound, along with other phthalic acid esters, ubiquitous in the environment. It has been detected in ground water, surface water, drinking water, air, soil, plants, fish and animals.

There is no evidence that DEHP causes serious health effects in humans. Most of what we know about the health effects of DEHP comes from high exposures to rats and mice. Brief exposure to very high levels of DEHP in food or water damaged sperm, but the effect reversed when DEHP was removed from the diet. Longer exposures to high doses affected the ability of both males and females to reproduce and caused birth defects. High levels of DEHP damaged the livers of rats and mice. Long exposures of rats to DEHP caused kidney damage similar to the damage seen in the kidneys of long-term dialysis patients. Whether or not DEHP contributes

to human kidney damage, is unclear at present. Health effects from skin contact with products containing DEHP do not cause harmful effects because it cannot be taken up easily through the skin.

There is no direct evidence in any study on humans exposed to bis(2-ethylhexyl)phthalate that it causes cancer. Bis(2-ethylhexyl)phthalate is known to induce the proliferation of peroxisomes, which has been associated with carcinogenesis. Dose-dependent, statistically-significant increases in the incidences of hepatocellular carcinomas and combined carcinomas and adenomas were seen in mice and rats exposed to bis(2-ethylhexyl)phthalate in their diet. An increased incidence of neoplastic nodules and hepatocellular carcinomas was also reported in exposed rats.

Based on U.S. EPA guidelines, bis(2-ethylhexyl)phthalate was assigned to weight-of-evidence Group B2, probable human carcinogen, on the basis of an increased incidence of liver tumors in rats and mice.

1.7 N-Nitroso-di-n-propylamine

n-Nitrosodi-n-propylamine is a man-made chemical made in small amounts for use in research. Small amounts of n-nitrosodi-n-propylamine are produced as a side reaction during some manufacturing processes, as a contaminant in some commonly available weed killers (dinitroaniline-based), and during the manufacture of some rubber products.

The effects of short- or long-term exposures to n-nitrosodi-n-propylamine on human health have not been studied. Little is known about the health effects of short exposures to n-nitrosodi-n-propylamine in experimental animals except that eating or drinking certain amounts of this chemical can cause liver disease and death. Long-term exposure of experimental animals to n-nitrosodi-n-propylamine in food or drinking water causes cancer of the liver, esophagus, and nasal cavities. Although human studies are not available, the animal evidence indicates that it is reasonable to expect that exposure to n-nitrosodi-n-propylamine by eating or drinking could cause liver disease and cancer in humans. It is not known whether other effects, such as birth defects, occur in animals or could occur in humans exposed to n-nitrosodi-n-propylamine by eating or drinking. It is also not known whether exposure to n-nitrosodi-n-propylamine by breathing contaminated air or contact with the skin can affect the health of animals or humans.

Liver disease and cancer due to exposure to n-nitrosodi-n-propylamine by breathing or skin contact are, however, a possibility and a health concern.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1989. Toxicological profile for n-nitrosodi-n-propylamine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

1.8 Dieldrin

Pure dieldrin is a white powder with a mild chemical odor. The less pure commercial powders have a tan color. It does not occurs naturally in the environment. Dieldrin is an insecticide, which from 1950-1970 was a popular pesticide for crops like corn and cotton. Because of concerns about damage to the environment and the potential harm to human health, EPA banned all uses of dieldrin in 1974 except to control termites. In 1987, EPA banned all uses.

Exposure to dieldrin happens mostly from eating contaminated foods, such as root crops, fish, or seafood or living in homes that were once treated with aldrin or dieldrin to control termites. Dieldrin builds up in the body after years of exposure and can damage the nervous system. People who intentionally or accidentally ingested large amounts of dieldrin suffered convulsions and some died. Health effects may also occur after a longer period of exposure to smaller amounts because dieldrin builds up in the body.

Some workers exposed to moderate levels in the air for a long time had headaches, dizziness, irritability, vomiting, and uncontrolled muscle movements. Workers removed from the source of exposure rapidly recovered from most of these effects.

Animals exposed to high amounts of dieldrin also had nervous system effects. In animals, oral exposure to lower levels for a long period also affected the liver and decreased their ability to fight infections. We do not know whether dieldrin affects the ability of people to fight disease.

Studies in animals have given conflicting results about whether dieldrin affects reproduction in male animals and whether these chemicals may damage the sperm. We do not know whether dieldrin affects reproduction in humans.

There is no direct evidence that dieldrin causes cancer in humans. Studies on workers generally show no increase in cancer or deaths due to cancer. Mice given high amounts of dieldrin, however, did develop liver cancers. Dieldrin has been classified as a probable human carcinogen (B2) by the EPA because it caused tumors in rodents when administered orally.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. Toxicological Profile for aldrin and dieldrin. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

1.9 Antimony

Antimony is a naturally occurring silvery-white metal that is found in the earth's crust. Antimony ores are mined and then mixed with other metals to form antimony alloys or combined with oxygen to form antimony oxide. Little antimony is currently mined in the United States. It is brought into this country from other countries for processing. However, there are companies in the United States that produce antimony as a by-product of smelting lead and other metals. Antimony is used in lead storage batteries, solder, sheet and pipe metal, bearings, castings, and pewter. Antimony oxide is added to textiles and plastics to prevent them from catching fire. It is also used in paints, ceramics, and fireworks, and as enamels for plastics, metal, and glass.

Metallic antimony and a few trivalent antimony compounds are the most significant regarding exposure potential and toxicity. Antimony is a common urban air pollutant, occurring at an average concentration of 0.001 $\mu g/m^3$. Exposure to antimony may occur via inhalation and by ingestion of contaminated food.

Acute oral and inhalation exposure of humans and animals to high doses of antimony or antimony-containing compounds (antimonials) may cause gastrointestinal disorders (vomiting, diarrhea), respiratory difficulties, and death at extremely high doses. Subchronic and chronic

oral exposure may affect hematologic parameters. Long-term oral exposure to high doses of antimony or antimonials has been shown to adversely affect longevity in animals. Long-term occupational exposure of humans has resulted in electrocardiac disorders, respiratory disorders, and possibly increased mortality. Antimony levels for these occupational exposure evaluations ranged from 2.2 to 11.98 mg Sb/m^3. Based on limited data, occupational exposure of women to metallic antimony and several antimonials has reportedly caused alterations in the menstrual cycle and an increased incidence of spontaneous abortions.

The Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified antimony as to its human carcinogenicity.

1.10 Arsenic

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants. Arsenic cannot be destroyed in the environment. It can only change its form. Arsenic in air will settle to the ground or is washed out of the air by rain. Many arsenic compounds can dissolve in water. Fish and shellfish can accumulate arsenic, but the arsenic in fish is mostly in a form that is not harmful. The toxicity of inorganic arsenic depends on its valence state and also on the physical and chemical properties of the compound in which it occurs.

Water soluble inorganic arsenic compounds are absorbed through the gastrointestinal tract and lungs; distributed primarily to the liver, kidney, lung, spleen, aorta, and skin; and excreted mainly in the urine at rates as high as 80%. Symptoms of acute inorganic arsenic poisoning in humans are nausea, anorexia, vomiting, epigastric and abdominal pain, and diarrhea. Dermatitis (exfoliative erythroderma), muscle cramps, cardiac abnormalities, hepatotoxicity, bone marrow suppression and hematologic abnormalities (anemia), vascular lesions, and peripheral neuropathy (motor dysfunction, paresthesia) have also been reported. Oral doses as low as 20-60 g/kg/day have been reported to cause toxic effects in some individuals. Severe exposures can result in acute encephalopathy, congestive heart failure, stupor, convulsions, paralysis,

coma, and death. The acute lethal dose to humans has been estimated to be about 0.6 mg/kg/day.

General symptoms of chronic arsenic poisoning in humans are weakness, general debility and lassitude, loss of appetite and energy, loss of hair, hoarseness of voice, loss of weight, and mental disorders. Primary target organs are the skin (hyperpigmentation and hyperkeratosis), nervous system (peripheral neuropathy), and vascular system. Anemia, leukopenia, hepatomegaly, and portal hypertension have also been reported. In addition, possible reproductive effects include a high male to female birth ratio.

Epidemiological studies have revealed an association between arsenic concentrations in drinking water and increased incidences of skin cancers, as well as cancers of the liver, bladder, respiratory and gastrointestinal tracts. Occupational exposure studies have shown a clear correlation between exposure to arsenic and lung cancer mortality. Several studies have shown that inorganic arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. The World Health Organization (WHO), the Department of Health and Human Services (DHHS), and the EPA have determined that inorganic arsenic is a human carcinogen and is classified: A; human carcinogen.

1.11 Barium

Barium is a divalent alkaline-earth metal found only in combination with other elements in nature. The most important of these combinations are the peroxide, chloride, sulfate, carbonate, nitrate, and chlorate. The pure metal oxidizes readily and reacts with water emitting hydrogen. The most likely source of barium in the atmosphere is from industrial emissions. Barium compounds are used by the oil and gas industries to make drilling muds. Drilling muds make it easier to drill through rock by keeping the drill bit lubricated. They are also used to make paint, bricks, tiles, glass, and rubber. A barium compound (barium sulfate) is sometimes used by doctors to perform medical tests and to take barium-rays of the stomach. Since it is usually present as a particulate form, it can be removed from the atmosphere by wet precipitation and deposition. Due to the element's tendency to form salts with limited solubility in soil and water, it is expected to have a residence time of hundreds of years and is not expected to be very mobile. Trace amounts of barium were found in more than 99% of the surface waters and finished drinking water samples across the United States.

The soluble salts of barium are toxic in mammalian systems. They are absorbed rapidly from the gastrointestinal tract and are deposited in the muscles, lungs, and bone. Inhalation exposure of human populations to barium-containing dust can result in a benign pneumoconiosis called "baritosis." At low doses, barium acts as a muscle stimulant and at higher doses affects the nervous system eventually leading to paralysis. Acute and subchronic oral doses of barium cause vomiting and diarrhea, followed by decreased heart rate and elevated blood pressure. Higher doses result in cardiac irregularities, weakness, tremors, anxiety, and dyspnea. A drop in serum potassium may account for some of the symptoms. Death can occur from cardiac and respiratory failure. Acute doses around 0.8 grams can be fatal to humans.

The Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified barium as to its human carcinogenicity.

1.12 Cadmium

Cadmium is a natural element in the earth's crust. It is usually found as a mineral combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide). These cadmium compounds have varying degrees of solubility ranging from very soluble to nearly insoluble. The solubility affects their absorption and toxicity. All soils and rocks, including coal and mineral fertilizers, contain some cadmium. Most cadmium used in the United States is extracted during the production of other metals like zinc, lead, and copper. Cadmium does not corrode easily and has many uses, including batteries, pigments, metal coatings, and plastics. Cadmium compounds have varying degrees of solubility ranging from very soluble to nearly insoluble. The solubility affects their absorption and toxicity. Environmental exposure can occur via the diet and drinking water.

Breathing high levels of cadmium severely damages the lungs and can cause death. The 1-minute and 10-minute lethal concentration of cadmium for humans has been estimated to be about 2,500 and 250 mg/m^3, respectively. Eating food or drinking water with very high levels severely irritates the stomach, leading to vomiting and diarrhea. Acute oral exposure to 20-30 g have caused fatalities in humans. Cadmium is absorbed more efficiently by the lungs (30 to 60%) than by the gastrointestinal tract. Long-term exposure to lower levels of cadmium in air, food, or water leads to a buildup of cadmium in the kidneys and possible kidney disease. Other

long-term effects are lung damage and fragile bones. Animals given cadmium in food or water had high blood pressure, iron-poor blood, liver disease, and nerve or brain damage.

There is limited evidence from epidemiologic studies for cadmium-related respiratory tract cancer. Based on limited evidence from multiple occupational exposure studies and adequate animal data, cadmium is placed in weight-of-evidence group B1 - probable human carcinogen.

1.13 Chromium

Elemental chromium does not occur in nature, but it is present in ores, primarily chromite. Chromium can be found in rocks, animals, plants, soil, and in volcanic dust and gases. Chromium is present in the environment in several different forms (oxidation states). The most common forms are chromium(0), chromium(III), and chromium(VI). No taste or odor is associated with chromium compounds. Chromium(III) occurs naturally in the environment and is an essential nutrient that helps the body use sugar, protein, and fat.. Chromium(VI) and chromium(0) are generally produced by industrial processes. The metal chromium, chromium(0), is used for making steel. Chromium(VI) and chromium(III) are used for chrome plating, dyes and pigments, leather tanning, and wood preserving.

Chromium enters the body through the lungs, digestive tract and, to a lesser extent, the skin. Inhalation is the most important route for occupational exposure. Non-occupational exposure occurs via ingestion of chromium-containing food and water. Breathing high levels of chromium(VI) can cause irritation to the nose, such as runny nose, nosebleeds, and ulcers and holes in the nasal septum. Ingesting large amounts of chromium(VI) can cause stomach upsets and ulcers, convulsions, kidney and liver damage, and even death. Skin contact with certain chromium(VI) compounds can cause skin ulcers. Some people are extremely sensitive to chromium(VI) or chromium(III). Allergic reactions consisting of severe redness and swelling of the skin have been noted.

Several studies have shown that chromium(VI) compounds can increase the risk of lung cancer when inhaled. Animal studies have also shown an increased risk of cancer. There is also evidence for an increased risk of developing nasal, pharyngeal, and gastrointestinal carcinomas. Based on sufficient evidence for humans and animals, Chromium(VI) has been placed in the EPA weight-of-evidence classification A, human carcinogen. Chromium(III) is most

appropriately designated a Group D -- Not classified as to its human carcinogenicity; however, the classification of chromium(VI) as a known human carcinogen raises a concern for the carcinogenic potential of trivalent chromium.

1.14 Lead

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust and as a sulfide in galena. Lead can be found in all parts of the environment; much of it comes from human activities including burning fossil fuels, mining, and manufacturing. Lead is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from gasoline, paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years. New environmentally safe uses for lead include radiation protection in computer, television, diagnostic magnetic imaging, and other nuclear medical technology; circuit boards in computers and other electronic equipment; piezoelectric ceramics; superconductor technology; and high purity lead oxides used in optical technology.

Human exposure to lead occurs primarily through diet, air, drinking water, dust, and paint chips. The efficiency of lead absorption depends on the route of exposure, age, and nutritional status. Adult humans absorb about 10-15% of ingested lead, whereas children may absorb up to 50%, depending on whether lead is in the diet, dirt, or paint chips. The systemic toxic effects of lead in humans have been well documented; the evidence shows that lead is a multi-targeted toxicant, causing effects in the gastrointestinal tract, hematopoietic system, cardiovascular system, central and peripheral nervous systems, kidneys, immune system, and reproductive system. Lead can affect almost every organ and system in the human body. The most sensitive system is the central nervous system, particularly in children. Irreversible brain damage occurs at blood lead levels greater than or equal to 100 ug/dL in adults and at 80-100 ug/dL in children; death can occur at the same blood levels in children. Children who survive these high levels of exposure suffer permanent severe mental retardation. Lead also damages kidneys and the reproductive system. The effects are the same whether it is breathed or swallowed. At high levels, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect the memory. Lead may also cause anemia, a disorder of the blood.

Inorganic lead and lead compounds have been evaluated for carcinogenicity by the EPA. The data from human studies are inadequate for evaluating the potential carcinogenicity of lead. Data from animal studies, however, are sufficient based on numerous studies showing that lead induces renal tumors in experimental animals. A few studies have shown evidence for induction of tumors at other sites (cerebral gliomas; testicular, adrenal, prostate, pituitary, and thyroid tumors). EPA has given lead the classification B2, probable human carcinogen.

1.15 Manganese

Manganese is a silver-colored, naturally occurring metal that is found in many types of rocks and makes up about 0.10% of the earth's crust. Manganese is not found alone but combines with other substances such as oxygen, sulfur, or chlorine. Manganese can also be combined with carbon to make organic manganese compounds, including pesticides (e.g., maneb or mancozeb) and methylcyclopentadienyl manganese tricarbonyl (MMT), a fuel additive in some gasolines. Manganese is an essential trace element and is necessary for good health. Normal nutritional requirements of manganese are satisfied through the diet, which is the normal source of the element, with minor contributions from water and air. The National Research Council recommends a dietary allowance of 2-5 mg/day for a safe and adequate intake of manganese for an adult human. Manganese can be found in several food items, including grains, cereals, and tea.

Manganese can elicit a variety of serious toxic responses upon prolonged exposure to elevated concentrations, either orally or by inhalation. The central nervous system is the primary target. Initial symptoms are headache, insomnia, disorientation, anxiety, lethargy, and memory loss. These symptoms progress with continued exposure and eventually include motor disturbances, tremors, and difficulty in walking, symptoms similar to those seen with Parkinsonism. These motor difficulties are often irreversible. Some individuals exposed to very high levels of manganese for long periods of time at work developed mental and emotional disturbances and slow and clumsy body movements. This combination of symptoms is a disease called "manganism."

There are no human cancer data available for manganese. Some conflicting data exist on possible carcinogenesis following injections of manganese chloride and manganese sulfate in

mice. However, the EPA weight-of-evidence classification is D, not classifiable as to human carcinogenicity, based on no evidence in humans and inadequate evidence in animals.

1.16 Mercury

Mercury is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white, odorless liquid; if heated, it is a colorless, odorless gas. Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also combines with carbon to make organic mercury compounds; methylmercury is the most common organic mercury compound and is produced mainly by microscopic organisms in the water and soil. More mercury in the environment can increase the amounts of methylmercury that these small organisms make. Metallic mercury is used to produce chlorine gas and caustic soda and is also used in thermometers, dental fillings, electrical switches, and batteries. Mercury salts are sometimes used in skin lightening creams and as antiseptic creams and ointments.

The nervous system is very sensitive to all forms of mercury. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury reaches the brain in these forms. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

No data were available regarding the carcinogenicity of mercury in humans or animals. EPA has placed inorganic mercury in weight-of-evidence classification D, not classifiable as to human carcinogenicity. Other forms of mercury are possible human carcinogens.

1.17 Nickel

Nickel is a very abundant element in the environment. It is found primarily combined with oxygen (oxides) or sulfur (sulfides), found in all soils, and is emitted from volcanos. Pure nickel is a hard, silvery-white metal that is combined with other metals to form mixtures called alloys. Some of the metals that nickel can be alloyed with are iron, copper, chromium, and zinc. These

alloys are used to make metal coins and jewelry and in industry. Nickel compounds are also used for nickel plating, to color ceramics, to make some batteries, and as substances known as catalysts that increase the rate of chemical reactions. Nickel and its compounds have no characteristic odor or taste. Nickel forms included in this profile are: Nickel carbonyl, CAS number 13463-39-3; Nickel refinery dust, no CAS number; Nickel subsulfide, CAS number 12035-72-2; and Nickel soluble salts, no CAS number.

Nickel is required to maintain health in animals. A small amount of nickel is probably essential for humans, although a lack of nickel has not been found to affect the health of humans. The absorption of nickel is dependent on its physicochemical form, with water soluble forms being more readily absorbed. The most common adverse health effect of nickel in humans is an allergic reaction. Humans can become sensitive to nickel when jewelry or other nickel-containing items are in direct contact with the skin. Once a person is sensitized to nickel, further contact will produce a reaction; the most common reaction is a skin rash at the site of contact. Less frequently, some humans who are sensitive to nickel have asthma attacks or other reactions following exposure to nickel in food, water, or dust. Lung effects, including chronic bronchitis and reduced lung function, have been observed in workers who breathed large amounts of nickel. Current levels of nickel in workplace air are much lower than in the past, and today few workers show symptoms of nickel exposure. Humans who are not sensitive to it must eat very large amounts of nickel to show adverse health effects. In large doses (>0.5 g), some forms of nickel may be acutely toxic to humans when taken orally. Workers who accidentally drank water containing very high levels of nickel (100,000 times more than in normal drinking water) had stomachaches and effects on their blood and kidneys.

Epidemiologic studies have shown that occupational inhalation exposure to nickel dust (primarily nickel subsulfide) at refineries has resulted in increased incidences of pulmonary and nasal cancer. Inhalation studies using rats have also shown nickel subsulfide or nickel carbonyl to be carcinogenic. Based on these data, the EPA has classified nickel subsulfide and nickel refinery dust in weight-of-evidence group A, human carcinogen. Based on an increased incidence of pulmonary carcinomas and malignant tumors in animals exposed to nickel carbonyl by inhalation or by intravenous injection, this compound had been placed in weight-of-evidence group B2, probable human carcinogen. The U.S. EPA has not evaluated soluble salts of nickel as a class of compounds for potential human carcinogenicity.

1.18 Selenium

Selenium is a metal commonly found in rocks and soil; much of the selenium in rocks is combined with sulfide minerals or with silver, copper, lead, and nickel minerals. Selenium and oxygen combine to form several compounds. Selenium sulfide is a bright red-yellow powder used in anti-dandruff shampoo. Industrially produced hydrogen selenide is a colorless gas with a disagreeable odor. It is probably the only selenium compound that might pose a health concern in the workplace. Selenium dioxide is an industrially produced compound that dissolves in water to form selenious acid. Selenious acid can be found in gun blueing (a solution used to clean the metal parts of a gun). Selenium is an essential trace element important in many biochemical processes that take place in human cells. Recommended human dietary allowances for selenium for adults is about 40-70 µg.

In humans, acute oral exposures can result in excessive salivation, garlic odor to the breath, shallow breathing, diarrhea, pulmonary edema, and death. Other reported signs and symptoms of acute selenosis include tachycardia, nausea, vomiting, abdominal pain, abnormal liver function, muscle aches and pains, irritability, chills, and tremors. The exact levels at which these effects occur are not known. Gastrointestinal absorption in animals and humans of various selenium compounds ranges from about 44% to 95% of the ingested dose. If too much selenium is ingested over long periods of time, brittle hair and deformed nails can develop. Upon contact with skin, selenium compounds have caused rashes, swelling, and pain. Respiratory tract absorption rates of 97% and 94% for aerosols of selenious acid have been reported for dogs and rats, respectively. In humans, inhalation of selenium or selenium compounds primarily affects the respiratory system. Dusts of elemental selenium and selenium dioxide can cause irritation of the skin and mucous membranes of the nose and throat, coughing, nosebleed, loss of sense of smell, dyspnea, bronchial spasms, bronchitis, and chemical pneumonia.

Studies of laboratory animals and humans show that most selenium compounds probably do not cause cancer. In fact, human studies suggest that lower-than-normal selenium levels in the diet might increase the risk of cancer. Other forms of selenium may, however, be carcinogenic according to The Department of Health and Human Services. Selenium sulfide produced a significant increase in the incidence of lung and liver tumors in rats and mice. EPA has placed selenium and selenious acid in Group D, not classifiable as to carcinogenicity in humans, while

selenium sulfide is placed in Group B2, probable human carcinogen. Selenium sulfide is very different from the selenium compounds found in foods and in the environment. Selenium sulfide has not caused cancer in animals when it is placed on the skin, and the use of anti-dandruff shampoos containing selenium sulfide is considered safe.

1.19 Thallium

Pure thallium is a bluish-white metal that is found in trace amounts in the earth's crust. In the past, thallium was obtained as a by-product from smelting other metals; however, it has not been produced in the United States since 1984. Currently, all the thallium is obtained from imports and from thallium reserves. In its pure form, thallium is odorless and tasteless. It can also be found combined with other substances such as bromine, chlorine, fluorine, and iodine. When it's combined, it appears colorless-to-white or yellow. The EPA has evaluated the toxicity of the following thallium compounds: thallic oxide, CAS number 1314-32-5; thallium acetate, CAS number 563-68-8; thallium carbonate, CAS number 6533-73-9; thallium chloride, CAS number 7791-12-0; thallium nitrate, CAS number 10102-45-1; thallium selenite, CAS number 12039-52-0; and thallium sulfate CAS number 7446-18-6. Thallium is used mostly in manufacturing electronic devices, switches, and closures, primarily for the semiconductor industry. It also has limited use in the manufacture of special glass and for certain medical procedures.

Exposure to high levels of thallium can result in harmful health effects. A study on workers exposed on the job over several years reported nervous system effects, such as numbness of fingers and toes, from breathing thallium. Humans who ingested large amounts of thallium over a short time have reported vomiting, diarrhea, temporary hair loss, and effects on the nervous system, lungs, heart, liver, and kidneys as well as death. It is not known what the effects are from ingesting low levels of thallium over a long time. Birth defects were not reported in the children of mothers exposed to low levels from eating vegetables and fruits contaminated with thallium. Studies in rats, however, exposed to high levels of thallium, showed adverse developmental effects.

Data suitable for evaluating the carcinogenicity of thallium to humans or animals by ingestion, inhalation, or other routes of exposure were not found. Thallium sulfate, selenite, nitrate, chloride, carbonate, acetate, and thallic oxide have been placed in EPA's weight-of evidence

Group D, not classifiable as to human carcinogenicity based on inadequate human and animal data. The Department of Health and Human Services and the International Agency for Research on Cancer, have not classified pure thallium as to its human carcinogenicity. No studies are available in humans or animals on the carcinogenic effects of breathing, ingesting, or touching thallium.

1.20 Vanadium

Vanadium is a compound that occurs in nature as a white-to-gray metal and is often found as crystals. Pure vanadium has no smell and usually combines with other elements such as oxygen, sodium, sulfur, or chloride, which greatly alter toxicity. Vanadium and vanadium compounds can be found in the earth's crust and in rocks, some iron ores, and crude petroleum deposits. Vanadium is mostly combined with other metals to make special metal mixtures called alloys. Most of the vanadium used in the United States, vanadium oxide, is used to make steel for automobile parts, springs, and ball bearings. Vanadium oxide is a yellow-orange powder, dark-gray flakes, or yellow crystals. Vanadium is also mixed with iron to make important parts for aircraft engines. Small amounts of vanadium are used in making rubber, plastics, ceramics, and other chemicals.

Exposure to high levels of vanadium can cause harmful health effects. Vanadium compounds are poorly absorbed through the digestive system (0.5-2% of dietary amount), but slightly more readily absorbed through the lungs (20-25%). The major effects from breathing high levels of vanadium are on the lungs, throat, and eyes. Workers who breathed it for short and long periods sometimes had lung irritation, coughing, wheezing, chest pain, runny nose, and a sore throat. These effects stopped soon when removed from the contaminated air. Similar effects have been observed in animal studies. No other significant health effects of vanadium have been found in humans. The health effects in humans of ingesting vanadium are not known. Animals that ingested very large doses have died. Lower, but still high levels of vanadium in the water of pregnant animals resulted in minor birth defects. Some animals that breathed or ingested vanadium over a long term had minor kidney and liver changes.

There is no evidence that any vanadium compound is carcinogenic; however, very few adequate studies are available for evaluation. No increase in tumors was noted in a long-term animal study where the animals were exposed to vanadium in the drinking water. The

Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified vanadium as to its human carcinogenicity.

1.21 Zinc

Pure zinc is a bluish-white shiny metal. Zinc is one of the most common elements in the earth's crust and is found in air, soil, and water, and is present in all foods. Zinc has many commercial uses as coatings to prevent rust, in dry cell batteries, and mixed with other metals to make alloys like brass and bronze. A zinc and copper alloy is used to make pennies in the United States. Zinc combines with other elements to form zinc compounds; common zinc compounds found at hazardous waste sites include zinc chloride, zinc oxide, zinc sulfate, zinc phosphide, zinc cyanide, and zinc sulfide. Zinc compounds are widely used in industry to make paint, rubber, dye, wood preservatives, and ointments.

Zinc is an essential element with recommended daily allowances (RDS) ranging from 5 mg for infants to 15 mg for adult males. Too little zinc can cause health problems, but too much zinc is also harmful.

The digestive tract absorbs 20% to 80 % of ingested zinc based on the chemical compound ingested. Harmful health effects generally begin at levels in the 100 to 250 mg/day range. Eating large amounts of zinc, even for a short time, can cause stomach cramps, nausea, and vomiting. Taken longer, it can cause anemia, pancreas damage, and lower levels of high-density lipoprotein cholesterol (the good form of cholesterol). Breathing large amounts of zinc (as dust or fumes) can cause a specific short-term disease called metal fume fever. This is believed to be an immune response affecting the lungs and body temperature. The long-term effects of breathing high levels of zinc or the effects on human reproduction are not known. Rats that were fed large amounts of zinc became infertile or had smaller babies. Irritation was also observed on the skin of rabbits, guinea pigs, and mice when exposed to some zinc compounds. Skin irritation will probably occur in humans.

No case studies or epidemiologic evidence has been presented to suggest that zinc is carcinogenic in humans by the oral or inhalation route. In animal studies, zinc sulfate in drinking water or zinc oleate in the diet of mice for a period of one year did not result in a statistically

significant increase in tumors; however, in a 3-year, 5-generation study on tumor-resistant and tumor-susceptible strains of mice, exposure to zinc in drinking water resulted in increased frequencies of tumors. Zinc is placed in weight-of-evidence Group D, not classifiable as to human carcinogenicity due to inadequate evidence in humans and animals.

Appendix C-9

Relative Order of Potency for PAHs

TABLE 1
ESTIMATED ORDERS OF POTENTIAL POTENCY FOR CARCINOGENIC PAHs[1]
RAYMARK OU9
STRATFORD, CONNECTICUT

Chemical	Weight-of-Evidence	Order of Potential Potency
Benzo(a)anthracene	B2	0.1
Benzo(b)fluoranthene	B2	0.1
Benzo(k)fluoranthene	B2	0.01
Benzo(a)pyrene	B2	1.0
Chrysene	B2	0.001
Dibenzo(a,h)anthracene	B2	1.0
Indeno(1,2,3-cd)pyrene	B2	0.1

1 USEPA, July 1993; USEPA Region I, 1994.

Appendix C-10

Alternative Calculation of Cancer Risks from Dioxin

TABLE C-10
SUMMARY OF CANCER RISKS: COMPARING RISKS
USING DIFFERENT DIOXIN CANCER SLOPE FACTORS (CSF)
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

		(using draft CSF for Dioxin) 1.0E+06		(using IRIS CSF for Dioxin) 1.50E+05	
Exposure Scenario		**RME Case**	**CTE Case**	**RME Case**	**CTE Case**
Stratford Landfill					
Commercial Worker	(Adult)	3.8E-04	3.1E-05	1.3E-04	1.2E-05
Short Beach Park					
Recreational Visitors	(Adult)	6.5E-06	7.8E-07	4.0E-06	4.6E-07
	(Child)	1.4E-05	2.1E-06	8.3E-06	1.2E-06
	(Lifetime)	2.1E-05	2.9E-06	1.2E-05	1.7E-06
Commercial Workers/Groundskeepers	(Adult)	6.6E-05	7.3E-06	4.7E-05	5.0E-06
Future Resident	(Adult)	7.6E-05	8.8E-06	5.3E-05	6.1E-06
	(Child)	1.6E-04	2.4E-05	1.1E-04	1.6E-05
	(Lifetime)	2.4E-04	3.2E-05	1.6E-04	2.2E-05

TABLE 8.1 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	2.2E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.59E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.09E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	9.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.95E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	1.3E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.52E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	2.1E-10	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.10E-04
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	3.3E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.95E-06
	Chromium	60.1	mg/kg	60.1	mg/kg	M	2.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	6.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.57E-04
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.4E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.01E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.36E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.80E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	8.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.96E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	1.2E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.33E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	8.3E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	8.30E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	6.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.22E-04
										Total of Routes	3.80E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Proposed dioxin CSF used for risk calculation.

TABLE 8.1 CTE
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 -Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Areas of Raymark Waste
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	3.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.38E-07
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.85E-06
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	3.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.50E-07
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	4.5E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.30E-07
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	1.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.10E-07
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	2.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	3.98E-06
	Dioxin TEQ(2)	0.76	µg/kg	0.76	µg/kg	M	2.1E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.09E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	5.2E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	7.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	3.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	1.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.85E-05
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	5.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.09E-08
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	4.3E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.18E-07
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	5.9E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.29E-08
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	7.8E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.67E-08
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.88E-08
	Aroclor, Total (Conservative)	36116	µg/kg	36116	µg/kg	M	3.7E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.36E-07
	Dioxin TEQ(2)	0.76	µg/kg	0.76	µg/kg	M	1.7E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	1.66E-06
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	2.1E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	3.09E-08
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1914	mg/kg	1914	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.90E-06
										Total of Routes	3.14E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2A RME
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	3.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.49E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	9.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.88E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.60E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	4.0E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.41E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.1E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	8.04E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	6.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.57E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	3.8E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.65E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.4E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.42E-06
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.73E-07
	Barium	1041	mg/kg	1041	mg/kg	M	2.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	5.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	1.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	6.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	9.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										4.88E-06
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	1.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	5.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.89E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	4.9E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.57E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	6.8E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.98E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.76E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	5.7E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.17E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	3.2E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.37E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	2.1E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.27E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	5.8E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	5.78E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	5.4E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.06E-08
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.61E-06
										Total of Routes	6.50E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2A CTE
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	5.3E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	1.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.09E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	1.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.00E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.9E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.40E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	5.8E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	6.43E-09
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	1.6E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	9.1E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.66E-09
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	5.6E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.12E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	3.5E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	3.52E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	6.5E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.82E-08
	Barium	1041	mg/kg	1041	mg/kg	M	3.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	7.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	1.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	8.7E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium (Total)	0.470	mg/kg	0.470	mg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
											7.12E-07
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	6.0E-10	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.2E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.62E-09
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.0E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.49E-08
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	2.8E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.07E-09
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	6.7E-10	mg/kg-day	1.1E+00	1/(mg/kg-day)	7.33E-10
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.4E-10	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.74E-09
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.4E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.88E-10
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.9E-09	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.78E-08
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	2.4E-14	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.41E-08
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	2.2E-09	mg/kg-day	1.5E+00	1/(mg/kg-day)	3.36E-09
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium (Total)	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
											6.73E-08
										Total of Routes	7.79E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2B RME
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	190	µg/kg	190	µg/kg	M	8.9E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	2.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.75E-07
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	2.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.60E-06
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.24E-07
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	9.3E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.03E-07
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	2.6E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.88E-07
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	1.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.07E-07
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	8.9E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.79E-06
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	5.6E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	5.64E-06
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.0E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.57E-06
	Barium	1041	mg/kg	1041	mg/kg	M	4.9E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	2.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	1.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.14E-05
Dermal	Acetophenone	190	µg/kg	190	µg/kg	M	2.5E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	8.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.36E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	8.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.84E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	1.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.15E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	2.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	2.88E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	9.4E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.83E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	5.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.88E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	3.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.00E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	9.5E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	9.47E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	8.8E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.32E-07
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.64E-06
										Total of Routes	1.40E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.2B CTE
CALCULATION OF CANCER RISKS - RECREATIONAL VISITOR CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Recreational Visitors
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acetophenone	180	µg/kg	180	µg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	4.0E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.91E-08
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	3.7E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.67E-07
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	5.1E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.73E-08
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.6E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.71E-08
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	4.3E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.13E-08
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	2.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.78E-08
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	1.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.98E-07
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	9.4E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	9.39E-07
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	1.7E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.62E-07
	Barium	1041	mg/kg	1041	mg/kg	M	8.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	1.9E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	3.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	2.3E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium (Total)	0.470	mg/kg	0.470	mg/kg	M	3.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
											1.90E-06
Dermal	Acetophenone	180	µg/kg	180	µg/kg	M	1.6E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	510	µg/kg	510	µg/kg	M	5.8E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.24E-09
	Benzo(a)pyrene	468	µg/kg	468	µg/kg	M	5.3E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.89E-08
	Benzo(b)fluoranthene	653	µg/kg	653	µg/kg	M	7.4E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.43E-09
	Bis(2-Chloroethyl)ether	199	µg/kg	199	µg/kg	M	1.7E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.92E-09
	Dibenzo(a,h)anthracene	54.7	µg/kg	54.7	µg/kg	M	6.2E-10	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.55E-09
	Indeno(1,2,3-cd)pyrene	311	µg/kg	311	µg/kg	M	3.5E-09	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.59E-09
	Aroclor, Total (Conservative)	1901	µg/kg	1901	µg/kg	M	2.3E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.67E-08
	Toxicity Equivalency	0.024	µg/kg	0.024	µg/kg	M	6.3E-14	mg/kg-day	1.0E+06	1/(mg/kg-day)	6.31E-08
	Arsenic	2.23	mg/kg	2.23	mg/kg	M	5.9E-09	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.80E-09
	Barium	1041	mg/kg	1041	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	24.9	mg/kg	24.9	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	499	mg/kg	499	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	297	mg/kg	297	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium (Total)	0.470	mg/kg	0.470	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
											1.76E-07
										Total of Routes	2.08E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.3 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	4.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Acetophenone	205	µg/kg	205	µg/kg	M	7.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	–
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.2E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	8.59E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.5E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.10E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	6.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.36E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	7.4E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	8.19E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.38E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	5.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.31E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	4.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Naphthalene	1169	µg/kg	1169	µg/kg	M	4.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	7.5E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	5.28E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	3.3E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	6.60E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	8.7E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	1.39E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	1.6E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	1.59E-05
	Antimony	2.78	mg/kg	2.78	mg/kg	M	9.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	2.8E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.24E-06
	Barium	2586	mg/kg	2586	mg/kg	M	9.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	–
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	4.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Chromium	63.5	mg/kg	63.5	mg/kg	M	2.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	–
	Lead	2763	mg/kg	2763	mg/kg	M	9.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	–
	Manganese	271	mg/kg	271	mg/kg	M	9.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	–
	Mercury	0.428	mg/kg	0.428	mg/kg	M	1.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Nickel	159	mg/kg	159	mg/kg	M	5.6E-05	mg/kg-day	N/A	1/(mg/kg-day)	–
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	–
	Thallium	0.583	mg/kg	0.583	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	3.4E-05	mg/kg-day	N/A	1/(mg/kg-day)	–
	Zinc	1870	mg/kg	1870	mg/kg	M	6.5E-04	mg/kg-day	N/A	1/(mg/kg-day)	–
	(Total)										4.09E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	3.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Acetophenone	205	µg/kg	205	µg/kg	M	4.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	–
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.0E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	7.37E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.3E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	9.40E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	5.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.74E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.9E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	5.40E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.6E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.19E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	5.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.69E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	Naphthalene	1169	µg/kg	1169	µg/kg	M	3.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	–
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	5.0E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	3.49E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	3.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	6.10E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	–
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	6.3E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	6.30E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.6E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.39E-07
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.8E-09	mg/kg-day	N/A	1/(mg/kg-day)	–
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	–
	(Total)										2.52E-05
										Total of Routes	6.61E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Proposed dioxin CSF used for risk calculation.

TABLE 8.3 CTE
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER/GROUNDSKEEPER CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	6.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	3.3E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.39E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.36E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.4E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.73E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	9.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.87E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.2E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.29E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.18E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	9.3E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.79E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	7.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	6.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.2E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	8.33E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	5.2E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.04E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.4E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	2.20E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.5E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.51E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.68E-07
	Barium	2586	mg/kg	2586	mg/kg	M	1.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	6.6E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	3.5E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.5E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	8.8E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.6E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	3.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	5.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	1.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.45E-06
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.5E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	5.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.10E-08
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.2E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.33E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.1E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.97E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.18E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.5E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.70E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.1E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	3.74E-08
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.6E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.17E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.6E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.10E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	9.6E-08	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.92E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.0E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	1.99E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.8E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.64E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.7E-11	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										7.94E-07
										Total of Routes	7.25E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4A RME
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation [1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	5.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	9.6E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.04E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.16E-05
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.0E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.47E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	8.0E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.86E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.0E-07	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.10E-07
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.86E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	7.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.79E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	6.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	5.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.0E-07	mg/kg-day	7.0E+00	1/(mg/kg-day)	7.10E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.4E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	8.87E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.2E-08	mg/kg-day	1.6E+01	1/(mg/kg-day)	1.87E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.1E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.14E-05
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	3.8E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	5.69E-06
	Barium	2586	mg/kg	2586	mg/kg	M	1.2E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	5.6E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	3.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.3E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	7.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	1.4E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	2.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	4.5E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	8.8E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										5.50E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	2.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	3.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.4E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.06E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	8.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	5.99E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.0E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.64E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	4.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.04E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.0E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.39E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.3E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	9.64E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	4.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.00E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	2.8E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	4.0E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	2.83E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	2.5E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	4.95E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.1E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	5.12E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	4.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	6.81E-07
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.2E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.05E-05
										Total of Routes	7.55E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4A CTE
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	7.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	4.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.97E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	2.3E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.68E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	2.9E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.15E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.54E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.5E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.60E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	3.7E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.71E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.44E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	8.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	8.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.5E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.04E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	6.5E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.29E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	1.7E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	2.73E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	3.1E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	3.12E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	1.9E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	8.30E-07
	Barium	2586	mg/kg	2586	mg/kg	M	1.8E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	8.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	4.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	1.9E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	1.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	2.9E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	1.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	2.0E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	4.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	6.6E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	1.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										8.02E-06
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	1.6E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	6.0E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.40E-08
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.50E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.4E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.18E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.27E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	1.7E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	1.83E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.5E-09	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.02E-08
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.7E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.25E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.2E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	1.7E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.18E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.0E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.06E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	2.1E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.13E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.9E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.84E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	9.4E-11	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										8.52E-07
										Total of Routes	8.88E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4B RME
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	1.2E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	6.5E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.75E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	3.7E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.70E-05
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	4.7E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.44E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.37E-06
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	2.3E-07	mg/kg-day	1.1E+00	1/(mg/kg-day)	2.57E-07
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	5.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.34E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.35E-06
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	1.4E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	2.4E-07	mg/kg-day	7.0E+00	1/(mg/kg-day)	1.66E-06
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.0E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	2.07E-05
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	2.7E-08	mg/kg-day	1.6E+01	1/(mg/kg-day)	4.37E-07
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.0E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	4.99E-05
	Antimony	2.78	mg/kg	2.78	mg/kg	M	3.0E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	8.9E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.33E-05
	Barium	2586	mg/kg	2586	mg/kg	M	2.8E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	1.3E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	7.0E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	3.0E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	3.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	4.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	1.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	3.2E-06	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	6.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.1E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	2.0E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.28E-04
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	4.5E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	6.3E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	2.4E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.73E-06
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	1.3E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	9.81E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.7E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.25E-06
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	6.8E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.97E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	6.5E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	7.19E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	2.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.58E-06
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	6.7E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	4.92E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	5.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	4.7E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	6.6E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	4.64E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	4.1E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	8.11E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	8.4E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	8.38E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	7.4E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	1.12E-06
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	3.7E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										3.35E-05
										Total of Routes	1.62E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.4B CTE
CALCULATION OF CANCER RISKS - RESIDENT CONTACT WITH SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Short Beach Park - Areas of Raymark Waste
Receptor Population: Residents
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	2.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	3.7E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	7.92E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	6.2E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	4.49E-06
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	7.8E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.73E-07
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.28E-07
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	3.9E-08	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.28E-08
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	9.9E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	7.23E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	3.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	2.25E-07
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	2.3E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	2.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	3.9E-08	mg/kg-day	7.0E+00	1/(mg/kg-day)	2.76E-07
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	1.7E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	3.45E-06
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	4.5E-09	mg/kg-day	1.6E+01	1/(mg/kg-day)	7.28E-08
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	8.3E-12	mg/kg-day	1.0E+06	1/(mg/kg-day)	8.31E-06
	Antimony	2.78	mg/kg	2.78	mg/kg	M	5.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	1.5E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	2.21E-06
	Barium	2586	mg/kg	2586	mg/kg	M	4.7E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.2E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	1.2E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	5.0E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	4.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	7.8E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	2.9E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	5.4E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	1.1E-07	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	1.8E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	3.4E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.14E-05
Dermal	Acenaphthylene	1136	µg/kg	1136	µg/kg	M	3.0E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Acetophenone	205	µg/kg	205	µg/kg	M	4.2E-09	mg/kg-day	N/A	1/(mg/kg-day)	--
	Benzo(a)anthracene	5937	µg/kg	5937	µg/kg	M	1.6E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.15E-07
	Benzo(a)pyrene	3369	µg/kg	3369	µg/kg	M	9.0E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	6.54E-07
	Benzo(b)fluoranthene	4296	µg/kg	4296	µg/kg	M	1.1E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	8.34E-08
	Benzo(k)fluoranthene	1708	µg/kg	1708	µg/kg	M	4.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.32E-08
	Bis(2-Chloroethyl)ether	213	µg/kg	213	µg/kg	M	4.4E-09	mg/kg-day	1.1E+00	1/(mg/kg-day)	4.79E-09
	Dibenzo(a,h)anthracene	542	µg/kg	542	µg/kg	M	1.4E-08	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.05E-07
	Indeno(1,2,3-cd)pyrene	1688	µg/kg	1688	µg/kg	M	4.5E-08	mg/kg-day	7.3E-01	1/(mg/kg-day)	3.28E-08
	2-Methylnaphthalene	1277	µg/kg	1277	µg/kg	M	3.4E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	Naphthalene	1169	µg/kg	1169	µg/kg	M	3.1E-08	mg/kg-day	N/A	1/(mg/kg-day)	--
	N-Nitroso-di-n-propylamine	216	µg/kg	216	µg/kg	M	4.4E-09	mg/kg-day	7.0E+00	1/(mg/kg-day)	3.09E-08
	Aroclor, Total (Conservative)	9440	µg/kg	9440	µg/kg	M	2.7E-07	mg/kg-day	2.0E+00	1/(mg/kg-day)	5.41E-07
	Dieldrin	24.9	µg/kg	24.9	µg/kg	M	N/A	mg/kg-day	1.6E+01	1/(mg/kg-day)	--
	Toxicity Equivalency	0.091	µg/kg	0.091	µg/kg	M	5.6E-13	mg/kg-day	1.0E+06	1/(mg/kg-day)	5.58E-07
	Antimony	2.78	mg/kg	2.78	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Arsenic	8.08	mg/kg	8.08	mg/kg	M	5.0E-08	mg/kg-day	1.5E+00	1/(mg/kg-day)	7.44E-08
	Barium	2586	mg/kg	2586	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Cadmium	1.20	mg/kg	1.20	mg/kg	M	2.5E-10	mg/kg-day	N/A	1/(mg/kg-day)	--
	Chromium	63.5	mg/kg	63.5	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	2763	mg/kg	2763	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Manganese	271	mg/kg	271	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Mercury	0.428	mg/kg	0.428	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Nickel	159	mg/kg	159	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Selenium	2.93	mg/kg	2.93	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Thallium	0.583	mg/kg	0.583	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Vanadium	96.2	mg/kg	96.2	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Zinc	1870	mg/kg	1870	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.23E-06
										Total of Routes	2.36E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 9.1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06
			Benzo(a)pyrene	1.17E-05	--	1.01E-05	2.18E-05
			Benzo(b)fluoranthene	1.59E-06	--	1.36E-06	2.95E-06
			Dibenzo(a,h)anthracene	2.09E-06	--	1.80E-06	3.89E-06
			Indeno(1,2,3-cd)pyrene	6.95E-07	--	5.96E-07	1.29E-06
			Aroclor, Total	2.52E-05	--	2.33E-05	4.86E-05
			Dioxin TEQ	2.10E-04	--	8.30E-05	2.93E-04
			Arsenic	4.95E-06	--	9.80E-07	5.93E-06
			Chromium	--	--	--	--
			Lead	--	--	--	--
			(Total)	2.57E-04	0.00E+00	1.22E-04	3.80E-04

Total Risk Across Soil: 3.80E-04
Total Risk Across All Media and All Exposure Routes: 3.80E-04

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
Aroclor, Total	Skin/Eyes/Immune	1.77E+00	--	1.63E+00	3.40E+00
Dioxin TEQ	N/A	--	--	--	--
Arsenic	Skin	3.08E-02	--	6.10E-03	3.69E-02
Chromium	None	1.96E-02	--	--	1.96E-02
Lead	N/A	--	--	--	--
(Total)		1.82E+00	0.00E+00	1.64E+00	3.46E+00

Total Hazard Index Across Soil: 3.46E+00
Total Hazard Index Across All Media and All Exposure Routes: 3.46E+00

Total Skin HI = 3.44E+00
Total Eye/Immune HI = 3.40E+00

TABLE 9.1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Stratford Landfill - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Benzo(a)anthracene	2.38E-07	--	4.09E-08	2.79E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.85E-06	--	3.18E-07	2.17E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.50E-07	--	4.29E-08	2.93E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	3.30E-07	--	5.67E-08	3.87E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.10E-07	--	1.88E-08	1.28E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total	3.98E-06	--	7.36E-07	4.72E-06	Aroclor, Total	Skin/Eyes/Immune	7.74E-01	--	1.43E-01	9.17E-01
			Dioxin TEQ	2.09E-05	--	1.66E-06	2.26E-05	Dioxin TEQ	N/A	--	--	--	--
			Arsenic	7.80E-07	--	3.09E-08	8.11E-07	Arsenic	Skin	1.35E-02	--	5.34E-04	1.40E-02
			Chromium	--	--	--	--	Chromium	None	8.59E-03	--	--	8.59E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	2.85E-05	0.00E+00	2.90E-06	3.14E-05	(Total)		7.96E-01	0.00E+00	1.44E-01	9.40E-01

Total Risk Across Soil: 3.14E-05
Total Risk Across All Media and All Exposure Routes: 3.14E-05

Total Hazard Index Across Soil: 9.40E-01
Total Hazard Index Across All Media and All Exposure Routes: 9.40E-01

Total Skin HI = 9.31E-01
Total Eye/Immune HI = 9.17E-01

TABLE 9.2A RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--
			Benzo(a)anthracene	7.49E-08	--	3.89E-08	1.14E-07
			Benzo(a)pyrene	6.88E-07	--	3.57E-07	1.04E-06
			Benzo(b)fluoranthene	9.60E-08	--	4.98E-08	1.46E-07
			Bis(2-Chloroethyl)ether	4.41E-08	--	1.76E-08	6.16E-08
			Dibenzo(a,h)anthracene	8.04E-08	--	4.17E-08	1.22E-07
			Indeno(1,2,3-cd)pyrene	4.57E-08	--	2.37E-08	6.94E-08
			Aroclor, Total (Conservative)	7.65E-07	--	4.27E-07	1.19E-06
			Toxicity Equivalency	2.42E-06	--	5.78E-07	2.99E-06
			Arsenic	6.73E-07	--	8.06E-08	7.54E-07
			Barium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Thallium	--	--	--	--
			(Total)	4.88E-06	0.00E+00	1.61E-06	6.50E-06

Total Risk Across Soil: 6.50E-06
Total Risk Across All Media and All Exposure Routes: 6.50E-06

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acetophenone	General	1.12E-06	--	4.45E-07	1.56E-06
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	5.58E-02	--	3.12E-02	8.70E-02
Toxicity Equivalency	N/A	--	--	--	--
Arsenic	Skin	4.36E-03	--	5.22E-04	4.89E-03
Barium	Kidney	8.73E-03	--	--	8.73E-03
Chromium	None	4.87E-03	--	--	4.87E-03
Lead	N/A	--	--	--	--
Manganese	CNS	1.25E-03	--	--	1.25E-03
Thallium	None	3.45E-03	--	--	3.45E-03
(Total)		7.85E-02	0.00E+00	3.17E-02	1.10E-01

Total Hazard Index Across Soil: 1.10E-01
Total Hazard Index Across All Media and All Exposure Routes: 1.10E-01

Total Skin HI = 9.19E-02
Total Eye/Immune HI = 8.70E-02
Total Kidney HI = 8.73E-03
Total General HI = 1.56E-06
Total CNS HI = 1.25E-03

TABLE 9.2A CTE

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL

CENTRAL TENDENCY EXPOSURE

RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	5.28E-07	--	6.02E-08	5.89E-07
			Benzo(a)anthracene	1.09E-08	--	1.62E-09	1.25E-08	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.00E-07	--	1.49E-08	1.15E-07	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.40E-08	--	2.07E-09	1.61E-08	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	6.43E-09	--	7.33E-10	7.16E-09	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	1.17E-08	--	1.74E-09	1.35E-08	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.66E-09	--	9.88E-10	7.65E-09	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	1.12E-07	--	1.78E-08	1.29E-07	Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.79E-02	--	4.45E-03	3.24E-02
			Toxicity Equivalency	3.52E-07	--	2.41E-08	3.76E-07	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	9.82E-08	--	3.36E-09	1.02E-07	Arsenic	Skin	2.18E-03	--	7.46E-05	2.26E-03
			Barium	--	--	--	--	Barium	Kidney	4.37E-03	--	--	4.37E-03
			Chromium	--	--	--	--	Chromium	None	2.44E-03	--	--	2.44E-03
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	6.23E-04	--	--	6.23E-04
			Thallium	--	--	--	--	Thallium	None	1.72E-03	--	--	1.72E-03
			(Total)	7.12E-07	0.00E+00	6.73E-08	7.79E-07	(Total)		3.92E-02	0.00E+00	4.53E-03	4.38E-02

Total Risk Across Soil: 7.79E-07

Total Risk Across All Media and All Exposure Routes: 7.79E-07

Total Hazard Index Across Soil: 4.38E-02

Total Hazard Index Across All Media and All Exposure Routes: 4.38E-02

Total Skin HI = 3.46E-02
Total Eye/Immune HI = 3.24E-02
Total Kidney HI = 4.37E-03
Total General HI = 5.89E-07
Total CNS HI = 6.23E-04

TABLE 9.2B RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--
			Benzo(a)anthracene	1.75E-07	--	6.36E-08	2.39E-07
			Benzo(a)pyrene	1.60E-06	--	5.84E-07	2.19E-06
			Benzo(b)fluoranthene	2.24E-07	--	8.15E-08	3.05E-07
			Bis(2-Chloroethyl)ether	1.03E-07	--	2.88E-08	1.32E-07
			Dibenzo(a,h)anthracene	1.88E-07	--	6.83E-08	2.56E-07
			Indeno(1,2,3-cd)pyrene	1.07E-07	--	3.88E-08	1.45E-07
			Aroclor, Total (Conservative)	1.79E-06	--	7.00E-07	2.49E-06
			Toxicity Equivalency	5.64E-06	--	9.47E-07	6.58E-06
			Arsenic	1.57E-06	--	1.32E-07	1.70E-06
			Barium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Thallium	--	--	--	--
			(Total)	1.14E-05	0.00E+00	2.64E-06	1.40E-05

Total Risk Across Soil: 1.40E-05
Total Risk Across All Media and All Exposure Routes: 1.40E-05

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acetophenone	General	1.04E-05	--	2.92E-06	1.33E-05
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	5.21E-01	--	2.04E-01	7.25E-01
Toxicity Equivalency	N/A	--	--	--	--
Arsenic	Skin	4.07E-02	--	3.42E-03	4.42E-02
Barium	Kidney	8.15E-02	--	--	8.15E-02
Chromium	None	4.55E-02	--	--	4.55E-02
Lead	N/A	--	--	--	--
Manganese	CNS	1.16E-02	--	--	1.16E-02
Thallium	None	3.22E-02	--	--	3.22E-02
(Total)		7.32E-01	0.00E+00	2.08E-01	9.40E-01

Total Hazard Index Across Soil: 9.40E-01
Total Hazard Index Across All Media and All Exposure Routes: 9.40E-01

Total Skin HI = 7.69E-01
Total Eye/Immune HI = 7.25E-01
Total Kidney HI = 8.15E-02
Total General HI = 1.33E-05
Total CNS HI = 1.16E-02

TABLE 9.2B CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RECREATIONAL VISITOR EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitors
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acetophenone	--	--	--	--	Acetophenone	General	4.93E-06	--	5.52E-07	5.48E-06
			Benzo(a)anthracene	2.91E-08	--	4.24E-09	3.34E-08	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	2.67E-07	--	3.89E-08	3.06E-07	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.73E-08	--	5.43E-09	4.27E-08	Benzo(b)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	1.71E-08	--	1.92E-09	1.91E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	3.13E-08	--	4.55E-09	3.58E-08	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.78E-08	--	2.59E-09	2.04E-08	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total (Conservative)	2.98E-07	--	4.67E-08	3.44E-07	Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.60E-01	--	4.08E-02	3.01E-01
			Toxicity Equivalency	9.39E-07	--	6.31E-08	1.00E-06	Toxicity Equivalency	N/A	--	--	--	--
			Arsenic	2.62E-07	--	8.80E-09	2.71E-07	Arsenic	Skin	2.04E-02	--	6.84E-04	2.10E-02
			Barium	--	--	--	--	Barium	Kidney	4.07E-02	--	--	4.07E-02
			Chromium	--	--	--	--	Chromium	None	2.27E-02	--	--	2.27E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	5.81E-03	--	--	5.81E-03
			Thallium	--	--	--	--	Thallium	None	1.61E-02	--	--	1.61E-02
			(Total)	1.90E-06	0.00E+00	1.76E-07	2.08E-06	(Total)		3.66E-01	0.00E+00	4.15E-02	4.08E-01
						Total Risk Across Soil	2.08E-06					Total Hazard Index Across Soil	4.08E-01
						Total Risk Across All Media and All Exposure Routes	2.08E-06					Total Hazard Index Across All Media and All Exposure Routes	4.08E-01

Total Skin HI =	3.22E-01
Total Eye/Immune HI =	3.01E-01
Total Kidney HI =	4.07E-02
Total General HI =	5.48E-06
Total CNS HI =	5.81E-03

TABLE 9.3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06
			Benzo(a)pyrene	8.59E-06	--	7.37E-06	1.60E-05
			Benzo(b)fluoranthene	1.10E-06	--	9.40E-07	2.04E-06
			Benzo(k)fluoranthene	4.36E-07	--	3.74E-07	8.10E-07
			Bis(2-Chloroethyl)ether	8.19E-08	--	5.40E-08	1.36E-07
			Dibenzo(a,h)anthracene	1.38E-06	--	1.19E-06	2.57E-06
			Indeno(1,2,3-cd)pyrene	4.31E-07	--	3.69E-07	8.00E-07
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	5.28E-07	--	3.49E-07	8.77E-07
			Aroclor, Total (Conservative)	6.60E-06	--	6.10E-06	1.27E-05
			Dieldrin	1.39E-07	--	--	1.39E-07
			Toxicity Equivalency	1.59E-05	--	6.30E-06	2.22E-05
			Antimony	--	--	--	--
			Arsenic	4.24E-06	--	8.39E-07	5.07E-06
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	4.09E-05	0.00E+00	2.52E-05	6.61E-05
						Total Risk Across Soil	6.61E-05
						Total Risk Across All Media and All Exposure Routes	6.61E-05

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	5.56E-05	--	4.77E-05	1.03E-04
Acetophenone	General	2.01E-06	--	1.32E-06	3.33E-06
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	6.25E-05	--	5.36E-05	1.16E-04
Naphthalene	General	5.72E-05	--	4.91E-05	1.06E-04
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	4.62E-01	--	4.27E-01	8.89E-01
Dieldrin	Liver	4.87E-04	--	--	4.87E-04
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	6.80E-03	--	--	6.80E-03
Arsenic	Skin	2.64E-02	--	5.22E-03	3.16E-02
Barium	Kidney	3.61E-02	--	--	3.61E-02
Cadmium	Blood	1.17E-03	--	3.10E-04	1.48E-03
Chromium	None	2.07E-02	--	--	2.07E-02
Lead	N/A	--	--	--	--
Manganese	CNS	1.89E-03	--	--	1.89E-03
Mercury	CNS	1.40E-03	--	--	1.40E-03
Nickel	Body Weight	7.78E-03	--	--	7.78E-03
Selenium	General	5.73E-04	--	--	5.73E-04
Thallium	None	7.13E-03	--	--	7.13E-03
Vanadium	Hair	1.34E-02	--	--	1.34E-02
Zinc	Blood	6.10E-03	--	--	6.10E-03
(Total)		5.92E-01	0.00E+00	4.32E-01	1.02E+00
				Total Hazard Index Across Soil	1.02E+00
				Total Hazard Index Across All Media and All Exposure Routes	1.02E+00

Total Skin HI =	9.20E-01
Total Eye/Immune HI =	8.89E-01
Total Liver HI =	4.87E-04
Total Kidney HI =	3.61E-02
Total General HI =	9.02E-04
Total Blood HI =	1.44E-02
Total CNS HI =	3.29E-03
Total Body Weight HI =	7.78E-03
Total Hair HI =	1.34E-02

TABLE 9.3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER/GROUNDSKEEPER EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker/Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	2.39E-07	--	4.10E-08	2.80E-07
			Benzo(a)pyrene	1.36E-06	--	2.33E-07	1.59E-06
			Benzo(b)fluoranthene	1.73E-07	--	2.97E-08	2.02E-07
			Benzo(k)fluoranthene	6.87E-08	--	1.18E-08	8.05E-08
			Bis(2-Chloroethyl)ether	1.29E-08	--	1.70E-09	1.46E-08
			Dibenzo(a,h)anthracene	2.18E-07	--	3.74E-08	2.55E-07
			Indeno(1,2,3-cd)pyrene	6.79E-08	--	1.17E-08	7.96E-08
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	8.33E-08	--	1.10E-08	9.43E-08
			Aroclor, Total (Conservative)	1.04E-06	--	1.92E-07	1.23E-06
			Dieldrin	2.20E-08	--	--	2.20E-08
			Toxicity Equivalency	2.51E-06	--	1.99E-07	2.71E-06
			Antimony	--	--	--	--
			Arsenic	6.68E-07	--	2.64E-08	6.94E-07
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	6.45E-06	0.00E+00	7.94E-07	7.25E-06
						Total Risk Across Soil	7.25E-06
						Total Risk Across All Media and All Exposure Routes	7.25E-06

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	2.43E-05	--	4.18E-06	2.85E-05
Acetophenone	General	8.79E-07	--	1.16E-07	9.95E-07
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	2.74E-05	--	4.70E-06	3.21E-05
Naphthalene	General	2.51E-05	--	4.30E-06	2.93E-05
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	2.02E-01	--	3.74E-02	2.40E-01
Dieldrin	Liver	2.13E-04	--	--	2.13E-04
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	2.98E-03	--	--	2.98E-03
Arsenic	Skin	1.15E-02	--	4.57E-04	1.20E-02
Barium	Kidney	1.58E-02	--	--	1.58E-02
Cadmium	Blood	5.14E-04	--	2.72E-05	5.41E-04
Chromium	None	9.07E-03	--	--	9.07E-03
Lead	N/A	--	--	--	--
Manganese	CNS	8.30E-04	--	--	8.30E-04
Mercury	CNS	6.11E-04	--	--	6.11E-04
Nickel	Body Weight	3.41E-03	--	--	3.41E-03
Selenium	General	2.51E-04	--	--	2.51E-04
Thallium	None	3.12E-03	--	--	3.12E-03
Vanadium	Hair	5.89E-03	--	--	5.89E-03
Zinc	Blood	2.67E-03	--	--	2.67E-03
(Total)		2.59E-01	0.00E+00	3.79E-02	2.97E-01
				Total Hazard Index Across Soil	2.97E-01
				Total Hazard Index Across All Media and All Exposure Routes	2.97E-01

Total Skin HI =	2.52E-01
Total Eye/Immune HI =	2.40E-01
Total Liver HI =	2.13E-04
Total Kidney HI =	1.58E-02
Total General HI =	3.42E-04
Total Blood HI =	6.19E-03
Total CNS HI =	1.44E-03
Total Body Weight HI =	3.41E-03
Total Hair HI =	5.89E-03

TABLE 9.4A RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	2.04E-06	--	1.06E-06	3.09E-06
			Benzo(a)pyrene	1.16E-05	--	5.99E-06	1.75E-05
			Benzo(b)fluoranthene	1.47E-06	--	7.64E-07	2.24E-06
			Benzo(k)fluoranthene	5.86E-07	--	3.04E-07	8.89E-07
			Bis(2-Chloroethyl)ether	1.10E-07	--	4.39E-08	1.54E-07
			Dibenzo(a,h)anthracene	1.86E-06	--	9.64E-07	2.82E-06
			Indeno(1,2,3-cd)pyrene	5.79E-07	--	3.00E-07	8.79E-07
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	7.10E-07	--	2.83E-07	9.93E-07
			Aroclor, Total (Conservative)	8.87E-06	--	4.95E-06	1.38E-05
			Dieldrin	1.87E-07	--	--	1.87E-07
			Toxicity Equivalency	2.14E-05	--	5.12E-06	2.65E-05
			Antimony	--	--	--	--
			Arsenic	5.69E-06	--	6.81E-07	6.37E-06
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	5.50E-05	0.00E+00	2.05E-05	7.55E-05
						Total Risk Across Soil	7.55E-05
						Total Risk Across All Media and All Exposure Routes	7.55E-05

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	7.78E-05	--	4.04E-05	1.18E-04
Acetophenone	General	2.81E-06	--	1.12E-06	3.93E-06
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	8.75E-05	--	4.54E-05	1.33E-04
Naphthalene	General	8.01E-05	--	4.15E-05	1.22E-04
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.47E-01	--	3.61E-01	1.01E+00
Dieldrin	Liver	6.82E-04	--	--	6.82E-04
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	9.52E-03	--	--	9.52E-03
Arsenic	Skin	3.69E-02	--	4.42E-03	4.13E-02
Barium	Kidney	5.06E-02	--	--	5.06E-02
Cadmium	Blood	1.64E-03	--	2.62E-04	1.91E-03
Chromium	None	2.90E-02	--	--	2.90E-02
Lead	N/A	--	--	--	--
Manganese	CNS	2.65E-03	--	--	2.65E-03
Mercury	CNS	1.95E-03	--	--	1.95E-03
Nickel	Body Weight	1.09E-02	--	--	1.09E-02
Selenium	General	8.03E-04	--	--	8.03E-04
Thallium	None	9.98E-03	--	--	9.98E-03
Vanadium	Hair	1.88E-02	--	--	1.88E-02
Zinc	Blood	8.54E-03	--	--	8.54E-03
(Total)		8.29E-01	0.00E+00	3.66E-01	1.19E+00
				Total Hazard Index Across Soil	1.19E+00
				Total Hazard Index Across All Media and All Exposure Routes	1.19E+00

Total Skin HI =	1.05E+00
Total Eye/Immune HI =	1.01E+00
Total Liver HI =	6.82E-04
Total Kidney HI =	5.06E-02
Total General HI =	1.18E-03
Total Blood HI =	2.00E-02
Total CNS HI =	4.61E-03
Total Body Weight HI =	1.09E-02
Total Hair HI =	1.88E-02

TABLE 9.4A CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	2.97E-07	--	4.40E-08	3.41E-07
			Benzo(a)pyrene	1.68E-06	--	2.50E-07	1.93E-06
			Benzo(b)fluoranthene	2.15E-07	--	3.18E-08	2.47E-07
			Benzo(k)fluoranthene	8.54E-08	--	1.27E-08	9.81E-08
			Bis(2-Chloroethyl)ether	1.60E-08	--	1.83E-09	1.79E-08
			Dibenzo(a,h)anthracene	2.71E-07	--	4.02E-08	3.11E-07
			Indeno(1,2,3-cd)pyrene	8.44E-08	--	1.25E-08	9.69E-08
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	1.04E-07	--	1.18E-08	1.15E-07
			Aroclor, Total (Conservative)	1.29E-06	--	2.06E-07	1.50E-06
			Dieldrin	2.73E-08	--	--	2.73E-08
			Toxicity Equivalency	3.12E-06	--	2.13E-07	3.33E-06
			Antimony	--	--	--	--
			Arsenic	8.30E-07	--	2.84E-08	8.59E-07
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	8.02E-06	0.00E+00	8.52E-07	8.88E-06
						Total Risk Across Soil	8.88E-06
						Total Risk Across All Media and All Exposure Routes	8.88E-06

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	3.89E-05	--	5.77E-06	4.47E-05
Acetophenone	General	1.40E-06	--	1.60E-07	1.56E-06
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	4.37E-05	--	6.48E-06	5.02E-05
Naphthalene	General	4.00E-05	--	5.93E-06	4.60E-05
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	3.23E-01	--	5.16E-02	3.75E-01
Dieldrin	Liver	3.41E-04	--	--	3.41E-04
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	4.76E-03	--	--	4.76E-03
Arsenic	Skin	1.84E-02	--	6.31E-04	1.91E-02
Barium	Kidney	2.53E-02	--	--	2.53E-02
Cadmium	Blood	8.22E-04	--	3.75E-05	8.59E-04
Chromium	None	1.45E-02	--	--	1.45E-02
Lead	N/A	--	--	--	--
Manganese	CNS	1.33E-03	--	--	1.33E-03
Mercury	CNS	9.77E-04	--	--	9.77E-04
Nickel	Body Weight	5.45E-03	--	--	5.45E-03
Selenium	General	4.01E-04	--	--	4.01E-04
Thallium	None	4.99E-03	--	--	4.99E-03
Vanadium	Hair	9.41E-03	--	--	9.41E-03
Zinc	Blood	4.27E-03	--	--	4.27E-03
(Total)		4.14E-01	0.00E+00	5.23E-02	4.67E-01
				Total Hazard Index Across Soil	4.67E-01
				Total Hazard Index Across All Media and All Exposure Routes	4.67E-01

Total Skin HI =	3.94E-01
Total Eye/Immune HI =	3.75E-01
Total Liver HI =	3.41E-04
Total Kidney HI =	2.53E-02
Total General HI =	5.44E-04
Total Blood HI =	9.89E-03
Total CNS HI =	2.30E-03
Total Body Weight HI =	5.45E-03
Total Hair HI =	9.41E-03

TABLE 9.4B RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--
			Acetophenone	--	--	--	--
			Benzo(a)anthracene	4.75E-06	--	1.73E-06	6.48E-06
			Benzo(a)pyrene	2.70E-05	--	9.81E-06	3.68E-05
			Benzo(b)fluoranthene	3.44E-06	--	1.25E-06	4.69E-06
			Benzo(k)fluoranthene	1.37E-06	--	4.97E-07	1.86E-06
			Bis(2-Chloroethyl)ether	2.57E-07	--	7.19E-08	3.29E-07
			Dibenzo(a,h)anthracene	4.34E-06	--	1.58E-06	5.91E-06
			Indeno(1,2,3-cd)pyrene	1.35E-06	--	4.92E-07	1.84E-06
			2-Methylnaphthalene	--	--	--	--
			Naphthalene	--	--	--	--
			N-Nitroso-di-n-propylamine	1.66E-06	--	4.64E-07	2.12E-06
			Aroclor, Total (Conservative)	2.07E-05	--	8.11E-06	2.88E-05
			Dieldrin	4.37E-07	--	--	4.37E-07
			Toxicity Equivalency	4.99E-05	--	8.38E-06	5.82E-05
			Antimony	--	--	--	--
			Arsenic	1.33E-05	--	1.12E-06	1.44E-05
			Barium	--	--	--	--
			Cadmium	--	--	--	--
			Chromium	--	--	--	--
			Lead	--	--	--	--
			Manganese	--	--	--	--
			Mercury	--	--	--	--
			Nickel	--	--	--	--
			Selenium	--	--	--	--
			Thallium	--	--	--	--
			Vanadium	--	--	--	--
			Zinc	--	--	--	--
			(Total)	1.28E-04	0.00E+00	3.35E-05	1.62E-04

Total Risk Across Soil: 1.62E-04
Total Risk Across All Media and All Exposure Routes: 1.62E-04

Chemical	Non-Carcinogenic Hazard Quotient				
	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Acenaphthylene	General	7.26E-04	--	2.64E-04	9.91E-04
Acetophenone	General	2.62E-05	--	7.34E-06	3.35E-05
Benzo(a)anthracene	N/A	--	--	--	--
Benzo(a)pyrene	N/A	--	--	--	--
Benzo(b)fluoranthene	N/A	--	--	--	--
Benzo(k)fluoranthene	N/A	--	--	--	--
Bis(2-Chloroethyl)ether	N/A	--	--	--	--
Dibenzo(a,h)anthracene	N/A	--	--	--	--
Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
2-Methylnaphthalene	General	8.16E-04	--	2.97E-04	1.11E-03
Naphthalene	General	7.47E-04	--	2.72E-04	1.02E-03
N-Nitroso-di-n-propylamine	N/A	--	--	--	--
Aroclor, Total (Conservative)	Skin/Eyes/Immune	6.03E+00	--	2.37E+00	8.40E+00
Dieldrin	Liver	6.37E-03	--	--	6.37E-03
Toxicity Equivalency	N/A	--	--	--	--
Antimony	Blood	8.89E-02	--	--	8.89E-02
Arsenic	Skin	3.44E-01	--	2.89E-02	3.73E-01
Barium	Kidney	4.72E-01	--	--	4.72E-01
Cadmium	Blood	1.53E-02	--	1.72E-03	1.71E-02
Chromium	None	2.71E-01	--	--	2.71E-01
Lead	N/A	--	--	--	--
Manganese	CNS	2.47E-02	--	--	2.47E-02
Mercury	CNS	1.82E-02	--	--	1.82E-02
Nickel	Body Weight	1.02E-01	--	--	1.02E-01
Selenium	General	7.49E-03	--	--	7.49E-03
Thallium	None	9.32E-02	--	--	9.32E-02
Vanadium	Hair	1.76E-01	--	--	1.76E-01
Zinc	Blood	7.97E-02	--	--	7.97E-02
(Total)		7.74E+00	0.00E+00	2.40E+00	1.01E+01

Total Hazard Index Across Soil: 1.01E+01
Total Hazard Index Across All Media and All Exposure Routes: 1.01E+01

Total Skin HI = 8.77E+00
Total Eye/Immune HI = 8.40E+00
Total Liver HI = 6.37E-03
Total Kidney HI = 4.72E-01
Total General HI = 1.06E-02
Total Blood HI = 1.86E-01
Total CNS HI = 4.30E-02
Total Body Weight HI = 1.02E-01
Total Hair HI = 1.76E-01

TABLE 9.4B CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT EXPOSURE TO SOIL
CENTRAL TENDENCY EXPOSURE
RAYMARK OU9 - Short Beach Park - Areas of Raymark Waste

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	On-Site Soil	Acenaphthylene	--	--	--	--	Acenaphthylene	General	3.63E-04	--	5.29E-05	4.16E-04
			Acetophenone	--	--	--	--	Acetophenone	General	1.31E-05	--	1.47E-06	1.46E-05
			Benzo(a)anthracene	7.92E-07	--	1.15E-07	9.07E-07	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	4.49E-06	--	6.54E-07	5.15E-06	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.73E-07	--	8.34E-08	6.56E-07	Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.28E-07	--	3.32E-08	2.61E-07	Benzo(k)fluoranthene	N/A	--	--	--	--
			Bis(2-Chloroethyl)ether	4.28E-08	--	4.79E-09	4.76E-08	Bis(2-Chloroethyl)ether	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	7.23E-07	--	1.05E-07	8.28E-07	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.25E-07	--	3.28E-08	2.58E-07	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			2-Methylnaphthalene	--	--	--	--	2-Methylnaphthalene	General	4.08E-04	--	5.94E-05	4.68E-04
			Naphthalene	--	--	--	--	Naphthalene	General	3.74E-04	--	5.44E-05	4.28E-04
			N-Nitroso-di-n-propylamine	2.76E-07	--	3.09E-08	3.07E-07	N-Nitroso-di-n-propylamine	N/A	--	--	--	--
			Aroclor, Total (Conservative)	3.45E-06	--	5.41E-07	3.99E-06	Aroclor, Total (Conservative)	Skin/Eyes/Immune	3.02E+00	--	4.73E-01	3.49E+00
			Dieldrin	7.28E-08	--	--	7.28E-08	Dieldrin	Liver	3.18E-03	--	--	3.18E-03
			Toxicity Equivalency	8.31E-06	--	5.58E-07	8.87E-06	Toxicity Equivalency	N/A	--	--	--	--
			Antimony	--	--	--	--	Antimony	Blood	4.44E-02	--	--	4.44E-02
			Arsenic	2.21E-06	--	7.44E-08	2.29E-06	Arsenic	Skin	1.72E-01	--	5.79E-03	1.78E-01
			Barium	--	--	--	--	Barium	Kidney	2.36E-01	--	--	2.36E-01
			Cadmium	--	--	--	--	Cadmium	Blood	7.67E-03	--	3.44E-04	8.01E-03
			Chromium	--	--	--	--	Chromium	None	1.35E-01	--	--	1.35E-01
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			Manganese	--	--	--	--	Manganese	CNS	1.24E-02	--	--	1.24E-02
			Mercury	--	--	--	--	Mercury	CNS	9.12E-03	--	--	9.12E-03
			Nickel	--	--	--	--	Nickel	Body Weight	5.08E-02	--	--	5.08E-02
			Selenium	--	--	--	--	Selenium	General	3.75E-03	--	--	3.75E-03
			Thallium	--	--	--	--	Thallium	None	4.66E-02	--	--	4.66E-02
			Vanadium	--	--	--	--	Vanadium	Hair	8.79E-02	--	--	8.79E-02
			Zinc	--	--	--	--	Zinc	Blood	3.98E-02	--	--	3.98E-02
			(Total)	2.14E-05	0.00E+00	2.23E-06	2.36E-05	(Total)		3.87E+00	0.00E+00	4.79E-01	4.35E+00

Total Risk Across Soil	2.36E-05
Total Risk Across All Media and All Exposure Routes	2.36E-05

Total Hazard Index Across Soil	4.35E+00
Total Hazard Index Across All Media and All Exposure Routes	4.35E+00

Total Skin HI =	3.67E+00
Total Eye/Immune HI =	3.49E+00
Total Liver HI =	3.18E-03
Total Kidney HI =	2.36E-01
Total General HI =	5.07E-03
Total Blood HI =	9.23E-02
Total CNS HI =	2.15E-02
Total Body Weight HI =	5.08E-02
Total Hair HI =	8.79E-02

Appendix C-11

Lead Evaluations

Table 1
Calculations of Blood Lead Concentrations (PbBs) Stratford Landfill
Raymark OU9, Stratford, Connecticut

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario Using Equation 1 GSDi = Hom	Using Equation 1 GSDi = Het	Using Equation 2 GSDi = Hom	Using Equation 2 GSDi = Het
PbS	X	X	Soil lead concentration	µg/g or ppm	625	625	625	625
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.0	2.0	2.0	2.0
PbB_0	X	X	Baseline PbB	µg/dL	1.4	1.9	1.4	1.9
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	250	250	250	250
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}			**PbB of adult worker, geometric mean**	**µg/dL**	**2.4**	**2.9**	**2.4**	**2.9**
$PbB_{fetal,0.95}$			**95th percentile PbB among fetuses of adult workers**	**µg/dL**	**6.8**	**8.2**	**6.8**	**8.2**
PbB_t			**Target PbB level of concern (e.g., 10 µg/dL)**	**µg/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$			**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**1.4%**	**2.7%**	**1.4%**	**2.7%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 2
Calculations of Blood Lead Concentrations (PbBs)
Short Beach Park
Raymark OU9, Stratford, Connecticut

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1 GSDi = Hom	Using Equation 1 GSDi = Het	Using Equation 2 GSDi = Hom	Using Equation 2 GSDi = Het
PbS	X	X	Soil lead concentration	µg/g or ppm	1170	1170	1170	1170
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.0	2.0	2.0	2.0
PbB_0	X	X	Baseline PbB	µg/dL	1.4	1.9	1.4	1.9
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	250	250	250	250
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**µg/dL**	**3.3**	**3.8**	**3.3**	**3.8**
$PbB_{fetal,0.95}$	**95th percentile PbB among fetuses of adult workers**			**µg/dL**	**9.4**	**10.8**	**9.4**	**10.8**
PbB_t	**Target PbB level of concern (e.g., 10 µg/dL)**			**µg/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**4.1%**	**6.2%**	**4.1%**	**6.2%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

LEAD MODEL FOR WINDOWS Version 1.0

==========
Model Version: 1.0 Build 261
User Name: Bob Jupin
Date: 10/6/2004
Site Name: Raymark
Operable Unit: OU9
Run Mode: Site Risk Assessment

Soil/Dust Data
Average concentration of lead in surface soil = 220 mg/kg.
==========
The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 164.000 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	220.000	164.000
1-2	220.000	164.000
2-3	220.000	164.000
3-4	220.000	164.000
4-5	220.000	164.000
5-6	220.000	164.000
6-7	220.000	164.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

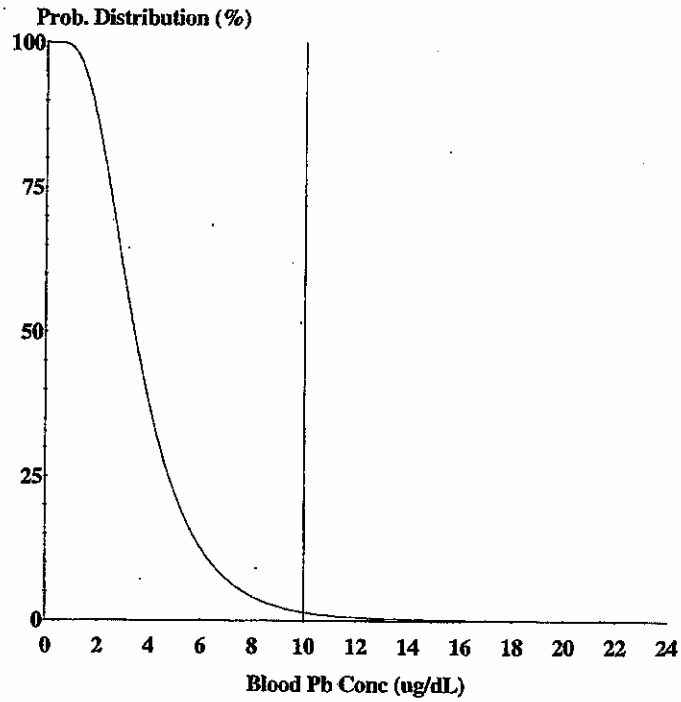
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

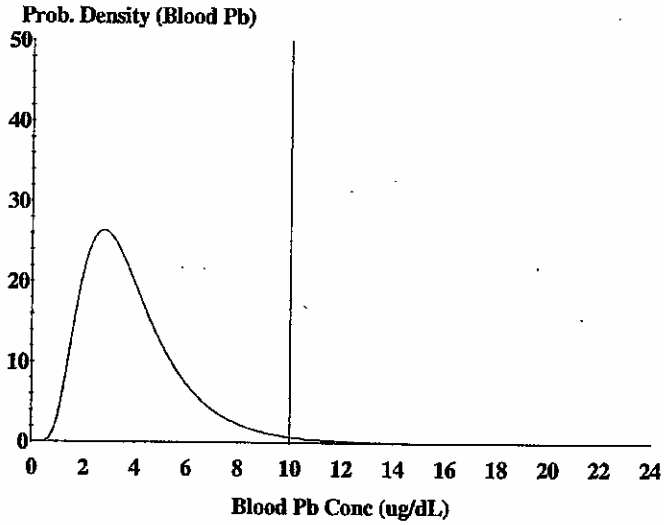
Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.542	0.000	0.368
1-2	0.034	2.634	0.000	0.911
2-3	0.062	2.989	0.000	0.958
3-4	0.067	2.908	0.000	0.988
4-5	0.067	2.856	0.000	1.045
5-6	0.093	3.034	0.000	1.110
6-7	0.093	3.361	0.000	1.133

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	4.436	7.367	4.0
1-2	6.983	10.563	4.4
2-3	7.057	11.065	4.1
3-4	7.142	11.104	3.9
4-5	5.394	9.362	3.3
5-6	4.889	9.126	2.9
6-7	4.632	9.219	2.6



Cutoff = 10.000 ug/dl
Geo Mean = 3.584
GSD = 1.600
% Above = 1.451

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment
Comment = Lead concentration = 220 mg/kg



Cutoff = 10.000 ug/dl
Geo Mean = 3.584
GSD = 1.600
% Above = 1.451
% Below = 98.549

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment
Comment = Lead concentration = 220 mg/kg

LEAD MODEL FOR WINDOWS Version 1.0

==========
Model Version: 1.0 Build 261
User Name: Bob Jupin
Date: 10/6/2004
Site Name: Raymark
Operable Unit: OU9
Run Mode: Site Risk Assessment

Soil/Dust Data
Average concentration of lead in surface/subsurface soil = 1,170 mg/kg.
==========
The time step used in this model run: 1 - Every 4 Hours (6 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 829.000 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	1170.000	829.000
1-2	1170.000	829.000
2-3	1170.000	829.000
3-4	1170.000	829.000
4-5	1170.000	829.000
5-6	1170.000	829.000
6-7	1170.000	829.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

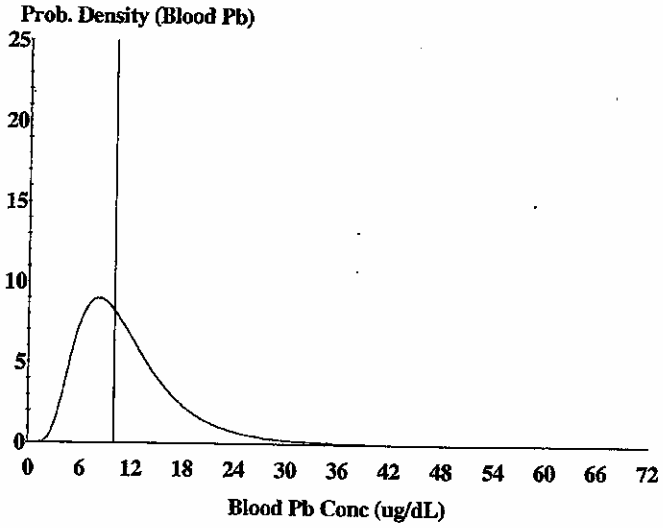
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

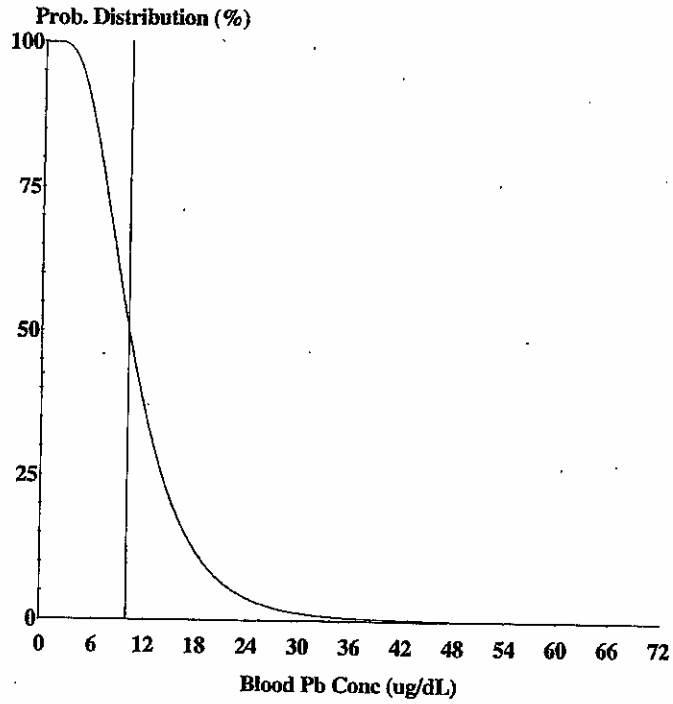
Year	Air (ug/day)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.139	0.000	0.309
1-2	0.034	2.150	0.000	0.744
2-3	0.062	2.498	0.000	0.800
3-4	0.067	2.480	0.000	0.843
4-5	0.067	2.560	0.000	0.937
5-6	0.093	2.773	0.000	1.015
6-7	0.093	3.106	0.000	1.047

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	19.378	21.847	11.4
1-2	29.596	32.524	13.1
2-3	30.626	33.986	12.4
3-4	31.630	35.020	12.0
4-5	25.106	28.670	10.0
5-6	23.207	27.088	8.5
6-7	22.229	26.475	7.6



Cutoff = 10.000 ug/dl
Geo Mean = 10.540
GSD = 1.600
% Above = 54.457
% Below = 45.543

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment
Comment = Lead concentration= 1170 mg/kg



Cutoff = 10.000 ug/dl
Geo Mean = 10.540
GSD = 1.600
% Above = 54.457

Age Range = 0 to 84 months
Time Step = Every 4 Hours
Run Mode = Site Risk Assessment
Comment = Lead concentration= 1170 mg/kg

Appendix C-12

Sample Lists, Summaries of Data, Risk Calculations, and Lead Evaluations for Areas of Stratford Landfill where Raymark Waste was Detected from 0 to 15 Feet BGS

TABLE 1
AREA 1 OF RAYMARK WASTE AT 0 TO 15' BGS - SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SL-SO-302-0002	22-Jan-04	SL-SB302	None	0	2	NORMAL	FALSE	TRUE
SL-SO-302-0203	22-Jan-04	SL-SB302	None	2	3	NORMAL	FALSE	TRUE
SL-SO-302-0305	22-Jan-04	SL-SB302	None	3	5	NORMAL	FALSE	TRUE
SL-SO-302-0507	22-Jan-04	SL-SB302	None	5	7	NORMAL	FALSE	TRUE
SL-SO-302A-0002	26-Jan-04	SL-SB302	None	0	2	NORMAL	FALSE	TRUE
SL-SO-302A-0305	26-Jan-04	SL-SB302	None	3	5	NORMAL	TRUE	TRUE
SL-SO-302A-0507	26-Jan-04	SL-SB302	None	5	7	NORMAL	TRUE	TRUE
SL-SO-TP01-0204	13-Jan-04	SL-SO-TP01	None	2	4	NORMAL	TRUE	TRUE
SL-SO-TP02-1.92.6	13-Jan-04	SL-SO-TP02	None	1.9	2.6	NORMAL	TRUE	TRUE
SL-SO-TP03-2.83.3	13-Jan-04	SL-SO-TP03	None	2.8	3.3	NORMAL	FALSE	TRUE
SL-SO-TP04-0203	13-Jan-04	SL-SO-TP04	None	2	3	NORMAL	TRUE	TRUE
SL-SO-TP05-2.73.3	13-Jan-04	SL-SO-TP05	None	2.7	3.3	NORMAL	FALSE	TRUE
SL-SO-TP06-0407	13-Jan-04	SL-SO-TP06	None	4	7	NORMAL	FALSE	TRUE
SL-SO-TP07-0506	13-Jan-04	SL-SO-TP07	None	5	6	NORMAL	TRUE	TRUE

TABLE 2
AREA 2 OF RAYMARK WASTE AT 0 TO 15' BGS - SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBP-SO-516-0002	06-Jan-04	SB-516	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-516-0204	06-Jan-04	SB-516	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-516A-0406	29-Jan-04	SB-516	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-516A-0608	29-Jan-04	SB-516	None	6	8	NORMAL	FALSE	TRUE
SBP-SO-746-0002	23-Jan-04	SB-746	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-746-0204	23-Jan-04	SB-746	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-753-0002	27-Jan-04	SB-753	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-753-0204	27-Jan-04	SB-753	None	2	4	NORMAL	FALSE	TRUE

TABLE 3
AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS - SAMPLE LIST
STRATFORD LANDFILL
RAYMARK OU9
STRATFORD, CONNECTICUT

NSAMPLE	SAMP_DATE	BORING	QC_TYPE	TOP	BOTTOM	SACODE	RW	IN_RW_FOOTPRINT
SBB2 FF-250	09-Jun-93	SBB2 FF-250	None	0	0.5	NORMAL	TRUE	TRUE
SBP-SO-526-0002	06-Jan-04	SB-526	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-526-0204	06-Jan-04	SB-526	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528-0002	06-Jan-04	SB-528	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-528-0204	06-Jan-04	SB-528	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528A-0002	28-Jan-04	SB-528	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-528A-0204	28-Jan-04	SB-528	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-528A-0406	28-Jan-04	SB-528	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-528A-0608	28-Jan-04	SB-528	None	6	8	NORMAL	TRUE	TRUE
SBP-SO-532-0002	06-Jan-04	SB-532	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-532-0204	06-Jan-04	SB-532	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-532A-0002	27-Jan-04	SB-532	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-532A-0204	27-Jan-04	SB-532	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-532A-0406	27-Jan-04	SB-532	None	4	6	NORMAL	FALSE	TRUE
SBP-SO-735-0002	22-Jan-04	SB-735	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-735-0204-MAX	22-Jan-04	SB-735	Field Dup. SBP-SO-735-0204	2	4	MAX	TRUE	TRUE
SBP-SO-771-0002	03-Feb-04	SB-771	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-771-0204	03-Feb-04	SB-771	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-772-0002	03-Feb-04	SB-772	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-772-0204	03-Feb-04	SB-772	None	2	4	NORMAL	FALSE	TRUE
SBP-SO-773-0002	03-Feb-04	SB-773	None	0	2	NORMAL	FALSE	TRUE
SBP-SO-773-0204	03-Feb-04	SB-773	None	2	4	NORMAL	TRUE	TRUE
SBP-SO-774-0002	03-Feb-04	SB-774	None	0	2	NORMAL	TRUE	TRUE
SBP-SO-774-0204	03-Feb-04	SB-774	None	2	4	NORMAL	FALSE	TRUE

TABLE 3.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
STRATFORD LANDFILL - AREA 1 OF RAYMARK WASTE AT 0 TO 15' BGS
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface and Subsurface)
Exposure Point: STRATFORD LANDFILL Area #1

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Aroclor, Total (Conservative)	ug/kg	24843	278973	101000		ug/kg	101000	Max	(2)	24843	Mean	(2)
Lead	mg/kg	4095	25958	28700		mg/kg	25958	99% Chebyshev(Mean, Std) UCL	--	25958	99% Chebyshev(Mean, Std) UCL	--
Asbestos	%	17.6	24.8	30	*	%	24.8	Student-t	--	24.8	99% Chebyshev(Mean, Std) UCL	--

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 3.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
STRATFORD LANDFILL - AREA 2 OF RAYMARK WASTE AT 0 TO 15' BGS
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface and Subsurface)
Exposure Point: STRATFORD LANDFILL Area #2

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Aroclor, Total (Conservative)	ug/kg	4427	NA	11000		ug/kg	11000	Max	(2)	4427	Mean	(2)
Lead	mg/kg	429	25958	1580		mg/kg	1006	Approximate Gamma 95% UCL	- -	1006	Approximate Gamma 95% UCL	- -
Asbestos	%	14.9	NA	24	*	%	24	Max	(2)	14.9	Mean	(2)

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
STRATFORD LANDFILL - AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (Surface and Subsurface)
Exposure Point: STRATFORD LANDFILL Area #3

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Benzo(a)anthracene	ug/kg	2020	5920	7100	*	ug/kg	5920	Approximate Gamma 95% UCL	--	5920	Approximate Gamma 95% UCL	--
Benzo(a)pyrene	ug/kg	1654	4600	5800	*	ug/kg	4600	Approximate Gamma 95% UCL	--	4600	Approximate Gamma 95% UCL	--
Benzo(b)fluoranthene	ug/kg	2244	6218	7800	*	ug/kg	6218	Approximate Gamma 95% UCL	--	6218	Approximate Gamma 95% UCL	--
Dibenzo(a,h)anthracene	ug/kg	284	821	1100	*	ug/kg	821	Approximate Gamma 95% UCL	--	821	Approximate Gamma 95% UCL	--
Indeno(1,2,3-cd)pyrene	ug/kg	970	2723	3600	*	ug/kg	2723	Approximate Gamma 95% UCL	--	2723	Approximate Gamma 95% UCL	--
Aroclor, Total (Conservative)	ug/kg	6041	15393	24400		ug/kg	15393	Adjusted Gamma 95% UCL	--	15393	Adjusted Gamma 95% UCL	--
Toxicity Equivalency	ug/kg	0.765	NA(1)	1.20	J	ug/kg	1.2	Max	(2)	0.765	Mean	(2)
Arsenic	mg/kg	5.88	9.44	14.5	J	mg/kg	9.44	Student-t	--	9.44	Student-t	--
Chromium	mg/kg	35.4	60.1	102		mg/kg	60.1	Student-t	--	60.1	Student-t	--
Lead	mg/kg	933	1807	7690		mg/kg	1807	Adjusted Gamma 95% UCL	--	1807	Adjusted Gamma 95% UCL	--
Asbestos	%	16.1	34.7	48	*	%	34.7	Approximate Gamma 95% UCL	--	34.7	Approximate Gamma 95% UCL	--

Statistics: Maximum Detected Value (Max);
Mean of Data (Average).

(1) Maximum nondetected concentration exceeds the UCL.
(2) UCL exceeds maximum detected concentration.
(3) Maximum detected concentration selected because there are an insufficient number of samples to calculate statistics.
NA - Not applicable, there are an insufficient number of samples to calculate statistics.

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
ADULT COMMERCIAL WORKER EXPOSURES TO RAYMARK WASTE SOIL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Stratford Landfill - Area of Raymark Waste at 0 to 15' bgs
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 1991	50	EPA, 1997	(CS x IR-S x OABS x EF x ED x CF1)/(BW x AT)
	OABS	Oral Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	2,555	EPA, 1989	
Dermal Absorption	CS	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	CDI (mg/kg-day) =
	CF1	Conversion Factor	kg/mg	1E-06	--	1E-06	--	(CS x CF1 x SA x SSAF x DABS x EF x ED)/
	SA	Skin Surface Area Available for Contact	cm2/day	3,300	EPA, 2001	3,300	EPA, 2001	(BW x AT)
	SSAF	Soil to Skin Adherence Factor	mg/cm2	0.2	EPA, 2001	0.02	EPA, 2001	
	DABS	Dermal Absorption Factor (chemical-specific)	dimensionless	See Table 5.1	See Table 5.1	See Table 5.1	See Table 5.1	
	EF	Exposure Frequency	days/year	250	(1)	219	EPA, 2001	
	ED	Exposure Duration	years	25	EPA, 1997	9	EPA, 1997	
	BW	Body Weight	kg	70	EPA, 1997	70	EPA, 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	3,285	EPA, 1989	

(1) Professional Judgement.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund - Volume I: Human Health Evaluation Manual - Supplemental Guidance - "Standard Default Exposure Factors" - Interim Final. OSWER Directive 9285.6-03. Office of Emergency and Remedial Response. March 25.

EPA, 1997: Exposure Factors Handbook. Volume I, Aug. 1997, EPA/600/P-25/002FA.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim . December 2001.

TABLE 5.1
NON-CANCER CHRONIC TOXICITY DATA -- ORAL/DERMAL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value (1)	Oral RfD Units	GI Absorption in Toxicity Study	Adjusted Dermal RfD (2)	Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ (MM/DD/YY)	Dermal Absorption Factor for Soils (DABS)	Oral Absorption Factor for Soils (OABS)
Acenaphthylene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	Prof judg	N/A	0.13	1.0
Acetophenone	Chronic	1.00E-01	mg/kg-day	1.0E+00	1.00E-01	mg/kg-day	General	3000	IRIS	9/10/2004	0.1	1.0
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Bis-2 chloroethyl ether	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1.0
Dibenzo(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13	1.0
2-Methylnaphthalene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	Prof judg	N/A	0.13	1.0
Naphthalene	Chronic	2.00E-02	mg/kg-day	1.0E+00	2.00E-02	mg/kg-day	General	3000	IRIS	9/10/2004	0.13	1.0
N-Nitroso-di-n-propylamine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1.0
Aroclor, Total (Conservative)	Chronic	2.00E-05	mg/kg-day	1.0E+00	2.00E-05	N/A	Skin/Eyes/Immune	300	IRIS	9/10/2004	0.14	1.0
Dieldrin	Chronic	5.00E-05	mg/kg-day	1.0E+00	5.00E-05	N/A	Liver	100	IRIS	9/10/2004	NA	1.0
Dioxin TEQ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	0.5
Antimony	Chronic	4.00E-04	mg/kg-day	1.5E-01	6.00E-05	N/A	Blood	1000	IRIS	9/10/2004	NA	1.0
Arsenic	Chronic	3.00E-04	mg/kg-day	1.0E+00	3.00E-04	N/A	Skin	3	IRIS	9/10/2004	0.03	1.0
Barium	Chronic	7.00E-02	mg/kg-day	7.0E-02	4.90E-03	N/A	Kidney	3	IRIS	9/10/2004	NA	1.0
Cadmium	Chronic	1.00E-03	mg/kg-day	2.5E-02	2.50E-05	N/A	Blood	10	IRIS	9/10/2004	0.001	1.0
Chromium VI	Chronic	3.00E-03	mg/kg-day	2.5E-02	7.50E-05	N/A	None	900	IRIS	9/10/2004	NA	1.0
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0
Manganese	Chronic	1.40E-01	mg/kg-day	4.0E-02	5.60E-03	mg/kg-day	CNS	3	IRIS	9/10/2004	NA	1.0
Mercury	Chronic	3.00E-04	mg/kg-day	1.0E+00	3.00E-04	mg/kg-day	CNS	30	EPA-NCEA	2002	NA	1.0
Nickel	Chronic	2.00E-02	mg/kg-day	4.0E-02	8.00E-04	mg/kg-day	Body Weight	300	IRIS	9/10/2004	NA	1.0
Selenium	Chronic	5.00E-03	mg/kg-day	1.0E+00	5.00E-03	mg/kg-day	General	3	IRIS	9/10/2004	NA	1.0
Thallium	Chronic	8.00E-05	mg/kg-day	1.0E+00	8.00E-05	mg/kg-day	None	3000	IRIS	9/10/2004	NA	1.0
Vanadium	Chronic	7.00E-03	mg/kg-day	2.6E-02	1.82E-04	mg/kg-day	Hair	100	HEAST	1997	NA	1.0
Zinc	Chronic	3.00E-01	mg/kg-day	1.0E+00	3.00E-01	mg/kg-day	Blood	3	IRIS	9/10/2004	NA	1.0
Asbestos	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0

N/A = Not Applicable

(1) To be used for oral pathway only. Based on administered dose.

(2) Adjusted RfD = oral RfD x GI absorption value in toxicity study upon which the RfD is based. To be used for dermal pathway only.

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
REMEDIAL INVESTIGATION
RAYMARK OU9
STRATFORD, CONNECTICUT

Chemical of Potential Concern	Oral Cancer Slope Factor (1)	GI Absorption in Toxicity Study	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (MM/DD/YY)	Dermal Absorption Factor for Soils (DABS)	Oral Absorption Factor for Soils (OABS)
Acenaphthylene	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	0.13	1.0
Acetophenone	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Benzo(a)anthracene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Benzo(a)pyrene	7.3E+00	1.0E+00	7.3E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.13	1.0
Benzo(b)fluoranthene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Benzo(k)fluoranthene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Bis-2 chloroethyl ether	1.1E+00	1.0E+00	1.1E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.1	1.0
Dibenzo(a,h)anthracene	7.3E+00	1.0E+00	7.3E+00	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
Indeno(1,2,3-cd)pyrene	7.3E-01	1.0E+00	7.3E-01	1/(mg/kg-day)	B2	EPA-NCEA		0.13	1.0
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	1.0
Naphthalene	N/A	N/A	N/A	N/A	C	IRIS	9/10/2004	NA	1.0
N-Nitroso-di-n-propylamine	7.0E+00	1.0E+00	7.0E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.1	1.0
Aroclor, Total (Conservative)	2.0E+00	1.0E+00	2.0E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.14	1.0
Dieldrin	1.6E+01	1.0E+00	1.60E+01	1/(mg/kg-day)	B2	IRIS	9/10/2004	N/A	1.0
Dioxin TEQ	1.5E+05	1.0E+00	1.5E+05	1/(mg/kg-day)	B2	HEAST	1997	0.03	0.5
Dioxin TEQ(3)	1.0E+06	1.0E+00	1.0E+06	1/(mg/kg-day)	B2	EPA (3)	2001	0.03	0.5
Antimony	N/A	N/A	N/A	N/A	B2	N/A	N/A	N/A	1.0
Arsenic	1.5E+00	1.0E+00	1.5E+00	1/(mg/kg-day)	B2	IRIS	9/10/2004	0.03	1.0
Barium	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	N/A	1.0
Cadmium	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	0.001	1.0
Chromium VI	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Lead	N/A	N/A	N/A	N/A	B2	IRIS	9/10/2004	NA	1.0
Manganese	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Mercury	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Nickel	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Selenium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Thallium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Vanadium	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	NA	1.0
Zinc	N/A	N/A	N/A	N/A	D	IRIS	9/10/2004	N/A	1.0
Asbestos	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0

IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
NCEA=National Center for Environnmental Assessment
(1) To be used for oral pathway only. Based on administered dose.
(2) Adjusted slope factor (SF) = oral SF x GI absorption value in toxicity study upon which the SF is based. To be used for dermal pathway only.
(3) Proposed Dioxin CSF per Draft Dioxin Reassessment, EPA, 2001

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

TABLE 7.1 RME
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 1 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #1
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Aroclor, Total (Conservative)	101000	µg/kg	101000	µg/kg	M	9.88E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.94E+00
	Lead (Total)	25958	mg/kg	25958	mg/kg	M	2.54E-02	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
													4.94E+00
Dermal	Aroclor, Total (Conservative)	101000	µg/kg	101000	µg/kg	M	9.13E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.57E+00
	Lead (Total)	25958	mg/kg	25958	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
													4.57E+00
												Total of Routes	9.51E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.2 RME
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 2 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #2
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Aroclor, Total (Conservative)	11000	µg/kg	11000	µg/kg	M	1.08E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	5.38E-01
	Lead (Total)	1006	mg/kg	1006	mg/kg	M	9.84E-04	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
													5.38E-01
Dermal	Aroclor, Total (Conservative)	11000	µg/kg	11000	µg/kg	M	9.95E-06	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	4.97E-01
	Lead (Total)	1006	mg/kg	1006	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
													4.97E-01
												Total of Routes	1.04E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.3 RME
CALCULATION OF NON-CANCER HAZARDS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #3
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	5.79E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	4.50E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	6.08E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	8.03E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.66E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	1.51E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	7.53E-01
	Dioxin TEQ	1.2	µg/kg	1.2	µg/kg	M	5.87E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	9.24E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	3.08E-02
	Chromium	60.1	mg/kg	60.1	mg/kg	M	5.88E-05	mg/kg-day	3.00E-03	mg/kg-day	N/A	N/A	1.96E-02
	Lead	1807	mg/kg	1807	mg/kg	M	1.77E-03	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												8.03E-01
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	4.97E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	3.86E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	5.22E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	6.89E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	2.29E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	1.39E-05	mg/kg-day	2.00E-05	mg/kg-day	N/A	N/A	6.96E-01
	Dioxin TEQ	1.2	µg/kg	1.2	µg/kg	M	2.32E-10	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	1.83E-06	mg/kg-day	3.00E-04	mg/kg-day	N/A	N/A	6.10E-03
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	7.50E-05	mg/kg-day	N/A	N/A	--
	Lead	1807	mg/kg	1807	mg/kg	M	N/A	mg/kg-day	N/A	mg/kg-day	N/A	N/A	--
	(Total)												7.02E-01
												Total of Routes	1.51E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 8.1 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - AREA 1 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #1
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Aroclor, Total (Conservative)	101000	µg/kg	101000	µg/kg	M	3.5E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.06E-05
	Lead	25958	mg/kg	25958	mg/kg	M	9.1E-03	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										7.06E-05
Dermal	Aroclor, Total (Conservative)	101000	µg/kg	101000	µg/kg	M	3.3E-05	mg/kg-day	2.0E+00	1/(mg/kg-day)	6.52E-05
	Lead	25958	mg/kg	25958	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.52E-05
										Total of Routes	1.36E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 8.2 RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - AREA 2 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #2
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Aroclor, Total (Conservative)	11000	µg/kg	11000	µg/kg	M	3.8E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.69E-06
	Lead	1006	mg/kg	1006	mg/kg	M	3.5E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										7.69E-06
Dermal	Aroclor, Total (Conservative)	11000	µg/kg	11000	µg/kg	M	3.6E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	7.10E-06
	Lead	1006	mg/kg	1006	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										7.10E-06
										Total of Routes	1.48E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 8.3A RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #3
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	2.2E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.59E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.09E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	9.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.95E-07
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	5.4E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.08E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	2.1E-10	mg/kg-day	1.5E+05	1/(mg/kg-day)	3.15E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	3.3E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.95E-06
	Chromium	60.1	mg/kg	60.1	mg/kg	M	2.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1807	mg/kg	1807	mg/kg	M	6.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										6.48E-05
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.4E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.01E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.36E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.80E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	8.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.96E-07
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	5.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	9.94E-06
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	8.3E-11	mg/kg-day	1.5E+05	1/(mg/kg-day)	1.25E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	6.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1807	mg/kg	1807	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										3.85E-05
										Total of Routes	1.03E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Existing dioxin CSF used for risk calculation.

TABLE 8.3B RME
CALCULATION OF CANCER RISKS - COMMERCIAL WORKER CONTACT WITH SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 -Stratford Landfill - AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: STRATFORD LANDFILL Area #3
Receptor Population: Commercial Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	2.1E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.51E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.6E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.17E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	2.2E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.59E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.9E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	2.09E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	9.5E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	6.95E-07
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	5.4E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	1.08E-05
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	2.1E-10	mg/kg-day	1.0E+06	1/(mg/kg-day)	2.10E-04
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	3.3E-06	mg/kg-day	1.5E+00	1/(mg/kg-day)	4.95E-06
	Chromium	60.1	mg/kg	60.1	mg/kg	M	2.1E-05	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1807	mg/kg	1807	mg/kg	M	6.3E-04	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										2.43E-04
Dermal	Benzo(a)anthracene	5920	µg/kg	5920	µg/kg	M	1.8E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.30E-06
	Benzo(a)pyrene	4600	µg/kg	4600	µg/kg	M	1.4E-06	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.01E-05
	Benzo(b)fluoranthene	6218	µg/kg	6218	µg/kg	M	1.9E-06	mg/kg-day	7.3E-01	1/(mg/kg-day)	1.36E-06
	Dibenzo(a,h)anthracene	821	µg/kg	821	µg/kg	M	2.5E-07	mg/kg-day	7.3E+00	1/(mg/kg-day)	1.80E-06
	Indeno(1,2,3-cd)pyrene	2723	µg/kg	2723	µg/kg	M	8.2E-07	mg/kg-day	7.3E-01	1/(mg/kg-day)	5.96E-07
	Aroclor, Total (Conservative)	15393	µg/kg	15393	µg/kg	M	5.0E-06	mg/kg-day	2.0E+00	1/(mg/kg-day)	9.94E-06
	Dioxin TEQ(2)	1.2	µg/kg	1.2	µg/kg	M	8.3E-11	mg/kg-day	1.0E+06	1/(mg/kg-day)	8.30E-05
	Arsenic	9.44	mg/kg	9.44	mg/kg	M	6.5E-07	mg/kg-day	1.5E+00	1/(mg/kg-day)	9.80E-07
	Chromium	60.1	mg/kg	60.1	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	Lead	1807	mg/kg	1807	mg/kg	M	N/A	mg/kg-day	N/A	1/(mg/kg-day)	--
	(Total)										1.09E-04
										Total of Routes	3.52E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.
(2) Proposed dioxin CSF used for risk calculation.

TABLE 9.1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 1 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Stratford Landfill Area #1	Aroclor, Total	7.06E-05	--	6.52E-05	1.36E-04	Aroclor, Total	Skin/Eyes/Immune	4.94E+00	--	4.57E+00	9.51E+00
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	7.06E-05	0.00E+00	6.52E-05	1.36E-04	(Total)		4.94E+00	0.00E+00	4.57E+00	9.51E+00
						Total Risk Across Soil	1.36E-04					Total Hazard Index Across Soil	9.51E+00
						Total Risk Across All Media and All Exposure Routes	1.36E-04					Total Hazard Index Across All Media and All Exposure Routes	9.51E+00

Total Skin HI = 9.51E+00
Total Eye/Immune HI = 9.51E+00

TABLE 9.2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 2 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Stratford Landfill Area #2	Aroclor, Total	7.69E-06	--	7.10E-06	1.48E-05	Aroclor, Total	Skin/Eyes/Immune	5.38E-01	--	4.97E-01	1.04E+00
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	7.69E-06	0.00E+00	7.10E-06	1.48E-05	(Total)		5.38E-01	0.00E+00	4.97E-01	1.04E+00
							Total Risk Across Soil						Total Hazard Index Across Soil
							1.48E-05						1.04E+00
							Total Risk Across All Media and All Exposure Routes						Total Hazard Index Across All Media and All Exposure Routes
							1.48E-05						1.04E+00

Total Skin HI = 1.04E+00
Total Eye/Immune HI = 1.04E+00

TABLE 9.3A RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill - AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Stratford Landfill Area #3	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.17E-05	--	1.01E-05	2.18E-05	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.59E-06	--	1.36E-06	2.95E-06	Benzo(b)fluoranthene	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	2.09E-06	--	1.80E-06	3.89E-06	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.95E-07	--	5.96E-07	1.29E-06	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total	1.08E-05	--	9.94E-06	2.07E-05	Aroclor, Total	Skin/Eyes/Immune	7.53E-01	--	6.96E-01	1.45E+00
			Dioxin TEQ	3.15E-05	--	1.25E-05	4.39E-05	Dioxin TEQ	N/A	--	--	--	--
			Arsenic	4.95E-06	--	9.80E-07	5.93E-06	Arsenic	Skin	3.08E-02	--	6.10E-03	3.69E-02
			Chromium	--	--	--	--	Chromium	None	1.96E-02	--	--	1.96E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	6.48E-05	0.00E+00	3.85E-05	1.03E-04	(Total)		8.03E-01	0.00E+00	7.02E-01	1.51E+00
						Total Risk Across Soil	1.03E-04					Total Hazard Index Across Soil	1.51E+00
						Total Risk Across All Media and All Exposure Routes	1.03E-04					Total Hazard Index Across All Media and All Exposure Routes	1.51E+00

Total Skin HI = 1.49E+00
Total Eye/Immune HI = 1.45E+00

Existing dioxin CSF used for risk calculation.

TABLE 9.3B RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - COMMERCIAL WORKER EXPOSURE TO SOIL
REASONABLE MAXIMUM EXPOSURE
RAYMARK OU9 - Stratford Landfill -AREA 3 OF RAYMARK WASTE AT 0 TO 15' BGS

Scenario Timeframe: Current/Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Stratford Landfill Area #3	Benzo(a)anthracene	1.51E-06	--	1.30E-06	2.81E-06	Benzo(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	1.17E-05	--	1.01E-05	2.18E-05	Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.59E-06	--	1.36E-06	2.95E-06	Benzo(b)fluoranthene	N/A	--	--	--	--
			Dibenzo(a,h)anthracene	2.09E-06	--	1.80E-06	3.89E-06	Dibenzo(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.95E-07	--	5.96E-07	1.29E-06	Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Aroclor, Total	1.08E-05	--	9.94E-06	2.07E-05	Aroclor, Total	Skin/Eyes/Immune	7.53E-01	--	6.96E-01	1.45E+00
			Dioxin TEQ*	2.10E-04	--	8.30E-05	2.93E-04	Dioxin TEQ	N/A	--	--	--	--
			Arsenic	4.95E-06	--	9.80E-07	5.93E-06	Arsenic	Skin	3.08E-02	--	6.10E-03	3.69E-02
			Chromium	--	--	--	--	Chromium	None	1.96E-02	--	--	1.96E-02
			Lead	--	--	--	--	Lead	N/A	--	--	--	--
			(Total)	2.43E-04	0.00E+00	1.09E-04	3.52E-04	(Total)		8.03E-01	0.00E+00	7.02E-01	1.51E+00

Total Risk Across Soil	3.52E-04
Total Risk Across All Media and All Exposure Routes	3.52E-04
Total Hazard Index Across Soil	1.51E+00
Total Hazard Index Across All Media and All Exposure Routes	1.51E+00

* Proposed dioxin CSF used for risk calculation.

Total Skin HI =	1.49E+00
Total Eye/Immune HI =	1.45E+00

Table 1
Calculations of Blood Lead Concentrations (PbBs) Stratford Landfill -
Area 1 of Raymark Waste at 0 to 15' bgs
Raymark OU9, Stratford, Connecticut

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	µg/g or ppm	4095	4095	4095	4095
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.0	2.0	2.0	2.0
PbB_0	X	X	Baseline PbB	µg/dL	1.4	1.9	1.4	1.9
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	250	250	250	250
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**µg/dL**	**8.1**	**8.6**	**8.1**	**8.6**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**µg/dL**	**22.9**	**24.3**	**22.9**	**24.3**
PbB_t	**Target PbB level of concern (e.g., 10 µg/dL)**			**µg/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**32.6%**	**35.8%**	**32.6%**	**35.8%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 2
Calculations of Blood Lead Concentrations (PbBs) Stratford Landfill -
Area 2 of Raymark Waste at 0 to 15' bgs
Raymark OU9, Stratford, Connecticut

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1 GSDi = Hom	Using Equation 1 GSDi = Het	Using Equation 2 GSDi = Hom	Using Equation 2 GSDi = Het
PbS	X	X	Soil lead concentration	µg/g or ppm	429	429	429	429
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.0	2.0	2.0	2.0
PbB_0	X	X	Baseline PbB	µg/dL	1.4	1.9	1.4	1.9
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	250	250	250	250
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**µg/dL**	**2.1**	**2.6**	**2.1**	**2.6**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**µg/dL**	**5.9**	**7.3**	**5.9**	**7.3**
PbB_t	**Target PbB level of concern (e.g., 10 µg/dL)**			**µg/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**0.8%**	**1.8%**	**0.8%**	**1.8%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table 3
Calculations of Blood Lead Concentrations (PbBs) Stratford Landfill -
Area 3 of Raymark Waste at 0 to 15' bgs
Raymark OU9, Stratford, Connecticut

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	µg/g or ppm	933	933	933	933
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.0	2.0	2.0	2.0
PbB_0	X	X	Baseline PbB	µg/dL	1.4	1.9	1.4	1.9
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	250	250	250	250
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**µg/dL**	**2.9**	**3.4**	**2.9**	**3.4**
$PbB_{fetal,0.95}$	**95th percentile PbB among fetuses of adult workers**			**µg/dL**	**8.3**	**9.7**	**8.3**	**9.7**
PbB_t	**Target PbB level of concern (e.g., 10 µg/dL)**			**µg/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**2.7%**	**4.5%**	**2.7%**	**4.5%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil