

APPENDIX I

STACK EMISSIONS: COMPARISON TO USEPA REGION 9 PRELIMINARY REMEDIATION GOALS

Comparison of Modeled Air and Soil Concentrations at Residential Assessment Receptor Location R_2 with USEPA Region 9 Preliminary Remediation Goals

Stack Emissions

Calculated Air and Soil Concentrations at Receptor R_2				USEPA Region 9 Preliminary Remediation Goals (PRGs) (c)						Comparison of Concentrations to PRGs	
Compound (as listed in IRAP software)	CAS Number	Maximum (Annual) Soil Concentration (mg/kg)	Annual Average Air Concentration (ug/m ³)	Compound (as listed in PRG Table)	CAS Number	Residential Soil PRG (mg/kg)		Ambient Air PRG (ug/m ³)		Soil Concentration Ratio: modeled concentration/PRG	Air Concentration Ratio: modeled concentration/PRG
						Soil Concentration	Basis	Air Concentration	Basis		
11-Dichloropropene	563-58-6	1.13E-16	5.56E-08	NA						NC	NC
1,2,4-Trimethylbenzene	95-63-6	4.27E-09	1.62E-07	1,2,4-Trimethylbenzene	95-63-6	5.2E+01	nc	6.2E+00	nc	8.E-11	3.E-08
1,3-Dichloropropane	142-28-9	1.04E-09	9.75E-08	1,3-Dichloropropane	142-28-9	1.0E+02	nc	7.3E+01	nc	1.E-11	1.E-09
1-Hexane (n-hexane)	110-54-3	7.03E-15	2.06E-10	n-Hexane	110-54-3	1.1E+02	sat	2.1E+02	nc	6.E-17	1.E-12
2,2-oxybis (1-Chloropropane)	108-60-1	1.60E-08	2.51E-07	Bis(2-chloro-1-methylethyl)ether	108-60-1	2.9E+00	ca	1.9E-01	ca	6.E-09	1.E-06
2,2-Dichloropropane	594-20-7	1.28E-10	7.22E-08	NA						NC	NC
2,5-Dimethylfuran	625-86-5	2.18E-10	2.18E-07	NA						NC	NC
2,5-Dimethylheptane	2216-30-0	1.74E-16	4.34E-06	NA						NC	NC
2,5-Dione, 3-hexene	17559-81-8	2.21E-09	2.46E-07	NA						NC	NC
2-Chlorotoluene	95-49-8	6.28E-09	1.32E-07	o-Chlorotoluene	95-49-8	1.6E+02	nc	7.3E+01	nc	4.E-11	2.E-09
2-Hexanone	591-78-6	1.09E-08	4.86E-07	NA						NC	NC
2-Methyl octane	3221-61-2	2.51E-17	1.03E-06	NA						NC	NC
2-Methylnaphthalene	91-57-6	1.60E-07	1.50E-08	NA						NC	NC
3-Ethyl benzaldehyde	34246-54-3	1.28E-12	6.16E-07	NA						NC	NC
3-Hexen-2-one	763-93-9	5.06E-11	2.95E-05	NA						NC	NC
3-Penten-2-one (ethylidene acetone)	625-33-2	2.57E-12	1.25E-06	NA						NC	NC
3-Penten-2-one, 4-methyl	141-79-7	7.45E-11	2.41E-05	NA						NC	NC
4,6-Dinitro-2-methylphenol	534-52-1	6.69E-06	1.13E-06	4,6-Dinitro-o-cresol	534-52-1	6.1E+00	nc	3.7E-01	nc	1.E-06	3.E-06
4-Chlorotoluene	106-43-4	1.81E-09	1.14E-07	NA						NC	NC
4-Ethyl benzaldehyde	4748-78-1	6.96E-13	3.36E-07	NA						NC	NC
9-Octadecenamide (oleamide)	301-02-0	9.72E-11	6.52E-07	NA						NC	NC
Acenaphthene	83-32-9	2.08E-10	1.16E-09	Acenaphthene	83-32-9	3.7E+03	nc	2.2E+02	nc	6.E-14	5.E-12
Acenaphthylene	208-96-8	2.72E-08	2.10E-09	NA						NC	NC
Acetone	67-64-1	1.06E-07	1.59E-05	Acetone	67-64-1	1.4E+04	nc	3.3E+03	nc	8.E-12	5.E-09
Acetophenone	98-86-2	3.04E-07	8.82E-07	NA						NC	NC
Acrylic Acid	79-10-7	4.77E-14	4.66E-12	Acrylic acid	79-10-7	2.9E+04	nc	1.0E+00	nc	2.E-18	4.E-12
Acrylonitrile	107-13-1	3.65E-09	2.84E-06	Acrylonitrile	107-13-1	2.1E-01	ca*	2.8E-02	ca*	2.E-08	1.E-04
Aldrin	309-00-2	6.51E-09	6.34E-09	Aldrin	309-00-2	2.9E-02	ca*	3.9E-04	ca	2.E-07	2.E-05
Aluminum	7429-90-5	2.71E-03	2.53E-05	Aluminum	7429-90-5	7.6E+04	nc	5.1E+00	nc	4.E-08	5.E-06
Aniline	62-53-3	4.47E-06	1.86E-06	NA						NC	NC
Anthracene	120-12-7	2.67E-09	3.31E-09	Anthracene	120-12-7	2.2E+04	nc	1.1E+03	nc	1.E-13	3.E-12
Antimony	7440-36-0	1.96E-08	1.01E-06	Antimony and compounds	7440-36-0	3.1E+01	nc			6.E-10	NC
Aroclor 1254	11097-69-1	5.30E-08	6.06E-09	PCBs (unspeciated mixture, high risk, e.g. Aroclor 1254)	11097-69-1	2.2E-01	ca**	3.4E-03	ca*	2.E-07	2.E-06
Arsenic	7440-38-2	1.14E-07	2.77E-05	Arsenic	7440-38-2	3.9E-01	ca*	4.5E-04	ca	3.E-07	6.E-02
Barium	7440-39-3	2.51E-04	1.98E-06	Barium and compounds	7440-39-3	5.4E+03	nc	5.2E-01	nc	5.E-08	4.E-06
Benzaldehyde	100-52-7	1.27E-06	1.27E-06	Benzaldehyde	100-52-7	6.1E+03	nc	3.7E+02	nc	2.E-10	3.E-09
Benzene	71-43-2	1.35E-10	6.70E-07	Benzene	71-43-2	6.4E-01	ca*	2.5E-01	ca	2.E-10	3.E-06
Benzidine (d)	92-87-5	2.18E-05	1.30E-05	Benzidine	92-87-5	2.1E-03	ca	2.9E-05	ca	1.E-02	4.E-01
Benzo(a)Anthracene	56-55-3	6.91E-10	7.67E-10	Benzo(a)anthracene	56-55-3	6.2E-01	ca	9.2E-03	ca	1.E-09	8.E-08
Benzo(a)pyrene	50-32-8	6.04E-10	9.82E-10	Benzo(a)pyrene	50-32-8	6.2E-02	ca	9.2E-04	ca	1.E-08	1.E-06
Benzo(b)fluoranthene	205-99-2	8.13E-09	7.63E-09	Benzo(b)fluoranthene	205-99-2	6.2E-01	ca	9.2E-03	ca	1.E-08	8.E-07
Benzo(e)pyrene	192-97-2	5.67E-13	1.47E-09	NA						NC	NC
Benzo(g,h,i)perylene	191-24-2	2.37E-08	3.15E-09	NA						NC	NC
Benzo(k)fluoranthene	207-08-9	3.52E-09	1.49E-09	Benzo(k)fluoranthene	207-08-9	6.2E+00	ca	9.2E-02	ca	6.E-10	2.E-08
Benzoic Acid	65-85-0	2.23E-06	7.27E-06	Benzoic acid	65-85-0	1.0E+05	max	1.5E+04	nc	2.E-11	5.E-10
Benzoic acid, methyl ester (methyl benzoate)	93-58-3	9.80E-08	2.09E-07	NA						NC	NC
Benzonitrile	100-47-0	4.96E-07	4.84E-07	NA						NC	NC
Benzyl alcohol	100-51-6	3.64E-06	5.41E-06	Benzyl alcohol	100-51-6	1.8E+04	nc	1.1E+03	nc	2.E-10	5.E-09
Beryllium	7440-41-7	1.59E-04	2.77E-05	Beryllium and compounds	7440-41-7	1.5E+02	nc	8.0E-04	ca*	1.E-06	3.E-02
BHC, alpha-	319-84-6	1.27E-09	5.53E-09	HCH (alpha)	319-84-6	9.0E-02	ca	1.1E-03	ca	1.E-08	5.E-06
BHC, beta-	319-85-7	3.02E-09	1.43E-08	HCH (beta)	319-85-7	3.2E-01	ca	3.7E-03	ca	1.E-08	4.E-06
Bis(2-chloroethyl)ether	111-44-4	4.42E-08	2.11E-07	Bis(2-chloroethyl)ether	111-44-4	2.2E-01	ca	6.1E-03	ca	2.E-07	3.E-05

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Compound (as listed in IRAP software)	CAS Number	Maximum (Annual) Soil Concentration (mg/kg)	Annual Average Air Concentration (ug/m ³)	Compound (as listed in PRG Table)	CAS Number	Residential Soil PRG (mg/kg)		Ambient Air PRG (ug/m ³)		Soil Concentration Ratio: modeled concentration/PRG	Air Concentration Ratio: modeled concentration/PRG
						Soil Concentration	Basis	Air Concentration	Basis		
Bis(2-chloroethoxy) methane	111-91-1	4.15E-07	2.16E-07	NA						NC	NC
Bromobenzene	108-86-1	1.23E-09	1.29E-07	Bromobenzene	108-86-1	2.8E+01	nc	1.0E+01	nc	4.E-11	1.E-08
Bromochloromethane	74-97-5	3.27E-14	3.93E-07	Chloroethane	75-00-3	3.0E+00	ca	2.3E+00	ca	1.E-14	2.E-07
Bromodichloromethane	75-27-4	7.42E-08	1.41E-06	Bromodichloromethane	75-27-4	8.2E-01	ca	1.1E-01	ca	9.E-08	1.E-05
Bromoform (tribromomethane)	75-25-2	3.88E-11	3.57E-06	Bromoform (tribromomethane)	75-25-2	6.2E+01	ca*	1.7E+00	ca*	6.E-13	2.E-06
Bromophenyl-phenylether, 4-	101-55-3	2.31E-06	1.74E-07	NA						NC	NC
Butylbenzene, n-	104-51-8	1.45E-15	1.58E-07	n-Butylbenzene	104-51-8	2.4E+02	sat	1.5E+02	nc	6.E-18	1.E-09
Butylbenzene, sec	135-98-8	1.05E-15	1.26E-07	sec-Butylbenzene	135-9-88	2.2E+02	sat	1.5E+02	nc	5.E-18	9.E-10
Butylbenzene, tert	98-06-6	3.61E-09	1.50E-07	tert-Butylbenzene	98-06-6	3.9E+02	sat	1.5E+02	nc	9.E-12	1.E-09
Butylbenzylphthalate	85-68-7	3.36E-09	2.81E-07	Butyl benzyl phthalate	85-68-7	1.2E+04	nc	7.3E+02	nc	3.E-13	4.E-10
Cadmium	7440-43-9	1.81E-05	6.87E-05	Cadmium and compounds	7440-43-9	3.7E+01	nc	1.1E-03	ca	5.E-07	6.E-02
Carbazole	86-74-8	3.37E-06	2.54E-07	Carbazole	86-74-8	2.4E+01	ca	3.4E-01	ca	1.E-07	8.E-07
Carbon Disulfide	75-15-0	7.81E-12	3.21E-07	Carbon disulfide	75-15-0	3.6E+02	nc	7.3E+02	nc	2.E-14	4.E-10
Carbon Tetrachloride	56-23-5	2.19E-11	1.75E-07	Carbon tetrachloride	56-23-5	2.5E-01	ca**	1.3E-01	ca*	9.E-11	1.E-06
Chlordane	57-74-9	3.77E-08	1.54E-08	Chlordane (technical) (a)	12789-03-6	1.6E+00	ca*	1.9E-02	ca*	2.E-08	8.E-07
Chlorine	7782-50-5	3.31E-03	9.31E-03	Chlorine	7782-50-5			2.1E-01	nc	NC	4.E-02
Chloro-3-methylphenol, 4-	59-50-7	6.04E-06	5.61E-07	NA						NC	NC
Chloroaniline, p-	106-47-8	2.18E-06	1.08E-06	4-Chloroaniline	106-47-8	2.4E+02	nc	1.5E+01	nc	9.E-09	7.E-08
Chlorobenzene	108-90-7	9.02E-08	6.67E-05	Chlorobenzene	108-90-7	1.5E+02	nc	6.2E+01	nc	6.E-10	1.E-06
Chlorobenzilate	510-15-6	1.75E-09	3.06E-08	Chlorobenzilate	510-15-6	1.8E+00	ca	2.5E-02	ca	1.E-09	1.E-06
Chloroethane	75-00-3	3.82E-12	3.41E-07	NA						NC	NC
Chloroform (Trichloromethane)	67-66-3	3.69E-10	2.13E-06	Chloroform	67-66-3	2.2E-01	ca	8.3E-02	ca	2.E-09	3.E-05
Chloronaphthalene, 2-	91-58-7	1.79E-06	1.69E-07	beta-Chloronaphthalene	91-58-7	4.9E+03	nc	2.9E+02	nc	4.E-10	6.E-10
Chlorophenol, 2-	95-57-8	9.79E-07	2.22E-07	2-Chlorophenol	95-57-8	6.3E+01	nc	1.8E+01	nc	2.E-08	1.E-08
Chlorophenyl-phenylether, 4-	7005-72-3	1.42E-07	2.87E-07	NA						NC	NC
Chromium	7440-47-3	1.51E-04	1.28E-06	Chromium III	16065-83-1	1.0E+05	max			2.E-09	NC
Chromium, hexavalent	7440-47-3	1.51E-04	1.28E-06	Chromium VI	18540-29-9	3.0E+01	ca**	2.3E-05	ca	5.E-06	6.E-02
Chrysene	218-01-9	4.51E-09	2.91E-09	Chrysene	218-01-9	6.2E+01	ca	9.2E-01	ca	7.E-11	3.E-09
Cobalt	7440-48-4	1.65E-05	1.28E-07	Cobalt	7440-48-4	9.0E+02	ca**	6.9E-04	ca*	2.E-08	2.E-04
Copper	7440-50-8	4.96E-05	2.62E-05	Copper and compounds	7440-50-8	3.1E+03	nc			2.E-08	NC
Cresol, m-	108-39-4	1.18E-08	2.37E-07	3-Methylphenol	108-39-4	3.1E+03	nc	1.8E+02	nc	4.E-12	1.E-09
Cresol, o-	95-48-7	6.61E-09	5.41E-07	2-Methylphenol	95-48-7	3.1E+03	nc	1.8E+02	nc	2.E-12	3.E-09
Cresol, p-	106-44-5	2.77E-10	2.37E-07	4-Methylphenol	106-44-5	3.1E+02	nc	1.8E+01	nc	9.E-13	1.E-08
Cumene (Isopropylbenzene)	98-82-8	4.15E-10	9.41E-08	Cumene (isopropylbenzene)	98-82-8	5.7E+02	nc	4.0E+02	nc	7.E-13	2.E-10
DDD, 4,4'-	72-54-8	2.53E-07	3.41E-08	DDD	72-54-8	2.4E+00	ca	2.8E-02	ca	1.E-07	1.E-06
DDE, 4,4'-	72-55-9	8.91E-08	1.16E-08	DDE	72-55-9	1.7E+00	ca	2.0E-02	ca	5.E-08	6.E-07
DDT, 4,4'-	50-29-3	5.90E-08	8.85E-09	DDT	50-29-3	1.7E+00	ca*	2.0E-02	ca*	3.E-08	4.E-07
delta-BHC	319-86-8	1.61E-07	1.29E-08	NA						NC	NC
Diallylate	2303-16-4	1.67E-10	1.62E-06	Diallylate	2303-16-4	8.0E+00	ca	1.1E-01	ca	2.E-11	1.E-05
Dibenz(a,h)anthracene	53-70-3	1.64E-09	1.04E-10	Dibenz[ah]anthracene	53-70-3	6.2E-02	ca	9.2E-04	ca	3.E-08	1.E-07
Dibenzofuran	132-64-9	3.64E-06	2.74E-07	Dibenzofuran	132-64-9	1.5E+02	nc	7.3E+00	nc	3.E-08	4.E-08
Dibromo-3-chloropropane, 1,2-	96-12-8	1.23E-07	6.72E-07	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	4.6E-01	ca**	2.1E-01	nc	3.E-07	3.E-06
Dibromochloromethane	124-48-1	5.63E-07	2.79E-06	Dibromochloromethane	124-48-1	1.1E+00	ca	8.0E-02	ca	5.E-07	3.E-05
Dichlorobenzene, 1,2-	95-50-1	4.88E-09	2.18E-07	1,2-Dichlorobenzene	95-50-1	6.0E+02	sat	2.1E+02	nc	8.E-12	1.E-09
Dichlorobenzene, 1,3-	541-73-1	6.85E-09	2.29E-07	1,3-Dichlorobenzene	541-73-1	5.3E+02	nc	1.1E+02	nc	1.E-11	2.E-09
Dichlorobenzene, 1,4-	106-46-7	1.53E-09	2.59E-07	1,4-Dichlorobenzene	106-46-7	3.4E+00	ca	3.1E-01	ca	4.E-10	8.E-07
Dichlorobenzidine, 3,3'-	91-94-1	3.12E-07	1.34E-06	3,3-Dichlorobenzidine	91-94-1	1.1E+00	ca	1.5E-02	ca	3.E-07	9.E-05
Dichlorodifluoromethane	75-71-8	1.49E-09	9.91E-07	Dichlorodifluoromethane	75-71-8	9.4E+01	nc	2.1E+02	nc	2.E-11	5.E-09
Dichloroethane 1,1-	75-34-3	9.62E-12	7.99E-08	1,1-Dichloroethane	75-34-3	5.1E+02	nc	5.2E+02	nc	2.E-14	2.E-10
Dichloroethane, 1,2- (Ethylene Dichloride)	107-06-2	3.74E-11	1.31E-07	1,2-Dichloroethane (EDC)	107-06-2	2.8E-01	ca*	7.4E-02	ca*	1.E-10	2.E-06
Dichloroethylene 1,1-	75-35-4	3.90E-12	9.10E-08	1,1-Dichloroethylene	75-35-4	1.2E+02	nc	2.1E+02	nc	3.E-14	4.E-10
Dichloroethylene, cis-1,2-	156-59-2	1.52E-09	1.08E-07	1,2-Dichloroethylene (cis)	156-59-2	4.3E+01	nc	3.7E+01	nc	4.E-11	3.E-09
Dichloroethylene-1,2 (trans)	156-60-5	9.44E-12	7.47E-08	1,2-Dichloroethylene (trans)	156-60-5	6.9E+01	nc	7.3E+01	nc	1.E-13	1.E-09
Dichlorophenol, 2,4-	120-83-2	3.73E-08	3.36E-07	2,4-Dichlorophenol	120-83-2	1.8E+02	nc	1.1E+01	nc	2.E-10	3.E-08
Dichloropropane, 1,2-	78-87-5	3.53E-11	1.03E-07	1,2-Dichloropropane	78-87-5	3.4E-01	ca*	9.9E-02	ca*	1.E-10	1.E-06

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Dichloropropene, 1,3- (cis)	542-75-6	1.32E-11	1.96E-07	1,3-Dichloropropene	542-75-6	7.8E-01	ca	4.8E-01	ca	2.E-11	4.E-07
Dieldrin	60-57-1	5.74E-09	3.03E-09	Dieldrin	60-57-1	3.0E-02	ca	4.2E-04	ca	2.E-07	7.E-06
Diethyl phthalate	84-66-2	2.57E-08	2.61E-07	Diethyl phthalate	84-66-2	4.9E+04	nc	2.9E+03	nc	5.E-13	9.E-11
Dimethyl phthalate	131-11-3	2.11E-09	1.74E-07	Dimethyl phthalate	131-11-3	1.0E+05	max	3.7E+04	nc	2.E-14	5.E-12
Dimethylphenol, 2,4-	105-67-9	9.83E-09	7.99E-07	2,4-Dimethylphenol	105-67-9	1.2E+03	nc	7.3E+01	nc	8.E-12	1.E-08
Di-n-butyl phthalate	84-74-2	3.87E-08	9.60E-07	Dibutyl phthalate	84-74-2	6.1E+03	nc	3.7E+02	nc	6.E-12	3.E-09
Dinitrobenzene, 1,3-	99-65-0	8.58E-08	2.79E-07	1,3-Dinitrobenzene	99-65-0	6.1E+00	nc	3.7E-01	nc	1.E-08	8.E-07
Dinitrophenol, 2,4-	51-28-5	1.58E-08	2.37E-06	2,4-Dinitrophenol	51-28-5	1.2E+02	nc	7.3E+00	nc	1.E-10	3.E-07
Dinitrotoluene, 2,4-	121-14-2	9.57E-08	3.41E-07	2,4-Dinitrotoluene	121-14-2	1.2E+02	nc	7.3E+00	nc	8.E-10	5.E-08
Dinitrotoluene, 2,6-	606-20-2	7.26E-08	2.74E-07	2,6-Dinitrotoluene	606-20-2	6.1E+01	nc	3.7E+00	nc	1.E-09	8.E-08
Di-n-octylphthalate	117-84-0	1.70E-08	3.72E-07	di-n-Octyl phthalate	117-84-0	2.4E+03	nc	1.5E+02	nc	7.E-12	3.E-09
Dioxane, 1,4-	123-91-1	1.68E-13	2.30E-11	1,4-Dioxane	123-91-1	4.4E+01	ca	6.1E-01	ca	4.E-15	4.E-11
Diphenylamine	122-39-4	3.59E-06	2.72E-07	Diphenylamine	122-39-4	1.5E+03	nc	9.1E+01	nc	2.E-09	3.E-09
Diphenylhydrazine, 1,2-	122-66-7	5.70E-08	1.81E-07	1,2-Diphenylhydrazine	122-66-7	6.1E-01	ca	8.4E-03	ca	9.E-08	2.E-05
Endosulfan I	115-29-7	5.39E-11	3.39E-09	Endosulfan	115-29-7	3.7E+02	nc	2.2E+01	nc	1.E-13	2.E-10
Endosulfan II	33213-65-9	3.08E-08	6.91E-09	NA						NC	NC
Endosulfan sulfate	1031-07-8	4.83E-08	3.95E-09	NA						NC	NC
Endrin	72-20-8	1.41E-07	1.25E-08	Endrin	72-20-8	1.8E+01	nc	1.1E+00	nc	8.E-09	1.E-08
Endrin aldehyde	7421-93-4	1.91E-07	1.52E-08	NA						NC	NC
Endrin ketone	53494-70-5	4.92E-11	4.45E-09	Endrin	72-20-8	1.8E+01	nc	1.1E+00	nc	3.E-12	4.E-09
Ethylbenzene	100-41-4	7.86E-11	8.09E-08	Ethylbenzene	100-41-4	4.0E+02	sat	1.1E+03	nc	2.E-13	8.E-11
Ethylene dibromide	106-93-4	2.23E-08	3.41E-07	1,2-Dibromoethane (EDB)	106-93-4	3.2E-02	ca	3.4E-03	ca	7.E-07	1.E-04
Ethylene Glycol	107-21-1	1.37E-08	3.23E-08	Ethylene glycol	107-21-1	1.0E+05	max	7.3E+03	nc	1.E-13	4.E-12
Ethylhexyl phthalate, bis-2-	117-81-7	1.12E-07	4.69E-06	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	3.5E+01	ca*	4.8E-01	ca	3.E-09	1.E-05
Fluoranthene	206-44-0	9.85E-09	1.27E-08	Fluoranthene	206-44-0	2.3E+03	nc	1.5E+02	nc	4.E-12	9.E-11
Fluorene	86-73-7	3.43E-10	3.26E-09	Fluorene	86-73-7	2.7E+03	nc	1.5E+02	nc	1.E-13	2.E-11
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	76-13-1	7.13E-12	8.61E-08	Freon 113	76-13-1	5.6E+03	sat	3.1E+04	nc	1.E-15	3.E-12
gamma-BHC (Lindane)	58-89-9	1.05E-08	3.03E-09	HCH (gamma) Lindane	58-89-9	4.4E-01	ca*	5.2E-03	ca	2.E-08	6.E-07
HeptaCDD, 1,2,3,4,6,7,8-	35822-46-9	1.09E-10	2.30E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	5.E-04
HeptaCDF, 1,2,3,4,6,7,8-	67562-39-4	5.29E-10	1.12E-10	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	1.E-04	2.E-03
HeptaCDF, 1,2,3,4,7,8,9-	55673-89-7	1.31E-10	2.66E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	6.E-04
Heptachlor	1024-57-3	1.06E-10	1.11E-08	Heptachlor epoxide	1024-57-3	5.3E-02	ca*	7.4E-04	ca*	2.E-09	2.E-05
Heptachlor epoxide	76-44-8	6.15E-09	6.36E-09	Heptachlor	76-44-8	1.1E-01	ca	1.5E-03	ca	6.E-08	4.E-06
HexaCDD, 1,2,3,4,7,8-	39227-28-6	1.06E-10	2.22E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	5.E-04
HexaCDD, 1,2,3,6,7,8-	57653-85-7	1.08E-10	2.24E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	5.E-04
HexaCDD, 1,2,3,7,8,9-	19408-74-3	1.25E-10	2.62E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	6.E-04
HexaCDF, 1,2,3,4,7,8-	70648-26-9	6.93E-10	1.42E-10	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-04	3.E-03
HexaCDF, 1,2,3,6,7,8-	57117-44-9	3.78E-10	7.71E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	1.E-04	2.E-03
HexaCDF, 1,2,3,7,8,9-	72918-21-9	1.03E-10	2.04E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	3.E-05	5.E-04
HexaCDF, 2,3,4,6,7,8-	60851-34-5	2.13E-10	4.33E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	5.E-05	1.E-03
Hexachloro-1,3-butadiene (Perchlorobutadiene)	87-68-3	8.93E-08	2.90E-07	Hexachlorobutadiene	87-68-3	6.2E+00	ca**	8.6E-02	ca*	1.E-08	3.E-06
Hexachlorobenzene	118-74-1	2.48E-07	2.59E-07	Hexachlorobenzene	118-74-1	3.0E-01	ca	4.2E-03	ca	8.E-07	6.E-05
Hexachlorocyclopentadiene	77-47-4	9.46E-08	1.95E-06	Hexachlorocyclopentadiene	77-47-4	3.7E+02	nc	2.1E-01	nc	3.E-10	9.E-06
Hexachloroethane (Perchloroethane)	67-72-1	9.11E-08	3.59E-07	Hexachloroethane	67-72-1	3.5E+01	ca**	4.8E-01	ca**	3.E-09	7.E-07
Hydrogen chloride	7647-01-0	1.47E-02	4.14E-02	Hydrogen chloride	7647-01-0			2.1E+01	nc	NC	2.E-03
Indeno(1,2,3-cd) pyrene	193-39-5	1.44E-08	1.12E-09	Indeno[1,2,3-cd]pyrene	193-39-5	6.2E-01	ca	9.2E-03	ca	2.E-08	1.E-07
Iodomethane	74-88-4	2.44E-09	5.09E-07	NA						NC	NC
Isophorone	78-59-1	9.32E-09	2.06E-07	Isophorone	78-59-1	5.1E+02	ca*	7.1E+00	ca	2.E-11	3.E-08
Isopropyl toluene, p-	99-87-6	3.77E-09	1.32E-07	NA						NC	NC
Lead	7439-92-1	2.70E-04	6.87E-05	Lead	7439-92-1	4.0E+02	nc	1.5E+00	NAAQS	7.E-07	5.E-05
Manganese	7439-96-5	2.96E-06	1.01E-05	Manganese and compounds	7439-96-5	1.8E+03	nc	5.1E-02	nc	2.E-09	2.E-04
Mercuric chloride	7487-94-7	7.28E-05	6.02E-06	Mercury and compounds	7487-94-7	2.3E+01	nc			3.E-06	NC
Mercury, elemental	7439-97-6	--	3.49E-07	NA						NC	NC
Methoxychlor	72-43-5	8.26E-09	1.41E-08	Methoxychlor	72-43-5	3.1E+02	nc	1.8E+01	nc	3.E-11	8.E-10
Methyl bromide (Bromomethane)	74-83-9	2.01E-10	1.22E-06	Bromomethane (Methyl bromide)	74-83-9	3.9E+00	nc	5.2E+00	nc	5.E-11	2.E-07

Comparison of Modeled Air and Soil Concentrations at Residential Assessment Receptor Location R_2 with USEPA Region 9 Preliminary Remediation Goals

Stack Emissions

Calculated Air and Soil Concentrations at Receptor R_2				USEPA Region 9 Preliminary Remediation Goals (PRGs) (c)						Comparison of Concentrations to PRGs	
Compound (as listed in IRAP software)	CAS Number	Maximum (Annual) Soil Concentration (mg/kg)	Annual Average Air Concentration (ug/m ³)	Compound (as listed in PRG Table)	CAS Number	Residential Soil PRG (mg/kg)		Ambient Air PRG (ug/m ³)		Soil Concentration Ratio: modeled concentration/PRG	Air Concentration Ratio: modeled concentration/PRG
						Soil Concentration	Basis	Air Concentration	Basis		
Methyl chloride (Chloromethane)	74-87-3	2.81E-10	6.23E-06	Chloromethane (methyl chloride)	74-87-3	4.7E+01	nc	9.5E+01	nc	6.E-12	7.E-08
Methyl ethyl ketone (2-Butanone)	78-93-3	5.96E-08	1.17E-06	Methyl ethyl ketone (2-Butanone)	78-93-3	2.2E+04	nc	5.1E+03	nc	3.E-12	2.E-10
Methyl isobutyl ketone	108-10-1	6.67E-09	5.82E-07	Methyl isobutyl ketone	108-10-1	5.3E+03	nc	3.1E+03	nc	1.E-12	2.E-10
Methyl mercury	22967-92-6	1.49E-06	--	Mercury (methyl)	22967-92-6	6.1E+00	nc			2.E-07	NC
Methyl methacrylate	80-62-6	9.99E-12	1.42E-09	Methyl methacrylate	80-62-6	2.2E+03	nc	7.3E+02	nc	5.E-15	2.E-12
methyl tert-butyl ether	1634-04-4	3.07E-09	2.11E-08	Methyl tertbutyl ether (MTBE)	1634-04-4	3.2E+01	ca	7.4E+00	ca	1.E-10	3.E-09
Methylene bromide	74-95-3	1.36E-08	3.31E-07	Methylene bromide	74-95-3	6.7E+01	nc	3.7E+01	nc	2.E-10	9.E-09
Methylene chloride	75-09-2	4.05E-10	4.50E-06	Methylene chloride	75-09-2	9.1E+00	ca	4.1E+00	ca	4.E-11	1.E-06
Naphthalene	91-20-3	7.74E-08	9.26E-07	Naphthalene	91-20-3	5.6E+01	nc	3.1E+00	nc	1.E-09	3.E-07
Nickel	7440-02-0	6.19E-07	2.18E-06	Nickel (soluble salts)	7440-02-0	1.6E+03	nc			4.E-10	NC
Nitroaniline, 2-	88-74-4	5.51E-07	2.69E-07	2-Nitroaniline	88-74-4	1.8E+02	nc	1.1E-01	nc	3.E-09	2.E-06
Nitroaniline, 3-	99-09-2	6.74E-07	7.53E-07	3-Nitroaniline	99-09-2	1.8E+01	nc	3.2E-01	ca**	4.E-08	2.E-06
Nitroaniline, 4-	100-01-6	5.86E-07	6.05E-07	4-Nitroaniline	100-01-6	2.3E+01	ca**	3.2E-01	ca*	3.E-08	2.E-06
Nitrobenzene	98-95-3	4.07E-08	2.04E-07	Nitrobenzene	98-95-3	2.0E+01	nc	2.1E+00	nc	2.E-09	1.E-07
Nitrogen dioxide	10102-44-0	1.08E-06	8.48E-02	Nitrogen dioxide				1.0E+02	NAAQS	NC	8.E-04
Nitrophenol, 2-	88-75-5	2.19E-08	4.58E-07	NA						NC	NC
Nitrophenol, 4-	100-02-7	1.60E-09	7.55E-07	NA						NC	NC
Nitrosodiphenylamine, N-	86-30-6	1.22E-08	2.04E-07	N-Nitrosodiphenylamine	86-30-6	9.9E+01	ca*	1.4E+00	ca*	1.E-10	1.E-07
Nitrosodipropylamine, n-	621-64-7	5.87E-08	2.49E-07	NA						NC	NC
N-nitrosodimethylamine	62-75-9	8.74E-08	2.38E-07	N-Nitrosodimethylamine	62-75-9	9.5E-03	ca*	1.4E-04	ca	9.E-06	2.E-03
OctaCDD, 1,2,3,4,6,7,8,9-	3268-87-9	1.39E-10	2.95E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	4.E-05	7.E-04
OctaCDF, 1,2,3,4,6,7,8,9-	39001-02-0	7.68E-11	1.63E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-05	4.E-04
PentaCDD, 1,2,3,7,8-	40321-76-4	1.66E-10	3.23E-11	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	4.E-05	7.E-04
PentaCDF, 1,2,3,7,8-	57117-41-6	6.76E-10	1.18E-10	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-04	3.E-03
PentaCDF, 2,3,4,7,8-	57117-31-4	6.81E-10	1.23E-10	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-04	3.E-03
Pentachlorobenzene	608-93-5	1.36E-07	2.28E-07	Pentachlorobenzene	608-93-5	4.9E+01	nc	2.9E+00	nc	3.E-09	8.E-08
Pentachloronitrobenzene (PCNB)	82-68-8	3.31E-07	2.69E-07	Pentachloronitrobenzene	82-68-8	1.9E+00	ca*	2.6E-02	ca	2.E-07	1.E-05
Pentachlorophenol	87-86-5	1.15E-06	4.01E-06	Pentachlorophenol	87-86-5	3.0E+00	ca	5.6E-02	ca	4.E-07	7.E-05
Perylene	198-55-0	3.21E-13	3.53E-09	NA						NC	NC
Phenanthrene	85-01-8	1.38E-08	3.91E-08	NA						NC	NC
Phenol	108-95-2	5.17E-09	2.95E-07	Phenol	108-95-2	1.8E+04	nc	1.1E+03	nc	3.E-13	3.E-10
Phosphine imide, P,P,P-triphenyl	2240-47-3	3.56E-10	2.74E-07	NA						NC	NC
Propylbenzene, n-	103-65-1	1.42E-15	1.07E-07	n-Propylbenzene	103-65-1	2.4E+02	sat	1.5E+02	nc	6.E-18	7.E-10
Propylene oxide	75-56-9	4.15E-12	2.59E-10	Propylene oxide	75-56-9	1.9E+00	ca*	5.2E-01	ca*	2.E-12	5.E-10
Pyrene	129-00-0	4.26E-08	1.28E-08	Pyrene	129-00-0	2.3E+03	nc	1.1E+02	nc	2.E-11	1.E-10
Pyridine	110-86-1	4.54E-09	4.78E-07	Pyridine	110-86-1	6.1E+01	nc	3.7E+00	nc	7.E-11	1.E-07
Selenium	7782-49-2	4.69E-08	8.26E-07	Selenium	7782-49-2	3.9E+02	nc			1.E-10	NC
Silver	7440-22-4	6.10E-05	6.01E-07	Silver and compounds	7440-22-4	3.9E+02	nc			2.E-07	NC
Styrene	100-42-5	3.36E-09	7.47E-08	Styrene	100-42-5	1.7E+03	sat	1.1E+03	nc	2.E-12	7.E-11
Sulfur dioxide	95/7446	5.83E-06	2.25E-02	Sulfur dioxide				7.8E+01	NAAQS	NC	3.E-04
TetraCDD, 2,3,7,8-	1746-01-6	8.53E-11	1.16E-11	2,3,7,8-TCDD (dioxin)	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-05	3.E-04
TetraCDF, 2,3,7,8-	51207-31-9	8.63E-10	1.11E-10	Dioxin (2,3,7,8-TCDD)+++	1746-01-6	3.9E-06	ca	4.5E-08	ca	2.E-04	2.E-03
Tetrachlorobenzene, 1,2,4,5-	95-94-3	7.08E-08	2.47E-07	1,2,4,5-Tetrachlorobenzene	95-94-3	1.8E+01	nc	1.1E+00	nc	4.E-09	2.E-07
Tetrachloroethane, 1,1,1,2-	630-20-6	8.97E-10	6.93E-08	1,1,1,2-Tetrachloroethane	630-20-6	3.2E+00	ca	2.6E-01	ca	3.E-10	3.E-07
Tetrachloroethane, 1,1,2,2-	79-34-5	2.05E-09	3.41E-07	1,1,2,2-Tetrachloroethane	79-34-5	4.1E-01	ca	3.3E-02	ca	5.E-09	1.E-05
Tetrachloroethylene (Perchloroethylene)	127-18-4	5.78E-09	2.90E-05	Tetrachloroethylene (PCE)	127-18-4	4.8E-01	ca*	3.2E-01	ca	1.E-08	9.E-05
Tetrahydrofuran	109-99-9	4.27E-09	1.19E-06	Tetrahydrofuran	109-99-9	9.4E+00	ca	9.9E-01	ca	5.E-10	1.E-06
Thallium (I)	7440-28-0	2.64E-04	2.03E-06	Thallium and compounds	7440-28-0	5.2E+00	nc			5.E-05	NC
Toluene	108-88-3	1.58E-09	3.05E-06	Toluene	108-88-3	5.2E+02	sat	4.0E+02	nc	3.E-12	8.E-09
Trichlorobenzene, 1,2,3-	87-61-6	3.35E-06	4.47E-07	NA						NC	NC
Trichlorobenzene, 1,2,4-	120-82-1	1.39E-08	2.41E-07	1,2,4-Trichlorobenzene	120-82-1	6.2E+01	nc	3.7E+00	nc	2.E-10	7.E-08
Trichloroethane, 1,1,1-	71-55-6	9.95E-12	7.19E-08	1,1,1-Trichloroethane	71-55-6	1.2E+03	sat	2.3E+03	nc	8.E-15	3.E-11
Trichloroethane, 1,1,2-	79-00-5	2.43E-10	2.07E-07	1,1,2-Trichloroethane	79-00-5	7.3E-01	ca*	1.2E-01	ca	3.E-10	2.E-06
Trichloroethylene	79-01-6	2.37E-10	6.80E-07	Trichloroethylene (TCE)	79-01-6	5.3E-02	ca	1.7E-02	ca	4.E-09	4.E-05
Trichlorofluoromethane (Freon 11)	75-69-4	7.80E-12	3.28E-07	Trichlorofluoromethane	75-69-4	3.9E+02	nc	7.3E+02	nc	2.E-14	4.E-10

Comparison of Modeled Air and Soil Concentrations at Residential Assessment Receptor Location R_2 with USEPA Region 9 Preliminary Remediation Goals

Stack Emissions

Calculated Air and Soil Concentrations at Receptor R_2				USEPA Region 9 Preliminary Remediation Goals (PRGs) (c)						Comparison of Concentrations to PRGs	
Compound (as listed in IRAP software)	CAS Number	Maximum (Annual) Soil Concentration (mg/kg)	Annual Average Air Concentration (ug/m ³)	Compound (as listed in PRG Table)	CAS Number	Residential Soil PRG (mg/kg)		Ambient Air PRG (ug/m ³)		Soil Concentration Ratio: modeled concentration/PRG	Air Concentration Ratio: modeled concentration/PRG
						Soil Concentration	Basis	Air Concentration	Basis		
Trichlorophenol, 2,4,5-	95-95-4	4.81E-07	4.16E-07	2,4,5-Trichlorophenol	95-95-4	6.1E+03	nc	3.7E+02	nc	8.E-11	1.E-09
Trichlorophenol, 2,4,6-	88-06-2	3.84E-08	3.28E-07	2,4,6-Trichlorophenol	88-06-2	6.1E+00	nc**	3.7E-01	nc**	6.E-09	9.E-07
Trichloropropane, 1,2,3-	96-18-4	1.28E-09	3.23E-07	1,2,3-Trichloropropane	96-18-4	3.4E-02	ca	3.4E-03	ca	4.E-08	1.E-04
Trimethylbenzene, 1,3,5-	108-67-8	1.01E-09	1.05E-07	1,3,5-Trimethylbenzene	108-67-8	2.1E+01	nc	6.2E+00	nc	5.E-11	2.E-08
Vanadium	7440-62-2	7.24E-05	5.34E-07	Vanadium and compounds	7440-62-2	7.8E+01	nc			9.E-07	NC
Vinyl Acetate	108-05-4	5.94E-09	3.93E-07	Vinyl acetate	108-05-4	4.3E+02	nc	2.1E+02	nc	1.E-11	2.E-09
Vinyl Chloride	75-01-4	1.88E-12	1.75E-07	Vinyl chloride	75-01-4	7.9E-02	ca	1.1E-01	ca	2.E-11	2.E-06
Xylene, m-	108-38-3	1.93E-10	1.50E-07	Xylenes (b)	1330-20-7	2.7E+02	nc	1.1E+02	nc	7.E-13	1.E-09
Xylene, o-	95-47-6	1.25E-10	9.57E-08	Xylenes (b)	1330-20-7	2.7E+02	nc	1.1E+02	nc	5.E-13	9.E-10
Xylene, p-	106-42-3	1.61E-10	1.50E-07	Xylenes (b)	1330-20-7	2.7E+02	nc	1.1E+02	nc	6.E-13	1.E-09
Zinc	7440-66-6	9.00E-06	3.32E-05	Zinc	7440-66-6	2.3E+04	nc			4.E-10	NC

NAAQS = National Ambient Air Quality Standard (annual average). Value for lead is a quarterly average.

+++ = Used PRG value for 2,3,7,8-TCDD toxic equivalents (TEQs) in comparison with other congeners, which are also expressed as 2,3,7,8-TCDD TEQs.

NA = PRG not available.

-- = Not calculated (per USEPA's HHRAP methodology).

(a) Used PRG value for technical chlordane

(b) Used PRG value for xylenes

(c) Source: <http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls>

Notes from USEPA Region IX PRG Table: ca=Cancer PRG; nc= Noncancer PRG; ca* (where: nc PRG < 100X ca PRG); ca** (where nc PRG < 10X ca PRG); max=Ceiling limit; sat=Soil

(d) Benzidine was not detected in stack gases during the Performance Demonstration Test (PDT) and there is no evidence from waste profile reports and analytical spent carbon data that it has been accepted in spent carbon received at the facility.