TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.84E-02	mg/kg	8.64E-09	mg/kg-day	--	--	--
				4,4'-DDD	1.20E-02	mg/kg	5.64E-09	mg/kg-day	2.40E-01	(mg/kg-day)-1	1.35E-09
				4,4'-DDT	5.80E-02	mg/kg	2.72E-08	mg/kg-day	3.40E-01	(mg/kg-day)-1	9.26E-09
				Acenaphthene	1.00E-02	mg/kg	4.70E-09	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	9.86E-10	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	2.35E-09	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	6.90E-03	mg/kg-day	--	--	--
				Anthracene	1.52E-02	mg/kg	7.14E-09	mg/kg-day	--	--	--
				Antimony	5.73E+00	mg/kg	2.69E-06	mg/kg-day	--	--	--
				Aroclor-1260	1.40E-01	mg/kg	6.58E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.32E-07
				Arsenic	2.00E+01	mg/kg	9.39E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.41E-05
				Barium	2.33E+02	mg/kg	1.09E-04	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	1.55E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.13E-08
				Benzo(a)pyrene	4.33E-02	mg/kg	2.03E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.48E-07
				Benzo(b)fluoranthene	1.92E-02	mg/kg	9.02E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.59E-09
				Benzo(g,h,i)perylene	2.48E-02	mg/kg	1.16E-08	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	1.21E-08	mg/kg-day	7.30E-02	(mg/kg-day)-1	8.84E-10
				Beryllium	2.50E+00	mg/kg	1.17E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	2.44E-08	mg/kg-day	1.40E-02	(mg/kg-day)-1	3.42E-10
				Cadmium	9.50E+00	mg/kg	4.46E-06	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	1.67E-05	mg/kg-day	--	--	--
				Chrysene	7.03E-02	mg/kg	3.30E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	2.41E-10
				Cobalt	1.47E+01	mg/kg	6.92E-06	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	3.12E-05	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	8.02E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	5.86E-08

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Ingestion (Cont.)	di-n-Butylphthalate	7.10E-02	mg/kg	3.33E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	1.09E-08	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	9.40E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	1.79E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.31E-08
				Iron	2.55E+04	mg/kg	1.20E-02	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	6.21E-05	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	2.29E-04	mg/kg-day	--	--	--
				Mercury	1.26E+00	mg/kg	5.93E-07	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	1.32E-06	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	7.60E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	9.12E-10
				Nickel	2.99E+01	mg/kg	1.40E-05	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	1.40E-08	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	1.46E-08	mg/kg-day	--	--	--
				Silver	2.86E+00	mg/kg	1.35E-06	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	1.05E-06	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	2.74E-05	mg/kg-day	--	--	--
				Zinc	1.12E+02	mg/kg	5.24E-05	mg/kg-day	--	--	--
			Exposure Route Total								**1.45E-05**
			Dermal	2-Methylnaphthalene	1.84E-02	mg/kg	3.4E-10	mg/kg-day	--	--	--
				4,4'-DDD	1.20E-02	mg/kg	2.2E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	5.40E-11
				4,4'-DDT	5.80E-02	mg/kg	3.3E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	1.11E-09
				Acenaphthene	1.00E-02	mg/kg	2.4E-09	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	3.9E-11	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	9.4E-11	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	2.8E-05	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Site Soil	Dermal	Anthracene	1.52E-02	mg/kg	3.7E-09	mg/kg-day	--	--	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Antimony	5.73E+00	mg/kg	1.1E-08	mg/kg-day	--	--	--
				Aroclor-1260	1.40E-01	mg/kg	3.7E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	7.35E-08
				Arsenic	2.00E+01	mg/kg	1.1E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.69E-06
				Barium	2.33E+02	mg/kg	4.4E-07	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	8.1E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.88E-09
				Benzo(a)pyrene	4.33E-02	mg/kg	1.1E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	7.70E-08
				Benzo(b)fluoranthene	1.92E-02	mg/kg	4.7E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.42E-09
				Benzo(g,h,i)perylene	2.48E-02	mg/kg	6.0E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	6.3E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	4.58E-10
				Beryllium	2.50E+00	mg/kg	4.7E-09	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	9.7E-10	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	9.50E+00	mg/kg	1.8E-08	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	6.7E-08	mg/kg-day	--	--	--
				Chrysene	7.03E-02	mg/kg	1.7E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	1.25E-10
				Cobalt	1.47E+01	mg/kg	2.8E-08	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	1.2E-07	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	4.2E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.04E-08
				di-n-Butylphthalate	7.10E-02	mg/kg	1.3E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	5.7E-09	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	4.9E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	9.3E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.79E-09
				Iron	2.55E+04	mg/kg	4.8E-05	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	2.5E-07	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	9.1E-07	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Dermal (Cont.)	Mercury	1.26E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	5.2E-09	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	3.9E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.73E-10
				Nickel	2.99E+01	mg/kg	5.6E-08	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	5.6E-10	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	7.6E-09	mg/kg-day	--	--	--
				Silver	2.86E+00	mg/kg	5.4E-09	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	--	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	1.1E-07	mg/kg-day	--	--	--
				Zinc	1.12E+02	mg/kg	2.1E-07	mg/kg-day	--	--	--
			Exposure Route Total								**1.89E-06**
		Exposure Point Total									**1.64E-05**
		Homegrown Produce	Ingestion	2-Methylnaphthalene	1.84E-02	mg/kg	--	mg/kg-day	--	--	--
				4,4'-DDD	1.20E-02	mg/kg	2.3E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	5.50E-11
				4,4'-DDT	5.80E-02	mg/kg	8.6E-10	mg/kg-day	3.40E-01	(mg/kg-day)-1	2.91E-10
				Acenaphthene	1.00E-02	mg/kg	--	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	--	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	--	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	--	mg/kg-day	--	--	--
				Anthracene	1.52E-02	mg/kg	--	mg/kg-day	--	--	--
				Antimony	5.73E+00	mg/kg	--	mg/kg-day	--	--	--
				Aroclor-1260	1.40E-01	mg/kg	3.9E-09	mg/kg-day	2.00E+00	(mg/kg-day)-1	7.73E-09
				Arsenic	2.00E+01	mg/kg	3.5E-05	mg/kg-day	1.50E+00	(mg/kg-day)-1	5.22E-05
				Barium	2.33E+02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	9.3E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.81E-10

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Homegrown	Ingestion	Benzo(a)pyrene	4.33E-02	mg/kg	8.1E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	5.92E-09
(Cont.)	(Cont.)	Produce	(Cont.)	Benzo(b)fluoranthene	1.92E-02	mg/kg	4.3E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.11E-10
		(Cont.)		Benzo(g,h,i)perylene	2.48E-02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	4.8E-10	mg/kg-day	7.30E-02	(mg/kg-day)-1	3.49E-11
				Beryllium	2.50E+00	mg/kg	--	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	1.3E-11	mg/kg-day	1.40E-02	(mg/kg-day)-1	1.87E-13
				Cadmium	9.50E+00	mg/kg	2.1E-04	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	--	mg/kg-day	--	--	--
				Chrysene	7.03E-02	mg/kg	2.0E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	1.45E-11
				Cobalt	1.47E+01	mg/kg	--	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	--	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	2.1E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.52E-09
				di-n-Butylphthalate	7.10E-02	mg/kg	4.0E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	7.1E-10	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	--	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	6.1E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.44E-10
				Iron	2.55E+04	mg/kg	--	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	--	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	--	mg/kg-day	--	--	--
				Mercury	1.26E+00	mg/kg	3.4E-06	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	--	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	--	mg/kg-day	1.20E-01	(mg/kg-day)-1	--
				Nickel	2.99E+01	mg/kg	8.5E-05	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	--	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Homegrown Produce (Cont.)	Ingestion (Cont.)	Silver	2.86E+00	mg/kg	--	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	--	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	--	mg/kg-day	--	--	--
				Zinc	1.12E+02	mg/kg	1.3E-03	mg/kg-day	--	--	--
			Exposure Route Total								**5.22E-05**
		Exposure Point Total									**5.22E-05**
	Exposure Medium Total										**6.85E-05**
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	1.30E-07	mg/m^3	1.2E-08	mg/kg-day	--	--	--
				4,4'-DDD	9.09E-12	mg/m^3	8.5E-13	mg/kg-day	2.40E-01	(mg/kg-day)-1	2.04E-13
				4,4'-DDT	4.39E-11	mg/m^3	4.1E-12	mg/kg-day	3.40E-01	(mg/kg-day)-1	1.40E-12
				Acenaphthene	5.56E-08	mg/m^3	5.2E-09	mg/kg-day	--	--	--
				Acenaphthylene	1.17E-08	mg/m^3	1.1E-09	mg/kg-day	--	--	--
				Acetone	3.97E-07	mg/m^3	3.7E-08	mg/kg-day	--	--	--
				Aluminum	1.11E-05	mg/m^3	1.0E-06	mg/kg-day	--	--	--
				Anthracene	2.17E-08	mg/m^3	2.0E-09	mg/kg-day	--	--	--
				Antimony	4.34E-09	mg/m^3	4.1E-10	mg/kg-day	--	--	--
				Aroclor-1260	1.06E-10	mg/m^3	9.9E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.98E-11
				Arsenic	1.52E-08	mg/m^3	1.4E-09	mg/kg-day	1.50E+01	(mg/kg-day)-1	2.13E-08
				Barium	1.76E-07	mg/m^3	1.6E-08	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.51E-11	mg/m^3	2.3E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.71E-12
				Benzo(a)pyrene	3.28E-11	mg/m^3	3.1E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.24E-11
				Benzo(b)fluoranthene	1.46E-11	mg/m^3	1.4E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	9.94E-13
				Benzo(g,h,i)perylene	1.88E-11	mg/m^3	1.8E-12	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.95E-11	mg/m^3	1.8E-12	mg/kg-day	7.30E-02	(mg/kg-day)-1	1.33E-13
				Beryllium	1.89E-09	mg/m^3	1.8E-10	mg/kg-day	8.40E+00	(mg/kg-day)-1	1.49E-09

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	bis(2-ethylhexyl)phthalate	3.94E-11	mg/m^3	3.7E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	5.16E-14
				Cadmium	7.20E-09	mg/m^3	6.7E-10	mg/kg-day	6.30E+00	(mg/kg-day)-1	4.24E-09
				Chromium	2.70E-08	mg/m^3	2.5E-09	mg/kg-day	--	--	--
				Chrysene	5.32E-11	mg/m^3	5.0E-12	mg/kg-day	7.30E-03	(mg/kg-day)-1	3.64E-14
				Cobalt	1.12E-08	mg/m^3	1.0E-09	mg/kg-day	9.80E+00	(mg/kg-day)-1	1.02E-08
				Copper	5.03E-08	mg/m^3	4.7E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.29E-11	mg/m^3	1.2E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	8.84E-12
				di-n-Butylphthalate	5.38E-11	mg/m^3	5.0E-12	mg/kg-day	--	--	--
				Fluoranthene	1.76E-11	mg/m^3	1.6E-12	mg/kg-day	--	--	--
				Fluorene	5.56E-08	mg/m^3	5.2E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.89E-11	mg/m^3	2.7E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.98E-12
				Iron	1.93E-05	mg/m^3	1.8E-06	mg/kg-day	--	--	--
				Lead	1.00E-07	mg/m^3	9.4E-09	mg/kg-day	--	--	--
				Manganese	3.69E-07	mg/m^3	3.5E-08	mg/kg-day	--	--	--
				Mercury	9.57E-10	mg/m^3	9.0E-11	mg/kg-day	--	--	--
				Molybdenum	2.12E-09	mg/m^3	2.0E-10	mg/kg-day	--	--	--
				Naphthalene	3.76E-07	mg/m^3	3.5E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.22E-09
				Nickel	2.26E-08	mg/m^3	2.1E-09	mg/kg-day	--	--	--
				Phenanthrene	1.99E-08	mg/m^3	1.9E-09	mg/kg-day	--	--	--
				Pyrene	8.20E-09	mg/m^3	7.7E-10	mg/kg-day	--	--	--
				Silver	2.17E-09	mg/m^3	2.0E-10	mg/kg-day	--	--	--
				Thallium	1.69E-09	mg/m^3	1.6E-10	mg/kg-day	--	--	--
				Vanadium	4.42E-08	mg/m^3	4.1E-09	mg/kg-day	--	--	--
				Zinc	8.45E-08	mg/m^3	7.9E-09	mg/kg-day	--	--	--
			Exposure Route Total								**4.15E-08**

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Air (Cont.)	Exposure Point Total									4.15E-08
	Exposure Medium Total										4.15E-08
Medium Total											6.86E-05
Groundwater	Groundwater	Domestic Use of Groundwater	Ingestion	1,1,1-Trichloroethane	2.23E-02	mg/L	2.10E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	9.93E-05	mg/kg-day	5.70E-02	(mg/kg-day)-1	5.66E-06
				1,1-Dichlorethane	1.08E-01	mg/L	1.02E-03	mg/kg-day	5.70E-03	(mg/kg-day)-1	5.79E-06
				1,1-Dichlorethene	5.89E-01	mg/L	5.53E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	1.06E-04	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	1.26E-04	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	1.17E-04	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.07E-05
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	2.76E-03	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	9.39E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	6.39E-08
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	9.98E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	4.23E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	6.03E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	1.45E-06
				2-Butanone	7.10E-02	mg/L	6.67E-04	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	6.58E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	2.72E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	1.55E-02	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	9.28E-03	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	1.34E-04	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.86E-04	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.79E-04

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	Barium	2.70E-01	mg/L	2.53E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	1.49E-04	mg/kg-day	5.50E-02	(mg/kg-day)-1	8.21E-06
				Benzo(a)anthracene	1.00E-04	mg/L	9.39E-07	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.86E-07
				Benzo(a)pyrene	1.00E-04	mg/L	9.39E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	6.86E-06
				Beryllium	1.41E-03	mg/L	1.33E-05	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	6.66E-05	mg/kg-day	1.40E-02	(mg/kg-day)-1	9.33E-07
				Bromodichloromethane	7.10E-03	mg/L	6.67E-05	mg/kg-day	6.20E-02	(mg/kg-day)-1	4.14E-06
				Cadmium	1.60E-02	mg/L	1.50E-04	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	7.07E-05	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	5.71E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	1.16E-04	mg/kg-day	2.90E-03	(mg/kg-day)-1	3.36E-07
				Chloroform	7.44E-03	mg/L	6.99E-05	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	6.82E-05	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	1.43E-03	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	4.43E-03	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	5.21E-04	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	1.42E-04	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.16E-04	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	6.20E-04	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	6.75E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	1.69E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	9.39E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	1.24E-04	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	9.31E-02	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	4.13E-07	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	Methylene chloride	9.90E-03	mg/L	9.30E-05	mg/kg-day	7.50E-03	(mg/kg-day)-1	6.98E-07
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	6.55E-05	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.18E-07
				Molybdenum	7.50E-02	mg/L	7.04E-04	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	3.15E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.77E-05
				n-Butylbenzene	2.40E-03	mg/L	2.25E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	1.72E-03	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	1.15E-04	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	6.44E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	6.20E-05	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	7.51E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Pyrene	3.00E-03	mg/L	2.82E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	4.70E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	1.01E-04	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	5.14E-05	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	3.95E-03	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	2.82E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Tetrachloroethene	5.84E-03	mg/L	5.49E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	2.96E-05
				Thallium	8.12E-03	mg/L	7.62E-05	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	5.96E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	1.09E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	9.40E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.76E-03
				Vanadium	2.85E-02	mg/L	2.68E-04	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	2.38E-04	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.72E-04
				Xylene (Total)	1.75E-02	mg/L	1.64E-04	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion	Zinc	1.50E-01	mg/L	1.41E-03	mg/kg-day	--	--	--
			Exposure Route Total								4.32E-03
			Dermal (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/L	1.87E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	3.33E-06	mg/kg-day	5.70E-02	(mg/kg-day)-1	1.90E-07
				1,1-Dichlorethane	1.08E-01	mg/L	4.70E-05	mg/kg-day	5.70E-03	(mg/kg-day)-1	2.68E-07
				1,1-Dichlorethene	5.89E-01	mg/L	4.59E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	5.24E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	4.32E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	3.27E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	2.97E-07
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	2.15E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	4.86E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	3.31E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	4.92E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	1.71E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	1.95E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	4.68E-07
				2-Butanone	7.10E-02	mg/L	3.86E-06	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	4.36E-07	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	4.87E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	5.65E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.30E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.38E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	4.61E-05	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	1.04E-04	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	7.64E-07	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.87E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.81E-06
				Barium	2.70E-01	mg/L	5.33E-06	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Benzene	1.59E-02	mg/L	1.61E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	8.87E-07
				Benzo(a)anthracene	1.00E-04	mg/L	4.65E-06	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.39E-06
				Benzo(a)pyrene	1.00E-04	mg/L	6.08E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.44E-05
				Beryllium	1.41E-03	mg/L	4.57E-08	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	6.85E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Bromodichloromethane	7.10E-03	mg/L	1.75E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	1.08E-07
				Cadmium	1.60E-02	mg/L	2.75E-07	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	5.76E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	1.21E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	4.83E-06	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.40E-08
				Chloroform	7.44E-03	mg/L	3.26E-06	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	1.48E-06	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	7.45E-06	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	2.32E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	4.05E-05	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	8.97E-07	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.86E-07	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	2.80E-06	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	2.60E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	4.53E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	8.38E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/L	2.37E-06	mg/kg-day	7.80E-02	(mg/kg-day)-1	1.85E-07
				Iron	1.70E+01	mg/L	2.06E-04	mg/kg-day	--	--	--
				Isopropylbenzene	5.50E-03	mg/L	3.78E-05	mg/kg-day	--	--	--
				Lead	7.38E-03	mg/L	1.24E-07	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	m,p-Xylene	1.32E-02	mg/L	5.21E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	6.22E-04	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	2.16E-09	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	2.17E-06	mg/kg-day	7.50E-03	(mg/kg-day)-1	1.62E-08
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	8.78E-07	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.58E-09
				Molybdenum	7.50E-02	mg/L	2.65E-06	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	1.14E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.37E-05
				n-Butylbenzene	2.40E-03	mg/L	1.65E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	2.95E-06	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	8.39E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	2.37E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	2.25E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	1.79E-06	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	5.49E-06	mg/kg-day	0.00E+00	(mg/kg-day)-1	0.00E+00
				Pyrene	3.00E-03	mg/L	4.77E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	3.43E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	4.78E-07	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	1.64E-07	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	3.92E-05	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	2.06E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Tetrachloroethene	5.84E-03	mg/L	1.38E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	7.44E-06
				Thallium	8.12E-03	mg/L	3.98E-07	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	1.41E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	2.74E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	7.70E-04	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.08E-04

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Vanadium	2.85E-02	mg/L	1.89E-06	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.41E-05	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.01E-05
				Xylene (Total)	1.75E-02	mg/L	6.88E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	2.51E-06	mg/kg-day	--	--	--
			Exposure Route Total								**3.92E-04**
		Exposure Point Total									**4.71E-03**
	Exposure Medium Total										**4.71E-03**
	Air	Domestic Use of Groundwater Indoors	Inhalation (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/l	2.52E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/l	1.20E-05	mg/kg-day	5.60E-02	(mg/kg-day)-1	6.69E-07
				1,1-Dichlorethane	1.08E-01	mg/l	1.22E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	6.97E-07
				1,1-Dichlorethene	5.89E-01	mg/l	6.66E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/l	1.28E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	1.34E-02	mg/l	1.51E-05	mg/kg-day	--	--	--
				1,2-Dichlorethane	1.25E-02	mg/l	1.41E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.28E-06
				1,2-Dichlorethene (Total)	2.94E-01	mg/l	3.32E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/l	1.13E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	7.69E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/l	1.20E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	4.50E-03	mg/l	5.09E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	6.42E-03	mg/l	7.26E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.60E-07
				2-Butanone	7.10E-02	mg/l	8.03E-05	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				2-MethylNaphthalene	7.00E-04	mg/l	7.91E-07	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/l	3.28E-05	mg/kg-day	--	--	--
				Acenaphthene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	Acetone	1.65E+00	mg/l	1.87E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/l	1.80E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	4.85E-07
				Bromodichloromethane	7.10E-03	mg/l	8.03E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	4.98E-07
				Carbon disulfide	7.53E-03	mg/l	8.51E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/l	6.87E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/l	1.40E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	4.05E-08
				Chloroform	7.44E-03	mg/l	8.41E-06	mg/kg-day	8.05E-02	(mg/kg-day)-1	6.77E-07
				Chloromethane	7.26E-03	mg/l	8.21E-06	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/l	6.27E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	6.60E-02	mg/l	7.46E-05	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/l	8.12E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/l	1.13E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/l	4.52E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	3.53E-08
				Isopropylbenzene	5.50E-03	mg/l	6.22E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/l	1.50E-05	mg/kg-day	--	--	--
				Methylene Chloride	9.90E-03	mg/l	1.12E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.84E-08
				Methyl-T-Butyl-ether	6.97E-03	mg/l	7.88E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	7.17E-09
				Naphthalene	3.35E-02	mg/l	3.79E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.54E-06
				n-Butylbenzene	2.40E-03	mg/l	2.71E-06	mg/kg-day	--	--	--
				n-propylbenzene	1.22E-02	mg/l	1.38E-05	mg/kg-day	--	--	--
				o-Xylene	6.86E-03	mg/l	7.76E-06	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				Pyrene	3.00E-03	mg/l	3.39E-06	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/l	5.65E-07	mg/kg-day	--	--	--
				tert-Butylbenzene	3.00E-04	mg/l	3.39E-07	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	trans-1,2-Dichloroethene	1.16E-02	mg/l	1.31E-05	mg/kg-day	--	--	--
				Tetrachloroethene	5.84E-03	mg/l	6.61E-06	mg/kg-day	2.10E-02	(mg/kg-day)-1	1.39E-07
				Toluene	6.35E-03	mg/l	7.18E-06	mg/kg-day	--	--	--
				Trichloroethene	1.00E+00	mg/l	1.13E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.52E-04
				Vinyl chloride	2.54E-02	mg/l	2.87E-05	mg/kg-day	3.10E-02	(mg/kg-day)-1	8.89E-07
				Xylene (Total)	1.75E-02	mg/l	1.98E-05	mg/kg-day	--	--	--
			Exposure Route Total								**4.63E-04**
		Exposure Point Total									**4.63E-04**
		Indoor Air	Inhalation (Vapor Intrusion)	1,1,1-Trichloroethane	2.01E-03	mg/m3	1.88E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	4.59E-05	mg/m3	4.29E-06	mg/kg-day	5.60E-02	(mg/kg-day)-1	2.40E-07
				1,1-Dichlorethane	3.16E-03	mg/m3	2.96E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	1.69E-06
				1,1-Dichlorethene	9.92E-02	mg/m3	9.28E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	2.33E-04	mg/m3	2.18E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	9.49E-05	mg/m3	8.88E-06	mg/kg-day	--	--	--
				1,2-Dichlorethane	7.70E-05	mg/m3	7.20E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	6.56E-07
				1,2-Dichlorethene (Total)	6.08E-03	mg/m3	5.69E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.41E-06	mg/m3	1.32E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	8.95E-09
				1,3,5-Trimethylbenzene	2.08E-04	mg/m3	1.95E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	5.39E-05	mg/m3	5.04E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	5.92E-05	mg/m3	5.54E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.22E-07
				2-Butanone	2.35E-05	mg/m3	2.20E-06	mg/kg-day	--	--	--
				2-Hexanone	1.31E-06	mg/m3	1.23E-07	mg/kg-day	--	--	--
				2-MethylNaphthalene	8.28E-07	mg/m3	7.74E-08	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.90E-05	mg/m3	1.78E-06	mg/kg-day	--	--	--
				Acenaphthene	6.52E-07	mg/m3	6.10E-08	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	Acenaphthylene	6.52E-07	mg/m3	6.10E-08	mg/kg-day	--	--	--
				Acetone	5.45E-04	mg/m3	5.10E-05	mg/kg-day	--	--	--
				Benzene	5.01E-04	mg/m3	4.69E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	1.27E-06
				Bromodichloromethane	2.55E-05	mg/m3	2.39E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	1.48E-07
				Carbon disulfide	1.61E-03	mg/m3	1.50E-04	mg/kg-day	--	--	--
				Chlorobenzene	9.89E-05	mg/m3	9.26E-06	mg/kg-day	--	--	--
				Chloroethane	1.47E-03	mg/m3	1.37E-04	mg/kg-day	2.90E-03	(mg/kg-day)-1	3.98E-07
				Chloroform	1.82E-04	mg/m3	1.71E-05	mg/kg-day	8.05E-02	(mg/kg-day)-1	1.37E-06
				Chloromethane	5.88E-04	mg/m3	5.50E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.15E-03	mg/m3	1.08E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	9.60E-05	mg/m3	8.98E-06	mg/kg-day	--	--	--
				Ethylbenzene	2.48E-04	mg/m3	2.32E-05	mg/kg-day	--	--	--
				Fluorene	1.34E-07	mg/m3	1.25E-08	mg/kg-day	--	--	--
				Hexachlorobutadiene	9.57E-06	mg/m3	8.95E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	6.98E-08
				Isopropylbenzene	2.12E-02	mg/m3	1.99E-03	mg/kg-day	--	--	--
				m,p-Xylene	4.52E-04	mg/m3	4.22E-05	mg/kg-day	--	--	--
				Methylene Chloride	1.47E-04	mg/m3	1.37E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	2.26E-08
				Methyl-T-Butyl-ether	2.95E-05	mg/m3	2.76E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	2.52E-09
				Naphthalene	5.03E-05	mg/m3	4.70E-06	mg/kg-day	1.20E-01	(mg/kg-day)-1	5.64E-07
				n-Butylbenzene	9.94E-05	mg/m3	9.30E-06	mg/kg-day	--	--	--
				n-propylbenzene	4.44E-04	mg/m3	4.15E-05	mg/kg-day	--	--	--
				o-Xylene	1.73E-04	mg/m3	1.62E-05	mg/kg-day	--	--	--
				Phenanthrene	1.75E-07	mg/m3	1.64E-08	mg/kg-day	--	--	--
				Pyrene	6.77E-08	mg/m3	6.33E-09	mg/kg-day	--	--	--
				sec-Butylbenzene	5.50E-08	mg/m3	5.15E-09	mg/kg-day	--	--	--

TABLE F-8.4.3.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	tert-Butylbenzene	1.30E-05	mg/m3	1.21E-06	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	9.43E-04	mg/m3	8.82E-05	mg/kg-day	--	--	--
				Tetrachloroethene	4.75E-04	mg/m3	4.44E-05	mg/kg-day	2.10E-02	(mg/kg-day)-1	9.33E-07
				Toluene	2.22E-04	mg/m3	2.07E-05	mg/kg-day	--	--	--
				Trichloroethene	5.23E-02	mg/m3	4.89E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.96E-03
				Vinyl chloride	5.47E-03	mg/m3	5.12E-04	mg/kg-day	3.10E-02	(mg/kg-day)-1	1.59E-05
				Xylene (Total)	5.96E-04	mg/m3	5.58E-05	mg/kg-day	--	--	--
			Exposure Route Total								**1.98E-03**
		Total									**1.98E-03**
	Exposure Medium Total										**2.44E-03**
Medium Total											**7.16E-03**
										Total of Receptor Hazards Across All Media	**7.23E-03**

Notes:

--	Not applicable or not available	(mg/kg-day)-1	1/(Milligrams per kilogram per day)
CSF	Cancer slope factor	mg/L	Milligrams per liter
EPA	U.S. Environmental Protection Agency	mg/m^3	Milligrams per cubic meter
EPC	Exposure point concentration	RAGS	Risk Acceptance Guidance for Superfund
ft bgs	Feet below ground surface	RME	Reasonable maximum exposure
mg/kg	Milligrams per kilogram	VOC	Volatile organic compound
mg/kg-day	Milligrams per kilogram per day		

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.84E-02	mg/kg	2.02E-08	mg/kg-day	--	--	--
				4,4'-DDD	1.20E-02	mg/kg	1.32E-08	mg/kg-day	2.40E-01	(mg/kg-day)-1	3.16E-09
				4,4'-DDT	5.80E-02	mg/kg	6.36E-08	mg/kg-day	3.40E-01	(mg/kg-day)-1	2.16E-08
				Acenaphthene	1.00E-02	mg/kg	1.10E-08	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	2.30E-09	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	5.48E-09	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	1.61E-02	mg/kg-day	--	--	--
				Anthracene	1.52E-02	mg/kg	1.67E-08	mg/kg-day	--	--	--
				Antimony	5.73E+00	mg/kg	6.28E-06	mg/kg-day	--	--	--
				Aroclor-1260	1.40E-01	mg/kg	1.53E-07	mg/kg-day	2.00E+00	(mg/kg-day)-1	3.07E-07
				Arsenic	2.00E+01	mg/kg	2.19E-05	mg/kg-day	1.50E+00	(mg/kg-day)-1	3.29E-05
				Barium	2.33E+02	mg/kg	2.55E-04	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	3.63E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.65E-08
				Benzo(a)pyrene	4.33E-02	mg/kg	4.75E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.46E-07
				Benzo(b)fluoranthene	1.92E-02	mg/kg	2.11E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.54E-08
				Benzo(g,h,i)perylene	2.48E-02	mg/kg	2.71E-08	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	2.82E-08	mg/kg-day	7.30E-02	(mg/kg-day)-1	2.06E-09
				Beryllium	2.50E+00	mg/kg	2.74E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	5.70E-08	mg/kg-day	1.40E-02	(mg/kg-day)-1	7.98E-10
				Cadmium	9.50E+00	mg/kg	1.04E-05	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	3.90E-05	mg/kg-day	--	--	--
				Chrysene	7.03E-02	mg/kg	7.70E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	5.62E-10
				Cobalt	1.47E+01	mg/kg	1.61E-05	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	7.27E-05	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	1.87E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.37E-07
				di-n-Butylphthalate	7.10E-02	mg/kg	7.78E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	2.55E-08	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	2.19E-08	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	4.19E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.06E-08
				Iron	2.55E+04	mg/kg	2.79E-02	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	1.45E-04	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	5.34E-04	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Ingestion (Cont.)	Mercury	1.26E+00	mg/kg	1.38E-06	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	3.07E-06	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	1.77E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.13E-09
				Nickel	2.99E+01	mg/kg	3.27E-05	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	3.26E-08	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	3.42E-08	mg/kg-day	--	--	--
				Silver	2.86E+00	mg/kg	3.14E-06	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	2.44E-06	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	6.39E-05	mg/kg-day	--	--	--
				Zinc	1.12E+02	mg/kg	1.22E-04	mg/kg-day	--	--	--
			Exposure Route Total								**3.38E-05**
			Dermal	2-Methylnaphthalene	1.84E-02	mg/kg	5.6E-10	mg/kg-day	--	--	--
				4,4'-DDD	1.20E-02	mg/kg	3.7E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	8.84E-11
				4,4'-DDT	5.80E-02	mg/kg	5.3E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	1.82E-09
				Acenaphthene	1.00E-02	mg/kg	4.0E-09	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	6.4E-11	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	1.5E-10	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	4.5E-05	mg/kg-day	--	--	--
				Anthracene	1.52E-02	mg/kg	6.1E-09	mg/kg-day	--	--	--
				Antimony	5.73E+00	mg/kg	1.8E-08	mg/kg-day	--	--	--
				Aroclor-1260	1.40E-01	mg/kg	6.0E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.20E-07
				Arsenic	2.00E+01	mg/kg	1.8E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.76E-06
				Barium	2.33E+02	mg/kg	7.1E-07	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	1.3E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	9.63E-09
				Benzo(a)pyrene	4.33E-02	mg/kg	1.7E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.26E-07
				Benzo(b)fluoranthene	1.92E-02	mg/kg	7.7E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.59E-09
				Benzo(g,h,i)perylene	2.48E-02	mg/kg	9.9E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	1.0E-08	mg/kg-day	7.30E-02	(mg/kg-day)-1	7.50E-10
				Beryllium	2.50E+00	mg/kg	7.7E-09	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	1.6E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	9.50E+00	mg/kg	2.9E-08	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	1.1E-07	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Site Soil	Dermal	Chrysene	7.03E-02	mg/kg	2.8E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	2.05E-10
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Cobalt	1.47E+01	mg/kg	4.5E-08	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	2.0E-07	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	6.8E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.97E-08
				di-n-Butylphthalate	7.10E-02	mg/kg	2.2E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	9.3E-09	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	8.0E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	1.5E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.11E-08
				Iron	2.55E+04	mg/kg	7.8E-05	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	4.1E-07	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	1.5E-06	mg/kg-day	--	--	--
				Mercury	1.26E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	8.6E-09	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	6.5E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	7.75E-10
				Nickel	2.99E+01	mg/kg	9.2E-08	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	9.1E-10	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	1.2E-08	mg/kg-day	--	--	--
				Silver	2.86E+00	mg/kg	8.8E-09	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	--	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	1.8E-07	mg/kg-day	--	--	--
				Zinc	1.12E+02	mg/kg	3.4E-07	mg/kg-day	--	--	--
			Exposure Route Total								**3.09E-06**
		Exposure Point Total									**3.69E-05**
		Homegrown	Ingestion	2-Methylnaphthalene	1.84E-02	mg/kg	--	mg/kg-day	--	--	--
		Produce		4,4'-DDD	1.20E-02	mg/kg	5.7E-11	mg/kg-day	2.40E-01	(mg/kg-day)-1	1.37E-11
				4,4'-DDT	5.80E-02	mg/kg	2.1E-10	mg/kg-day	3.40E-01	(mg/kg-day)-1	7.27E-11
				Acenaphthene	1.00E-02	mg/kg	--	mg/kg-day	--	--	--
				Acenaphthylene	2.10E-03	mg/kg	--	mg/kg-day	--	--	--
				Acetone	5.00E-03	mg/kg	--	mg/kg-day	--	--	--
				Aluminum	1.47E+04	mg/kg	--	mg/kg-day	--	--	--
				Anthracene	1.52E-02	mg/kg	--	mg/kg-day	--	--	--
				Antimony	5.73E+00	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Soil	Homegrown	Ingestion	Aroclor-1260	1.40E-01	mg/kg	9.7E-10	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.93E-09
(Cont.)	(Cont.)	Produce	(Cont.)	Arsenic	2.00E+01	mg/kg	8.7E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.30E-05
		(Cont.)		Barium	2.33E+02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(a)anthracene	3.31E-02	mg/kg	2.3E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.70E-10
				Benzo(a)pyrene	4.33E-02	mg/kg	2.0E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.48E-09
				Benzo(b)fluoranthene	1.92E-02	mg/kg	1.1E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	7.78E-11
				Benzo(g,h,i)perylene	2.48E-02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	2.58E-02	mg/kg	1.2E-10	mg/kg-day	7.30E-02	(mg/kg-day)-1	8.71E-12
				Beryllium	2.50E+00	mg/kg	--	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	5.20E-02	mg/kg	3.3E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	4.68E-14
				Cadmium	9.50E+00	mg/kg	5.2E-05	mg/kg-day	--	--	--
				Chromium	3.56E+01	mg/kg	--	mg/kg-day	--	--	--
				Chrysene	7.03E-02	mg/kg	5.0E-10	mg/kg-day	7.30E-03	(mg/kg-day)-1	3.62E-12
				Cobalt	1.47E+01	mg/kg	--	mg/kg-day	--	--	--
				Copper	6.64E+01	mg/kg	--	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.71E-02	mg/kg	5.2E-11	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.80E-10
				di-n-Butylphthalate	7.10E-02	mg/kg	1.0E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Fluoranthene	2.33E-02	mg/kg	1.8E-10	mg/kg-day	--	--	--
				Fluorene	2.00E-02	mg/kg	--	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	3.82E-02	mg/kg	1.5E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.11E-10
				Iron	2.55E+04	mg/kg	--	mg/kg-day	--	--	--
				Lead	1.32E+02	mg/kg	--	mg/kg-day	--	--	--
				Manganese	4.87E+02	mg/kg	--	mg/kg-day	--	--	--
				Mercury	1.26E+00	mg/kg	8.5E-07	mg/kg-day	--	--	--
				Molybdenum	2.80E+00	mg/kg	--	mg/kg-day	--	--	--
				Naphthalene	1.62E-02	mg/kg	--	mg/kg-day	1.20E-01	(mg/kg-day)-1	--
				Nickel	2.99E+01	mg/kg	2.1E-05	mg/kg-day	--	--	--
				Phenanthrene	2.98E-02	mg/kg	--	mg/kg-day	--	--	--
				Pyrene	3.12E-02	mg/kg	--	mg/kg-day	--	--	--
				Silver	2.86E+00	mg/kg	--	mg/kg-day	--	--	--
				Thallium	2.23E+00	mg/kg	--	mg/kg-day	--	--	--
				Vanadium	5.83E+01	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Homegrown Produce	Ingestion	Zinc	1.12E+02	mg/kg	3.2E-04	mg/kg-day	--	--	--
			Exposure Route Total								1.30E-05
		Exposure Point Total									1.30E-05
	Exposure Medium Total										4.99E-05
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	1.30E-07	mg/m^3	7.2E-09	mg/kg-day	--	--	--
				4,4'-DDD	9.09E-12	mg/m^3	5.0E-13	mg/kg-day	2.40E-01	(mg/kg-day)-1	1.21E-13
				4,4'-DDT	4.39E-11	mg/m^3	2.4E-12	mg/kg-day	3.40E-01	(mg/kg-day)-1	8.25E-13
				Acenaphthene	5.56E-08	mg/m^3	3.1E-09	mg/kg-day	--	--	--
				Acenaphthylene	1.17E-08	mg/m^3	6.4E-10	mg/kg-day	--	--	--
				Acetone	3.97E-07	mg/m^3	2.2E-08	mg/kg-day	--	--	--
				Aluminum	1.11E-05	mg/m^3	6.1E-07	mg/kg-day	--	--	--
				Anthracene	2.17E-08	mg/m^3	1.2E-09	mg/kg-day	--	--	--
				Antimony	4.34E-09	mg/m^3	2.4E-10	mg/kg-day	--	--	--
				Aroclor-1260	1.06E-10	mg/m^3	5.9E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.17E-11
				Arsenic	1.52E-08	mg/m^3	8.4E-10	mg/kg-day	1.50E+01	(mg/kg-day)-1	1.26E-08
				Barium	1.76E-07	mg/m^3	9.7E-09	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.51E-11	mg/m^3	1.4E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.01E-12
				Benzo(a)pyrene	3.28E-11	mg/m^3	1.8E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.32E-11
				Benzo(b)fluoranthene	1.46E-11	mg/m^3	8.0E-13	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.87E-13
				Benzo(g,h,i)perylene	1.88E-11	mg/m^3	1.0E-12	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.95E-11	mg/m^3	1.1E-12	mg/kg-day	7.30E-02	(mg/kg-day)-1	7.87E-14
				Beryllium	1.89E-09	mg/m^3	1.0E-10	mg/kg-day	8.40E+00	(mg/kg-day)-1	8.79E-10
				bis(2-ethylhexyl)phthalate	3.94E-11	mg/m^3	2.2E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	3.05E-14
				Cadmium	7.20E-09	mg/m^3	4.0E-10	mg/kg-day	6.30E+00	(mg/kg-day)-1	2.50E-09
				Chromium	2.70E-08	mg/m^3	1.5E-09	mg/kg-day	--	--	--
				Chrysene	5.32E-11	mg/m^3	2.9E-12	mg/kg-day	7.30E-03	(mg/kg-day)-1	2.15E-14
				Cobalt	1.12E-08	mg/m^3	6.2E-10	mg/kg-day	9.80E+00	(mg/kg-day)-1	6.04E-09
				Copper	5.03E-08	mg/m^3	2.8E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.29E-11	mg/m^3	7.1E-13	mg/kg-day	7.30E+00	(mg/kg-day)-1	5.22E-12
				di-n-Butylphthalate	5.38E-11	mg/m^3	3.0E-12	mg/kg-day	--	--	--
				Fluoranthene	1.76E-11	mg/m^3	9.7E-13	mg/kg-day	--	--	--
				Fluorene	5.56E-08	mg/m^3	3.1E-09	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-2 ft bgs)	Air	Outdoor Air	Inhalation	Indeno(1,2,3-cd)pyrene	2.89E-11	mg/m^3	1.6E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.17E-12
(Cont.)	(Cont.)	(Cont.)	(particulates or	Iron	1.93E-05	mg/m^3	1.1E-06	mg/kg-day	--	--	--
			VOCs)	Lead	1.00E-07	mg/m^3	5.5E-09	mg/kg-day	--	--	--
			(Cont.)	Manganese	3.69E-07	mg/m^3	2.0E-08	mg/kg-day	--	--	--
				Mercury	9.57E-10	mg/m^3	5.3E-11	mg/kg-day	--	--	--
				Molybdenum	2.12E-09	mg/m^3	1.2E-10	mg/kg-day	--	--	--
				Naphthalene	3.76E-07	mg/m^3	2.1E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.49E-09
				Nickel	2.26E-08	mg/m^3	1.2E-09	mg/kg-day	--	--	--
				Phenanthrene	1.99E-08	mg/m^3	1.1E-09	mg/kg-day	--	--	--
				Pyrene	8.20E-09	mg/m^3	4.5E-10	mg/kg-day	--	--	--
				Silver	2.17E-09	mg/m^3	1.2E-10	mg/kg-day	--	--	--
				Thallium	1.69E-09	mg/m^3	9.3E-11	mg/kg-day	--	--	--
				Vanadium	4.42E-08	mg/m^3	2.4E-09	mg/kg-day	--	--	--
				Zinc	8.45E-08	mg/m^3	4.7E-09	mg/kg-day	--	--	--
			Exposure Route Total								**2.45E-08**
		Exposure Point Total									**2.45E-08**
	Exposure Medium Total										**2.45E-08**
Medium Total											**4.99E-05**
Groundwater	Groundwater	Domestic Use	Ingestion	1,1,1-Trichloroethane	2.23E-02	mg/L	1.22E-04	mg/kg-day	--	--	--
		of Groundwater		1,1,2-Trichloroethane	1.06E-02	mg/L	5.79E-05	mg/kg-day	5.70E-02	(mg/kg-day)-1	3.30E-06
				1,1-Dichlorethane	1.08E-01	mg/L	5.93E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	3.38E-06
				1,1-Dichlorethene	5.89E-01	mg/L	3.23E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	6.20E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	7.33E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	6.84E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	6.22E-06
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	1.61E-03	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	5.48E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	3.73E-08
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	5.82E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	2.47E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	3.52E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	8.44E-07
				2-Butanone	7.10E-02	mg/L	3.89E-04	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	2-Methylnaphthalene	7.00E-04	mg/L	3.84E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	1.59E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	9.06E-03	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	5.41E-03	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	7.83E-05	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.09E-04	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.63E-04
				Barium	2.70E-01	mg/L	1.48E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	8.71E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	4.79E-06
				Benzo(a)anthracene	1.00E-04	mg/L	5.48E-07	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.00E-07
				Benzo(a)pyrene	1.00E-04	mg/L	5.48E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.00E-06
				Beryllium	1.41E-03	mg/L	7.74E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	3.89E-05	mg/kg-day	1.40E-02	(mg/kg-day)-1	5.44E-07
				Bromodichloromethane	7.10E-03	mg/L	3.89E-05	mg/kg-day	6.20E-02	(mg/kg-day)-1	2.41E-06
				Cadmium	1.60E-02	mg/L	8.78E-05	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	4.12E-05	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	3.33E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	6.77E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.96E-07
				Chloroform	7.44E-03	mg/L	4.08E-05	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	3.98E-05	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	8.33E-04	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	2.59E-03	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	3.04E-04	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	8.28E-05	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	6.79E-05	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	3.62E-04	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	3.94E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	9.86E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	5.48E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	7.25E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	5.43E-02	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	Mercury	4.40E-05	mg/L	2.41E-07	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	5.43E-05	mg/kg-day	7.50E-03	(mg/kg-day)-1	4.07E-07
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	3.82E-05	mg/kg-day	1.80E-03	(mg/kg-day)-1	6.87E-08
				Molybdenum	7.50E-02	mg/L	4.11E-04	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	1.83E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.20E-05
				n-Butylbenzene	2.40E-03	mg/L	1.32E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	1.00E-03	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	6.70E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	3.76E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	3.61E-05	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	4.38E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Pyrene	3.00E-03	mg/L	1.64E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	2.74E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	5.92E-05	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	3.00E-05	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	2.31E-03	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	1.64E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Tetrachloroethene	5.84E-03	mg/L	3.20E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	1.73E-05
				Thallium	8.12E-03	mg/L	4.45E-05	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	3.48E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	6.36E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	5.48E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.19E-03
				Vanadium	2.85E-02	mg/L	1.56E-04	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.39E-04	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.00E-04
				Xylene (Total)	1.75E-02	mg/L	9.58E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	8.20E-04	mg/kg-day	--	--	--
			Exposure Route Total								**2.52E-03**
			Dermal (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/L	1.38E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	2.46E-06	mg/kg-day	5.70E-02	(mg/kg-day)-1	1.40E-07
				1,1-Dichlorethane	1.08E-01	mg/L	3.47E-05	mg/kg-day	5.70E-03	(mg/kg-day)-1	1.98E-07
				1,1-Dichlorethene	5.89E-01	mg/L	3.39E-04	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	1,2,4-Trimethylbenzene	1.13E-02	mg/L	3.86E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	3.19E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	2.41E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	2.19E-07
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	1.58E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	3.59E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	2.44E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	3.63E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	1.26E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	1.44E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	3.45E-07
				2-Butanone	7.10E-02	mg/L	2.85E-06	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	3.22E-07	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	3.59E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	4.16E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	9.62E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.02E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	3.40E-05	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	7.64E-05	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	5.63E-07	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.38E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.07E-06
				Barium	2.70E-01	mg/L	3.93E-06	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	1.19E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	6.54E-07
				Benzo(a)anthracene	1.00E-04	mg/L	3.43E-06	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.50E-06
				Benzo(a)pyrene	1.00E-04	mg/L	4.48E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.27E-05
				Beryllium	1.41E-03	mg/L	3.37E-08	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	5.05E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Bromodichloromethane	7.10E-03	mg/L	1.29E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	7.99E-08
				Cadmium	1.60E-02	mg/L	2.03E-07	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	4.25E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	8.94E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	3.56E-06	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.03E-08
				Chloroform	7.44E-03	mg/L	2.40E-06	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	1.09E-06	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	5.50E-06	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Chromium (VI)	4.72E-01	mg/L	1.71E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	2.99E-05	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	6.62E-07	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.37E-07	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	2.07E-06	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	1.92E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	3.34E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	6.18E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/L	1.75E-06	mg/kg-day	7.80E-02	(mg/kg-day)-1	1.37E-07
				Iron	1.70E+01	mg/L	1.52E-04	mg/kg-day	--	--	--
				Isopropylbenzene	5.50E-03	mg/L	2.78E-05	mg/kg-day	--	--	--
				Lead	7.38E-03	mg/L	9.12E-08	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	3.84E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	4.59E-04	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	1.59E-09	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	1.60E-06	mg/kg-day	7.50E-03	(mg/kg-day)-1	1.20E-08
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	6.48E-07	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.17E-09
				Molybdenum	7.50E-02	mg/L	1.95E-06	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	8.40E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.01E-05
				n-Butylbenzene	2.40E-03	mg/L	1.22E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	2.18E-06	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	6.19E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	1.75E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.66E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	1.32E-06	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	4.05E-06	mg/kg-day	0.00E+00	(mg/kg-day)-1	0.00E+00
				Pyrene	3.00E-03	mg/L	3.52E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	2.53E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	3.53E-07	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	1.21E-07	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	2.89E-05	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	1.52E-06	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Tetrachloroethene	5.84E-03	mg/L	1.02E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	5.49E-06
				Thallium	8.12E-03	mg/L	2.94E-07	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	1.04E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	2.02E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	5.68E-04	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.27E-04
				Vanadium	2.85E-02	mg/L	1.39E-06	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.04E-05	mg/kg-day	7.20E-01	(mg/kg-day)-1	7.47E-06
				Xylene (Total)	1.75E-02	mg/L	5.07E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	1.85E-06	mg/kg-day	--	--	--
			Exposure Route Total								**2.89E-04**
		Exposure Point Total									**2.81E-03**
	Exposure Medium Total										**2.81E-03**
	Air	Domestic Use of Groundwater Indoors	Inhalation (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/l	2.57E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/l	1.22E-05	mg/kg-day	5.60E-02	(mg/kg-day)-1	6.81E-07
				1,1-Dichlorethane	1.08E-01	mg/l	1.24E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	7.10E-07
				1,1-Dichlorethene	5.89E-01	mg/l	6.78E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/l	1.30E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	1.34E-02	mg/l	1.54E-05	mg/kg-day	--	--	--
				1,2-Dichlorethane	1.25E-02	mg/l	1.44E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.31E-06
				1,2-Dichlorethene (Total)	2.94E-01	mg/l	3.38E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/l	1.15E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	7.82E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/l	1.22E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	4.50E-03	mg/l	5.18E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	6.42E-03	mg/l	7.39E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.62E-07
				2-Butanone	7.10E-02	mg/l	8.17E-05	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				2-MethylNaphthalene	7.00E-04	mg/l	8.05E-07	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/l	3.34E-05	mg/kg-day	--	--	--
				Acenaphthene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/l	1.90E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/l	1.83E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	4.94E-07

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	Bromodichloromethane	7.10E-03	mg/l	8.17E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	5.07E-07
				Carbon disulfide	7.53E-03	mg/l	8.66E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/l	6.99E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/l	1.42E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	4.12E-08
				Chloroform	7.44E-03	mg/l	8.56E-06	mg/kg-day	8.05E-02	(mg/kg-day)-1	6.89E-07
				Chloromethane	7.26E-03	mg/l	8.35E-06	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/l	6.39E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	6.60E-02	mg/l	7.59E-05	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/l	8.27E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/l	1.15E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/l	4.60E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	3.59E-08
				Isopropylbenzene	5.50E-03	mg/l	6.33E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/l	1.52E-05	mg/kg-day	--	--	--
				Methylene Chloride	9.90E-03	mg/l	1.14E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.87E-08
				Methyl-T-Butyl-ether	6.97E-03	mg/l	8.02E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	7.30E-09
				Naphthalene	3.35E-02	mg/l	3.85E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.62E-06
				n-Butylbenzene	2.40E-03	mg/l	2.76E-06	mg/kg-day	--	--	--
				n-propylbenzene	1.22E-02	mg/l	1.41E-05	mg/kg-day	--	--	--
				o-Xylene	6.86E-03	mg/l	7.89E-06	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Pyrene	3.00E-03	mg/l	3.45E-06	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/l	5.75E-07	mg/kg-day	--	--	--
				tert-Butylbenzene	3.00E-04	mg/l	3.45E-07	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/l	1.34E-05	mg/kg-day	--	--	--
				Tetrachloroethene	5.84E-03	mg/l	6.73E-06	mg/kg-day	2.10E-02	(mg/kg-day)-1	1.41E-07
				Toluene	6.35E-03	mg/l	7.31E-06	mg/kg-day	--	--	--
				Trichloroethene	1.00E+00	mg/l	1.15E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.60E-04
				Vinyl chloride	2.54E-02	mg/l	2.92E-05	mg/kg-day	3.10E-02	(mg/kg-day)-1	9.05E-07
				Xylene (Total)	1.75E-02	mg/l	2.01E-05	mg/kg-day	--	--	--
			Exposure Route Total								**4.71E-04**
		Exposure Point Total									**4.71E-04**

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater	Air	Indoor Air	Inhalation	1,1,1-Trichloroethane	2.01E-03	mg/m3	1.11E-04	mg/kg-day	--	--	--
(Cont.)	(Cont.)		(Vapor Intrusion)	1,1,2-Trichloroethane	4.59E-05	mg/m3	2.53E-06	mg/kg-day	5.60E-02	(mg/kg-day)-1	1.42E-07
				1,1-Dichlorethane	3.16E-03	mg/m3	1.75E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	9.95E-07
				1,1-Dichlorethene	9.92E-02	mg/m3	5.48E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	2.33E-04	mg/m3	1.29E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	9.49E-05	mg/m3	5.24E-06	mg/kg-day	--	--	--
				1,2-Dichlorethane	7.70E-05	mg/m3	4.25E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	3.87E-07
				1,2-Dichlorethene (Total)	6.08E-03	mg/m3	3.36E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.41E-06	mg/m3	7.77E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	5.28E-09
				1,3,5-Trimethylbenzene	2.08E-04	mg/m3	1.15E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	5.39E-05	mg/m3	2.98E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	5.92E-05	mg/m3	3.27E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	7.19E-08
				2-Butanone	2.35E-05	mg/m3	1.30E-06	mg/kg-day	--	--	--
				2-Hexanone	1.31E-06	mg/m3	7.25E-08	mg/kg-day	--	--	--
				2-MethylNaphthalene	8.28E-07	mg/m3	4.57E-08	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.90E-05	mg/m3	1.05E-06	mg/kg-day	--	--	--
				Acenaphthene	6.52E-07	mg/m3	3.60E-08	mg/kg-day	--	--	--
				Acenaphthylene	6.52E-07	mg/m3	3.60E-08	mg/kg-day	--	--	--
				Acetone	5.45E-04	mg/m3	3.01E-05	mg/kg-day	--	--	--
				Benzene	5.01E-04	mg/m3	2.77E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	7.47E-07
				Bromodichloromethane	2.55E-05	mg/m3	1.41E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	8.74E-08
				Carbon disulfide	1.61E-03	mg/m3	8.88E-05	mg/kg-day	--	--	--
				Chlorobenzene	9.89E-05	mg/m3	5.46E-06	mg/kg-day	--	--	--
				Chloroethane	1.47E-03	mg/m3	8.11E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	2.35E-07
				Chloroform	1.82E-04	mg/m3	1.01E-05	mg/kg-day	8.05E-02	(mg/kg-day)-1	8.10E-07
				Chloromethane	5.88E-04	mg/m3	3.25E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.15E-03	mg/m3	6.35E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	9.60E-05	mg/m3	5.30E-06	mg/kg-day	--	--	--
				Ethylbenzene	2.48E-04	mg/m3	1.37E-05	mg/kg-day	--	--	--
				Fluorene	1.34E-07	mg/m3	7.40E-09	mg/kg-day	--	--	--
				Hexachlorobutadiene	9.57E-06	mg/m3	5.29E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	4.12E-08
				Isopropylbenzene	2.12E-02	mg/m3	1.17E-03	mg/kg-day	--	--	--

TABLE F-8.4.4.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater	Air	Indoor Air	Inhalation	m,p-Xylene	4.52E-04	mg/m3	2.49E-05	mg/kg-day	--	--	--
(Cont.)	(Cont.)	(Cont.)	(Vapor Intrusion)	Methylene Chloride	1.47E-04	mg/m3	8.11E-06	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.33E-08
			(Cont.)	Methyl-T-Butyl-ether	2.95E-05	mg/m3	1.63E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	1.49E-09
				Naphthalene	5.03E-05	mg/m3	2.78E-06	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.33E-07
				n-Butylbenzene	9.94E-05	mg/m3	5.49E-06	mg/kg-day	--	--	--
				n-propylbenzene	4.44E-04	mg/m3	2.45E-05	mg/kg-day	--	--	--
				o-Xylene	1.73E-04	mg/m3	9.54E-06	mg/kg-day	--	--	--
				Phenanthrene	1.75E-07	mg/m3	9.69E-09	mg/kg-day	--	--	--
				Pyrene	6.77E-08	mg/m3	3.74E-09	mg/kg-day	--	--	--
				sec-Butylbenzene	5.50E-08	mg/m3	3.04E-09	mg/kg-day	--	--	--
				tert-Butylbenzene	1.30E-05	mg/m3	7.17E-07	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	9.43E-04	mg/m3	5.21E-05	mg/kg-day	--	--	--
				Tetrachloroethene	4.75E-04	mg/m3	2.62E-05	mg/kg-day	2.10E-02	(mg/kg-day)-1	5.51E-07
				Toluene	2.22E-04	mg/m3	1.22E-05	mg/kg-day	--	--	--
				Trichloroethene	5.23E-02	mg/m3	2.89E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.16E-03
				Vinyl chloride	5.47E-03	mg/m3	3.02E-04	mg/kg-day	3.10E-02	(mg/kg-day)-1	9.37E-06
				Xylene (Total)	5.96E-04	mg/m3	3.29E-05	mg/kg-day	--	--	--
			Exposure Route Total								**1.17E-03**
		Exposure Point Total									**1.17E-03**
	Exposure Medium Total										**1.64E-03**
Medium Total											**4.45E-03**
										Total of Receptor Hazards Across All Media	**4.50E-03**

Notes:

--	Not applicable or not available	(mg/kg-day)-1	1/(Milligrams per kilogram per day)
CSF	Cancer slope factor	mg/L	Milligrams per liter
EPA	U.S. Environmental Protection Agency	mg/m^3	Milligrams per cubic meter
EPC	Exposure point concentration	RAGS	Risk Acceptance Guidance for Superfund
ft bgs	Feet below ground surface	RME	Reasonable maximum exposure
mg/kg	Milligrams per kilogram	VOC	Volatile organic compound
mg/kg-day	Milligrams per kilogram per day		

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	3.53E-09	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	2.57E-09	mg/kg-day	2.40E-01	(mg/kg-day)-1	6.17E-10
				4,4'-DDT	2.30E-02	mg/kg	8.04E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	2.73E-09
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	6.99E-09	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	1.01E-08	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	9.74E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	3.19E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	2.03E-09	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	4.19E-09	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	3.26E-03	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	3.19E-09	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	1.96E-06	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	2.33E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	4.65E-08
				Arsenic	5.94E+00	mg/kg	2.08E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	3.12E-06
				Barium	1.30E+02	mg/kg	4.54E-05	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	7.09E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.17E-09
				Benzo(a)pyrene	2.89E-02	mg/kg	1.01E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	7.37E-08
				Benzo(b)fluoranthene	1.81E-02	mg/kg	6.32E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.61E-09
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	8.05E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	5.76E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	4.20E-10
				Beryllium	2.50E+00	mg/kg	8.74E-07	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	3.35E-08	mg/kg-day	1.40E-02	(mg/kg-day)-1	4.70E-10
				Cadmium	4.92E+00	mg/kg	1.72E-06	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	1.40E-06	mg/kg-day	2.00E-02	(mg/kg-day)-1	2.81E-08
				Carbon disulfide	2.00E-03	mg/kg	6.99E-10	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	1.89E-09	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	1.19E-05	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	7.78E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	5.68E-11
				Cobalt	1.01E+01	mg/kg	3.52E-06	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	1.47E-05	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	3.66E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.67E-08
				Dibenzofuran	1.47E+00	mg/kg	5.14E-07	mg/kg-day	--	--	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	Diethylphthalate	5.60E-02	mg/kg	1.96E-08	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Dimethylphthalate	7.30E-02	mg/kg	2.55E-08	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	2.80E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	2.92E-09	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	7.15E-09	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	4.00E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	8.00E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.84E-09
				Iron	1.76E+04	mg/kg	6.15E-03	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	1.29E-05	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	1.78E-04	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	9.09E-07	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	6.98E-07	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	3.32E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.98E-10
				Nickel	5.26E+01	mg/kg	1.84E-05	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	1.71E-08	mg/kg-day	4.90E-03	(mg/kg-day)-1	8.39E-11
				o-Xylene	2.25E-02	mg/kg	7.86E-09	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	7.37E-09	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	9.38E-09	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	2.17E-07	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	1.64E-06	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	4.52E-07	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	2.65E-09	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	1.75E-09	mg/kg-day	4.00E-01	(mg/kg-day)-1	6.99E-10
				Vanadium	3.74E+01	mg/kg	1.31E-05	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	7.55E-09	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	2.63E-05	mg/kg-day	--	--	--
			Exposure Route Total								**3.31E-06**
			Dermal	2-Methylnaphthalene	1.01E-02	mg/kg	2.3E-10	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	1.7E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	4.07E-11
				4,4'-DDT	2.30E-02	mg/kg	1.6E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	5.41E-10
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	4.6E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	4-Methyl-2-pentanone	2.79E-02	mg/kg	6.4E-10	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Acenaphthene	9.12E-03	mg/kg	2.7E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	1.3E-10	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	2.8E-10	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	2.2E-05	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	2.7E-09	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	1.3E-08	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	2.2E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	4.30E-08
				Arsenic	5.94E+00	mg/kg	4.1E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	6.17E-07
				Barium	1.30E+02	mg/kg	3.0E-07	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	6.1E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.44E-09
				Benzo(a)pyrene	2.89E-02	mg/kg	8.7E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	6.32E-08
				Benzo(b)fluoranthene	1.81E-02	mg/kg	5.4E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.96E-09
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	6.9E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	4.9E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	3.61E-10
				Beryllium	2.50E+00	mg/kg	5.8E-09	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	2.2E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	4.92E+00	mg/kg	1.1E-08	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	9.3E-08	mg/kg-day	2.00E-02	(mg/kg-day)-1	1.85E-09
				Carbon disulfide	2.00E-03	mg/kg	1.2E-09	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	1.2E-10	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	7.9E-08	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	6.7E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	4.87E-11
				Cobalt	1.01E+01	mg/kg	2.3E-08	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	9.7E-08	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	3.1E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.29E-08
				Dibenzofuran	1.47E+00	mg/kg	3.4E-08	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	1.3E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	1.7E-09	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	1.8E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	1.9E-10	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	6.1E-09	mg/kg-day	--	--	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Dermal (Cont.)	Fluorene	1.14E-02	mg/kg	3.4E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	6.9E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.01E-09
				Iron	1.76E+04	mg/kg	4.1E-05	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	8.5E-08	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	1.2E-06	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	4.6E-09	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	2.8E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.42E-10
				Nickel	5.26E+01	mg/kg	1.2E-07	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	1.1E-09	mg/kg-day	4.90E-03	(mg/kg-day)-1	5.54E-12
				o-Xylene	2.25E-02	mg/kg	5.2E-10	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	4.9E-10	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	8.0E-09	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	1.4E-09	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	1.1E-08	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	1.7E-10	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	1.2E-10	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.61E-11
				Vanadium	3.74E+01	mg/kg	8.6E-08	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	5.0E-10	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	1.7E-07	mg/kg-day	--	--	--
			Exposure Route Total								7.63E-07
		Exposure Point Total									4.08E-06
	Exposure Medium Total										4.08E-06
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	7.12E-08	mg/m^3	5.0E-09	mg/kg-day	--	--	--
				4,4'-DDD	5.57E-12	mg/m^3	3.9E-13	mg/kg-day	2.40E-01	(mg/kg-day)-1	9.35E-14
				4,4'-DDT	1.74E-11	mg/m^3	1.2E-12	mg/kg-day	3.40E-01	(mg/kg-day)-1	4.14E-13
				4-Bromophenyl-phenylether	1.52E-11	mg/m^3	1.1E-12	mg/kg-day	--	--	--
				4-Chlorophenyl-phenylether	2.20E-11	mg/m^3	1.5E-12	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.12E-06	mg/m^3	7.8E-08	mg/kg-day	--	--	--
				Acenaphthene	5.07E-08	mg/m^3	3.5E-09	mg/kg-day	--	--	--
				Acenaphthylene	3.22E-08	mg/m^3	2.3E-09	mg/kg-day	--	--	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs)	Air	Outdoor Air	Inhalation	Acetone	9.52E-07	mg/m^3	6.7E-08	mg/kg-day	--	--	--
(Cont.)	(Cont.)	(Cont.)	(particulates or	Aluminum	7.07E-06	mg/m^3	4.9E-07	mg/kg-day	--	--	--
			VOCs)	Anthracene	1.30E-08	mg/m^3	9.1E-10	mg/kg-day	--	--	--
			(Cont.)	Antimony	4.25E-09	mg/m^3	3.0E-10	mg/kg-day	--	--	--
				Aroclor-1260	5.04E-11	mg/m^3	3.5E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	7.05E-12
				Arsenic	4.50E-09	mg/m^3	3.1E-10	mg/kg-day	1.50E+01	(mg/kg-day)-1	4.72E-09
				Barium	9.84E-08	mg/m^3	6.9E-09	mg/kg-day	--	--	--
				Benzo(a)anthracene	1.54E-11	mg/m^3	1.1E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	7.84E-13
				Benzo(a)pyrene	2.19E-11	mg/m^3	1.5E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.12E-11
				Benzo(b)fluoranthene	1.37E-11	mg/m^3	9.6E-13	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.99E-13
				Benzo(g,h,i)perylene	1.74E-11	mg/m^3	1.2E-12	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.25E-11	mg/m^3	8.7E-13	mg/kg-day	7.30E-02	(mg/kg-day)-1	6.37E-14
				Beryllium	1.89E-09	mg/m^3	1.3E-10	mg/kg-day	8.40E+00	(mg/kg-day)-1	1.11E-09
				bis(2-ethylhexyl)phthalate	7.27E-11	mg/m^3	5.1E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	7.12E-14
				Cadmium	3.72E-09	mg/m^3	2.6E-10	mg/kg-day	6.30E+00	(mg/kg-day)-1	1.64E-09
				Carbazole	3.04E-09	mg/m^3	2.1E-10	mg/kg-day	2.00E-02	(mg/kg-day)-1	4.25E-12
				Carbon disulfide	1.67E-06	mg/m^3	1.2E-07	mg/kg-day	--	--	--
				Chloroform	2.00E-06	mg/m^3	1.4E-07	mg/kg-day	8.05E-02	(mg/kg-day)-1	1.13E-08
				Chromium	2.59E-08	mg/m^3	1.8E-09	mg/kg-day	--	--	--
				Chrysene	1.69E-11	mg/m^3	1.2E-12	mg/kg-day	7.30E-03	(mg/kg-day)-1	8.61E-15
				Cobalt	7.63E-09	mg/m^3	5.3E-10	mg/kg-day	9.80E+00	(mg/kg-day)-1	5.23E-09
				Copper	3.19E-08	mg/m^3	2.2E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	7.93E-12	mg/m^3	5.5E-13	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.05E-12
				Dibenzofuran	2.26E-06	mg/m^3	1.6E-07	mg/kg-day	--	--	--
				Diethylphthalate	4.24E-11	mg/m^3	3.0E-12	mg/kg-day	--	--	--
				Dimethylphthalate	5.53E-11	mg/m^3	3.9E-12	mg/kg-day	--	--	--
				di-n-Butylphthalate	6.06E-11	mg/m^3	4.2E-12	mg/kg-day	--	--	--
				Ethylbenzene	1.55E-06	mg/m^3	1.1E-07	mg/kg-day	--	--	--
				Fluoranthene	1.55E-11	mg/m^3	1.1E-12	mg/kg-day	--	--	--
				Fluorene	3.18E-08	mg/m^3	2.2E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	1.73E-11	mg/m^3	1.2E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	8.85E-13
				Iron	1.33E-05	mg/m^3	9.3E-07	mg/kg-day	--	--	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	Lead	2.80E-08	mg/m^3	2.0E-09	mg/kg-day	--	--	--
				Manganese	3.86E-07	mg/m^3	2.7E-08	mg/kg-day	--	--	--
				Mercury	1.97E-09	mg/m^3	1.4E-10	mg/kg-day	--	--	--
				Molybdenum	1.51E-09	mg/m^3	1.1E-10	mg/kg-day	--	--	--
				Naphthalene	2.21E-07	mg/m^3	1.5E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.85E-09
				Nickel	3.99E-08	mg/m^3	2.8E-09	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	3.71E-11	mg/m^3	2.6E-12	mg/kg-day	4.90E-03	(mg/kg-day)-1	1.27E-14
				o-Xylene	3.69E-06	mg/m^3	2.6E-07	mg/kg-day	--	--	--
				Phenanthrene	1.41E-08	mg/m^3	9.9E-10	mg/kg-day	--	--	--
				Pyrene	7.06E-09	mg/m^3	4.9E-10	mg/kg-day	--	--	--
				Selenium	4.70E-10	mg/m^3	3.3E-11	mg/kg-day	--	--	--
				Silver	3.57E-09	mg/m^3	2.5E-10	mg/kg-day	--	--	--
				Thallium	9.79E-10	mg/m^3	6.8E-11	mg/kg-day	--	--	--
				Toluene	1.90E-06	mg/m^3	1.3E-07	mg/kg-day	--	--	--
				Trichloroethene	1.52E-06	mg/m^3	1.1E-07	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.24E-08
				Vanadium	2.83E-08	mg/m^3	2.0E-09	mg/kg-day	--	--	--
				Xylene (Total)	3.54E-06	mg/m^3	2.5E-07	mg/kg-day	--	--	--
				Zinc	5.71E-08	mg/m^3	4.0E-09	mg/kg-day	--	--	--
			Exposure Route Total								**6.82E-08**
		Exposure Point Total									**6.82E-08**
	Exposure Medium Total										**6.82E-08**
Medium Total											**4.14E-06**
Groundwater	Groundwater	Indoor Air	Inhalation (Vapor Intrusion)	1,1,1-Trichloroethane	2.01E-04	mg/m3	1.41E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	4.59E-06	mg/m3	3.20E-07	mg/kg-day	5.60E-02	(mg/kg-day)-1	1.79E-08
				1,1-Dichlorethane	3.16E-04	mg/m3	2.21E-05	mg/kg-day	5.70E-03	(mg/kg-day)-1	1.26E-07
				1,1-Dichlorethene	9.92E-03	mg/m3	6.93E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	2.33E-05	mg/m3	1.63E-06	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	9.49E-06	mg/m3	6.63E-07	mg/kg-day	--	--	--
				1,2-Dichlorethane	7.70E-06	mg/m3	5.38E-07	mg/kg-day	9.10E-02	(mg/kg-day)-1	4.90E-08
				1,2-Dichlorethene (Total)	6.08E-04	mg/m3	4.25E-05	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.41E-07	mg/m3	9.83E-09	mg/kg-day	6.80E-02	(mg/kg-day)-1	6.68E-10
				1,3,5-Trimethylbenzene	2.08E-05	mg/m3	1.46E-06	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	5.39E-06	mg/m3	3.77E-07	mg/kg-day	--	--	--

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	1,4-Dichlorobenzene	5.92E-06	mg/m3	4.14E-07	mg/kg-day	2.20E-02	(mg/kg-day)-1	9.10E-09
				2-Butanone	2.35E-06	mg/m3	1.64E-07	mg/kg-day	--	--	--
				2-Hexanone	1.31E-07	mg/m3	9.17E-09	mg/kg-day	--	--	--
				2-MethylNaphthalene	8.28E-08	mg/m3	5.78E-09	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.90E-06	mg/m3	1.33E-07	mg/kg-day	--	--	--
				Acenaphthene	6.52E-08	mg/m3	4.56E-09	mg/kg-day	--	--	--
				Acenaphthylene	6.52E-08	mg/m3	4.56E-09	mg/kg-day	--	--	--
				Acetone	5.45E-05	mg/m3	3.81E-06	mg/kg-day	--	--	--
				Benzene	5.01E-05	mg/m3	3.50E-06	mg/kg-day	2.70E-02	(mg/kg-day)-1	9.45E-08
				Bromodichloromethane	2.55E-06	mg/m3	1.78E-07	mg/kg-day	6.20E-02	(mg/kg-day)-1	1.11E-08
				Carbon disulfide	1.61E-04	mg/m3	1.12E-05	mg/kg-day	--	--	--
				Chlorobenzene	9.89E-06	mg/m3	6.91E-07	mg/kg-day	--	--	--
				Chloroethane	1.47E-04	mg/m3	1.03E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	2.98E-08
				Chloroform	1.82E-05	mg/m3	1.27E-06	mg/kg-day	8.05E-02	(mg/kg-day)-1	1.03E-07
				Chloromethane	5.88E-05	mg/m3	4.11E-06	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.15E-04	mg/m3	8.03E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	9.60E-06	mg/m3	6.71E-07	mg/kg-day	--	--	--
				Ethylbenzene	2.48E-05	mg/m3	1.74E-06	mg/kg-day	--	--	--
				Fluorene	1.34E-08	mg/m3	9.37E-10	mg/kg-day	--	--	--
				Hexachlorobutadiene	9.57E-07	mg/m3	6.69E-08	mg/kg-day	7.80E-02	(mg/kg-day)-1	5.22E-09
				Isopropylbenzene	2.12E-03	mg/m3	1.48E-04	mg/kg-day	--	--	--
				m,p-Xylene	4.52E-05	mg/m3	3.16E-06	mg/kg-day	--	--	--
				Methylene Chloride	1.47E-05	mg/m3	1.03E-06	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.69E-09
				Methyl-T-Butyl-ether	2.95E-06	mg/m3	2.07E-07	mg/kg-day	9.10E-04	(mg/kg-day)-1	1.88E-10
				Naphthalene	5.03E-06	mg/m3	3.51E-07	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.22E-08
				n-Butylbenzene	9.94E-06	mg/m3	6.95E-07	mg/kg-day	--	--	--
				n-propylbenzene	4.44E-05	mg/m3	3.10E-06	mg/kg-day	--	--	--
				o-Xylene	1.73E-05	mg/m3	1.21E-06	mg/kg-day	--	--	--
				Phenanthrene	1.75E-08	mg/m3	1.23E-09	mg/kg-day	--	--	--
				Pyrene	6.77E-09	mg/m3	4.73E-10	mg/kg-day	--	--	--
				sec-Butylbenzene	5.50E-09	mg/m3	3.84E-10	mg/kg-day	--	--	--
				tert-Butylbenzene	1.30E-06	mg/m3	9.08E-08	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	9.43E-05	mg/m3	6.59E-06	mg/kg-day	--	--	--
				Tetrachloroethene	4.75E-05	mg/m3	3.32E-06	mg/kg-day	2.10E-02	(mg/kg-day)-1	6.97E-08
				Toluene	2.22E-05	mg/m3	1.55E-06	mg/kg-day	--	--	--
				Trichloroethene	5.23E-03	mg/m3	3.66E-04	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.46E-04
				Vinyl chloride	5.47E-04	mg/m3	3.82E-05	mg/kg-day	1.60E-02	(mg/kg-day)-1	6.12E-07

TABLE F-8.4.5.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Indoor Air (Cont.)	Inhal. (VI)	Xylene (Total)	5.96E-05	mg/m3	4.17E-06	mg/kg-day	--	--	--
			Exposure Route Total								1.47E-04
		Exposure Point Total									1.47E-04
	Exposure Medium Total										1.47E-04
Medium Total											1.47E-04
										Total of Receptor Hazards Across All Media	1.52E-04

Notes:

--	Not applicable or not available
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ft bgs	Feet below ground surface
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
(mg/kg-day)-1	1/(Milligrams per kilogram per day)
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
RAGS	Risk Acceptance Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	4.66E-10	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	3.39E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	8.15E-11
				4,4'-DDT	2.30E-02	mg/kg	1.06E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	3.61E-10
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	9.23E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	1.34E-09	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	1.29E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	4.21E-10	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	2.68E-10	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	5.54E-10	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	4.30E-04	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	4.21E-10	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	2.59E-07	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	3.07E-09	mg/kg-day	2.00E+00	(mg/kg-day)-1	6.14E-09
				Arsenic	5.94E+00	mg/kg	2.74E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	4.11E-07
				Barium	1.30E+02	mg/kg	5.99E-06	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	9.35E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.83E-10
				Benzo(a)pyrene	2.89E-02	mg/kg	1.33E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	9.73E-09
				Benzo(b)fluoranthene	1.81E-02	mg/kg	8.34E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.09E-10
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	1.06E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	7.60E-10	mg/kg-day	7.30E-02	(mg/kg-day)-1	5.55E-11
				Beryllium	2.50E+00	mg/kg	1.15E-07	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	4.43E-09	mg/kg-day	1.40E-02	(mg/kg-day)-1	6.20E-11
				Cadmium	4.92E+00	mg/kg	2.27E-07	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	1.85E-07	mg/kg-day	2.00E-02	(mg/kg-day)-1	3.71E-09
				Carbon disulfide	2.00E-03	mg/kg	9.23E-11	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	2.49E-10	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	1.58E-06	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	1.03E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	7.50E-12
				Cobalt	1.01E+01	mg/kg	4.65E-07	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	1.94E-06	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	4.83E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.53E-09
				Dibenzofuran	1.47E+00	mg/kg	6.79E-08	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	Diethylphthalate	5.60E-02	mg/kg	2.58E-09	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Dimethylphthalate	7.30E-02	mg/kg	3.37E-09	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	3.69E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	3.85E-10	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	9.44E-10	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	5.28E-10	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	1.06E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	7.71E-10
				Iron	1.76E+04	mg/kg	8.12E-04	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	1.70E-06	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	2.35E-05	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	1.20E-07	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	9.22E-08	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	4.38E-10	mg/kg-day	1.20E-01	(mg/kg-day)-1	5.25E-11
				Nickel	5.26E+01	mg/kg	2.43E-06	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	2.26E-09	mg/kg-day	4.90E-03	(mg/kg-day)-1	1.11E-11
				o-Xylene	2.25E-02	mg/kg	1.04E-09	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	9.72E-10	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	1.24E-09	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	2.86E-08	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	2.17E-07	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	5.96E-08	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	3.50E-10	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	2.31E-10	mg/kg-day	4.00E-01	(mg/kg-day)-1	9.23E-11
				Vanadium	3.74E+01	mg/kg	1.73E-06	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	9.97E-10	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	3.48E-06	mg/kg-day	--	--	--
			Exposure Route Total								**4.37E-07**
			Dermal	2-Methylnaphthalene	1.01E-02	mg/kg	1.4E-11	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	1.0E-11	mg/kg-day	2.40E-01	(mg/kg-day)-1	2.44E-12
				4,4'-DDT	2.30E-02	mg/kg	9.5E-11	mg/kg-day	3.40E-01	(mg/kg-day)-1	3.25E-11
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	2.8E-11	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	4-Methyl-2-pentanone	2.79E-02	mg/kg	3.9E-11	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Acenaphthene	9.12E-03	mg/kg	1.6E-10	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	8.0E-12	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	1.7E-11	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	1.3E-06	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	1.6E-10	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	7.8E-10	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	1.3E-09	mg/kg-day	2.00E+00	(mg/kg-day)-1	2.58E-09
				Arsenic	5.94E+00	mg/kg	2.5E-08	mg/kg-day	1.50E+00	(mg/kg-day)-1	3.70E-08
				Barium	1.30E+02	mg/kg	1.8E-08	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	3.6E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.66E-10
				Benzo(a)pyrene	2.89E-02	mg/kg	5.2E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.79E-09
				Benzo(b)fluoranthene	1.81E-02	mg/kg	3.3E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.37E-10
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	4.1E-10	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	3.0E-10	mg/kg-day	7.30E-02	(mg/kg-day)-1	2.16E-11
				Beryllium	2.50E+00	mg/kg	3.5E-10	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	1.3E-10	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	4.92E+00	mg/kg	6.8E-10	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	5.6E-09	mg/kg-day	2.00E-02	(mg/kg-day)-1	1.11E-10
				Carbon disulfide	2.00E-03	mg/kg	6.9E-11	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	7.5E-12	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	4.7E-09	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	4.0E-10	mg/kg-day	7.30E-03	(mg/kg-day)-1	2.92E-12
				Cobalt	1.01E+01	mg/kg	1.4E-09	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	5.8E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	1.9E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.38E-09
				Dibenzofuran	1.47E+00	mg/kg	2.0E-09	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	7.7E-11	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	1.0E-10	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	1.1E-10	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	1.2E-11	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	3.7E-10	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Dermal (Cont.)	Fluorene	1.14E-02	mg/kg	2.1E-10	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	4.1E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.01E-10
				Iron	1.76E+04	mg/kg	2.4E-06	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	5.1E-09	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	7.1E-08	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	2.8E-10	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	1.7E-10	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.05E-11
				Nickel	5.26E+01	mg/kg	7.3E-09	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	6.8E-11	mg/kg-day	4.90E-03	(mg/kg-day)-1	3.32E-13
				o-Xylene	2.25E-02	mg/kg	3.1E-11	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	2.9E-11	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	4.8E-10	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	8.6E-11	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	6.5E-10	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	1.0E-11	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	6.9E-12	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.77E-12
				Vanadium	3.74E+01	mg/kg	5.2E-09	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	3.0E-11	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	1.0E-08	mg/kg-day	--	--	--
			Exposure Route Total								**4.58E-08**
		Exposure Point Total									**4.83E-07**
	Exposure Medium Total										**4.83E-07**
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	7.12E-08	mg/m^3	2.0E-10	mg/kg-day	--	--	--
				4,4'-DDD	5.57E-12	mg/m^3	1.6E-14	mg/kg-day	2.40E-01	(mg/kg-day)-1	3.74E-15
				4,4'-DDT	1.74E-11	mg/m^3	4.9E-14	mg/kg-day	3.40E-01	(mg/kg-day)-1	1.66E-14
				4-Bromophenyl-phenylether	1.52E-11	mg/m^3	4.2E-14	mg/kg-day	--	--	--
				4-Chlorophenyl-phenylether	2.20E-11	mg/m^3	6.1E-14	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.12E-06	mg/m^3	3.1E-09	mg/kg-day	--	--	--
				Acenaphthene	5.07E-08	mg/m^3	1.4E-10	mg/kg-day	--	--	--
				Acenaphthylene	3.22E-08	mg/m^3	9.0E-11	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Air	Outdoor Air	Inhalation	Acetone	9.52E-07	mg/m^3	2.7E-09	mg/kg-day	--	--	--
(Cont.)	(Cont.)	(Cont.)	(particulates or	Aluminum	7.07E-06	mg/m^3	2.0E-08	mg/kg-day	--	--	--
			VOCs)	Anthracene	1.30E-08	mg/m^3	3.6E-11	mg/kg-day	--	--	--
			(Cont.)	Antimony	4.25E-09	mg/m^3	1.2E-11	mg/kg-day	--	--	--
				Aroclor-1260	5.04E-11	mg/m^3	1.4E-13	mg/kg-day	2.00E+00	(mg/kg-day)-1	2.82E-13
				Arsenic	4.50E-09	mg/m^3	1.3E-11	mg/kg-day	1.50E+01	(mg/kg-day)-1	1.89E-10
				Barium	9.84E-08	mg/m^3	2.7E-10	mg/kg-day	--	--	--
				Benzo(a)anthracene	1.54E-11	mg/m^3	4.3E-14	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.14E-14
				Benzo(a)pyrene	2.19E-11	mg/m^3	6.1E-14	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.47E-13
				Benzo(b)fluoranthene	1.37E-11	mg/m^3	3.8E-14	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.79E-14
				Benzo(g,h,i)perylene	1.74E-11	mg/m^3	4.9E-14	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.25E-11	mg/m^3	3.5E-14	mg/kg-day	7.30E-02	(mg/kg-day)-1	2.55E-15
				Beryllium	1.89E-09	mg/m^3	5.3E-12	mg/kg-day	8.40E+00	(mg/kg-day)-1	4.45E-11
				bis(2-ethylhexyl)phthalate	7.27E-11	mg/m^3	2.0E-13	mg/kg-day	1.40E-02	(mg/kg-day)-1	2.85E-15
				Cadmium	3.72E-09	mg/m^3	1.0E-11	mg/kg-day	6.30E+00	(mg/kg-day)-1	6.56E-11
				Carbazole	3.04E-09	mg/m^3	8.5E-12	mg/kg-day	2.00E-02	(mg/kg-day)-1	1.70E-13
				Carbon disulfide	1.67E-06	mg/m^3	4.7E-09	mg/kg-day	--	--	--
				Chloroform	2.00E-06	mg/m^3	5.6E-09	mg/kg-day	8.05E-02	(mg/kg-day)-1	4.50E-10
				Chromium	2.59E-08	mg/m^3	7.2E-11	mg/kg-day	--	--	--
				Chrysene	1.69E-11	mg/m^3	4.7E-14	mg/kg-day	7.30E-03	(mg/kg-day)-1	3.44E-16
				Cobalt	7.63E-09	mg/m^3	2.1E-11	mg/kg-day	9.80E+00	(mg/kg-day)-1	2.09E-10
				Copper	3.19E-08	mg/m^3	8.9E-11	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	7.93E-12	mg/m^3	2.2E-14	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.62E-13
				Dibenzofuran	2.26E-06	mg/m^3	6.3E-09	mg/kg-day	--	--	--
				Diethylphthalate	4.24E-11	mg/m^3	1.2E-13	mg/kg-day	--	--	--
				Dimethylphthalate	5.53E-11	mg/m^3	1.5E-13	mg/kg-day	--	--	--
				di-n-Butylphthalate	6.06E-11	mg/m^3	1.7E-13	mg/kg-day	--	--	--
				Ethylbenzene	1.55E-06	mg/m^3	4.3E-09	mg/kg-day	--	--	--
				Fluoranthene	1.55E-11	mg/m^3	4.3E-14	mg/kg-day	--	--	--
				Fluorene	3.18E-08	mg/m^3	8.9E-11	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	1.73E-11	mg/m^3	4.8E-14	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.54E-14
				Iron	1.33E-05	mg/m^3	3.7E-08	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	Lead	2.80E-08	mg/m^3	7.8E-11	mg/kg-day	--	--	--
				Manganese	3.86E-07	mg/m^3	1.1E-09	mg/kg-day	--	--	--
				Mercury	1.97E-09	mg/m^3	5.5E-12	mg/kg-day	--	--	--
				Molybdenum	1.51E-09	mg/m^3	4.2E-12	mg/kg-day	--	--	--
				Naphthalene	2.21E-07	mg/m^3	6.2E-10	mg/kg-day	1.20E-01	(mg/kg-day)-1	7.41E-11
				Nickel	3.99E-08	mg/m^3	1.1E-10	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	3.71E-11	mg/m^3	1.0E-13	mg/kg-day	4.90E-03	(mg/kg-day)-1	5.09E-16
				o-Xylene	3.69E-06	mg/m^3	1.0E-08	mg/kg-day	--	--	--
				Phenanthrene	1.41E-08	mg/m^3	3.9E-11	mg/kg-day	--	--	--
				Pyrene	7.06E-09	mg/m^3	2.0E-11	mg/kg-day	--	--	--
				Selenium	4.70E-10	mg/m^3	1.3E-12	mg/kg-day	--	--	--
				Silver	3.57E-09	mg/m^3	1.0E-11	mg/kg-day	--	--	--
				Thallium	9.79E-10	mg/m^3	2.7E-12	mg/kg-day	--	--	--
				Toluene	1.90E-06	mg/m^3	5.3E-09	mg/kg-day	--	--	--
				Trichloroethene	1.52E-06	mg/m^3	4.2E-09	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.69E-09
				Vanadium	2.83E-08	mg/m^3	7.9E-11	mg/kg-day	--	--	--
				Xylene (Total)	3.54E-06	mg/m^3	9.9E-09	mg/kg-day	--	--	--
				Zinc	5.71E-08	mg/m^3	1.6E-10	mg/kg-day	--	--	--
			Exposure Route Total								2.73E-09
		Exposure Point Total									2.73E-09
	Exposure Medium Total										2.73E-09
Medium Total											4.86E-07
Groundwater	Groundwater	Indoor Air	Inhalation (Vapor Intrusion)	1,1,1-Trichloroethane	2.29E-04	mg/m3	6.41E-07	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	5.81E-06	mg/m3	1.62E-08	mg/kg-day	5.60E-02	(mg/kg-day)-1	9.10E-10
				1,1-Dichlorethane	3.45E-04	mg/m3	9.66E-07	mg/kg-day	5.70E-03	(mg/kg-day)-1	5.50E-09
				1,1-Dichlorethene	1.06E-02	mg/m3	2.96E-05	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	--	mg/m3	--	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	1.35E-05	mg/m3	3.77E-08	mg/kg-day	--	--	--
				1,2-Dichlorethane	9.78E-06	mg/m3	2.73E-08	mg/kg-day	9.10E-02	(mg/kg-day)-1	2.49E-09
				1,2-Dichlorethene (Total)	2.96E-04	mg/m3	8.27E-07	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.68E-07	mg/m3	4.70E-10	mg/kg-day	6.80E-02	(mg/kg-day)-1	3.19E-11
				1,3,5-Trimethylbenzene	--	mg/m3	--	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	1,3-Dichlorobenzene	5.79E-06	mg/m3	1.62E-08	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	8.27E-01	mg/m3	2.31E-03	mg/kg-day	2.20E-02	(mg/kg-day)-1	5.08E-05
				2-Butanone	--	mg/m3	--	mg/kg-day	--	--	--
				2-Hexanone	--	mg/m3	--	mg/kg-day	--	--	--
				2-MethylNaphthalene	1.55E-07	mg/m3	4.34E-10	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	--	mg/m3	--	mg/kg-day	--	--	--
				Acenaphthene	1.07E-07	mg/m3	2.99E-10	mg/kg-day	--	--	--
				Acenaphthylene	--	mg/m3	--	mg/kg-day	--	--	--
				Acetone	6.83E-05	mg/m3	1.91E-07	mg/kg-day	--	--	--
				Benzene	5.97E-05	mg/m3	1.67E-07	mg/kg-day	2.70E-02	(mg/kg-day)-1	4.51E-09
				Bromodichloromethane	2.63E-06	mg/m3	7.35E-09	mg/kg-day	6.20E-02	(mg/kg-day)-1	4.56E-10
				Carbon disulfide	1.81E-04	mg/m3	5.06E-07	mg/kg-day	--	--	--
				Chlorobenzene	1.26E-05	mg/m3	3.52E-08	mg/kg-day	--	--	--
				Chloroethane	--	mg/m3	--	mg/kg-day	2.90E-03	(mg/kg-day)-1	--
				Chloroform	2.17E-05	mg/m3	6.07E-08	mg/kg-day	8.05E-02	(mg/kg-day)-1	4.88E-09
				Chloromethane	--	mg/m3	--	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.28E-04	mg/m3	3.58E-07	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	--	mg/m3	--	mg/kg-day	--	--	--
				Ethylbenzene	3.25E-05	mg/m3	9.09E-08	mg/kg-day	--	--	--
				Fluorene	2.06E-08	mg/m3	5.76E-11	mg/kg-day	--	--	--
				Hexachlorobutadiene	1.40E-06	mg/m3	3.91E-09	mg/kg-day	7.80E-02	(mg/kg-day)-1	3.05E-10
				Isopropylbenzene	2.49E-05	mg/m3	6.96E-08	mg/kg-day	--	--	--
				m,p-Xylene	5.98E-05	mg/m3	1.67E-07	mg/kg-day	--	--	--
				Methylene Chloride	1.68E-05	mg/m3	4.70E-08	mg/kg-day	1.65E-03	(mg/kg-day)-1	7.73E-11
				Methyl-T-Butyl-ether	--	mg/m3	--	mg/kg-day	9.10E-04	(mg/kg-day)-1	--
				Naphthalene	7.42E-06	mg/m3	2.07E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.49E-09
				n-Butylbenzene	1.09E-05	mg/m3	3.04E-08	mg/kg-day	--	--	--
				n-propylbenzene	5.54E-05	mg/m3	1.55E-07	mg/kg-day	--	--	--
				o-Xylene	2.38E-05	mg/m3	6.65E-08	mg/kg-day	--	--	--
				Phenanthrene	4.07E-08	mg/m3	1.14E-10	mg/kg-day	--	--	--
				Pyrene	1.11E-08	mg/m3	3.10E-11	mg/kg-day	--	--	--
				sec-Butylbenzene	2.26E-06	mg/m3	6.33E-09	mg/kg-day	--	--	--

TABLE F-8.4.6.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	tert-Butylbenzene	1.36E-06	mg/m3	3.80E-09	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.18E-04	mg/m3	3.29E-07	mg/kg-day	--	--	--
				Tetrachloroethene	5.93E-05	mg/m3	1.66E-07	mg/kg-day	2.10E-02	(mg/kg-day)-1	3.48E-09
				Toluene	2.81E-05	mg/m3	7.86E-08	mg/kg-day	--	--	--
				Trichloroethene	6.23E-03	mg/m3	1.74E-05	mg/kg-day	4.00E-01	(mg/kg-day)-1	6.97E-06
				Vinyl chloride	5.58E-04	mg/m3	1.56E-06	mg/kg-day	1.60E-02	(mg/kg-day)-1	2.50E-08
				Xylene (Total)	7.89E-05	mg/m3	2.21E-07	mg/kg-day	--	--	--
			Exposure Route Total								**5.79E-05**
		Exposure Point Total									**5.79E-05**
	Exposure Medium Total										**5.79E-05**
Medium Total											**5.79E-05**
										Total of Receptor Hazards Across All Media	**5.83E-05**

Notes:

--	Not applicable or not available
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
RAGS	Risk Acceptance Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	4.74E-09	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	3.46E-09	mg/kg-day	2.40E-01	(mg/kg-day)-1	8.29E-10
				4,4'-DDT	2.30E-02	mg/kg	1.08E-08	mg/kg-day	3.40E-01	(mg/kg-day)-1	3.67E-09
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	9.39E-09	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	1.36E-08	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	1.31E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	4.28E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	2.72E-09	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	5.64E-09	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	4.38E-03	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	4.29E-09	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	2.63E-06	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	3.13E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	6.26E-08
				Arsenic	5.94E+00	mg/kg	2.79E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	4.19E-06
				Barium	1.30E+02	mg/kg	6.10E-05	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	9.52E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.95E-09
				Benzo(a)pyrene	2.89E-02	mg/kg	1.36E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	9.91E-08
				Benzo(b)fluoranthene	1.81E-02	mg/kg	8.49E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.20E-09
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	1.08E-08	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	7.74E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	5.65E-10
				Beryllium	2.50E+00	mg/kg	1.17E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	4.51E-08	mg/kg-day	1.40E-02	(mg/kg-day)-1	6.31E-10
				Cadmium	4.92E+00	mg/kg	2.31E-06	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	1.89E-06	mg/kg-day	2.00E-02	(mg/kg-day)-1	3.77E-08
				Carbon disulfide	2.00E-03	mg/kg	9.39E-10	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	2.54E-09	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	1.60E-05	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	1.05E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	7.64E-11
				Cobalt	1.01E+01	mg/kg	4.73E-06	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	1.98E-05	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	4.92E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.59E-08
				Dibenzofuran	1.47E+00	mg/kg	6.91E-07	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	Diethylphthalate	5.60E-02	mg/kg	2.63E-08	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Dimethylphthalate	7.30E-02	mg/kg	3.43E-08	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	3.76E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	3.92E-09	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	9.61E-09	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	5.37E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	1.07E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	7.85E-09
				Iron	1.76E+04	mg/kg	8.27E-03	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	1.74E-05	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	2.39E-04	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	1.22E-06	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	9.39E-07	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	4.46E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	5.35E-10
				Nickel	5.26E+01	mg/kg	2.47E-05	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	2.30E-08	mg/kg-day	4.90E-03	(mg/kg-day)-1	1.13E-10
				o-Xylene	2.25E-02	mg/kg	1.06E-08	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	9.90E-09	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	1.26E-08	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	2.91E-07	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	2.21E-06	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	6.07E-07	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	3.56E-09	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	2.35E-09	mg/kg-day	4.00E-01	(mg/kg-day)-1	9.39E-10
				Vanadium	3.74E+01	mg/kg	1.76E-05	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	1.01E-08	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	3.54E-05	mg/kg-day	--	--	--
			Exposure Route Total								**4.45E-06**
			Dermal	2-Methylnaphthalene	1.01E-02	mg/kg	1.9E-10	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	1.4E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	3.31E-11
				4,4'-DDT	2.30E-02	mg/kg	1.3E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	4.40E-10
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	3.7E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	4-Methyl-2-pentanone	2.79E-02	mg/kg	5.2E-10	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Acenaphthene	9.12E-03	mg/kg	2.2E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	1.1E-10	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	2.2E-10	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	1.7E-05	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	2.2E-09	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	1.1E-08	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	1.7E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	3.49E-08
				Arsenic	5.94E+00	mg/kg	3.3E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	5.01E-07
				Barium	1.30E+02	mg/kg	2.4E-07	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	4.9E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.61E-09
				Benzo(a)pyrene	2.89E-02	mg/kg	7.0E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	5.14E-08
				Benzo(b)fluoranthene	1.81E-02	mg/kg	4.4E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.21E-09
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	5.6E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	4.0E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	2.93E-10
				Beryllium	2.50E+00	mg/kg	4.7E-09	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	1.8E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	4.92E+00	mg/kg	9.2E-09	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	7.5E-08	mg/kg-day	2.00E-02	(mg/kg-day)-1	1.51E-09
				Carbon disulfide	2.00E-03	mg/kg	9.4E-10	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	1.0E-10	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	6.4E-08	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	5.4E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	3.96E-11
				Cobalt	1.01E+01	mg/kg	1.9E-08	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	7.9E-08	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	2.6E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.86E-08
				Dibenzofuran	1.47E+00	mg/kg	2.8E-08	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	1.0E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	1.4E-09	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	1.5E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	1.6E-10	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	5.0E-09	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	Fluorene	1.14E-02	mg/kg	2.8E-09	mg/kg-day	--	--	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	5.6E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.07E-09
				Iron	1.76E+04	mg/kg	3.3E-05	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	6.9E-08	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	9.5E-07	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	3.7E-09	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	2.3E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.77E-10
				Nickel	5.26E+01	mg/kg	9.9E-08	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	9.2E-10	mg/kg-day	4.90E-03	(mg/kg-day)-1	4.50E-12
				o-Xylene	2.25E-02	mg/kg	4.2E-10	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	4.0E-10	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	6.5E-09	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	1.2E-09	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	8.8E-09	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	1.4E-10	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	9.4E-11	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.75E-11
				Vanadium	3.74E+01	mg/kg	7.0E-08	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	4.0E-10	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	1.4E-07	mg/kg-day	--	--	--
			Exp. Route Total								**6.20E-07**
		Exposure Point Total									**5.07E-06**
		Homegrown	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	--	mg/kg-day	--	--	--
		Produce		4,4'-DDD	7.36E-03	mg/kg	1.4E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	3.37E-11
				4,4'-DDT	2.30E-02	mg/kg	3.4E-10	mg/kg-day	3.40E-01	(mg/kg-day)-1	1.15E-10
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	5.8E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	8.5E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	--	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	--	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Homegrown	Ingestion	Aluminum	9.33E+03	mg/kg	--	mg/kg-day	--	--	--
(Cont.)	(Cont.)	Produce	(Cont.)	Anthracene	9.13E-03	mg/kg	--	mg/kg-day	--	--	--
		(Cont.)		Antimony	5.61E+00	mg/kg	--	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	1.8E-09	mg/kg-day	2.00E+00	(mg/kg-day)-1	3.68E-09
				Arsenic	5.94E+00	mg/kg	1.0E-05	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.55E-05
				Barium	1.30E+02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	5.7E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.17E-10
				Benzo(a)pyrene	2.89E-02	mg/kg	5.4E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.95E-09
				Benzo(b)fluoranthene	1.81E-02	mg/kg	4.0E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.93E-10
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	3.1E-10	mg/kg-day	7.30E-02	(mg/kg-day)-1	2.23E-11
				Beryllium	2.50E+00	mg/kg	--	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	2.5E-11	mg/kg-day	1.40E-02	(mg/kg-day)-1	3.45E-13
				Cadmium	4.92E+00	mg/kg	1.1E-04	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	4.0E-05	mg/kg-day	2.00E-02	(mg/kg-day)-1	7.96E-07
				Carbon disulfide	2.00E-03	mg/kg	--	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	--	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	--	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	6.3E-10	mg/kg-day	7.30E-03	(mg/kg-day)-1	4.58E-12
				Cobalt	1.01E+01	mg/kg	--	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	--	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	1.3E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	9.32E-10
				Dibenzofuran	1.47E+00	mg/kg	--	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	9.9E-07	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	5.7E-07	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	4.5E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	--	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	6.2E-10	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	--	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	3.6E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.66E-10
				Iron	1.76E+04	mg/kg	--	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Homegrown Produce (Cont.)	Ingestion (Cont.)	Manganese	5.09E+02	mg/kg	--	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	7.0E-06	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	--	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	--	mg/kg-day	1.20E-01	(mg/kg-day)-1	--
				Nickel	5.26E+01	mg/kg	1.5E-04	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	4.7E-07	mg/kg-day	4.90E-03	(mg/kg-day)-1	2.31E-09
				o-Xylene	2.25E-02	mg/kg	--	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	--	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	--	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	1.7E-06	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	--	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	--	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	--	mg/kg-day	4.00E-01	(mg/kg-day)-1	--
				Vanadium	3.74E+01	mg/kg	--	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	--	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	8.5E-04	mg/kg-day	--	--	--
			Exp. Route Total								**1.63E-05**
		Exposure Point Total									**1.63E-05**
	Exposure Medium Total										**2.14E-05**
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	7.12E-08	mg/m^3	6.7E-09	mg/kg-day	--	--	--
				4,4'-DDD	5.57E-12	mg/m^3	5.2E-13	mg/kg-day	2.40E-01	(mg/kg-day)-1	1.25E-13
				4,4'-DDT	1.74E-11	mg/m^3	1.6E-12	mg/kg-day	3.40E-01	(mg/kg-day)-1	5.54E-13
				4-Bromophenyl-phenylether	1.52E-11	mg/m^3	1.4E-12	mg/kg-day	--	--	--
				4-Chlorophenyl-phenylether	2.20E-11	mg/m^3	2.1E-12	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.12E-06	mg/m^3	1.0E-07	mg/kg-day	--	--	--
				Acenaphthene	5.07E-08	mg/m^3	4.7E-09	mg/kg-day	--	--	--
				Acenaphthylene	3.22E-08	mg/m^3	3.0E-09	mg/kg-day	--	--	--
				Acetone	9.52E-07	mg/m^3	8.9E-08	mg/kg-day	--	--	--
				Aluminum	7.07E-06	mg/m^3	6.6E-07	mg/kg-day	--	--	--
				Anthracene	1.30E-08	mg/m^3	1.2E-09	mg/kg-day	--	--	--
				Antimony	4.25E-09	mg/m^3	4.0E-10	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Air	Outdoor Air	Inhalation	Aroclor-1260	5.04E-11	mg/m^3	4.7E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	9.44E-12
(Cont.)	(Cont.)	(Cont.)	(particulates or	Arsenic	4.50E-09	mg/m^3	4.2E-10	mg/kg-day	1.50E+01	(mg/kg-day)-1	6.32E-09
			VOCs)	Barium	9.84E-08	mg/m^3	9.2E-09	mg/kg-day	--	--	--
			(Cont.)	Benzo(a)anthracene	1.54E-11	mg/m^3	1.4E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.05E-12
				Benzo(a)pyrene	2.19E-11	mg/m^3	2.0E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.49E-11
				Benzo(b)fluoranthene	1.37E-11	mg/m^3	1.3E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	9.35E-13
				Benzo(g,h,i)perylene	1.74E-11	mg/m^3	1.6E-12	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.25E-11	mg/m^3	1.2E-12	mg/kg-day	7.30E-02	(mg/kg-day)-1	8.53E-14
				Beryllium	1.89E-09	mg/m^3	1.8E-10	mg/kg-day	8.40E+00	(mg/kg-day)-1	1.49E-09
				bis(2-ethylhexyl)phthalate	7.27E-11	mg/m^3	6.8E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	9.53E-14
				Cadmium	3.72E-09	mg/m^3	3.5E-10	mg/kg-day	6.30E+00	(mg/kg-day)-1	2.19E-09
				Carbazole	3.04E-09	mg/m^3	2.8E-10	mg/kg-day	2.00E-02	(mg/kg-day)-1	5.70E-12
				Carbon disulfide	1.67E-06	mg/m^3	1.6E-07	mg/kg-day	--	--	--
				Chloroform	2.00E-06	mg/m^3	1.9E-07	mg/kg-day	8.05E-02	(mg/kg-day)-1	1.51E-08
				Chromium	2.59E-08	mg/m^3	2.4E-09	mg/kg-day	--	--	--
				Chrysene	1.69E-11	mg/m^3	1.6E-12	mg/kg-day	7.30E-03	(mg/kg-day)-1	1.15E-14
				Cobalt	7.63E-09	mg/m^3	7.1E-10	mg/kg-day	9.80E+00	(mg/kg-day)-1	7.00E-09
				Copper	3.19E-08	mg/m^3	3.0E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	7.93E-12	mg/m^3	7.4E-13	mg/kg-day	7.30E+00	(mg/kg-day)-1	5.42E-12
				Dibenzofuran	2.26E-06	mg/m^3	2.1E-07	mg/kg-day	--	--	--
				Diethylphthalate	4.24E-11	mg/m^3	4.0E-12	mg/kg-day	--	--	--
				Dimethylphthalate	5.53E-11	mg/m^3	5.2E-12	mg/kg-day	--	--	--
				di-n-Butylphthalate	6.06E-11	mg/m^3	5.7E-12	mg/kg-day	--	--	--
				Ethylbenzene	1.55E-06	mg/m^3	1.4E-07	mg/kg-day	--	--	--
				Fluoranthene	1.55E-11	mg/m^3	1.5E-12	mg/kg-day	--	--	--
				Fluorene	3.18E-08	mg/m^3	3.0E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	1.73E-11	mg/m^3	1.6E-12	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.18E-12
				Iron	1.33E-05	mg/m^3	1.2E-06	mg/kg-day	--	--	--
				Lead	2.80E-08	mg/m^3	2.6E-09	mg/kg-day	--	--	--
				Manganese	3.86E-07	mg/m^3	3.6E-08	mg/kg-day	--	--	--
				Mercury	1.97E-09	mg/m^3	1.8E-10	mg/kg-day	--	--	--
				Molybdenum	1.51E-09	mg/m^3	1.4E-10	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	Naphthalene	2.21E-07	mg/m^3	2.1E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.48E-09
				Nickel	3.99E-08	mg/m^3	3.7E-09	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	3.71E-11	mg/m^3	3.5E-12	mg/kg-day	4.90E-03	(mg/kg-day)-1	1.70E-14
				o-Xylene	3.69E-06	mg/m^3	3.4E-07	mg/kg-day	--	--	--
				Phenanthrene	1.41E-08	mg/m^3	1.3E-09	mg/kg-day	--	--	--
				Pyrene	7.06E-09	mg/m^3	6.6E-10	mg/kg-day	--	--	--
				Selenium	4.70E-10	mg/m^3	4.4E-11	mg/kg-day	--	--	--
				Silver	3.57E-09	mg/m^3	3.3E-10	mg/kg-day	--	--	--
				Thallium	9.79E-10	mg/m^3	9.2E-11	mg/kg-day	--	--	--
				Toluene	1.90E-06	mg/m^3	1.8E-07	mg/kg-day	--	--	--
				Trichloroethene	1.52E-06	mg/m^3	1.4E-07	mg/kg-day	4.00E-01	(mg/kg-day)-1	5.67E-08
				Vanadium	2.83E-08	mg/m^3	2.7E-09	mg/kg-day	--	--	--
				Xylene (Total)	3.54E-06	mg/m^3	3.3E-07	mg/kg-day	--	--	--
				Zinc	5.71E-08	mg/m^3	5.3E-09	mg/kg-day	--	--	--
			Exposure Route Total								9.13E-08
		Exposure Point Total									9.13E-08
	Exposure Medium Total										9.13E-08
Medium Total											2.15E-05
Groundwater	Groundwater	Domestic Use of Groundwater	Ingestion	1,1,1-Trichloroethane	2.23E-02	mg/L	2.10E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	9.93E-05	mg/kg-day	5.70E-02	(mg/kg-day)-1	5.66E-06
				1,1-Dichlorethane	1.08E-01	mg/L	1.02E-03	mg/kg-day	5.70E-03	(mg/kg-day)-1	5.79E-06
				1,1-Dichlorethene	5.89E-01	mg/L	5.53E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	1.06E-04	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	1.26E-04	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	1.17E-04	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.07E-05
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	2.76E-03	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	9.39E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	6.39E-08
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	9.98E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	4.23E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	6.03E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	1.45E-06
				2-Butanone	7.10E-02	mg/L	6.67E-04	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	2-Methylnaphthalene	7.00E-04	mg/L	6.58E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	2.72E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	1.55E-02	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	9.28E-03	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	1.34E-04	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.86E-04	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.79E-04
				Barium	2.70E-01	mg/L	2.53E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	1.49E-04	mg/kg-day	5.50E-02	(mg/kg-day)-1	8.21E-06
				Benzo(a)anthracene	1.00E-04	mg/L	9.39E-07	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.86E-07
				Benzo(a)pyrene	1.00E-04	mg/L	9.39E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	6.86E-06
				Beryllium	1.41E-03	mg/L	1.33E-05	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	6.66E-05	mg/kg-day	1.40E-02	(mg/kg-day)-1	9.33E-07
				Bromodichloromethane	7.10E-03	mg/L	6.67E-05	mg/kg-day	6.20E-02	(mg/kg-day)-1	4.14E-06
				Cadmium	1.60E-02	mg/L	1.50E-04	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	7.07E-05	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	5.71E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	1.16E-04	mg/kg-day	2.90E-03	(mg/kg-day)-1	3.36E-07
				Chloroform	7.44E-03	mg/L	6.99E-05	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	6.82E-05	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	1.43E-03	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	4.43E-03	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	5.21E-04	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	1.42E-04	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.16E-04	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	6.20E-04	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	6.75E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	1.69E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	9.39E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	1.24E-04	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	9.31E-02	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	Mercury	4.40E-05	mg/L	4.13E-07	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	9.30E-05	mg/kg-day	7.50E-03	(mg/kg-day)-1	6.98E-07
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	6.55E-05	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.18E-07
				Molybdenum	7.50E-02	mg/L	7.04E-04	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	3.15E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.77E-05
				n-Butylbenzene	2.40E-03	mg/L	2.25E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	1.72E-03	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	1.15E-04	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	6.44E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.88E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	6.20E-05	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	7.51E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Pyrene	3.00E-03	mg/L	2.82E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	4.70E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	1.01E-04	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	5.14E-05	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	3.95E-03	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	2.82E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Tetrachloroethene	5.84E-03	mg/L	5.49E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	2.96E-05
				Thallium	8.12E-03	mg/L	7.62E-05	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	5.96E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	1.09E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	9.40E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.76E-03
				Vanadium	2.85E-02	mg/L	2.68E-04	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	2.38E-04	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.72E-04
				Xylene (Total)	1.75E-02	mg/L	1.64E-04	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	1.41E-03	mg/kg-day	--	--	--
			Exposure Route Total								**4.32E-03**
			Dermal (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/L	1.87E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	3.33E-06	mg/kg-day	5.70E-02	(mg/kg-day)-1	1.90E-07
				1,1-Dichlorethane	1.08E-01	mg/L	4.70E-05	mg/kg-day	5.70E-03	(mg/kg-day)-1	2.68E-07
				1,1-Dichlorethene	5.89E-01	mg/L	4.59E-04	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	1,2,4-Trimethylbenzene	1.13E-02	mg/L	5.24E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	4.32E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	3.27E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	2.97E-07
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	2.15E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	4.86E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	3.31E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	4.92E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	1.71E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	1.95E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	4.68E-07
				2-Butanone	7.10E-02	mg/L	3.86E-06	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	4.36E-07	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	4.87E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	5.65E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.30E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.38E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	4.61E-05	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	1.04E-04	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	7.64E-07	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.87E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.81E-06
				Barium	2.70E-01	mg/L	5.33E-06	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	1.61E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	8.87E-07
				Benzo(a)anthracene	1.00E-04	mg/L	4.65E-06	mg/kg-day	7.30E-01	(mg/kg-day)-1	3.39E-06
				Benzo(a)pyrene	1.00E-04	mg/L	6.08E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.44E-05
				Beryllium	1.41E-03	mg/L	4.57E-08	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	6.85E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Bromodichloromethane	7.10E-03	mg/L	1.75E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	1.08E-07
				Cadmium	1.60E-02	mg/L	2.75E-07	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	5.76E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	1.21E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	4.83E-06	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.40E-08
				Chloroform	7.44E-03	mg/L	3.26E-06	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	1.48E-06	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	7.45E-06	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Chromium (VI)	4.72E-01	mg/L	2.32E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	4.05E-05	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	8.97E-07	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.86E-07	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	2.80E-06	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	2.60E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	4.53E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	8.38E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/L	2.37E-06	mg/kg-day	7.80E-02	(mg/kg-day)-1	1.85E-07
				Iron	1.70E+01	mg/L	2.06E-04	mg/kg-day	--	--	--
				Isopropylbenzene	5.50E-03	mg/L	3.78E-05	mg/kg-day	--	--	--
				Lead	7.38E-03	mg/L	1.24E-07	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	5.21E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	6.22E-04	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	2.16E-09	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	2.17E-06	mg/kg-day	7.50E-03	(mg/kg-day)-1	1.62E-08
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	8.78E-07	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.58E-09
				Molybdenum	7.50E-02	mg/L	2.65E-06	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	1.14E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.37E-05
				n-Butylbenzene	2.40E-03	mg/L	1.65E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	2.95E-06	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	8.39E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	2.37E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	2.25E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	1.79E-06	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	5.49E-06	mg/kg-day	0.00E+00	(mg/kg-day)-1	0.00E+00
				Pyrene	3.00E-03	mg/L	4.77E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	3.43E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	4.78E-07	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	1.64E-07	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	3.92E-05	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	2.06E-06	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Tetrachloroethene	5.84E-03	mg/L	1.38E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	7.44E-06
				Thallium	8.12E-03	mg/L	3.98E-07	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	1.41E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	2.74E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	7.70E-04	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.08E-04
				Vanadium	2.85E-02	mg/L	1.89E-06	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.41E-05	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.01E-05
				Xylene (Total)	1.75E-02	mg/L	6.88E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	2.51E-06	mg/kg-day	--	--	--
			Exposure Route Total								**3.92E-04**
		Exposure Point Total									**4.71E-03**
	Exposure Medium Total										**4.71E-03**
	Air	Domestic Use of Groundwater Indoors	Inhalation (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/l	2.52E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/l	1.20E-05	mg/kg-day	5.60E-02	(mg/kg-day)-1	6.69E-07
				1,1-Dichlorethane	1.08E-01	mg/l	1.22E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	6.97E-07
				1,1-Dichlorethene	5.89E-01	mg/l	6.66E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/l	1.28E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	1.34E-02	mg/l	1.51E-05	mg/kg-day	--	--	--
				1,2-Dichlorethane	1.25E-02	mg/l	1.41E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.28E-06
				1,2-Dichlorethene (Total)	2.94E-01	mg/l	3.32E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/l	1.13E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	7.69E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/l	1.20E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	4.50E-03	mg/l	5.09E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	6.42E-03	mg/l	7.26E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.60E-07
				2-Butanone	7.10E-02	mg/l	8.03E-05	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				2-MethylNaphthalene	7.00E-04	mg/l	7.91E-07	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/l	3.28E-05	mg/kg-day	--	--	--
				Acenaphthene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/l	1.87E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/l	1.80E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	4.85E-07

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	Bromodichloromethane	7.10E-03	mg/l	8.03E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	4.98E-07
				Carbon disulfide	7.53E-03	mg/l	8.51E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/l	6.87E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/l	1.40E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	4.05E-08
				Chloroform	7.44E-03	mg/l	8.41E-06	mg/kg-day	8.05E-02	(mg/kg-day)-1	6.77E-07
				Chloromethane	7.26E-03	mg/l	8.21E-06	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/l	6.27E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	6.60E-02	mg/l	7.46E-05	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/l	8.12E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/l	1.13E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/l	4.52E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	3.53E-08
				Isopropylbenzene	5.50E-03	mg/l	6.22E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/l	1.50E-05	mg/kg-day	--	--	--
				Methylene Chloride	9.90E-03	mg/l	1.12E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.84E-08
				Methyl-T-Butyl-ether	6.97E-03	mg/l	7.88E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	7.17E-09
				Naphthalene	3.35E-02	mg/l	3.79E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.54E-06
				n-Butylbenzene	2.40E-03	mg/l	2.71E-06	mg/kg-day	--	--	--
				n-propylbenzene	1.22E-02	mg/l	1.38E-05	mg/kg-day	--	--	--
				o-Xylene	6.86E-03	mg/l	7.76E-06	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/l	2.26E-06	mg/kg-day	--	--	--
				Pyrene	3.00E-03	mg/l	3.39E-06	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/l	5.65E-07	mg/kg-day	--	--	--
				tert-Butylbenzene	3.00E-04	mg/l	3.39E-07	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/l	1.31E-05	mg/kg-day	--	--	--
				Tetrachloroethene	5.84E-03	mg/l	6.61E-06	mg/kg-day	2.10E-02	(mg/kg-day)-1	1.39E-07
				Toluene	6.35E-03	mg/l	7.18E-06	mg/kg-day	--	--	--
				Trichloroethene	1.00E+00	mg/l	1.13E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.52E-04
				Vinyl chloride	2.54E-02	mg/l	2.87E-05	mg/kg-day	3.10E-02	(mg/kg-day)-1	8.89E-07
				Xylene (Total)	1.75E-02	mg/l	1.98E-05	mg/kg-day	--	--	--
			Exposure Route Total								**4.63E-04**
		Exposure Point Total									**4.63E-04**

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Indoor Air	Inhalation (Vapor Intrusion)	1,1,1-Trichloroethane	2.01E-03	mg/m3	1.88E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	4.59E-05	mg/m3	4.29E-06	mg/kg-day	5.60E-02	(mg/kg-day)-1	2.40E-07
				1,1-Dichlorethane	3.16E-03	mg/m3	2.96E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	1.69E-06
				1,1-Dichlorethene	9.92E-02	mg/m3	9.28E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	2.33E-04	mg/m3	2.18E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	9.49E-05	mg/m3	8.88E-06	mg/kg-day	--	--	--
				1,2-Dichlorethane	7.70E-05	mg/m3	7.20E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	6.56E-07
				1,2-Dichlorethene (Total)	6.08E-03	mg/m3	5.69E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.41E-06	mg/m3	1.32E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	8.95E-09
				1,3,5-Trimethylbenzene	2.08E-04	mg/m3	1.95E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	5.39E-05	mg/m3	5.04E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	5.92E-05	mg/m3	5.54E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.22E-07
				2-Butanone	2.35E-05	mg/m3	2.20E-06	mg/kg-day	--	--	--
				2-Hexanone	1.31E-06	mg/m3	1.23E-07	mg/kg-day	--	--	--
				2-MethylNaphthalene	8.28E-07	mg/m3	7.74E-08	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.90E-05	mg/m3	1.78E-06	mg/kg-day	--	--	--
				Acenaphthene	6.52E-07	mg/m3	6.10E-08	mg/kg-day	--	--	--
				Acenaphthylene	6.52E-07	mg/m3	6.10E-08	mg/kg-day	--	--	--
				Acetone	5.45E-04	mg/m3	5.10E-05	mg/kg-day	--	--	--
				Benzene	5.01E-04	mg/m3	4.69E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	1.27E-06
				Bromodichloromethane	2.55E-05	mg/m3	2.39E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	1.48E-07
				Carbon disulfide	1.61E-03	mg/m3	1.50E-04	mg/kg-day	--	--	--
				Chlorobenzene	9.89E-05	mg/m3	9.26E-06	mg/kg-day	--	--	--
				Chloroethane	1.47E-03	mg/m3	1.37E-04	mg/kg-day	2.90E-03	(mg/kg-day)-1	3.98E-07
				Chloroform	1.82E-04	mg/m3	1.71E-05	mg/kg-day	8.05E-02	(mg/kg-day)-1	1.37E-06
				Chloromethane	5.88E-04	mg/m3	5.50E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.15E-03	mg/m3	1.08E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	9.60E-05	mg/m3	8.98E-06	mg/kg-day	--	--	--
				Ethylbenzene	2.48E-04	mg/m3	2.32E-05	mg/kg-day	--	--	--
				Fluorene	1.34E-07	mg/m3	1.25E-08	mg/kg-day	--	--	--
				Hexachlorobutadiene	9.57E-06	mg/m3	8.95E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	6.98E-08
				Isopropylbenzene	2.12E-02	mg/m3	1.99E-03	mg/kg-day	--	--	--

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Indoor Air (Cont.)	Inhalation (Vapor Intrusion) (Cont.)	m,p-Xylene	4.52E-04	mg/m3	4.22E-05	mg/kg-day	--	--	--
				Methylene Chloride	1.47E-04	mg/m3	1.37E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	2.26E-08
				Methyl-T-Butyl-ether	2.95E-05	mg/m3	2.76E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	2.52E-09
				Naphthalene	5.03E-05	mg/m3	4.70E-06	mg/kg-day	1.20E-01	(mg/kg-day)-1	5.64E-07
				n-Butylbenzene	9.94E-05	mg/m3	9.30E-06	mg/kg-day	--	--	--
				n-propylbenzene	4.44E-04	mg/m3	4.15E-05	mg/kg-day	--	--	--
				o-Xylene	1.73E-04	mg/m3	1.62E-05	mg/kg-day	--	--	--
				Phenanthrene	1.75E-07	mg/m3	1.64E-08	mg/kg-day	--	--	--
				Pyrene	6.77E-08	mg/m3	6.33E-09	mg/kg-day	--	--	--
				sec-Butylbenzene	5.50E-08	mg/m3	5.15E-09	mg/kg-day	--	--	--
				tert-Butylbenzene	1.30E-05	mg/m3	1.21E-06	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	9.43E-04	mg/m3	8.82E-05	mg/kg-day	--	--	--
				Tetrachloroethene	4.75E-04	mg/m3	4.44E-05	mg/kg-day	2.10E-02	(mg/kg-day)-1	9.33E-07
				Toluene	2.22E-04	mg/m3	2.07E-05	mg/kg-day	--	--	--
				Trichloroethene	5.23E-02	mg/m3	4.89E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.96E-03
				Vinyl chloride	5.47E-03	mg/m3	5.12E-04	mg/kg-day	3.10E-02	(mg/kg-day)-1	1.59E-05
				Xylene (Total)	5.96E-04	mg/m3	5.58E-05	mg/kg-day	--	--	--
			Exposure Route Total								1.98E-03
		Exposure Point Total									1.98E-03
	Exposure Medium Total										2.44E-03
Medium Total											7.16E-03
										Total of Receptor Hazards Across All Media	7.18E-03

Notes:

--	Not applicable or not available
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ft bgs	Feet below ground surface
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
(mg/kg-day)-1	1/(Milligrams per kilogram per day)
mg/L	Milligrams per liter

TABLE F-8.4.7.RME
EPA RAGS PART D TABLE 7a
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	

mg/m^3	Milligrams per cubic meter
RAGS	Risk Acceptance Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	1.11E-08	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	8.06E-09	mg/kg-day	2.40E-01	(mg/kg-day)-1	1.94E-09
				4,4'-DDT	2.30E-02	mg/kg	2.52E-08	mg/kg-day	3.40E-01	(mg/kg-day)-1	8.57E-09
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	2.19E-08	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	3.18E-08	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	3.06E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	9.99E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	6.36E-09	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	1.32E-08	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	1.02E-02	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	1.00E-08	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	6.14E-06	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	7.30E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.46E-07
				Arsenic	5.94E+00	mg/kg	6.51E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	9.77E-06
				Barium	1.30E+02	mg/kg	1.42E-04	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	2.22E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.62E-08
				Benzo(a)pyrene	2.89E-02	mg/kg	3.17E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.31E-07
				Benzo(b)fluoranthene	1.81E-02	mg/kg	1.98E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.45E-08
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	2.52E-08	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	1.81E-08	mg/kg-day	7.30E-02	(mg/kg-day)-1	1.32E-09
				Beryllium	2.50E+00	mg/kg	2.74E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	1.05E-07	mg/kg-day	1.40E-02	(mg/kg-day)-1	1.47E-09
				Cadmium	4.92E+00	mg/kg	5.39E-06	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	4.40E-06	mg/kg-day	2.00E-02	(mg/kg-day)-1	8.81E-08
				Carbon disulfide	2.00E-03	mg/kg	2.19E-09	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	5.92E-09	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	3.74E-05	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	2.44E-08	mg/kg-day	7.30E-03	(mg/kg-day)-1	1.78E-10
				Cobalt	1.01E+01	mg/kg	1.10E-05	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	4.62E-05	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	1.15E-08	mg/kg-day	7.30E+00	(mg/kg-day)-1	8.38E-08
				Dibenzofuran	1.47E+00	mg/kg	1.61E-06	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Ingestion	Diethylphthalate	5.60E-02	mg/kg	6.14E-08	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Dimethylphthalate	7.30E-02	mg/kg	8.00E-08	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	8.77E-08	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	9.15E-09	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	2.24E-08	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	1.25E-08	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	2.51E-08	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.83E-08
				Iron	1.76E+04	mg/kg	1.93E-02	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	4.05E-05	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	5.58E-04	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	2.85E-06	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	2.19E-06	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	1.04E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.25E-09
				Nickel	5.26E+01	mg/kg	5.77E-05	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	5.37E-08	mg/kg-day	4.90E-03	(mg/kg-day)-1	2.63E-10
				o-Xylene	2.25E-02	mg/kg	2.46E-08	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	2.31E-08	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	2.94E-08	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	6.79E-07	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	5.16E-06	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	1.42E-06	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	8.31E-09	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	5.48E-09	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.19E-09
				Vanadium	3.74E+01	mg/kg	4.10E-05	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	2.37E-08	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	8.26E-05	mg/kg-day	--	--	--
			Exposure Route Total								**1.04E-05**
			Dermal	2-Methylnaphthalene	1.01E-02	mg/kg	3.1E-10	mg/kg-day	--	--	--
				4,4'-DDD	7.36E-03	mg/kg	2.3E-10	mg/kg-day	2.40E-01	(mg/kg-day)-1	5.42E-11
				4,4'-DDT	2.30E-02	mg/kg	2.1E-09	mg/kg-day	3.40E-01	(mg/kg-day)-1	7.20E-10
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	6.1E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	4-Methyl-2-pentanone	2.79E-02	mg/kg	8.6E-10	mg/kg-day	--	(mg/kg-day)-1	--
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Acenaphthene	9.12E-03	mg/kg	3.6E-09	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	1.8E-10	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	3.7E-10	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	2.9E-05	mg/kg-day	--	--	--
				Anthracene	9.13E-03	mg/kg	3.6E-09	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	1.7E-08	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	2.9E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	5.72E-08
				Arsenic	5.94E+00	mg/kg	5.5E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	8.21E-07
				Barium	1.30E+02	mg/kg	4.0E-07	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	8.1E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.91E-09
				Benzo(b)fluoranthene	1.81E-02	mg/kg	7.2E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.26E-09
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	9.2E-09	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	6.6E-09	mg/kg-day	7.30E-02	(mg/kg-day)-1	4.80E-10
				Beryllium	2.50E+00	mg/kg	7.7E-09	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	2.9E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Cadmium	4.92E+00	mg/kg	1.5E-08	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	1.2E-07	mg/kg-day	2.00E-02	(mg/kg-day)-1	2.47E-09
				Carbon disulfide	2.00E-03	mg/kg	1.5E-09	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	1.7E-10	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	1.0E-07	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	8.9E-09	mg/kg-day	7.30E-03	(mg/kg-day)-1	6.48E-11
				Cobalt	1.01E+01	mg/kg	3.1E-08	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	1.3E-07	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	4.2E-09	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.05E-08
				Dibenzofuran	1.47E+00	mg/kg	4.5E-08	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	1.7E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	2.2E-09	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	2.5E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	2.6E-10	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	8.2E-09	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	4.6E-09	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs)	Soil	Site Soil	Dermal	Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	9.1E-09	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.66E-09
(Cont.)	(Cont.)	(Cont.)	(Cont.)	Iron	1.76E+04	mg/kg	5.4E-05	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	1.1E-07	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	1.6E-06	mg/kg-day	--	--	--
				Mercury	2.60E+00	mg/kg	--	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	6.1E-09	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	3.8E-09	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.54E-10
				Nickel	5.26E+01	mg/kg	1.6E-07	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	1.5E-09	mg/kg-day	4.90E-03	(mg/kg-day)-1	7.37E-12
				o-Xylene	2.25E-02	mg/kg	6.9E-10	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	6.5E-10	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	1.1E-08	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	1.9E-09	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	1.4E-08	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	2.3E-10	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	1.5E-10	mg/kg-day	4.00E-01	(mg/kg-day)-1	6.14E-11
				Vanadium	3.74E+01	mg/kg	1.1E-07	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	6.6E-10	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	2.3E-07	mg/kg-day	--	--	--
			Exposure Route Total								**1.01E-06**
		Exposure Point Total									**1.14E-05**
		Homegrown	Ingestion	2-Methylnaphthalene	1.01E-02	mg/kg	--	mg/kg-day	--	--	--
		Produce		4,4'-DDD	7.36E-03	mg/kg	3.5E-11	mg/kg-day	2.40E-01	(mg/kg-day)-1	8.43E-12
				4,4'-DDT	2.30E-02	mg/kg	8.5E-11	mg/kg-day	3.40E-01	(mg/kg-day)-1	2.88E-11
				4-Bromophenyl-phenylether	2.00E-02	mg/kg	1.4E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Chlorophenyl-phenylether	2.90E-02	mg/kg	2.1E-10	mg/kg-day	--	(mg/kg-day)-1	--
				4-Methyl-2-pentanone	2.79E-02	mg/kg	--	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	9.12E-03	mg/kg	--	mg/kg-day	--	--	--
				Acenaphthylene	5.80E-03	mg/kg	--	mg/kg-day	--	--	--
				Acetone	1.20E-02	mg/kg	--	mg/kg-day	--	--	--
				Aluminum	9.33E+03	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Homegrown Produce (Cont.)	Ingestion (Cont.)	Anthracene	9.13E-03	mg/kg	--	mg/kg-day	--	--	--
				Antimony	5.61E+00	mg/kg	--	mg/kg-day	--	--	--
				Aroclor-1260	6.66E-02	mg/kg	4.6E-10	mg/kg-day	2.00E+00	(mg/kg-day)-1	9.19E-10
				Arsenic	5.94E+00	mg/kg	2.6E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	3.88E-06
				Barium	1.30E+02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(a)anthracene	2.03E-02	mg/kg	1.4E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	1.04E-10
				Benzo(a)pyrene	2.89E-02	mg/kg	1.4E-10	mg/kg-day	7.30E+00	(mg/kg-day)-1	9.87E-10
				Benzo(b)fluoranthene	1.81E-02	mg/kg	1.0E-10	mg/kg-day	7.30E-01	(mg/kg-day)-1	7.31E-11
				Benzo(g,h,i)perylene	2.30E-02	mg/kg	--	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.65E-02	mg/kg	7.6E-11	mg/kg-day	7.30E-02	(mg/kg-day)-1	5.57E-12
				Beryllium	2.50E+00	mg/kg	--	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	9.60E-02	mg/kg	6.2E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	8.64E-14
				Cadmium	4.92E+00	mg/kg	2.7E-05	mg/kg-day	--	--	--
				Carbazole	4.02E+00	mg/kg	1.0E-05	mg/kg-day	2.00E-02	(mg/kg-day)-1	1.99E-07
				Carbon disulfide	2.00E-03	mg/kg	--	mg/kg-day	--	--	--
				Chloroform	5.40E-03	mg/kg	--	mg/kg-day	--	--	--
				Chromium	3.42E+01	mg/kg	--	mg/kg-day	--	--	--
				Chrysene	2.23E-02	mg/kg	1.6E-10	mg/kg-day	7.30E-03	(mg/kg-day)-1	1.15E-12
				Cobalt	1.01E+01	mg/kg	--	mg/kg-day	--	--	--
				Copper	4.21E+01	mg/kg	--	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	1.05E-02	mg/kg	3.2E-11	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.33E-10
				Dibenzofuran	1.47E+00	mg/kg	--	mg/kg-day	--	--	--
				Diethylphthalate	5.60E-02	mg/kg	2.5E-07	mg/kg-day	--	(mg/kg-day)-1	--
				Dimethylphthalate	7.30E-02	mg/kg	1.4E-07	mg/kg-day	--	(mg/kg-day)-1	--
				di-n-Butylphthalate	8.00E-02	mg/kg	1.1E-09	mg/kg-day	--	(mg/kg-day)-1	--
				Ethylbenzene	8.35E-03	mg/kg	--	mg/kg-day	--	--	--
				Fluoranthene	2.05E-02	mg/kg	1.6E-10	mg/kg-day	--	--	--
				Fluorene	1.14E-02	mg/kg	--	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	2.29E-02	mg/kg	9.1E-11	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.65E-11
				Iron	1.76E+04	mg/kg	--	mg/kg-day	--	--	--
				Lead	3.70E+01	mg/kg	--	mg/kg-day	--	--	--
				Manganese	5.09E+02	mg/kg	--	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Homegrown Produce (Cont.)	Ingestion (Cont.)	Mercury	2.60E+00	mg/kg	1.7E-06	mg/kg-day	--	--	--
				Molybdenum	2.00E+00	mg/kg	--	mg/kg-day	--	--	--
				Naphthalene	9.49E-03	mg/kg	--	mg/kg-day	1.20E-01	(mg/kg-day)-1	--
				Nickel	5.26E+01	mg/kg	3.7E-05	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	4.90E-02	mg/kg	1.2E-07	mg/kg-day	4.90E-03	(mg/kg-day)-1	5.77E-10
				o-Xylene	2.25E-02	mg/kg	--	mg/kg-day	--	--	--
				Phenanthrene	2.11E-02	mg/kg	--	mg/kg-day	--	--	--
				Pyrene	2.68E-02	mg/kg	--	mg/kg-day	--	--	--
				Selenium	6.20E-01	mg/kg	4.3E-07	mg/kg-day	--	--	--
				Silver	4.71E+00	mg/kg	--	mg/kg-day	--	--	--
				Thallium	1.29E+00	mg/kg	--	mg/kg-day	--	--	--
				Toluene	7.59E-03	mg/kg	--	mg/kg-day	--	--	--
				Trichloroethene	5.00E-03	mg/kg	--	mg/kg-day	4.00E-01	(mg/kg-day)-1	--
				Vanadium	3.74E+01	mg/kg	--	mg/kg-day	--	--	--
				Xylene (Total)	2.16E-02	mg/kg	--	mg/kg-day	--	--	--
				Zinc	7.54E+01	mg/kg	2.1E-04	mg/kg-day	--	--	--
			Exp. Route Total								**4.08E-06**
		Exposure Point Total									**4.08E-06**
	Exposure Medium Total										**1.55E-05**
	Air	Outdoor Air	Inhalation (particulates or VOCs)	2-Methylnaphthalene	7.12E-08	mg/m^3	3.9E-09	mg/kg-day	--	--	--
				4,4'-DDD	5.57E-12	mg/m^3	3.1E-13	mg/kg-day	2.40E-01	(mg/kg-day)-1	7.39E-14
				4,4'-DDT	1.74E-11	mg/m^3	9.6E-13	mg/kg-day	3.40E-01	(mg/kg-day)-1	3.27E-13
				4-Bromophenyl-phenylether	1.52E-11	mg/m^3	8.4E-13	mg/kg-day	--	--	--
				4-Chlorophenyl-phenylether	2.20E-11	mg/m^3	1.2E-12	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.12E-06	mg/m^3	6.2E-08	mg/kg-day	--	--	--
				Acenaphthene	5.07E-08	mg/m^3	2.8E-09	mg/kg-day	--	--	--
				Acenaphthylene	3.22E-08	mg/m^3	1.8E-09	mg/kg-day	--	--	--
				Acetone	9.52E-07	mg/m^3	5.3E-08	mg/kg-day	--	--	--
				Aluminum	7.07E-06	mg/m^3	3.9E-07	mg/kg-day	--	--	--
				Anthracene	1.30E-08	mg/m^3	7.2E-10	mg/kg-day	--	--	--
				Antimony	4.25E-09	mg/m^3	2.3E-10	mg/kg-day	--	--	--
				Aroclor-1260	5.04E-11	mg/m^3	2.8E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	5.57E-12

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	Arsenic	4.50E-09	mg/m^3	2.5E-10	mg/kg-day	1.50E+01	(mg/kg-day)-1	3.73E-09
				Barium	9.84E-08	mg/m^3	5.4E-09	mg/kg-day	--	--	--
				Benzo(a)anthracene	1.54E-11	mg/m^3	8.5E-13	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.19E-13
				Benzo(a)pyrene	2.19E-11	mg/m^3	1.2E-12	mg/kg-day	7.30E+00	(mg/kg-day)-1	8.82E-12
				Benzo(b)fluoranthene	1.37E-11	mg/m^3	7.6E-13	mg/kg-day	7.30E-01	(mg/kg-day)-1	5.52E-13
				Benzo(g,h,i)perylene	1.74E-11	mg/m^3	9.6E-13	mg/kg-day	--	--	--
				Benzo(k)fluoranthene	1.25E-11	mg/m^3	6.9E-13	mg/kg-day	7.30E-02	(mg/kg-day)-1	5.03E-14
				Beryllium	1.89E-09	mg/m^3	1.0E-10	mg/kg-day	8.40E+00	(mg/kg-day)-1	8.79E-10
				bis(2-ethylhexyl)phthalate	7.27E-11	mg/m^3	4.0E-12	mg/kg-day	1.40E-02	(mg/kg-day)-1	5.62E-14
				Cadmium	3.72E-09	mg/m^3	2.1E-10	mg/kg-day	6.30E+00	(mg/kg-day)-1	1.30E-09
				Carbazole	3.04E-09	mg/m^3	1.7E-10	mg/kg-day	2.00E-02	(mg/kg-day)-1	3.36E-12
				Carbon disulfide	1.67E-06	mg/m^3	9.2E-08	mg/kg-day	--	--	--
				Chloroform	2.00E-06	mg/m^3	1.1E-07	mg/kg-day	8.05E-02	(mg/kg-day)-1	8.89E-09
				Chromium	2.59E-08	mg/m^3	1.4E-09	mg/kg-day	--	--	--
				Chrysene	1.69E-11	mg/m^3	9.3E-13	mg/kg-day	7.30E-03	(mg/kg-day)-1	6.80E-15
				Cobalt	7.63E-09	mg/m^3	4.2E-10	mg/kg-day	9.80E+00	(mg/kg-day)-1	4.13E-09
				Copper	3.19E-08	mg/m^3	1.8E-09	mg/kg-day	--	--	--
				Dibenzo(a,h)anthracene	7.93E-12	mg/m^3	4.4E-13	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.20E-12
				Dibenzofuran	2.26E-06	mg/m^3	1.3E-07	mg/kg-day	--	--	--
				Diethylphthalate	4.24E-11	mg/m^3	2.3E-12	mg/kg-day	--	--	--
				Dimethylphthalate	5.53E-11	mg/m^3	3.1E-12	mg/kg-day	--	--	--
				di-n-Butylphthalate	6.06E-11	mg/m^3	3.3E-12	mg/kg-day	--	--	--
				Ethylbenzene	1.55E-06	mg/m^3	8.5E-08	mg/kg-day	--	--	--
				Fluoranthene	1.55E-11	mg/m^3	8.6E-13	mg/kg-day	--	--	--
				Fluorene	3.18E-08	mg/m^3	1.8E-09	mg/kg-day	--	--	--
				Indeno(1,2,3-cd)pyrene	1.73E-11	mg/m^3	9.6E-13	mg/kg-day	7.30E-01	(mg/kg-day)-1	6.99E-13
				Iron	1.33E-05	mg/m^3	7.4E-07	mg/kg-day	--	--	--
				Lead	2.80E-08	mg/m^3	1.5E-09	mg/kg-day	--	--	--
				Manganese	3.86E-07	mg/m^3	2.1E-08	mg/kg-day	--	--	--
				Mercury	1.97E-09	mg/m^3	1.1E-10	mg/kg-day	--	--	--
				Molybdenum	1.51E-09	mg/m^3	8.4E-11	mg/kg-day	--	--	--
				Naphthalene	2.21E-07	mg/m^3	1.2E-08	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.46E-09

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Cont.)	Inhalation (particulates or VOCs) (Cont.)	Nickel	3.99E-08	mg/m^3	2.2E-09	mg/kg-day	--	--	--
				n-Nitroso-diphenylamine	3.71E-11	mg/m^3	2.1E-12	mg/kg-day	4.90E-03	(mg/kg-day)-1	1.00E-14
				o-Xylene	3.69E-06	mg/m^3	2.0E-07	mg/kg-day	--	--	--
				Phenanthrene	1.41E-08	mg/m^3	7.8E-10	mg/kg-day	--	--	--
				Pyrene	7.06E-09	mg/m^3	3.9E-10	mg/kg-day	--	--	--
				Selenium	4.70E-10	mg/m^3	2.6E-11	mg/kg-day	--	--	--
				Silver	3.57E-09	mg/m^3	2.0E-10	mg/kg-day	--	--	--
				Thallium	9.79E-10	mg/m^3	5.4E-11	mg/kg-day	--	--	--
				Toluene	1.90E-06	mg/m^3	1.0E-07	mg/kg-day	--	--	--
				Trichloroethene	1.52E-06	mg/m^3	8.4E-08	mg/kg-day	4.00E-01	(mg/kg-day)-1	3.35E-08
				Vanadium	2.83E-08	mg/m^3	1.6E-09	mg/kg-day	--	--	--
				Xylene (Total)	3.54E-06	mg/m^3	2.0E-07	mg/kg-day	--	--	--
				Zinc	5.71E-08	mg/m^3	3.2E-09	mg/kg-day	--	--	--
			Exposure Route Total								**5.39E-08**
		Exposure Point Total									**5.39E-08**
	Exposure Medium Total										**5.39E-08**
Medium Total											**1.55E-05**
Groundwater	Groundwater	Domestic Use of Groundwater	Ingestion	1,1,1-Trichloroethane	2.23E-02	mg/L	1.22E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	5.79E-05	mg/kg-day	5.70E-02	(mg/kg-day)-1	3.30E-06
				1,1-Dichlorethane	1.08E-01	mg/L	5.93E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	3.38E-06
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	6.20E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	7.33E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	6.84E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	6.22E-06
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	1.61E-03	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	5.48E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	3.73E-08
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	5.82E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	2.47E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	3.52E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	8.44E-07
				2-Butanone	7.10E-02	mg/L	3.89E-04	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	3.84E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	1.59E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	Acetone	1.65E+00	mg/L	9.06E-03	mg/kg-day	--	--	--
				Aluminum	9.88E-01	mg/L	5.41E-03	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	7.83E-05	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.09E-04	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.63E-04
				Barium	2.70E-01	mg/L	1.48E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	8.71E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	4.79E-06
				Benzo(a)anthracene	1.00E-04	mg/L	5.48E-07	mg/kg-day	7.30E-01	(mg/kg-day)-1	4.00E-07
				Benzo(a)pyrene	1.00E-04	mg/L	5.48E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.00E-06
				Beryllium	1.41E-03	mg/L	7.74E-06	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	3.89E-05	mg/kg-day	1.40E-02	(mg/kg-day)-1	5.44E-07
				Bromodichloromethane	7.10E-03	mg/L	3.89E-05	mg/kg-day	6.20E-02	(mg/kg-day)-1	2.41E-06
				Cadmium	1.60E-02	mg/L	8.78E-05	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	4.12E-05	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	3.33E-05	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	6.77E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.96E-07
				Chloroform	7.44E-03	mg/L	4.08E-05	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	3.98E-05	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	8.33E-04	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	2.59E-03	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	3.04E-04	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	8.28E-05	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	6.79E-05	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	3.62E-04	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	3.94E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	9.86E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	5.48E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/L	2.19E-06	mg/kg-day	7.80E-02	(mg/kg-day)-1	1.71E-07
				Iron	1.70E+01	mg/L	9.31E-02	mg/kg-day	--	--	--
				Isopropylbenzene	5.50E-03	mg/L	3.01E-05	mg/kg-day	--	--	--
				Lead	7.38E-03	mg/L	4.04E-05	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	7.25E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	5.43E-02	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	2.41E-07	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	5.43E-05	mg/kg-day	7.50E-03	(mg/kg-day)-1	4.07E-07
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	3.82E-05	mg/kg-day	1.80E-03	(mg/kg-day)-1	6.87E-08
				Molybdenum	7.50E-02	mg/L	4.11E-04	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	1.83E-04	mg/kg-day	1.20E-01	(mg/kg-day)-1	2.20E-05

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Ingestion (Cont.)	n-Butylbenzene	2.40E-03	mg/L	1.32E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	1.00E-03	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	6.70E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	3.76E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.10E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	3.61E-05	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	4.38E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Pyrene	3.00E-03	mg/L	1.64E-05	mg/kg-day	--	--	--
				Tetrachloroethene	5.84E-03	mg/L	3.20E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	1.73E-05
				Thallium	8.12E-03	mg/L	4.45E-05	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	3.48E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	6.36E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	5.48E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.19E-03
				Vanadium	2.85E-02	mg/L	1.56E-04	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.39E-04	mg/kg-day	7.20E-01	(mg/kg-day)-1	1.00E-04
				Xylene (Total)	1.75E-02	mg/L	9.58E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	8.20E-04	mg/kg-day	--	--	--
			Exposure Route Total								**2.52E-03**
			Dermal (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/L	1.38E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/L	2.46E-06	mg/kg-day	5.70E-02	(mg/kg-day)-1	1.40E-07
				1,1-Dichlorethane	1.08E-01	mg/L	3.47E-05	mg/kg-day	5.70E-03	(mg/kg-day)-1	1.98E-07
				1,1-Dichlorethene	5.89E-01	mg/L	3.39E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/L	3.86E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorobenzene	1.34E-02	mg/L	3.19E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,2-Dichlorethane	1.25E-02	mg/L	2.41E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	2.19E-07
				1,2-Dichlorethene (Total)	2.94E-01	mg/L	1.58E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/L	3.59E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	2.44E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/L	3.63E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,3-Dichlorobenzene	4.50E-03	mg/L	1.26E-05	mg/kg-day	--	(mg/kg-day)-1	--
				1,4-Dichlorobenzene	6.42E-03	mg/L	1.44E-05	mg/kg-day	2.40E-02	(mg/kg-day)-1	3.45E-07
				2-Butanone	7.10E-02	mg/L	2.85E-06	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/L	3.22E-07	mg/kg-day	--	--	--
				2-Methylnaphthalene	7.00E-04	mg/L	3.59E-06	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/L	4.16E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Acenaphthene	2.00E-03	mg/L	9.62E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/L	1.02E-05	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/L	3.40E-05	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	Aluminum	9.88E-01	mg/L	7.64E-05	mg/kg-day	--	--	--
				Antimony	1.43E-02	mg/L	5.63E-07	mg/kg-day	--	--	--
				Arsenic	1.98E-02	mg/L	1.38E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.07E-06
				Barium	2.70E-01	mg/L	3.93E-06	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/L	1.19E-05	mg/kg-day	5.50E-02	(mg/kg-day)-1	6.54E-07
				Benzo(a)anthracene	1.00E-04	mg/L	3.43E-06	mg/kg-day	7.30E-01	(mg/kg-day)-1	2.50E-06
				Benzo(a)pyrene	1.00E-04	mg/L	4.48E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	3.27E-05
				Beryllium	1.41E-03	mg/L	3.37E-08	mg/kg-day	--	--	--
				bis(2-ethylhexyl)phthalate	7.09E-03	mg/L	5.05E-04	mg/kg-day	--	(mg/kg-day)-1	--
				Bromodichloromethane	7.10E-03	mg/L	1.29E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	7.99E-08
				Cadmium	1.60E-02	mg/L	2.03E-07	mg/kg-day	--	--	--
				Carbon disulfide	7.53E-03	mg/L	4.25E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/L	8.94E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/L	3.56E-06	mg/kg-day	2.90E-03	(mg/kg-day)-1	1.03E-08
				Chloroform	7.44E-03	mg/L	2.40E-06	mg/kg-day	--	--	--
				Chloromethane	7.26E-03	mg/L	1.09E-06	mg/kg-day	--	--	--
				Chromium	1.52E-01	mg/L	5.50E-06	mg/kg-day	--	--	--
				Chromium (VI)	4.72E-01	mg/L	1.71E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/L	2.99E-05	mg/kg-day	--	--	--
				Cobalt	1.51E-02	mg/L	6.62E-07	mg/kg-day	--	--	--
				Copper	1.24E-02	mg/L	1.37E-07	mg/kg-day	--	--	--
				Cyanide	6.60E-02	mg/L	2.07E-06	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/L	1.92E-05	mg/kg-day	--	--	--
				Fluoranthene	1.80E-03	mg/L	3.34E-05	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/L	6.18E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/L	1.75E-06	mg/kg-day	7.80E-02	(mg/kg-day)-1	1.37E-07
				Iron	1.70E+01	mg/L	1.52E-04	mg/kg-day	--	--	--
				Isopropylbenzene	5.50E-03	mg/L	2.78E-05	mg/kg-day	--	--	--
				Lead	7.38E-03	mg/L	9.12E-08	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/L	3.84E-05	mg/kg-day	--	--	--
				Manganese	9.91E+00	mg/L	4.59E-04	mg/kg-day	--	--	--
				Mercury	4.40E-05	mg/L	1.59E-09	mg/kg-day	--	--	--
				Methylene chloride	9.90E-03	mg/L	1.60E-06	mg/kg-day	7.50E-03	(mg/kg-day)-1	1.20E-08
				Methyl-T-Butyl-Ether	6.97E-03	mg/L	6.48E-07	mg/kg-day	1.80E-03	(mg/kg-day)-1	1.17E-09
				Molybdenum	7.50E-02	mg/L	1.95E-06	mg/kg-day	--	--	--
				Naphthalene	3.35E-02	mg/L	8.40E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	1.01E-05

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Dermal (bathing/ showering) (Cont.)	n-Butylbenzene	2.40E-03	mg/L	1.22E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Nickel	1.83E-01	mg/L	2.18E-06	mg/kg-day	--	--	--
				n-Propylbenzene	1.22E-02	mg/L	6.19E-05	mg/kg-day	--	(mg/kg-day)-1	--
				o-Xylene	6.86E-03	mg/L	1.75E-05	mg/kg-day	--	--	--
				Phenanthrene	2.00E-03	mg/L	1.66E-05	mg/kg-day	--	--	--
				Phenol	6.60E-03	mg/L	1.32E-06	mg/kg-day	--	--	--
				p-Isopropyltoluene	8.00E-04	mg/L	4.05E-06	mg/kg-day	0.00E+00	(mg/kg-day)-1	0.00E+00
				Pyrene	3.00E-03	mg/L	3.52E-05	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/L	2.53E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Selenium	1.08E-02	mg/L	3.53E-07	mg/kg-day	--	--	--
				Silver	5.48E-03	mg/L	1.21E-07	mg/kg-day	--	--	--
				Tert-Butanol	4.21E-01	mg/L	2.89E-05	mg/kg-day	--	(mg/kg-day)-1	--
				tert-Butylbenzene	3.00E-04	mg/L	1.52E-06	mg/kg-day	--	(mg/kg-day)-1	--
				Tetrachloroethene	5.84E-03	mg/L	1.02E-05	mg/kg-day	5.40E-01	(mg/kg-day)-1	5.49E-06
				Thallium	8.12E-03	mg/L	2.94E-07	mg/kg-day	--	--	--
				Toluene	6.35E-03	mg/L	1.04E-05	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/L	2.02E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Trichloroethene	1.00E+00	mg/L	5.68E-04	mg/kg-day	4.00E-01	(mg/kg-day)-1	2.27E-04
				Vanadium	2.85E-02	mg/L	1.39E-06	mg/kg-day	--	--	--
				Vinyl chloride	2.54E-02	mg/L	1.04E-05	mg/kg-day	7.20E-01	(mg/kg-day)-1	7.47E-06
				Xylene (Total)	1.75E-02	mg/L	5.07E-05	mg/kg-day	--	--	--
				Zinc	1.50E-01	mg/L	1.85E-06	mg/kg-day	--	--	--
			Exposure Route Total								**2.89E-04**
		Exposure Point Total									**2.81E-03**
	Exposure Medium Total										**2.81E-03**
	Air	Domestic Use of Groundwater Indoors	Inhalation (bathing/ showering)	1,1,1-Trichloroethane	2.23E-02	mg/l	2.57E-05	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	1.06E-02	mg/l	1.22E-05	mg/kg-day	5.60E-02	(mg/kg-day)-1	6.81E-07
				1,1-Dichlorethane	1.08E-01	mg/l	1.24E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	7.10E-07
				1,1-Dichlorethene	5.89E-01	mg/l	6.78E-04	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	1.13E-02	mg/l	1.30E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	1.34E-02	mg/l	1.54E-05	mg/kg-day	--	--	--
				1,2-Dichlorethane	1.25E-02	mg/l	1.44E-05	mg/kg-day	9.10E-02	(mg/kg-day)-1	1.31E-06

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	1,2-Dichlorethene (Total)	2.94E-01	mg/l	3.38E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.00E-04	mg/l	1.15E-07	mg/kg-day	6.80E-02	(mg/kg-day)-1	7.82E-09
				1,3,5-Trimethylbenzene	1.06E-02	mg/l	1.22E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	4.50E-03	mg/l	5.18E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	6.42E-03	mg/l	7.39E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	1.62E-07
				2-Butanone	7.10E-02	mg/l	8.17E-05	mg/kg-day	--	--	--
				2-Hexanone	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				2-MethylNaphthalene	7.00E-04	mg/l	8.05E-07	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	2.90E-02	mg/l	3.34E-05	mg/kg-day	--	--	--
				Acenaphthene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Acenaphthylene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Acetone	1.65E+00	mg/l	1.90E-03	mg/kg-day	--	--	--
				Benzene	1.59E-02	mg/l	1.83E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	4.94E-07
				Bromodichloromethane	7.10E-03	mg/l	8.17E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	5.07E-07
				Carbon disulfide	7.53E-03	mg/l	8.66E-06	mg/kg-day	--	--	--
				Chlorobenzene	6.07E-03	mg/l	6.99E-06	mg/kg-day	--	--	--
				Chloroethane	1.23E-02	mg/l	1.42E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	4.12E-08
				Chloroform	7.44E-03	mg/l	8.56E-06	mg/kg-day	8.05E-02	(mg/kg-day)-1	6.89E-07
				Chloromethane	7.26E-03	mg/l	8.35E-06	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	5.55E-02	mg/l	6.39E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	6.60E-02	mg/l	7.59E-05	mg/kg-day	--	--	--
				Ethylbenzene	7.18E-03	mg/l	8.27E-06	mg/kg-day	--	--	--
				Fluorene	1.00E-03	mg/l	1.15E-06	mg/kg-day	--	--	--
				Hexachlorobutadiene	4.00E-04	mg/l	4.60E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	3.59E-08
				Isopropylbenzene	5.50E-03	mg/l	6.33E-06	mg/kg-day	--	--	--
				m,p-Xylene	1.32E-02	mg/l	1.52E-05	mg/kg-day	--	--	--
				Methylene Chloride	9.90E-03	mg/l	1.14E-05	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.87E-08
				Methyl-T-Butyl-ether	6.97E-03	mg/l	8.02E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	7.30E-09
				Naphthalene	3.35E-02	mg/l	3.85E-05	mg/kg-day	1.20E-01	(mg/kg-day)-1	4.62E-06
				n-Butylbenzene	2.40E-03	mg/l	2.76E-06	mg/kg-day	--	--	--
				n-propylbenzene	1.22E-02	mg/l	1.41E-05	mg/kg-day	--	--	--
				o-Xylene	6.86E-03	mg/l	7.89E-06	mg/kg-day	--	--	--

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater Indoors (Cont.)	Inhalation (bathing/ showering) (Cont.)	Phenanthrene	2.00E-03	mg/l	2.30E-06	mg/kg-day	--	--	--
				Pyrene	3.00E-03	mg/l	3.45E-06	mg/kg-day	--	--	--
				sec-Butylbenzene	5.00E-04	mg/l	5.75E-07	mg/kg-day	--	--	--
				tert-Butylbenzene	3.00E-04	mg/l	3.45E-07	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	1.16E-02	mg/l	1.34E-05	mg/kg-day	--	--	--
				Tetrachloroethene	5.84E-03	mg/l	6.73E-06	mg/kg-day	2.10E-02	(mg/kg-day)-1	1.41E-07
				Toluene	6.35E-03	mg/l	7.31E-06	mg/kg-day	--	--	--
				Trichloroethene	1.00E+00	mg/l	1.15E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	4.60E-04
				Vinyl chloride	2.54E-02	mg/l	2.92E-05	mg/kg-day	3.10E-02	(mg/kg-day)-1	9.05E-07
				Xylene (Total)	1.75E-02	mg/l	2.01E-05	mg/kg-day	--	--	--
			Exposure Route Total								**4.71E-04**
		Exposure Point Total									**4.71E-04**
		Indoor Air	Inhalation (Vapor Intrusion)	1,1,1-Trichloroethane	2.01E-03	mg/m3	1.11E-04	mg/kg-day	--	--	--
				1,1,2-Trichloroethane	4.59E-05	mg/m3	2.53E-06	mg/kg-day	5.60E-02	(mg/kg-day)-1	1.42E-07
				1,1-Dichlorethane	3.16E-03	mg/m3	1.75E-04	mg/kg-day	5.70E-03	(mg/kg-day)-1	9.95E-07
				1,1-Dichlorethene	9.92E-02	mg/m3	5.48E-03	mg/kg-day	--	--	--
				1,2,4-Trimethylbenzene	2.33E-04	mg/m3	1.29E-05	mg/kg-day	--	--	--
				1,2-Dichlorobenzene	9.49E-05	mg/m3	5.24E-06	mg/kg-day	--	--	--
				1,2-Dichlorethane	7.70E-05	mg/m3	4.25E-06	mg/kg-day	9.10E-02	(mg/kg-day)-1	3.87E-07
				1,2-Dichlorethene (Total)	6.08E-03	mg/m3	3.36E-04	mg/kg-day	--	--	--
				1,2-Dichloropropane	1.41E-06	mg/m3	7.77E-08	mg/kg-day	6.80E-02	(mg/kg-day)-1	5.28E-09
				1,3,5-Trimethylbenzene	2.08E-04	mg/m3	1.15E-05	mg/kg-day	--	--	--
				1,3-Dichlorobenzene	5.39E-05	mg/m3	2.98E-06	mg/kg-day	--	--	--
				1,4-Dichlorobenzene	5.92E-05	mg/m3	3.27E-06	mg/kg-day	2.20E-02	(mg/kg-day)-1	7.19E-08
				2-Butanone	2.35E-05	mg/m3	1.30E-06	mg/kg-day	--	--	--
				2-Hexanone	1.31E-06	mg/m3	7.25E-08	mg/kg-day	--	--	--
				2-MethylNaphthalene	8.28E-07	mg/m3	4.57E-08	mg/kg-day	--	--	--
				4-Methyl-2-pentanone	1.90E-05	mg/m3	1.05E-06	mg/kg-day	--	--	--
				Acenaphthene	6.52E-07	mg/m3	3.60E-08	mg/kg-day	--	--	--
				Acenaphthylene	6.52E-07	mg/m3	3.60E-08	mg/kg-day	--	--	--
				Acetone	5.45E-04	mg/m3	3.01E-05	mg/kg-day	--	--	--
				Benzene	5.01E-04	mg/m3	2.77E-05	mg/kg-day	2.70E-02	(mg/kg-day)-1	7.47E-07

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater	Air	Indoor Air	Inhalation	Bromodichloromethane	2.55E-05	mg/m3	1.41E-06	mg/kg-day	6.20E-02	(mg/kg-day)-1	8.74E-08
(Cont.)	(Cont.)	(Cont.)	(Vapor Intrusion)	Carbon disulfide	1.61E-03	mg/m3	8.88E-05	mg/kg-day	--	--	--
			(Cont.)	Chlorobenzene	9.89E-05	mg/m3	5.46E-06	mg/kg-day	--	--	--
				Chloroethane	1.47E-03	mg/m3	8.11E-05	mg/kg-day	2.90E-03	(mg/kg-day)-1	2.35E-07
				Chloroform	1.82E-04	mg/m3	1.01E-05	mg/kg-day	8.05E-02	(mg/kg-day)-1	8.10E-07
				Chloromethane	5.88E-04	mg/m3	3.25E-05	mg/kg-day	--	--	--
				cis-1,2-Dichloroethene	1.15E-03	mg/m3	6.35E-05	mg/kg-day	--	(mg/kg-day)-1	--
				Cyanide	9.60E-05	mg/m3	5.30E-06	mg/kg-day	--	--	--
				Ethylbenzene	2.48E-04	mg/m3	1.37E-05	mg/kg-day	--	--	--
				Fluorene	1.34E-07	mg/m3	7.40E-09	mg/kg-day	--	--	--
				Hexachlorobutadiene	9.57E-06	mg/m3	5.29E-07	mg/kg-day	7.80E-02	(mg/kg-day)-1	4.12E-08
				Isopropylbenzene	2.12E-02	mg/m3	1.17E-03	mg/kg-day	--	--	--
				m,p-Xylene	4.52E-04	mg/m3	2.49E-05	mg/kg-day	--	--	--
				Methylene Chloride	1.47E-04	mg/m3	8.11E-06	mg/kg-day	1.65E-03	(mg/kg-day)-1	1.33E-08
				Methyl-T-Butyl-ether	2.95E-05	mg/m3	1.63E-06	mg/kg-day	9.10E-04	(mg/kg-day)-1	1.49E-09
				Naphthalene	5.03E-05	mg/m3	2.78E-06	mg/kg-day	1.20E-01	(mg/kg-day)-1	3.33E-07
				n-Butylbenzene	9.94E-05	mg/m3	5.49E-06	mg/kg-day	--	--	--
				n-propylbenzene	4.44E-04	mg/m3	2.45E-05	mg/kg-day	--	--	--
				o-Xylene	1.73E-04	mg/m3	9.54E-06	mg/kg-day	--	--	--
				Phenanthrene	1.75E-07	mg/m3	9.69E-09	mg/kg-day	--	--	--
				Pyrene	6.77E-08	mg/m3	3.74E-09	mg/kg-day	--	--	--
				sec-Butylbenzene	5.50E-08	mg/m3	3.04E-09	mg/kg-day	--	--	--
				tert-Butylbenzene	1.30E-05	mg/m3	7.17E-07	mg/kg-day	--	--	--
				trans-1,2-Dichloroethene	9.43E-04	mg/m3	5.21E-05	mg/kg-day	--	--	--
				Tetrachloroethene	4.75E-04	mg/m3	2.62E-05	mg/kg-day	2.10E-02	(mg/kg-day)-1	5.51E-07
				Toluene	2.22E-04	mg/m3	1.22E-05	mg/kg-day	--	--	--
				Trichloroethene	5.23E-02	mg/m3	2.89E-03	mg/kg-day	4.00E-01	(mg/kg-day)-1	1.16E-03
				Vinyl chloride	5.47E-03	mg/m3	3.02E-04	mg/kg-day	3.10E-02	(mg/kg-day)-1	9.37E-06
				Xylene (Total)	5.96E-04	mg/m3	3.29E-05	mg/kg-day	--	--	--
			Exposure Route Total								**1.17E-03**
		Exposure Point Total									**1.17E-03**
	Exposure Medium Total										**1.64E-03**

TABLE F-8.4.8.RME
EPA RAGS PART D TABLE 7b
CALCULATION OF RME CHEMICAL CANCER RISKS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
							Value	Units	Value	Units	
Medium Total											4.45E-03
										Total of Receptor Hazards Across All Media	4.47E-03

Notes:

--	Not applicable or not available
CSF	Cancer slope factor
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ft bgs	Feet below ground surface
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
(mg/kg-day)-1	1/(Milligrams per kilogram per day)
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
RAGS	Risk Acceptance Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

(a) See the Vapor Intrusion to Indoor Air Evaluation for determination of the modeled indoor air concentration.

TABLE F-9.4.1.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	4.50E-06	2.97E-07	--	--	4.80E-06
			4,4'-DDD	1.01E-09	6.64E-11	--	--	1.07E-09	Liver	2.35E-05	1.55E-06	--	--	2.50E-05
			4,4'-DDT	6.89E-09	1.36E-09	--	--	8.26E-09	Liver	1.14E-04	2.25E-05	--	--	1.36E-04
			Acenaphthene	--	--	--	--	--	Liver	1.63E-07	1.40E-07	--	--	3.03E-07
			Acenaphthylene	--	--	--	--	--	Liver	3.42E-08	2.26E-09	--	--	3.65E-08
			Acetone	--	--	--	--	--	Kidney	5.44E-09	3.59E-10	--	--	5.79E-09
			Aluminum	--	--	--	--	--	CNS	1.44E-02	9.49E-05	--	--	1.45E-02
			Anthracene	--	--	--	--	--	No observed effect	4.96E-08	4.25E-08	--	--	9.21E-08
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.40E-02	9.25E-05	--	--	1.41E-02
			Aroclor-1260	9.78E-08	9.04E-08	--	--	1.88E-07	Eye/Finger and Toe nails	6.85E-03	6.33E-03	--	--	1.32E-02
			Arsenic	1.05E-05	2.08E-06	--	--	1.26E-05	Skin	6.52E-02	1.29E-02	--	--	7.81E-02
			Barium	--	--	--	--	--	Kidney	3.25E-03	3.07E-04	--	--	3.56E-03
			Benzo(a)anthracene	8.44E-09	7.24E-09	--	--	1.57E-08	--	--	--	--	--	--
			Benzo(a)pyrene	1.10E-07	9.48E-08	--	--	2.05E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	4.90E-09	4.21E-09	--	--	9.11E-09	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	8.08E-07	6.93E-07	--	--	1.50E-06
			Benzo(k)fluoranthene	6.57E-10	5.64E-10	--	--	1.22E-09	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.22E-03	1.15E-03	--	--	2.38E-03
			bis(2-ethylhexyl)phthalate	2.54E-10	--	--	--	2.54E-10	Liver	2.54E-06	1.68E-07	--	--	2.71E-06
			Cadmium	--	--	--	--	--	Kidney	1.86E-02	1.23E-04	--	--	1.87E-02
			Chromium	--	--	--	--	--	No observed effect	2.32E-05	1.53E-07	--	--	2.34E-05
			Chrysene	1.79E-10	1.54E-10	--	--	3.33E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	7.20E-04	4.76E-06	--	--	7.25E-04
			Copper	--	--	--	--	--	Gi Tract/Kidney	1.62E-03	1.07E-05	--	--	1.63E-03
			Dibenzo(a,h)anthracene	4.36E-08	3.74E-08	--	--	8.10E-08	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	6.95E-07	4.59E-10	--	--	6.95E-07
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	5.69E-07	4.88E-07	--	--	1.06E-06
			Fluorene	--	--	--	--	--	Blood	4.90E-07	4.20E-07	--	--	9.10E-07
			Indeno(1,2,3-cd)pyrene	9.74E-09	8.36E-09	--	--	1.81E-08	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	8.31E-02	5.49E-04	--	--	8.37E-02
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	1.99E-02	1.31E-04	--	--	2.00E-02
			Mercury	--	--	--	--	--	Immune System	4.12E-03	--	--	--	4.12E-03
			Molybdenum	--	--	--	--	--	CNS	5.48E-04	3.62E-06	--	--	5.52E-04
			Naphthalene	6.79E-10	5.82E-10	--	--	1.26E-09	Whole Body	7.92E-07	6.79E-07	--	--	1.47E-06
			Nickel	--	--	--	--	--	Whole Body	1.46E-03	2.41E-04	--	--	1.70E-03
			Phenanthrene	--	--	--	--	--	No observed effect	9.72E-08	6.41E-09	--	--	1.04E-07
			Pyrene	--	--	--	--	--	Kidney	1.02E-06	8.72E-07	--	--	1.89E-06
			Silver	--	--	--	--	--	SKin	5.61E-04	9.25E-05	--	--	6.53E-04

TABLE F-9.4.1.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Thallium	--	--	--	--	--	Liver, Blood	3.30E-02	--	--	--	3.30E-02
			Vanadium	--	--	--	--	--	Kidney	8.15E-03	2.07E-03	--	--	1.02E-02
			Zinc	--	--	--	--	--	Blood	3.64E-04	2.40E-06	--	--	3.66E-04
			Chemical Total	1.08E-05	2.32E-06	0.00E+00	0.00E+00	1.31E-05		2.77E-01	2.41E-02	0.00E+00	0.00E+00	3.01E-01
		Exposure Point Total						1.31E-05						3.01E-01
	Exposure Medium Total							1.31E-05						3.01E-01
	Air	Outdoor Air (Particulates and VOCs)	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4,4'-DDD	--	--	1.52E-13	--	1.52E-13	Liver	--	--	3.56E-09	--	3.56E-09
			4,4'-DDT	--	--	1.04E-12	--	1.04E-12	Liver	--	--	1.72E-08	--	1.72E-08
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.81E-07	--	1.81E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	3.81E-08	--	3.81E-08
			Acetone	--	--	--	--	--	Kidney	--	--	8.63E-08	--	8.63E-08
			Aluminum	--	--	--	--	--	Respiratory system	--	--	1.52E-03	--	1.52E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	1.42E-08	--	1.42E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	1.48E-11	--	1.48E-11	mmune System/ Eye/Finger and Toe nails	--	--	1.04E-06	--	1.04E-06
			Arsenic	--	--	1.59E-08	--	1.59E-08	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	2.46E-04	--	2.46E-04
			Benzo(a)anthracene	--	--	1.28E-12	--	1.28E-12	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	1.67E-11	--	1.67E-11	--	--	--	--	--	--
			Benzo(b)fluoranthene	--	--	7.43E-13	--	7.43E-13	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.22E-10	--	1.22E-10
			Benzo(k)fluoranthene	--	--	9.96E-14	--	9.96E-14	--	--	--	--	--	--
			Beryllium	--	--	1.11E-09	--	1.11E-09	Immune System/Lung	--	--	6.49E-05	--	6.49E-05
			bis(2-ethylhexyl)phthalate	--	--	3.85E-14	--	3.85E-14	--	--	--	3.50E-10	--	3.50E-10
			Cadmium	--	--	3.17E-09	--	3.17E-09	--	--	--	--	--	--
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	2.72E-14	--	2.72E-14	--	--	--	--	--	--
			Cobalt	--	--	7.64E-09	--	7.64E-09	Respiratory system	--	--	3.82E-04	--	3.82E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	6.60E-12	--	6.60E-12	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	8.62E-11	--	8.62E-11
			Fluorene	--	--	--	--	--	Blood	--	--	2.72E-07	--	2.72E-07
			Indeno(1,2,3-cd)pyrene	--	--	1.48E-12	--	1.48E-12	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	5.06E-03	--	5.06E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.1.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	3.16E-09	--	3.16E-09	Nasal Epithelium	--	--	8.59E-05	--	8.59E-05
			Nickel	--	--	--	--	--	Respiratory system	--	--	7.74E-05	--	7.74E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.30E-08	--	1.30E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	5.35E-08	--	5.35E-08
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Vanadium	--	--	--	--	--	--	--	--	--	--	--
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	3.10E-08	0.00E+00	3.10E-08		0.00E+00	0.00E+00	7.44E-03	0.00E+00	7.44E-03
		Exposure Point Total						3.10E-08						7.44E-03
	Exposure Medium Total							3.10E-08						7.44E-03
Medium Total								1.31E-05						3.09E-01
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	6.26E-05	--	6.26E-05
			1,1,2-Trichloroethane	--	--	1.79E-07	--	1.79E-07	Blood	--	--	2.24E-04	--	2.24E-04
			1,1-Dichlorethane	--	--	1.26E-06	--	1.26E-06	Kidney	--	--	4.42E-04	--	4.42E-04
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.40E-02	--	3.40E-02
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.69E-03	--	2.69E-03
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	3.26E-05	--	3.26E-05
			1,2-Dichlorethane	--	--	4.90E-07	--	4.90E-07	Liver	--	--	2.20E-06	--	2.20E-06
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	1.19E-02	--	1.19E-02
			1,2-Dichloropropane	--	--	6.68E-09	--	6.68E-09	--	--	--	2.50E-05	--	2.50E-05
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.40E-03	--	2.40E-03
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	3.51E-05	--	3.51E-05
			1,4-Dichlorobenzene	--	--	9.10E-08	--	9.10E-08	Liver	--	--	5.07E-06	--	5.07E-06
			2-Butanone	--	--	--	--	--	Developmental	--	--	3.22E-07	--	3.22E-07
			2-Hexanone	--	--	--	--	--	CNS	--	--	2.99E-08	--	2.99E-08
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	4.33E-07	--	4.33E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.13E-07	--	2.13E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	2.13E-07	--	2.13E-07
			Acetone	--	--	--	--	--	Kidney	--	--	1.18E-05	--	1.18E-05
			Benzene	--	--	9.45E-07	--	9.45E-07	Blood	--	--	1.14E-03	--	1.14E-03
			Bromodichloromethane	--	--	1.11E-07	--	1.11E-07	Kidney	--	--	2.50E-05	--	2.50E-05
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.57E-04	--	1.57E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.13E-04	--	1.13E-04
			Chloroethane	--	--	2.98E-07	--	2.98E-07	Fetus	--	--	9.91E-06	--	9.91E-06
			Chloroform	--	--	1.03E-06	--	1.03E-06	--	--	--	2.55E-02	--	2.55E-02
			Chloromethane	--	--	--	--	--	CNS	--	--	4.47E-04	--	4.47E-04

TABLE F-9.4.1.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation) (Cont.)	cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	2.25E-03	--	2.25E-03
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	1.70E-05	--	1.70E-05
			Fluorene	--	--	--	--	--	Blood	--	--	6.56E-08	--	6.56E-08
			Hexachlorobutadiene	--	--	5.22E-08	--	5.22E-08	Kidney	--	--	6.24E-04	--	6.24E-04
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	3.78E-03	--	3.78E-03
			m,p-Xylene	--	--	--	--	--	CNS	--	--	3.09E-04	--	3.09E-04
			Methylene Chloride	--	--	1.69E-08	--	1.69E-08	Liver	--	--	3.35E-06	--	3.35E-06
			Methyl-T-Butyl-ether	--	--	1.88E-09	--	1.88E-09	Liver/Kidney/ Periocular Tissue	--	--	6.75E-07	--	6.75E-07
			Naphthalene	--	--	4.22E-07	--	4.22E-07	Nasal Epithelium	--	--	1.15E-03	--	1.15E-03
			n-Butylbenzene	--	--	--	--	--	--	--	--	1.70E-04	--	1.70E-04
			n-propylbenzene	--	--	--	--	--	--	--	--	2.17E-04	--	2.17E-04
			o-Xylene	--	--	--	--	--	CNS	--	--	1.18E-04	--	1.18E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.14E-08	--	1.14E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	4.42E-08	--	4.42E-08
			sec-Butylbenzene	--	--	--	--	--	--	--	--	9.42E-08	--	9.42E-08
			tert-Butylbenzene	--	--	--	--	--	--	--	--	2.22E-05	--	2.22E-05
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	9.23E-04	--	9.23E-04
			Tetrachloroethene	--	--	6.97E-07	--	6.97E-07	CNS	--	--	5.42E-05	--	5.42E-05
			Toluene	--	--	--	--	--	CNS	--	--	3.80E-05	--	3.80E-05
			Trichloroethene	--	--	1.46E-03	--	1.46E-03	CNS/Liver/Endocrine System	--	--	1.02E-01	--	1.02E-01
			Vinyl chloride	--	--	6.12E-06	--	6.12E-06	Liver	--	--	3.75E-03	--	3.75E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	4.09E-04	--	4.09E-04
			Chemical Total	0.00E+00	0.00E+00	1.47E-03	0.00E+00	1.47E-03		0.00E+00	0.00E+00	1.95E-01	0.00E+00	1.95E-01
		Exposure Point Total						1.47E-03						1.95E-01
	Exposure Medium Total							1.47E-03						1.95E-01
Medium Total								1.47E-03						1.95E-01
Receptor Total							Receptor Risk Total	1.49E-03					Receptor HI Total	5.04E-01

TABLE F-9.4.1.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
									Total Organ 1 (Liver) HI Across All Media =					7.10E-02
									Total Organ 2 (Kidney) HI Across All Media =					3.90E-02
									Total Organ 3 (Fetus) HI Across All Media =					9.91E-06
									Total Organ 4 (Nervous System) HI Across All Media =					1.49E-01
									Total Organ 5 (Endocrine system) HI Across All Media =					1.02E-01
									Total Organ 6 (Blood) HI Across All Media =					6.46E-02
									Total Organ 7 (Skin) HI Across All Media =					7.88E-02
									Total Organ 8 (No Observed Effect) HI Across All Media =					2.36E-05
									Total Organ 9 (Unknown Systems) HI Across All Media =					1.10E-01
									Total Organ 10 (Gastrointestinal System) HI Across All Media =					4.01E-03
									Total Organ 11 (Vision/Eye) HI Across All Media =					1.32E-02
									Total Organ 12 (Body Weight) HI Across All Media =					NA
									Total Organ 13 (Developmental) HI Across All Media =					2.64E-04
									Total Organ 13 (Respiratory/lung) HI Across All Media =					1.99E-03
									Total Organ 13 (whole body) HI Across All Media =					1.58E-02
									Total Organ 13 (Immune System) HI Across All Media =					1.83E-02
									Total Organ 13 (Reproductive System) HI Across All Media =					NA
									Total Organ 13 (Finger and Toe Nail) HI Across All Media =					1.32E-02
									Total Organ 13 (Nasal Tissue) HI Across All Media =					1.23E-03
									Total Organ 13 (Fetus) HI Across All Media =					9.91E-06

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-9.4.2.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	1.49E-05	4.46E-07	--	--	1.53E-05
			4,4'-DDD	1.33E-10	3.99E-12	--	--	1.37E-10	Liver	7.75E-05	2.32E-06	--	--	7.98E-05
			4,4'-DDT	9.10E-10	8.19E-11	--	--	9.92E-10	Liver	3.75E-04	3.37E-05	--	--	4.08E-04
			Acenaphthene	--	--	--	--	--	Liver	5.38E-07	2.10E-07	--	--	7.48E-07
			Acenaphthylene	--	--	--	--	--	Liver	1.13E-07	3.39E-09	--	--	1.16E-07
			Acetone	--	--	--	--	--	Kidney	1.79E-08	5.38E-10	--	--	1.85E-08
			Aluminum	--	--	--	--	--	CNS	4.74E-02	1.42E-04	--	--	4.76E-02
			Anthracene	--	--	--	--	--	No observed effect	1.64E-07	6.38E-08	--	--	2.27E-07
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	4.62E-02	1.39E-04	--	--	4.64E-02
			Aroclor-1260	1.29E-08	5.42E-09	--	--	1.83E-08	Eye/Finger and Toe nails	2.26E-02	9.49E-03	--	--	3.21E-02
			Arsenic	1.38E-06	1.25E-07	--	--	1.51E-06	Skin	2.15E-01	1.94E-02	--	--	2.35E-01
			Barium	--	--	--	--	--	Kidney	1.07E-02	4.60E-04	--	--	1.12E-02
			Benzo(a)anthracene	1.11E-09	4.34E-10	--	--	1.55E-09	--	--	--	--	--	--
			Benzo(a)pyrene	1.46E-08	5.69E-09	--	--	2.03E-08	--	--	--	--	--	--
			Benzo(b)fluoranthene	6.47E-10	2.52E-10	--	--	8.99E-10	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	2.67E-06	1.04E-06	--	--	3.70E-06
			Benzo(k)fluoranthene	8.68E-11	3.38E-11	--	--	1.21E-10	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	4.04E-03	1.73E-03	--	--	5.77E-03
			bis(2-ethylhexyl)phthalate	3.36E-11	--	--	--	3.36E-11	Liver	8.40E-06	2.52E-07	--	--	8.65E-06
			Cadmium	--	--	--	--	--	Kidney	6.14E-02	1.84E-04	--	--	6.15E-02
			Chromium	--	--	--	--	--	No observed effect	7.66E-05	2.30E-07	--	--	7.69E-05
			Chrysene	2.37E-11	9.23E-12	--	--	3.29E-11	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	2.38E-03	7.13E-06	--	--	2.38E-03
			Copper	--	--	--	--	--	Gi Tract/Kidney	5.36E-03	1.61E-05	--	--	5.37E-03
			Dibenzo(a,h)anthracene	5.75E-09	2.24E-09	--	--	7.99E-09	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	2.29E-06	6.88E-10	--	--	2.29E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	1.88E-06	7.32E-07	--	--	2.61E-06
			Fluorene	--	--	--	--	--	Blood	1.62E-06	6.30E-07	--	--	2.25E-06
			Indeno(1,2,3-cd)pyrene	1.29E-09	5.02E-10	--	--	1.79E-09	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	2.74E-01	8.23E-04	--	--	2.75E-01
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	6.55E-02	1.97E-04	--	--	6.57E-02
			Mercury	--	--	--	--	--	Immune System	1.36E-02	--	--	--	1.36E-02
			Molybdenum	--	--	--	--	--	CNS	1.81E-03	5.42E-06	--	--	1.81E-03
			Naphthalene	8.96E-11	3.49E-11	--	--	1.25E-10	Whole Body	2.61E-06	1.02E-06	--	--	3.63E-06
			Nickel	--	--	--	--	--	Whole Body	4.82E-03	3.61E-04	--	--	5.18E-03
			Phenanthrene	--	--	--	--	--	No observed effect	3.21E-07	9.62E-09	--	--	3.30E-07
			Pyrene	--	--	--	--	--	Kidney	3.35E-06	1.31E-06	--	--	4.66E-06
			Silver	--	--	--	--	--	SKin	1.85E-03	1.39E-04	--	--	1.99E-03
			Thallium	--	--	--	--	--	Liver, Blood	1.09E-01	--	--	--	1.09E-01
			Vanadium	--	--	--	--	--	Kidney	2.69E-02	3.10E-03	--	--	3.00E-02
			Zinc	--	--	--	--	--	Blood	1.20E-03	3.60E-08	--	--	1.20E-03
			Chemical Total	1.42E-06	1.39E-07	0.00E+00	0.00E+00	1.56E-06		9.15E-01	3.62E-02	0.00E+00	0.00E+00	9.51E-01

TABLE F-9.4.2.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Exposure Point Total						1.56E-06						9.51E-01
(Cont.)	Exposure Medium Total							1.56E-06						9.51E-01
	Air	Outdoor Air	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	4,4'-DDD	--	--	6.10E-15	--	6.10E-15	Liver	--	--	3.56E-09	--	3.56E-09
			4,4'-DDT	--	--	4.18E-14	--	4.18E-14	Liver	--	--	1.72E-08	--	1.72E-08
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.81E-07	--	1.81E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	3.81E-08	--	3.81E-08
			Acetone	--	--	--	--	--	Kidney	--	--	8.63E-08	--	8.63E-08
			Aluminum	--	--	--	--	--	Respiratory system	--	--	1.52E-03	--	1.52E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	1.42E-08	--	1.42E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	5.93E-13	--	5.93E-13	Immune System/ Eye/Finger and Toe nails	--	--	1.04E-06	--	1.04E-06
			Arsenic	--	--	6.35E-10	--	6.35E-10	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	2.46E-04	--	2.46E-04
			Benzo(a)anthracene	--	--	5.11E-14	--	5.11E-14	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	6.70E-13	--	6.70E-13	--	--	--	--	--	--
			Benzo(b)fluoranthene	--	--	2.97E-14	--	2.97E-14	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.22E-10	--	1.22E-10
			Benzo(k)fluoranthene	--	--	3.98E-15	--	3.98E-15	--	--	--	--	--	--
			Beryllium	--	--	4.45E-11	--	4.45E-11	Immune System/Lung	--	--	6.49E-05	--	6.49E-05
			bis(2-ethylhexyl)phthalate	--	--	1.54E-15	--	1.54E-15	--	--	--	3.50E-10	--	3.50E-10
			Cadmium	--	--	1.27E-10	--	1.27E-10	--	--	--	--	--	--
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	1.09E-15	--	1.09E-15	--	--	--	--	--	--
			Cobalt	--	--	3.06E-10	--	3.06E-10	Respiratory system	--	--	3.82E-04	--	3.82E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	2.64E-13	--	2.64E-13	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	8.62E-11	--	8.62E-11
			Fluorene	--	--	--	--	--	Blood	--	--	2.72E-07	--	2.72E-07
			Indeno(1,2,3-cd)pyrene	--	--	5.91E-14	--	5.91E-14	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	5.06E-03	--	5.06E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	1.26E-10	--	1.26E-10	Nasal Epithelium	--	--	8.59E-05	--	8.59E-05
			Nickel	--	--	--	--	--	Respiratory system	--	--	7.74E-05	--	7.74E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.30E-08	--	1.30E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	5.35E-08	--	5.35E-08
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Vanadium	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.2.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs)	Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.24E-09	0.00E+00	1.24E-09		0.00E+00	0.00E+00	7.44E-03	0.00E+00	7.44E-03
		Exposure Point Total						1.24E-09						7.44E-03
	Exposure Medium Total							1.24E-09						7.44E-03
Medium Total								1.56E-06						9.59E-01
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	7.12E-05	--	7.12E-05
			1,1,2-Trichloroethane	--	--	9.10E-10	--	9.10E-10	Blood	--	--	2.84E-04	--	2.84E-04
			1,1-Dichlorethane	--	--	5.50E-09	--	5.50E-09	Kidney	--	--	4.83E-04	--	4.83E-04
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.63E-02	--	3.63E-02
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	--	--	--
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	4.63E-05	--	4.63E-05
			1,2-Dichlorethane	--	--	2.49E-09	--	2.49E-09	Liver	--	--	2.79E-06	--	2.79E-06
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	5.79E-03	--	5.79E-03
			1,2-Dichloropropane	--	--	3.19E-11	--	3.19E-11	--	--	--	2.99E-05	--	2.99E-05
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	--	--	--
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	3.78E-05	--	3.78E-05
			1,4-Dichlorobenzene	--	--	5.08E-05	--	5.08E-05	Liver	--	--	7.08E-01	--	7.08E-01
			2-Butanone	--	--	--	--	--	Developmental	--	--	--	--	--
			2-Hexanone	--	--	--	--	--	CNS	--	--	--	--	--
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	--	--	--
			Acenaphthene	--	--	--	--	--	Liver	--	--	3.49E-07	--	3.49E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	--	--	--
			Acetone	--	--	--	--	--	Kidney	--	--	1.49E-05	--	1.49E-05
			Benzene	--	--	4.51E-09	--	4.51E-09	Blood	--	--	1.36E-03	--	1.36E-03
			Bromodichloromethane	--	--	4.56E-10	--	4.56E-10	Kidney	--	--	2.57E-05	--	2.57E-05
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.77E-04	--	1.77E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.44E-04	--	1.44E-04
			Chloroethane	--	--	--	--	--	Fetus	--	--	--	--	--
			Chloroform	--	--	4.88E-09	--	4.88E-09	--	--	--	3.03E-02	--	3.03E-02
			Chloromethane	--	--	--	--	--	CNS	--	--	--	--	--
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	2.50E-03	--	2.50E-03
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	2.23E-05	--	2.23E-05
			Fluorene	--	--	--	--	--	Blood	--	--	1.01E-07	--	1.01E-07
			Hexachlorobutadiene	--	--	3.05E-10	--	3.05E-10	Kidney	--	--	9.13E-04	--	9.13E-04
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	4.43E-05	--	4.43E-05
			m,p-Xylene	--	--	--	--	--	CNS	--	--	4.10E-04	--	4.10E-04
			Methylene Chloride	--	--	7.73E-11	--	7.73E-11	Liver	--	--	3.84E-06	--	3.84E-06
			Methyl-T-Butyl-ether	--	--	--	--	--	Liver/Kidney/ Periocular Tissue	--	--	--	--	--
			Naphthalene	--	--	2.49E-09	--	2.49E-09	Nasal Epithelium	--	--	1.69E-03	--	1.69E-03
			n-Butylbenzene	--	--	--	--	--	--	--	--	1.86E-04	--	1.86E-04

TABLE F-9.4.2.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation) (Cont.)	n-propylbenzene	--	--	--	--	--	--	--	--	2.71E-04	--	2.71E-04
			o-Xylene	--	--	--	--	--	CNS	--	--	1.63E-04	--	1.63E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	2.66E-08	--	2.66E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	7.24E-08	--	7.24E-08
			sec-Butylbenzene	--	--	--	--	--	--	--	--	3.88E-05	--	3.88E-05
			tert-Butylbenzene	--	--	--	--	--	--	--	--	2.33E-05	--	2.33E-05
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.15E-03	--	1.15E-03
			Tetrachloroethene	--	--	3.48E-09	--	3.48E-09	CNS	--	--	6.77E-05	--	6.77E-05
			Toluene	--	--	--	--	--	CNS	--	--	4.81E-05	--	4.81E-05
			Trichloroethene	--	--	6.97E-06	--	6.97E-06	CNS/Liver/Endocrine System	--	--	1.22E-01	--	1.22E-01
			Vinyl chloride	--	--	2.50E-08	--	2.50E-08	Liver	--	--	3.82E-03	--	3.82E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	5.40E-04	--	5.40E-04
			Chemical Total	0.00E+00	0.00E+00	5.79E-05	0.00E+00	5.79E-05		0.00E+00	0.00E+00	9.17E-01	0.00E+00	9.17E-01
		Exposure Point Total						5.79E-05						9.17E-01
	Exposure Medium Total							5.79E-05						9.17E-01
Medium Total								5.79E-05						9.17E-01
Receptor Total				Receptor Risk Total				5.94E-05	Receptor HI Total					1.88E+00

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	9.79E-01
Total Organ 2 (Kidney) HI Across All Media =	1.10E-01
Total Organ 3 (Fetus) HI Across All Media =	NA
Total Organ 4 (Nervous System) HI Across All Media =	2.44E-01
Total Organ 5 (Endocrine system) HI Across All Media =	1.22E-01
Total Organ 6 (Blood) HI Across All Media =	1.70E-01
Total Organ 7 (Skin) HI Across All Media =	2.37E-01
Total Organ 8 (No Observed Effect) HI Across All Media =	7.75E-05
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	NA
Total Organ 11 (Vision/Eye) HI Across All Media =	3.21E-02
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	2.69E-04
Total Organ 13 (Respiratory/lung) HI Across All Media =	2.06E-03
Total Organ 13 (whole body) HI Across All Media =	5.16E-02
Total Organ 13 (Immune System) HI Across All Media =	6.00E-02
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	3.21E-02
Total Organ 13 (Nasal Tissue) HI Across All Media =	1.78E-03
Total Organ 13 (Fetus) HI Across All Media =	NA

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	6.30E-06	2.51E-07	--	--	6.55E-06
			4,4'-DDD	1.35E-09	5.40E-11	--	5.50E-11	1.46E-09	Liver	3.29E-05	1.31E-06	--	1.34E-06	3.55E-05
			4,4'-DDT	9.26E-09	1.11E-09	--	2.91E-10	1.07E-08	Liver	1.59E-04	1.90E-05	--	4.99E-06	1.83E-04
			Acenaphthene	--	--	--	--	--	Liver	2.28E-07	1.18E-07	--	--	3.47E-07
			Acenaphthylene	--	--	--	--	--	Liver	4.79E-08	1.91E-09	--	--	4.99E-08
			Acetone	--	--	--	--	--	Kidney	7.61E-09	3.04E-10	--	--	7.91E-09
			Aluminum	--	--	--	--	--	CNS	2.01E-02	8.03E-05	--	--	2.02E-02
			Anthracene	--	--	--	--	--	No observed effect	6.94E-08	3.60E-08	--	--	1.05E-07
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.96E-02	7.83E-05	--	--	1.97E-02
			Aroclor-1260	1.32E-07	7.35E-08	--	7.73E-09	2.13E-07	Eye/Finger and Toe nails	9.59E-03	5.38E-03	--	5.63E-04	1.55E-02
			Arsenic	1.41E-05	1.69E-06	--	5.22E-05	6.79E-05	Skin	9.13E-02	1.09E-02	--	3.38E-01	4.40E-01
			Barium	--	--	--	--	--	Kidney	4.55E-03	2.59E-04	--	--	4.81E-03
			Benzo(a)anthracene	1.13E-08	5.88E-09	--	6.81E-10	1.79E-08	--	--	--	--	--	--
			Benzo(a)pyrene	1.48E-07	7.70E-08	--	5.92E-09	2.31E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	6.59E-09	3.42E-09	--	3.11E-10	1.03E-08	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	1.13E-06	5.86E-07	--	--	1.72E-06
			Benzo(k)fluoranthene	8.84E-10	4.58E-10	--	3.49E-11	1.38E-09	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.71E-03	9.76E-04	--	--	2.69E-03
			bis(2-ethylhexyl)phthalate	3.42E-10	--	--	1.87E-13	3.42E-10	Liver	3.56E-06	1.42E-07	--	1.95E-09	3.71E-06
			Cadmium	--	--	--	--	--	Kidney	2.60E-02	1.04E-04	--	1.22E+00	1.24E+00
			Chromium	--	--	--	--	--	No observed effect	3.25E-05	1.30E-07	--	--	3.26E-05
			Chrysene	2.41E-10	1.25E-10	--	1.45E-11	3.80E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	1.01E-03	4.02E-06	--	--	1.01E-03
			Copper	--	--	--	--	--	GI Tract/Kidney	2.27E-03	9.07E-06	--	--	2.28E-03
			Dibenzo(a,h)anthracene	5.86E-08	3.04E-08	--	1.52E-09	9.05E-08	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	9.73E-07	3.88E-10	--	1.17E-07	1.09E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	7.96E-07	4.13E-07	--	5.15E-08	1.26E-06
			Fluorene	--	--	--	--	--	Blood	6.86E-07	3.56E-07	--	--	1.04E-06
			Indeno(1,2,3-cd)pyrene	1.31E-08	6.79E-09	--	4.44E-10	2.03E-08	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	1.16E-01	4.64E-04	--	--	1.17E-01
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	2.78E-02	1.11E-04	--	--	2.79E-02
			Mercury	--	--	--	--	--	Immune System	5.77E-03	--	--	3.30E-02	3.88E-02
			Molybdenum	--	--	--	--	--	CNS	7.67E-04	3.06E-06	--	--	7.70E-04
			Naphthalene	9.12E-10	4.73E-10	--	--	1.39E-09	Whole Body	1.11E-06	5.75E-07	--	--	1.68E-06
			Nickel	--	--	--	--	--	Whole Body	2.04E-03	2.04E-04	--	1.24E-02	1.46E-02
			Phenanthrene	--	--	--	--	--	No observed effect	1.36E-07	5.43E-09	--	--	1.41E-07
			Pyrene	--	--	--	--	--	Kidney	1.42E-06	7.38E-07	--	--	2.16E-06
			Silver	--	--	--	--	--	Skin	7.85E-04	7.83E-05	--	--	8.63E-04
			Thallium	--	--	--	--	--	Liver, Blood	4.62E-02	--	--	--	4.62E-02
			Vanadium	--	--	--	--	--	Kidney	1.14E-02	1.75E-03	--	--	1.32E-02
			Zinc	--	--	--	--	--	Blood	5.09E-04	2.03E-06	--	1.23E-02	1.28E-02
			Chemical Total	1.45E-05	1.89E-06	0.00E+00	5.22E-05	6.85E-05		3.88E-01	2.04E-02	0.00E+00	1.61E+00	2.02E+00

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Exposure Point Total						6.85E-05						2.02E+00
(Cont.)	Exposure Medium Total							6.85E-05						2.02E+00
	Air	Outdoor Air	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	4,4'-DDD	--	--	2.04E-13	--	2.04E-13	Liver	--	--	4.96E-09	--	4.96E-09
			4,4'-DDT	--	--	1.40E-12	--	1.40E-12	Liver	--	--	2.40E-08	--	2.40E-08
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.53E-07	--	2.53E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	5.31E-08	--	5.31E-08
			Acetone	--	--	--	--	--	Kidney	--	--	1.20E-07	--	1.20E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	2.12E-03	--	2.12E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	1.98E-08	--	1.98E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	1.98E-11	--	1.98E-11	Immune System/ Eye/Finger and Toe nails	--	--	1.45E-06	--	1.45E-06
			Arsenic	--	--	2.13E-08	--	2.13E-08	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	3.43E-04	--	3.43E-04
			Benzo(a)anthracene	--	--	1.71E-12	--	1.71E-12	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	2.24E-11	--	2.24E-11	--	--	--	--	--	--
			Benzo(b)fluoranthene	--	--	9.94E-13	--	9.94E-13	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.71E-10	--	1.71E-10
			Benzo(k)fluoranthene	--	--	1.33E-13	--	1.33E-13	--	--	--	--	--	--
			Beryllium	--	--	1.49E-09	--	1.49E-09	Immune System/Lung	--	--	9.04E-05	--	9.04E-05
			bis(2-ethylhexyl)phthalate	--	--	5.16E-14	--	5.16E-14	--	--	--	4.89E-10	--	4.89E-10
			Cadmium	--	--	4.24E-09	--	4.24E-09	--	--	--	--	--	--
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	3.64E-14	--	3.64E-14	--	--	--	--	--	--
			Cobalt	--	--	1.02E-08	--	1.02E-08	Respiratory system	--	--	5.33E-04	--	5.33E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	8.84E-12	--	8.84E-12	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	1.20E-10	--	1.20E-10
			Fluorene	--	--	--	--	--	Blood	--	--	3.79E-07	--	3.79E-07
			Indeno(1,2,3-cd)pyrene	--	--	1.98E-12	--	1.98E-12	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	7.05E-03	--	7.05E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	4.22E-09	--	4.22E-09	Nasal Epithelium	--	--	1.20E-04	--	1.20E-04
			Nickel	--	--	--	--	--	Respiratory system	--	--	1.08E-04	--	1.08E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.81E-08	--	1.81E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	7.46E-08	--	7.46E-08
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Vanadium	--	--	--	--	--	--	--	--	--	--	--
Soil (0-2 ft bgs)	Air	Outdoor Air	Zinc	--	--	--	--	--	--	--	--	--	--	--
(Cont.)	(Cont.)	(Part. & VOCs)	Chemical Total	0.00E+00	0.00E+00	4.15E-08	0.00E+00	4.15E-08		0.00E+00	0.00E+00	1.04E-02	0.00E+00	1.04E-02
		Exposure Point Total						4.15E-08						1.04E-02

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
	Exposure Medium Total							4.15E-08						1.04E-02
Medium Total								6.86E-05						2.03E+00

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver	2.18E-03	1.95E-04	--	--	2.38E-03
			1,1,2-Trichloroethane	5.66E-06	1.90E-07	--	--	5.85E-06	Blood	7.24E-02	2.43E-03	--	--	7.48E-02
			1,1-Dichlorethane	5.79E-06	2.68E-07	--	--	6.06E-06	No observed effect	2.96E-02	1.37E-03	--	--	3.10E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	3.23E-01	2.68E-02	--	--	3.49E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	No observed effect	6.20E-03	3.05E-03	--	--	9.25E-03
			1,2-Dichlorobenzene	--	--	--	--	--	No observed effect	4.07E-03	1.40E-03	--	--	5.47E-03
			1,2-Dichlorethane	1.07E-05	2.97E-07	--	--	1.10E-05	Kidney	1.71E-02	4.77E-04	--	--	1.76E-02
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	8.04E-01	6.26E-02	--	--	8.67E-01
			1,2-Dichloropropane	6.39E-08	3.31E-09	--	--	6.72E-08	Blood, Liver, CNS	2.49E-03	1.29E-04	--	--	2.62E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	No observed effect	5.82E-03	2.87E-03	--	--	8.69E-03
			1,3-Dichlorobenzene	--	--	--	--	--	Liver/Thyroid	1.37E-01	5.54E-02	--	--	1.92E-01
			1,4-Dichlorobenzene	1.45E-06	4.68E-07	--	--	1.92E-06	GI Tract, Liver	5.86E-03	1.90E-03	--	--	7.76E-03
			2-Butanone	--	--	--	--	--	Developmental	3.24E-03	1.88E-05	--	--	3.26E-03
			2-Hexanone	--	--	--	--	--	CNS	6.85E-04	1.59E-05	--	--	7.01E-04
			2-Methylnaphthalene	--	--	--	--	--	Lungs	4.79E-03	3.55E-03	--	--	8.35E-03
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	9.93E-03	2.06E-04	--	--	1.01E-02
			Acenaphthene	--	--	--	--	--	Liver	9.13E-04	6.34E-04	--	--	1.55E-03
			Acenaphthylene	--	--	--	--	--	Liver	9.13E-04	6.72E-04	--	--	1.59E-03
			Acetone	--	--	--	--	--	Kidney	5.03E-02	1.50E-04	--	--	5.05E-02
			Aluminum	--	--	--	--	--	CNS	2.71E-02	3.02E-04	--	--	2.74E-02
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	9.79E-01	5.57E-03	--	--	9.84E-01
			Arsenic	2.79E-04	2.81E-06	--	--	2.82E-04	Skin	1.81E+00	1.82E-02	--	--	1.83E+00
			Barium	--	--	--	--	--	Kidney	1.06E-01	3.17E-03	--	--	1.09E-01
			Benzene	8.21E-06	8.87E-07	--	--	9.10E-06	Blood	1.09E-01	1.18E-02	--	--	1.21E-01
			Benzo(a)anthracene	6.86E-07	3.39E-06	--	--	4.08E-06	--	--	--	--	--	--
			Benzo(a)pyrene	6.86E-06	4.44E-05	--	--	5.12E-05	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.94E-02	9.53E-03	--	--	2.89E-02
			bis(2-ethylhexyl)phthalate	9.33E-07	--	--	--	9.33E-07	Liver	9.72E-03	9.99E-02	--	--	1.10E-01
			Bromodichloromethane	4.14E-06	1.08E-07	--	--	4.24E-06	Kidney	9.73E-03	2.55E-04	--	--	9.98E-03
			Cadmium	--	--	--	--	--	Kidney	8.78E-01	1.60E-03	--	--	8.79E-01
			Carbon disulfide	--	--	--	--	--	Developmental	2.06E-03	1.68E-04	--	--	2.23E-03
			Chlorobenzene	--	--	--	--	--	Liver	8.32E-03	1.77E-03	--	--	1.01E-02
			Chloroethane	3.36E-07	1.40E-08	--	--	3.50E-07	No observed effect	8.46E-04	3.52E-05	--	--	8.81E-04
			Chloroform	--	--	--	--	--	Liver	2.04E-02	9.49E-04	--	--	2.13E-02
			Chloromethane	--	--	--	--	--	Liver, Kidney, Spleen, CNS	7.65E-03	1.66E-04	--	--	7.82E-03
			Chromium	--	--	--	--	--	No observed effect	2.78E-03	1.45E-05	--	--	2.79E-03
			Chromium (VI)	--	--	--	--	--	No observed effect	4.31E+00	2.25E-02	--	--	4.33E+00
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	1.52E-01	1.18E-02	--	--	1.64E-01

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Cobalt	--	--	--	--	--	Blood	2.07E-02	1.31E-04	--	--	2.08E-02
			Copper	--	--	--	--	--	Gi Tract/Kidney	8.48E-03	1.36E-05	--	--	8.50E-03
			Cyanide	--	--	--	--	--	Thyroid, CNS	9.04E-02	4.09E-04	--	--	9.08E-02
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	1.97E-03	7.59E-04	--	--	2.73E-03
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	1.23E-03	3.30E-03	--	--	4.53E-03
			Fluorene	--	--	--	--	--	Blood	6.85E-04	6.11E-04	--	--	1.30E-03
			Hexachlorobutadiene	2.93E-07	1.85E-07	--	--	4.78E-07	Kidney	3.65E-02	2.31E-02	--	--	5.96E-02
			Iron	--	--	--	--	--	--	1.55E+00	2.00E-03	--	--	1.55E+00
			Isopropylbenzene	--	--	--	--	--	Kidney	1.51E-03	1.10E-03	--	--	2.61E-03
			Lead	--	--	--	--	--	--	--	--	--	--	--
			m,p-Xylene	--	--	--	--	--	CNS/Whole Body	1.81E-03	7.59E-04	--	--	2.57E-03
			Manganese	--	--	--	--	--	CNS	1.13E+01	7.56E-02	--	--	1.14E+01
			Mercury	--	--	--	--	--	Immune System	4.02E-03	3.00E-04	--	--	4.32E-03
			Methylene chloride	6.98E-07	1.62E-08	--	--	7.14E-07	Liver	4.52E-03	1.05E-04	--	--	4.63E-03
			Methyl-T-Butyl-Ether	1.18E-07	1.58E-09	--	--	1.19E-07	Liver/Kidney/Periocular Tissue	2.22E-04	2.98E-06	--	--	2.25E-04
			Molybdenum	--	--	--	--	--	CNS	4.11E-01	1.54E-03	--	--	4.12E-01
			Naphthalene	3.77E-05	1.37E-05	--	--	5.14E-05	Whole Body	4.59E-02	1.66E-02	--	--	6.25E-02
			n-Butylbenzene	--	--	--	--	--	Kidney, Liver	1.64E-03	1.20E-03	--	--	2.85E-03
			Nickel	--	--	--	--	--	Whole Body	2.50E-01	1.08E-02	--	--	2.61E-01
			n-Propylbenzene	--	--	--	--	--	--	--	--	--	--	--
			o-Xylene	--	--	--	--	--	CNS/Whole Body	9.40E-04	3.45E-04	--	--	1.29E-03
			Phenanthrene	--	--	--	--	--	No observed effect	1.83E-04	2.18E-04	--	--	4.01E-04
			Phenol	--	--	--	--	--	Developmental	6.02E-04	1.74E-05	--	--	6.20E-04
			p-Isopropyltoluene	--	0.00E+00	--	--	0.00E+00	--	--	--	--	--	--
			Pyrene	--	--	--	--	--	Kidney	2.74E-03	4.63E-03	--	--	7.37E-03
			sec-Butylbenzene	--	--	--	--	--	Kidney	3.42E-04	--	--	--	3.42E-04
			Selenium	--	--	--	--	--	Whole Body	5.92E-02	9.30E-04	--	--	6.01E-02
			Silver	--	--	--	--	--	Skin	3.00E-02	2.39E-03	--	--	3.24E-02
			Tert-Butanol	--	--	--	--	--	--	--	--	--	--	--
			tert-Butylbenzene	--	--	--	--	--	Kidney	2.05E-04	1.50E-04	--	--	3.56E-04
			Tetrachloroethene	2.96E-05	7.44E-06	--	--	3.71E-05	Liver	1.60E-02	4.02E-03	--	--	2.00E-02
			Thallium	--	--	--	--	--	Liver, Blood	3.37E+00	1.76E-02	--	--	3.39E+00
			Toluene	--	--	--	--	--	Kidney, Liver	8.70E-04	2.06E-04	--	--	1.08E-03
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	1.59E-02	3.99E-03	--	--	1.99E-02
			Trichloroethene	3.76E-03	3.08E-04	--	--	4.07E-03	Liver, Kidney, Fetus	9.14E+01	7.49E+00	--	--	9.88E+01
			Vanadium	--	--	--	--	--	Kidney	1.12E-01	3.03E-02	--	--	1.42E-01
			Vinyl chloride	1.72E-04	1.01E-05	--	--	1.82E-04	Liver	2.32E-01	1.37E-02	--	--	2.45E-01
			Xylene (Total)	--	--	--	--	--	Whole Body	2.40E-03	1.00E-03	--	--	3.40E-03
			Zinc	--	--	--	--	--	Blood	1.37E-02	2.44E-05	--	--	1.37E-02
			Chemical Total	4.32E-03	3.92E-04	0.00E+00	0.00E+00	4.71E-03		1.19E+02	8.06E+00	0.00E+00	0.00E+00	1.27E+02
		Exposure Point Total						4.71E-03						1.27E+02
	Exposure Medium Total							4.71E-03						1.27E+02

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	1.17E-04	--	1.17E-04
			1,1,2-Trichloroethane	--	--	6.69E-07	--	6.69E-07	Blood	--	--	8.72E-03	--	8.72E-03
			1,1-Dichlorethane	--	--	6.97E-07	--	6.97E-07	Kidney	--	--	2.55E-03	--	2.55E-03
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.40E-02	--	3.40E-02
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.19E-02	--	2.19E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	7.73E-04	--	7.73E-04
			1,2-Dichlorethane	--	--	1.28E-06	--	1.28E-06	Liver	--	--	6.00E-05	--	6.00E-05
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	9.68E-02	--	9.68E-02
			1,2-Dichloropropane	--	--	7.69E-09	--	7.69E-09	--	--	--	3.00E-04	--	3.00E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.06E-02	--	2.06E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	4.95E-04	--	4.95E-04
			1,4-Dichlorobenzene	--	--	1.60E-07	--	1.60E-07	Liver	--	--	9.26E-05	--	9.26E-05
			2-Butanone	--	--	--	--	--	Developmental	--	--	1.64E-04	--	1.64E-04
			2-Hexanone	--	--	--	--	--	CNS	--	--	7.67E-06	--	7.67E-06
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	1.11E-04	--	1.11E-04
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.10E-04	--	1.10E-04
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.10E-04	--	1.10E-04
			Acetone	--	--	--	--	--	Kidney	--	--	6.06E-03	--	6.06E-03
			Benzene	--	--	4.85E-07	--	4.85E-07	Blood	--	--	6.11E-03	--	6.11E-03
			Bromodichloromethane	--	--	4.98E-07	--	4.98E-07	Kidney	--	--	1.17E-03	--	1.17E-03
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.24E-04	--	1.24E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.17E-03	--	1.17E-03
			Chloroethane	--	--	4.05E-08	--	4.05E-08	Fetus	--	--	1.40E-05	--	1.40E-05
			Chloroform	--	--	6.77E-07	--	6.77E-07	--	--	--	1.75E-01	--	1.75E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	9.31E-04	--	9.31E-04
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.83E-02	--	1.83E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	8.29E-05	--	8.29E-05
			Fluorene	--	--	--	--	--	Blood	--	--	8.24E-05	--	8.24E-05
			Hexachlorobutadiene	--	--	3.53E-08	--	3.53E-08	Kidney	--	--	4.40E-03	--	4.40E-03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	1.65E-04	--	1.65E-04
			m,p-Xylene	--	--	--	--	--	CNS	--	--	1.53E-03	--	1.53E-03
			Methylene Chloride	--	--	1.84E-08	--	1.84E-08	Liver	--	--	3.81E-05	--	3.81E-05
			Methyl-T-Butyl-ether	--	--	7.17E-09	--	7.17E-09	Liver/Kidney/ Periocular Tissue	--	--	2.68E-05	--	2.68E-05
			Naphthalene	--	--	4.54E-06	--	4.54E-06	Nasal Epithelium	--	--	1.29E-01	--	1.29E-01
			n-Butylbenzene	--	--	--	--	--	--	--	--	6.92E-04	--	6.92E-04
			n-propylbenzene	--	--	--	--	--	--	--	--	1.01E-03	--	1.01E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	7.92E-04	--	7.92E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	2.20E-05	--	2.20E-05
			Pyrene	--	--	--	--	--	Kidney	--	--	3.30E-04	--	3.30E-04
			sec-Butylbenzene	--	--	--	--	--	--	--	--	1.44E-04	--	1.44E-04
			tert-Butylbenzene	--	--	--	--	--	--	--	--	8.66E-05	--	8.66E-05

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater (Cont.)	trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.91E-03	--	1.91E-03
			Tetrachloroethene	--	--	1.39E-07	--	1.39E-07	CNS	--	--	1.12E-04	--	1.12E-04
			Toluene	--	--	--	--	--	CNS	--	--	1.83E-04	--	1.83E-04
			Trichloroethene	--	--	4.52E-04	--	4.52E-04	CNS/Liver/Endocrine System	--	--	3.30E-01	--	3.30E-01
			Vinyl chloride	--	--	8.89E-07	--	8.89E-07	Liver	--	--	2.93E-03	--	2.93E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	2.02E-03	--	2.02E-03
			Chemical Total	0.00E+00	0.00E+00	4.63E-04	0.00E+00	4.63E-04		0.00E+00	0.00E+00	8.71E-01	0.00E+00	8.71E-01
		Exposure Point Total						4.63E-04						8.71E-01
	Exposure Medium Total							4.63E-04						8.71E-01
	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	8.72E-04	--	8.72E-04
			1,1,2-Trichloroethane	--	--	2.40E-07	--	2.40E-07	Blood	--	--	3.13E-03	--	3.13E-03
			1,1-Dichlorethane	--	--	1.69E-06	--	1.69E-06	Kidney	--	--	6.16E-03	--	6.16E-03
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	4.73E-01	--	4.73E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	3.75E-02	--	3.75E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	4.54E-04	--	4.54E-04
			1,2-Dichlorethane	--	--	6.56E-07	--	6.56E-07	Liver	--	--	3.06E-05	--	3.06E-05
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	1.66E-01	--	1.66E-01
			1,2-Dichloropropane	--	--	8.95E-09	--	8.95E-09	--	--	--	3.49E-04	--	3.49E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	3.35E-02	--	3.35E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	4.90E-04	--	4.90E-04
			1,4-Dichlorobenzene	--	--	1.22E-07	--	1.22E-07	Liver	--	--	7.06E-05	--	7.06E-05
			2-Butanone	--	--	--	--	--	Developmental	--	--	4.49E-06	--	4.49E-06
			2-Hexanone	--	--	--	--	--	CNS	--	--	4.16E-07	--	4.16E-07
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	6.04E-06	--	6.04E-06
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.97E-06	--	2.97E-06
			Acenaphthylene	--	--	--	--	--	Liver	--	--	2.97E-06	--	2.97E-06
			Acetone	--	--	--	--	--	Kidney	--	--	1.65E-04	--	1.65E-04
			Benzene	--	--	1.27E-06	--	1.27E-06	Blood	--	--	1.59E-02	--	1.59E-02
			Bromodichloromethane	--	--	1.48E-07	--	1.48E-07	Kidney	--	--	3.48E-04	--	3.48E-04
			Carbon disulfide	--	--	--	--	--	CNS	--	--	2.19E-03	--	2.19E-03
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.57E-03	--	1.57E-03
			Chloroethane	--	--	3.98E-07	--	3.98E-07	Fetus	--	--	1.38E-04	--	1.38E-04
			Chloroform	--	--	1.37E-06	--	1.37E-06	--	--	--	3.55E-01	--	3.55E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	6.24E-03	--	6.24E-03
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	3.14E-02	--	3.14E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	2.37E-04	--	2.37E-04
			Fluorene	--	--	--	--	--	Blood	--	--	9.14E-07	--	9.14E-07
			Hexachlorobutadiene	--	--	6.98E-08	--	6.98E-08	Kidney	--	--	8.71E-03	--	8.71E-03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	5.26E-02	--	5.26E-02
			m,p-Xylene	--	--	--	--	--	CNS	--	--	4.31E-03	--	4.31E-03
			Methylene Chloride	--	--	2.26E-08	--	2.26E-08	Liver	--	--	4.67E-05	--	4.67E-05

TABLE F-9.4.3.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	Methyl-T-Butyl-ether	--	--	2.52E-09	--	2.52E-09	Liver/Kidney/ Periocular Tissue	--	--	9.41E-06	--	9.41E-06
			Naphthalene	--	--	5.64E-07	--	5.64E-07	Nasal Epithelium	--	--	1.60E-02	--	1.60E-02
			n-Butylbenzene	--	--	--	--	--	--	--	--	2.37E-03	--	2.37E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	3.03E-03	--	3.03E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	1.65E-03	--	1.65E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.60E-07	--	1.60E-07
			Pyrene	--	--	--	--	--	Kidney	--	--	6.16E-07	--	6.16E-07
			sec-Butylbenzene	--	--	--	--	--	--	--	--	1.31E-06	--	1.31E-06
			tert-Butylbenzene	--	--	--	--	--	--	--	--	3.10E-04	--	3.10E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.29E-02	--	1.29E-02
			Tetrachloroethene	--	--	9.33E-07	--	9.33E-07	CNS	--	--	7.56E-04	--	7.56E-04
			Toluene	--	--	--	--	--	CNS	--	--	5.30E-04	--	5.30E-04
			Trichloroethene	--	--	1.96E-03	--	1.96E-03	CNS/Liver/Endocrine System	--	--	1.43E+00	--	1.43E+00
			Vinyl chloride	--	--	1.59E-05	--	1.59E-05	Liver	--	--	5.22E-02	--	5.22E-02
			Xylene (Total)	--	--	--	--	--	CNS	--	--	5.70E-03	--	5.70E-03
			Chemical Total	0.00E+00	0.00E+00	1.98E-03	0.00E+00	1.98E-03		0.00E+00	0.00E+00	2.72E+00	0.00E+00	2.72E+00
		Exposure Point Total						1.98E-03						2.72E+00
	Exposure Medium Total							1.98E-03						2.72E+00
Medium Total								7.16E-03						1.31E+02
Receptor Total				Receptor Risk Total				7.23E-03	Receptor HI Total					1.33E+02

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	1.06E+02
Total Organ 2 (Kidney) HI Across All Media =	1.01E+02
Total Organ 3 (Fetus) HI Across All Media =	9.88E+01
Total Organ 4 (Nervous System) HI Across All Media =	1.39E+01
Total Organ 5 (Endocrine system) HI Across All Media =	2.04E+00
Total Organ 6 (Blood) HI Across All Media =	6.10E+00
Total Organ 7 (Skin) HI Across All Media =	2.30E+00
Total Organ 8 (No Observed Effect) HI Across All Media =	1.60E-07
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	5.01E-02
Total Organ 11 (Vision/Eye) HI Across All Media =	1.58E-02
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	6.32E-03
Total Organ 13 (Respiratory/lung) HI Across All Media =	1.12E-02
Total Organ 13 (whole body) HI Across All Media =	1.42E+00
Total Organ 13 (Immune System) HI Across All Media =	1.05E+00
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	1.55E-02
Total Organ 13 (Nasal Tissue) HI Across All Media =	1.45E-01
Total Organ 13 (Fetus) HI Across All Media =	9.88E+01

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	5.88E-05	1.65E-06	--	--	6.05E-05
			4,4'-DDD	3.16E-09	8.84E-11	--	1.37E-11	3.26E-09	Liver	3.07E-04	8.59E-06	--	1.34E-06	3.17E-04
			4,4'-DDT	2.16E-08	1.82E-09	--	7.27E-11	2.35E-08	Liver	1.48E-03	1.25E-04	--	4.99E-06	1.61E-03
			Acenaphthene	--	--	--	--	--	Liver	2.13E-06	7.76E-07	--	--	2.91E-06
			Acenaphthylene	--	--	--	--	--	Liver	4.47E-07	1.25E-08	--	--	4.60E-07
			Acetone	--	--	--	--	--	Kidney	7.10E-08	1.99E-09	--	--	7.30E-08
			Aluminum	--	--	--	--	--	CNS	1.88E-01	5.26E-04	--	--	1.88E-01
			Anthracene	--	--	--	--	--	No observed effect	6.48E-07	2.36E-07	--	--	8.84E-07
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.83E-01	5.13E-04	--	--	1.84E-01
			Aroclor-1260	3.07E-07	1.20E-07	--	1.93E-09	4.29E-07	Eye/Finger and Toe nails	8.95E-02	3.51E-02	--	5.63E-04	1.25E-01
			Arsenic	3.29E-05	2.76E-06	--	1.30E-05	4.87E-05	Skin	8.52E-01	7.16E-02	--	3.38E-01	1.26E+00
			Barium	--	--	--	--	--	Kidney	4.25E-02	1.70E-03	--	--	4.42E-02
			Benzo(a)anthracene	2.65E-08	9.63E-09	--	1.70E-10	3.63E-08	--	--	--	--	--	--
			Benzo(a)pyrene	3.46E-07	1.26E-07	--	1.48E-09	4.74E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	1.54E-08	5.59E-09	--	7.78E-11	2.10E-08	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	1.06E-05	3.84E-06	--	--	1.44E-05
			Benzo(k)fluoranthene	2.06E-09	7.50E-10	--	8.71E-12	2.82E-09	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.60E-02	6.39E-03	--	--	2.24E-02
			bis(2-ethylhexyl)phthalate	7.98E-10	--	--	4.68E-14	7.98E-10	Liver	3.32E-05	9.31E-07	--	1.95E-09	3.42E-05
			Cadmium	--	--	--	--	--	Kidney	2.43E-01	6.80E-04	--	1.22E+00	1.46E+00
			Chromium	--	--	--	--	--	No observed effect	3.03E-04	8.50E-07	--	--	3.04E-04
			Chrysene	5.62E-10	2.05E-10	--	3.62E-12	7.71E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	9.41E-03	2.64E-05	--	--	9.44E-03
			Copper	--	--	--	--	--	Gi Tract/Kidney	2.12E-02	5.94E-05	--	--	2.13E-02
			Dibenzo(a,h)anthracene	1.37E-07	4.97E-08	--	3.80E-10	1.87E-07	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	9.08E-06	2.54E-09	--	1.17E-07	9.20E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	7.43E-06	2.71E-06	--	5.15E-08	1.02E-05
			Fluorene	--	--	--	--	--	Blood	6.40E-06	2.33E-06	--	--	8.73E-06
			Indeno(1,2,3-cd)pyrene	3.06E-08	1.11E-08	--	1.11E-10	4.18E-08	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	1.09E+00	3.04E-03	--	--	1.09E+00
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	2.60E-01	7.27E-04	--	--	2.60E-01
			Mercury	--	--	--	--	--	Immune System	5.39E-02	--	--	3.30E-02	8.68E-02
			Molybdenum	--	--	--	--	--	CNS	7.16E-03	2.00E-05	--	--	7.18E-03
			Naphthalene	2.13E-09	7.75E-10	--	--	2.90E-09	Whole Body	1.03E-05	3.77E-06	--	--	1.41E-05
			Nickel	--	--	--	--	--	Whole Body	1.91E-02	1.34E-03	--	1.24E-02	3.28E-02
			Phenanthrene	--	--	--	--	--	No observed effect	1.27E-06	3.55E-08	--	--	1.31E-06
			Pyrene	--	--	--	--	--	Kidney	1.33E-05	4.83E-06	--	--	1.81E-05
			Silver	--	--	--	--	--	SKin	7.32E-03	5.13E-04	--	--	7.84E-03

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Thallium	--	--	--	--	--	Liver, Blood	4.31E-01	--	--	--	4.31E-01
			Vanadium	--	--	--	--	--	Kidney	1.07E-01	1.15E-02	--	--	1.18E-01
			Zinc	--	--	--	--	--	Blood	4.75E-03	1.33E-05	--	1.23E-02	1.71E-02
			Chemical Total	3.38E-05	3.09E-06	0.00E+00	1.30E-05	4.99E-05		3.62E+00	1.34E-01	0.00E+00	1.61E+00	5.37E+00
		Exposure Point Total						4.99E-05						5.37E+00
	Exposure Medium Total							4.99E-05						5.37E+00
	Air	Outdoor Air (Particulates and VOCs)	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4,4'-DDD	--	--	1.21E-13	--	1.21E-13	Liver	--	--	1.17E-08	--	1.17E-08
			4,4'-DDT	--	--	8.25E-13	--	8.25E-13	Liver	--	--	5.66E-08	--	5.66E-08
			Acenaphthene	--	--	--	--	--	Liver	--	--	5.97E-07	--	5.97E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.25E-07	--	1.25E-07
			Acetone	--	--	--	--	--	Kidney	--	--	2.84E-07	--	2.84E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	5.02E-03	--	5.02E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	4.67E-08	--	4.67E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	1.17E-11	--	1.17E-11	mmune System/ Eye/Finger and Toe nails	--	--	3.42E-06	--	3.42E-06
			Arsenic	--	--	1.26E-08	--	1.26E-08	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	8.11E-04	--	8.11E-04
			Benzo(a)anthracene	--	--	1.01E-12	--	1.01E-12	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	1.32E-11	--	1.32E-11	--	--	--	--	--	--
			Benzo(b)fluoranthene	--	--	5.87E-13	--	5.87E-13	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	4.03E-10	--	4.03E-10
			Benzo(k)fluoranthene	--	--	7.87E-14	--	7.87E-14	--	--	--	--	--	--
			Beryllium	--	--	8.79E-10	--	8.79E-10	Immune System/Lung	--	--	2.14E-04	--	2.14E-04
			bis(2-ethylhexyl)phthalate	--	--	3.05E-14	--	3.05E-14	--	--	--	1.15E-09	--	1.15E-09
			Cadmium	--	--	2.50E-09	--	2.50E-09	--	--	--	--	--	--
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	2.15E-14	--	2.15E-14	--	--	--	--	--	--
			Cobalt	--	--	6.04E-09	--	6.04E-09	Respiratory system	--	--	1.26E-03	--	1.26E-03
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	5.22E-12	--	5.22E-12	--	--	--	--	--	--
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	2.84E-10	--	2.84E-10
			Fluorene	--	--	--	--	--	Blood	--	--	8.96E-07	--	8.96E-07
			Indeno(1,2,3-cd)pyrene	--	--	1.17E-12	--	1.17E-12	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	1.66E-02	--	1.66E-02
			Mercury	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	2.49E-09	--	2.49E-09	Nasal Epithelium	--	--	2.83E-04	--	2.83E-04
			Nickel	--	--	--	--	--	Respiratory system	--	--	2.55E-04	--	2.55E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	4.28E-08	--	4.28E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	1.76E-07	--	1.76E-07
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Vanadium	--	--	--	--	--	--	--	--	--	--	--
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	2.45E-08	0.00E+00	2.45E-08		0.00E+00	0.00E+00	2.45E-02	0.00E+00	2.45E-02
		Exposure Point Total						2.45E-08						2.45E-02
	Exposure Medium Total							2.45E-08						2.45E-02
Medium Total								4.99E-05						5.39E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver	5.09E-03	5.75E-04	--	--	5.67E-03
			1,1,2-Trichloroethane	3.30E-06	1.40E-07	--	--	3.44E-06	Blood	1.69E-01	7.17E-03	--	--	1.76E-01
			1,1-Dichlorethane	3.38E-06	1.98E-07	--	--	3.58E-06	No observed effect	6.92E-02	4.04E-03	--	--	7.32E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	7.53E-01	7.90E-02	--	--	8.32E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	No observed effect	1.45E-02	9.01E-03	--	--	2.35E-02
			1,2-Dichlorobenzene	--	--	--	--	--	No observed effect	9.50E-03	4.13E-03	--	--	1.36E-02
			1,2-Dichlorethane	6.22E-06	2.19E-07	--	--	6.44E-06	Kidney	3.99E-02	1.41E-03	--	--	4.13E-02
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	1.88E+00	1.85E-01	--	--	2.06E+00
			1,2-Dichloropropane	3.73E-08	2.44E-09	--	--	3.97E-08	Blood, Liver, CNS	5.81E-03	3.80E-04	--	--	6.19E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	No observed effect	1.36E-02	8.46E-03	--	--	2.20E-02
			1,3-Dichlorobenzene	--	--	--	--	--	Liver/Thyroid	3.20E-01	1.63E-01	--	--	4.83E-01
			1,4-Dichlorobenzene	8.44E-07	3.45E-07	--	--	1.19E-06	GI Tract, Liver	1.37E-02	5.60E-03	--	--	1.93E-02
			2-Butanone	--	--	--	--	--	Developmental	7.56E-03	5.54E-05	--	--	7.62E-03
			2-Hexanone	--	--	--	--	--	CNS	1.60E-03	4.69E-05	--	--	1.65E-03
			2-Methylnaphthalene	--	--	--	--	--	Lungs	1.12E-02	1.05E-02	--	--	2.17E-02
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	2.32E-02	6.07E-04	--	--	2.38E-02
			Acenaphthene	--	--	--	--	--	Liver	2.13E-03	1.87E-03	--	--	4.00E-03
			Acenaphthylene	--	--	--	--	--	Liver	2.13E-03	1.98E-03	--	--	4.11E-03
			Acetone	--	--	--	--	--	Kidney	1.17E-01	4.41E-04	--	--	1.18E-01
			Aluminum	--	--	--	--	--	CNS	6.31E-02	8.92E-04	--	--	6.40E-02
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	2.28E+00	1.64E-02	--	--	2.30E+00
			Arsenic	1.63E-04	2.07E-06	--	--	1.65E-04	Skin	4.22E+00	5.38E-02	--	--	4.27E+00
			Barium	--	--	--	--	--	Kidney	2.46E-01	9.36E-03	--	--	2.56E-01
			Benzene	4.79E-06	6.54E-07	--	--	5.44E-06	Blood	2.54E-01	3.47E-02	--	--	2.89E-01
			Benzo(a)anthracene	4.00E-07	2.50E-06	--	--	2.90E-06	--	--	--	--	--	--
			Benzo(a)pyrene	4.00E-06	3.27E-05	--	--	3.67E-05	--	--	--	--	--	--

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Beryllium	--	--	--	--	--	GI Tract	4.52E-02	2.81E-02	--	--	7.33E-02
			bis(2-ethylhexyl)phthalate	5.44E-07	--	--	--	5.44E-07	Liver	2.27E-02	2.95E-01	--	--	3.17E-01
			Bromodichloromethane	2.41E-06	7.99E-08	--	--	2.49E-06	Kidney	2.27E-02	7.52E-04	--	--	2.34E-02
			Cadmium	--	--	--	--	--	Kidney	2.05E+00	4.73E-03	--	--	2.05E+00
			Carbon disulfide	--	--	--	--	--	Developmental	4.81E-03	4.95E-04	--	--	5.31E-03
			Chlorobenzene	--	--	--	--	--	Liver	1.94E-02	5.22E-03	--	--	2.46E-02
			Chloroethane	1.96E-07	1.03E-08	--	--	2.07E-07	No observed effect	1.97E-03	1.04E-04	--	--	2.08E-03
			Chloroform	--	--	--	--	--	Liver	4.76E-02	2.80E-03	--	--	5.04E-02
			Chloromethane	--	--	--	--	--	Liver, Kidney, Spleen, CNS	1.78E-02	4.89E-04	--	--	1.83E-02
			Chromium	--	--	--	--	--	No observed effect	6.48E-03	4.27E-05	--	--	6.52E-03
			Chromium (VI)	--	--	--	--	--	No observed effect	1.01E+01	6.64E-02	--	--	1.01E+01
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	3.55E-01	3.49E-02	--	--	3.90E-01
			Cobalt	--	--	--	--	--	Blood	4.83E-02	3.86E-04	--	--	4.87E-02
			Copper	--	--	--	--	--	Gi Tract/Kidney	1.98E-02	4.01E-05	--	--	1.98E-02
			Cyanide	--	--	--	--	--	Thyroid, CNS	2.11E-01	1.21E-03	--	--	2.12E-01
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	4.59E-03	2.24E-03	--	--	6.83E-03
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	2.88E-03	9.74E-03	--	--	1.26E-02
			Fluorene	--	--	--	--	--	Blood	1.60E-03	1.80E-03	--	--	3.40E-03
			Hexachlorobutadiene	1.71E-07	1.37E-07	--	--	3.07E-07	Kidney	8.52E-02	6.81E-02	--	--	1.53E-01
			Iron	--	--	--	--	--	--	3.62E+00	5.90E-03	--	--	3.62E+00
			Isopropylbenzene	--	--	--	--	--	Kidney	3.52E-03	3.25E-03	--	--	6.76E-03
			Lead	--	--	--	--	--	--	--	--	--	--	--
			m,p-Xylene	--	--	--	--	--	CNS/Whole Body	4.23E-03	2.24E-03	--	--	6.47E-03
			Manganese	--	--	--	--	--	CNS	2.64E+01	2.23E-01	--	--	2.66E+01
			Mercury	--	--	--	--	--	Immune System	9.38E-03	8.84E-04	--	--	1.03E-02
			Methylene chloride	4.07E-07	1.20E-08	--	--	4.19E-07	Liver	1.06E-02	3.11E-04	--	--	1.09E-02
			Methyl-T-Butyl-Ether	6.87E-08	1.17E-09	--	--	6.99E-08	Liver/Kidney/Periocular Tissue	5.18E-04	8.79E-06	--	--	5.27E-04
			Molybdenum	--	--	--	--	--	CNS	9.59E-01	4.56E-03	--	--	9.63E-01
			Naphthalene	2.20E-05	1.01E-05	--	--	3.21E-05	Whole Body	1.07E-01	4.90E-02	--	--	1.56E-01
			n-Butylbenzene	--	--	--	--	--	Kidney, Liver	3.84E-03	3.54E-03	--	--	7.38E-03
			Nickel	--	--	--	--	--	Whole Body	5.84E-01	3.17E-02	--	--	6.16E-01
			n-Propylbenzene	--	--	--	--	--	--	--	--	--	--	--
			o-Xylene	--	--	--	--	--	CNS/Whole Body	2.19E-03	1.02E-03	--	--	3.21E-03
			Phenanthrene	--	--	--	--	--	No observed effect	4.26E-04	6.44E-04	--	--	1.07E-03
			Phenol	--	--	--	--	--	Developmental	1.41E-03	5.13E-05	--	--	1.46E-03
			p-Isopropyltoluene	--	0.00E+00	--	--	0.00E+00	--	--	--	--	--	--
			Pyrene	--	--	--	--	--	Kidney	6.39E-03	1.37E-02	--	--	2.01E-02
			sec-Butylbenzene	--	--	--	--	--	Kidney	7.99E-04	--	--	--	7.99E-04
			Selenium	--	--	--	--	--	Whole Body	1.38E-01	2.74E-03	--	--	1.41E-01

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Silver	--	--	--	--	--	Skin	7.00E-02	7.04E-03	--	--	7.71E-02
			Tert-Butanol	--	--	--	--	--	--	--	--	--	--	--
			tert-Butylbenzene	--	--	--	--	--	Kidney	4.79E-04	4.43E-04	--	--	9.22E-04
			Tetrachloroethene	1.73E-05	5.49E-06	--	--	2.28E-05	Liver	3.74E-02	1.19E-02	--	--	4.92E-02
			Thallium	--	--	--	--	--	Liver, Blood	7.86E+00	5.19E-02	--	--	7.91E+00
			Toluene	--	--	--	--	--	Kidney, Liver	2.03E-03	6.07E-04	--	--	2.64E-03
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	3.71E-02	1.18E-02	--	--	4.89E-02
			Trichloroethene	2.19E-03	2.27E-04	--	--	2.42E-03	Liver, Kidney, Fetus	2.13E+02	2.21E+01	--	--	2.35E+02
			Vanadium	--	--	--	--	--	Kidney	2.61E-01	8.93E-02	--	--	3.50E-01
			Vinyl chloride	1.00E-04	7.47E-06	--	--	1.08E-04	Liver	5.41E-01	4.03E-02	--	--	5.81E-01
			Xylene (Total)	--	--	--	--	--	Whole Body	5.59E-03	2.96E-03	--	--	8.55E-03
			Zinc	--	--	--	--	--	Blood	3.19E-02	7.20E-05	--	--	3.20E-02
			Chemical Total	2.52E-03	2.89E-04	0.00E+00	0.00E+00	2.81E-03		2.77E+02	2.38E+01	0.00E+00	0.00E+00	3.01E+02
		Exposure Point Total						2.81E-03						3.01E+02
	Exposure Medium Total							2.81E-03						3.01E+02
	Air	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	4.75E-04	--	4.75E-04
			1,1,2-Trichloroethane	--	--	6.81E-07	--	6.81E-07	Blood	--	--	3.55E-02	--	3.55E-02
			1,1-Dichlorethane	--	--	7.10E-07	--	7.10E-07	Kidney	--	--	1.04E-02	--	1.04E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	1.38E-01	--	1.38E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.93E-02	--	8.93E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	3.15E-03	--	3.15E-03
			1,2-Dichlorethane	--	--	1.31E-06	--	1.31E-06	Liver	--	--	2.44E-04	--	2.44E-04
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	3.94E-01	--	3.94E-01
			1,2-Dichloropropane	--	--	7.82E-09	--	7.82E-09	--	--	--	1.22E-03	--	1.22E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.39E-02	--	8.39E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	2.01E-03	--	2.01E-03
			1,4-Dichlorobenzene	--	--	1.62E-07	--	1.62E-07	Liver	--	--	3.77E-04	--	3.77E-04
			2-Butanone	--	--	--	--	--	Developmental	--	--	6.67E-04	--	6.67E-04
			2-Hexanone	--	--	--	--	--	CNS	--	--	3.12E-05	--	3.12E-05
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	4.53E-04	--	4.53E-04
			Acenaphthene	--	--	--	--	--	Liver	--	--	4.47E-04	--	4.47E-04
			Acenaphthylene	--	--	--	--	--	Liver	--	--	4.47E-04	--	4.47E-04
			Acetone	--	--	--	--	--	Kidney	--	--	2.47E-02	--	2.47E-02
			Benzene	--	--	4.94E-07	--	4.94E-07	Blood	--	--	2.49E-02	--	2.49E-02
			Bromodichloromethane	--	--	5.07E-07	--	5.07E-07	Kidney	--	--	4.77E-03	--	4.77E-03
			Carbon disulfide	--	--	--	--	--	CNS	--	--	5.05E-04	--	5.05E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	4.76E-03	--	4.76E-03
			Chloroethane	--	--	4.12E-08	--	4.12E-08	Fetus	--	--	5.72E-05	--	5.72E-05

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater (Cont.)	Chloroform	--	--	6.89E-07	--	6.89E-07	--	--	--	7.14E-01	--	7.14E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	3.79E-03	--	3.79E-03
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.45E-02	--	7.45E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	3.38E-04	--	3.38E-04
			Fluorene	--	--	--	--	--	Blood	--	--	3.36E-04	--	3.36E-04
			Hexachlorobutadiene	--	--	3.59E-08	--	3.59E-08	Kidney	--	--	1.79E-02	--	1.79E-02
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	6.71E-04	--	6.71E-04
			m,p-Xylene	--	--	--	--	--	CNS	--	--	6.22E-03	--	6.22E-03
			Methylene Chloride	--	--	1.87E-08	--	1.87E-08	Liver	--	--	1.55E-04	--	1.55E-04
			Methyl-T-Butyl-ether	--	--	7.30E-09	--	7.30E-09	Liver/Kidney/ Periocular Tissue	--	--	1.09E-04	--	1.09E-04
			Naphthalene	--	--	4.62E-06	--	4.62E-06	Nasal Epithelium	--	--	5.24E-01	--	5.24E-01
			n-Butylbenzene	--	--	--	--	--	--	--	--	2.82E-03	--	2.82E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	4.10E-03	--	4.10E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	3.22E-03	--	3.22E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	8.95E-05	--	8.95E-05
			Pyrene	--	--	--	--	--	Kidney	--	--	1.34E-03	--	1.34E-03
			sec-Butylbenzene	--	--	--	--	--	--	--	--	5.87E-04	--	5.87E-04
			tert-Butylbenzene	--	--	--	--	--	--	--	--	3.52E-04	--	3.52E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.79E-03	--	7.79E-03
			Tetrachloroethene	--	--	1.41E-07	--	1.41E-07	CNS	--	--	4.58E-04	--	4.58E-04
			Toluene	--	--	--	--	--	CNS	--	--	7.46E-04	--	7.46E-04
			Trichloroethene	--	--	4.60E-04	--	4.60E-04	CNS/Liver/Endocrine System	--	--	1.34E+00	--	1.34E+00
			Vinyl chloride	--	--	9.05E-07	--	9.05E-07	Liver	--	--	1.19E-02	--	1.19E-02
			Xylene (Total)	--	--	--	--	--	CNS	--	--	8.22E-03	--	8.22E-03
			Chemical Total	0.00E+00	0.00E+00	4.71E-04	0.00E+00	4.71E-04		0.00E+00	0.00E+00	3.55E+00	0.00E+00	3.55E+00
		Exposure Point Total						4.71E-04						3.55E+00
	Exposure Medium Total							4.71E-04						3.55E+00
	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	2.06E-03	--	2.06E-03
			1,1,2-Trichloroethane	--	--	1.42E-07	--	1.42E-07	Blood	--	--	7.39E-03	--	7.39E-03
			1,1-Dichlorethane	--	--	9.95E-07	--	9.95E-07	Kidney	--	--	1.45E-02	--	1.45E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	1.12E+00	--	1.12E+00
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.85E-02	--	8.85E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	1.07E-03	--	1.07E-03
			1,2-Dichlorethane	--	--	3.87E-07	--	3.87E-07	Liver	--	--	7.24E-05	--	7.24E-05
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	3.92E-01	--	3.92E-01
			1,2-Dichloropropane	--	--	5.28E-09	--	5.28E-09	--	--	--	8.24E-04	--	8.24E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	7.90E-02	--	7.90E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	1.16E-03	--	1.16E-03

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation) (Cont.)	1,4-Dichlorobenzene	--	--	7.19E-08	--	7.19E-08	Liver	--	--	1.67E-04	--	1.67E-04
			2-Butanone	--	--	--	--	--	Developmental	--	--	1.06E-05	--	1.06E-05
			2-Hexanone	--	--	--	--	--	CNS	--	--	9.83E-07	--	9.83E-07
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	1.43E-05	--	1.43E-05
			Acenaphthene	--	--	--	--	--	Liver	--	--	7.00E-06	--	7.00E-06
			Acenaphthylene	--	--	--	--	--	Liver	--	--	7.00E-06	--	7.00E-06
			Acetone	--	--	--	--	--	Kidney	--	--	3.90E-04	--	3.90E-04
			Benzene	--	--	7.47E-07	--	7.47E-07	Blood	--	--	3.77E-02	--	3.77E-02
			Bromodichloromethane	--	--	8.74E-08	--	8.74E-08	Kidney	--	--	8.23E-04	--	8.23E-04
			Carbon disulfide	--	--	--	--	--	CNS	--	--	5.18E-03	--	5.18E-03
			Chlorobenzene	--	--	--	--	--	Liver	--	--	3.72E-03	--	3.72E-03
			Chloroethane	--	--	2.35E-07	--	2.35E-07	Fetus	--	--	3.26E-04	--	3.26E-04
			Chloroform	--	--	8.10E-07	--	8.10E-07	--	--	--	8.39E-01	--	8.39E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	1.47E-02	--	1.47E-02
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.41E-02	--	7.41E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	5.60E-04	--	5.60E-04
			Fluorene	--	--	--	--	--	Blood	--	--	2.16E-06	--	2.16E-06
			Hexachlorobutadiene	--	--	4.12E-08	--	4.12E-08	Kidney	--	--	2.06E-02	--	2.06E-02
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	1.24E-01	--	1.24E-01
			m,p-Xylene	--	--	--	--	--	CNS	--	--	1.02E-02	--	1.02E-02
			Methylene Chloride	--	--	1.33E-08	--	1.33E-08	Liver	--	--	1.10E-04	--	1.10E-04
			Methyl-T-Butyl-ether	--	--	1.49E-09	--	1.49E-09	Liver/Kidney/ Periocular Tissue	--	--	2.22E-05	--	2.22E-05
			Naphthalene	--	--	3.33E-07	--	3.33E-07	Nasal Epithelium	--	--	3.78E-02	--	3.78E-02
			n-Butylbenzene	--	--	--	--	--	--	--	--	5.61E-03	--	5.61E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	7.15E-03	--	7.15E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	3.90E-03	--	3.90E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	3.77E-07	--	3.77E-07
			Pyrene	--	--	--	--	--	Kidney	--	--	1.45E-06	--	1.45E-06
			sec-Butylbenzene	--	--	--	--	--	--	--	--	3.10E-06	--	3.10E-06
			tert-Butylbenzene	--	--	--	--	--	--	--	--	7.32E-04	--	7.32E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	3.04E-02	--	3.04E-02
			Tetrachloroethene	--	--	5.51E-07	--	5.51E-07	CNS	--	--	1.78E-03	--	1.78E-03
			Toluene	--	--	--	--	--	CNS	--	--	1.25E-03	--	1.25E-03
			Trichloroethene	--	--	1.16E-03	--	1.16E-03	CNS/Liver/Endocrine System	--	--	3.37E+00	--	3.37E+00
			Vinyl chloride	--	--	9.37E-06	--	9.37E-06	Liver	--	--	1.23E-01	--	1.23E-01
			Xylene (Total)	--	--	--	--	--	CNS	--	--	1.35E-02	--	1.35E-02
			Chemical Total	0.00E+00	0.00E+00	1.17E-03	0.00E+00	1.17E-03		0.00E+00	0.00E+00	6.43E+00	0.00E+00	6.43E+00

TABLE F-9.4.4.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)		Exposure Point Total						1.17E-03						6.43E+00
	Exposure Medium Total							1.17E-03						6.43E+00
Medium Total								4.45E-03						3.11E+02
Receptor Total				Receptor Risk Total				4.50E-03	Receptor HI Total					3.17E+02

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	2.52E+02
Total Organ 2 (Kidney) HI Across All Media =	2.40E+02
Total Organ 3 (Fetus) HI Across All Media =	2.35E+02
Total Organ 4 (Nervous System) HI Across All Media =	3.35E+01
Total Organ 5 (Endocrine system) HI Across All Media =	5.41E+00
Total Organ 6 (Blood) HI Across All Media =	1.50E+01
Total Organ 7 (Skin) HI Across All Media =	5.62E+00
Total Organ 8 (No Observed Effect) HI Across All Media =	3.77E-07
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	1.56E-01
Total Organ 11 (Vision/Eye) HI Across All Media =	1.26E-01
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	1.53E-02
Total Organ 13 (Respiratory/lung) HI Across All Media =	2.85E-02
Total Organ 13 (whole body) HI Across All Media =	3.47E+00
Total Organ 13 (Immune System) HI Across All Media =	2.58E+00
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	1.25E-01
Total Organ 13 (Nasal Tissue) HI Across All Media =	5.63E-01
Total Organ 13 (Fetus) HI Across All Media =	2.35E+02

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	2.47E-06	1.63E-07	--	--	2.63E-06
			4,4'-DDD	6.17E-10	4.07E-11	--	--	6.58E-10	Liver	1.44E-05	9.50E-07	--	--	1.54E-05
			4,4'-DDT	2.73E-09	5.41E-10	--	--	3.27E-09	Liver	4.50E-05	8.91E-06	--	--	5.39E-05
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	3.41E-07	2.25E-08	--	--	3.64E-07
			Acenaphthene	--	--	--	--	--	Liver	1.49E-07	1.28E-07	--	--	2.76E-07
			Acenaphthylene	--	--	--	--	--	Liver	9.46E-08	6.24E-09	--	--	1.01E-07
			Acetone	--	--	--	--	--	Kidney	1.30E-08	8.61E-10	--	--	1.39E-08
			Aluminum	--	--	--	--	--	CNS	9.13E-03	6.02E-05	--	--	9.19E-03
			Anthracene	--	--	--	--	--	No observed effect	2.98E-08	2.55E-08	--	--	5.53E-08
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.37E-02	9.05E-05	--	--	1.38E-02
			Aroclor-1260	4.65E-08	4.30E-08	--	--	8.95E-08	Eye/Finger and Toe nails	3.26E-03	3.01E-03	--	--	6.27E-03
			Arsenic	3.12E-06	6.17E-07	--	--	3.73E-06	Skin	1.94E-02	3.84E-03	--	--	2.32E-02
			Barium	--	--	--	--	--	Kidney	1.81E-03	1.71E-04	--	--	1.99E-03
			Benzo(a)anthracene	5.17E-09	4.44E-09	--	--	9.61E-09	--	--	--	--	--	--
			Benzo(a)pyrene	7.37E-08	6.32E-08	--	--	1.37E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	4.61E-09	3.96E-09	--	--	8.57E-09	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	7.51E-07	6.44E-07	--	--	1.40E-06
			Benzo(k)fluoranthene	4.20E-10	3.61E-10	--	--	7.81E-10	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.22E-03	1.15E-03	--	--	2.38E-03
			bis(2-ethylhexyl)phthalate	4.70E-10	--	--	--	4.70E-10	Liver	4.70E-06	3.10E-07	--	--	5.01E-06
			Cadmium	--	--	--	--	--	Kidney	9.62E-03	6.35E-05	--	--	9.68E-03
			Carbazole	2.81E-08	1.85E-09	--	--	2.99E-08	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	Developmental	1.96E-08	3.23E-08	--	--	5.19E-08
			Chloroform	--	--	--	--	--	Liver	5.28E-07	3.49E-08	--	--	5.63E-07
			Chromium	--	--	--	--	--	No observed effect	2.23E-05	1.47E-07	--	--	2.24E-05
			Chrysene	5.68E-11	4.87E-11	--	--	1.06E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	4.93E-04	3.25E-06	--	--	4.96E-04
			Copper	--	--	--	--	--	GI Tract/Kidney	1.03E-03	6.80E-06	--	--	1.04E-03
			Dibenzo(a,h)anthracene	2.67E-08	2.29E-08	--	--	4.96E-08	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	7.20E-04	4.75E-05	--	--	7.67E-04
			Diethylphthalate	--	--	--	--	--	Brain, Liver, Kidneys,Stomach,GI Tract	6.85E-08	4.52E-09	--	--	7.30E-08
			Dimethylphthalate	--	--	--	--	--	Kidney	7.14E-09	4.71E-10	--	--	7.61E-09
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	7.83E-07	5.17E-10	--	--	7.83E-07
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	8.17E-08	5.39E-09	--	--	8.71E-08
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	5.01E-07	4.30E-07	--	--	9.30E-07
			Fluorene	--	--	--	--	--	Blood	2.80E-07	2.40E-07	--	--	5.20E-07
			Indeno(1,2,3-cd)pyrene	5.84E-09	5.01E-09	--	--	1.08E-08	--	--	--	--	--	--

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Iron	--	--	--	--	--	--	5.74E-02	3.79E-04	--	--	5.78E-02
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	2.08E-02	1.37E-04	--	--	2.09E-02
			Mercury	--	--	--	--	--	Immune System	8.48E-03	--	--	--	8.48E-03
			Molybdenum	--	--	--	--	--	CNS	3.91E-04	2.58E-06	--	--	3.94E-04
			Naphthalene	3.98E-10	3.42E-10	--	--	7.40E-10	Whole Body	4.64E-07	3.98E-07	--	--	8.63E-07
			Nickel	--	--	--	--	--	Whole Body	2.57E-03	4.25E-04	--	--	3.00E-03
			n-Nitroso-diphenylamine	8.39E-11	5.54E-12	--	--	8.94E-11	Bladder/Whole Body	2.40E-06	1.58E-07	--	--	2.56E-06
			o-Xylene	--	--	--	--	--	CNS/Whole Body	1.10E-07	7.26E-09	--	--	1.17E-07
			Phenanthrene	--	--	--	--	--	No observed effect	6.88E-08	4.54E-09	--	--	7.33E-08
			Pyrene	--	--	--	--	--	Kidney	8.76E-07	7.51E-07	--	--	1.63E-06
			Selenium	--	--	--	--	--	Whole Body	1.21E-04	2.67E-06	--	--	1.24E-04
			Silver	--	--	--	--	--	SKin	9.21E-04	1.52E-04	--	--	1.07E-03
			Thallium	--	--	--	--	--	Liver, Blood	1.92E-02	--	--	--	1.92E-02
			Toluene	--	--	--	--	--	Kidney, Liver	3.71E-08	2.45E-09	--	--	3.96E-08
			Trichloroethene	6.99E-10	4.61E-11	--	--	7.45E-10	Liver, Kidney, Fetus	1.63E-05	1.08E-06	--	--	1.74E-05
			Vanadium	--	--	--	--	--	Kidney	5.23E-03	1.33E-03	--	--	6.56E-03
			Xylene (Total)	--	--	--	--	--	Whole Body	1.06E-07	6.98E-09	--	--	1.13E-07
			Zinc	--	--	--	--	--	Blood	2.46E-04	1.62E-06	--	--	2.47E-04
			Chemical Total	3.31E-06	7.63E-07	0.00E+00	0.00E+00	4.08E-06		1.76E-01	1.09E-02	0.00E+00	0.00E+00	1.87E-01
		Exposure Point Total						4.08E-06						1.87E-01
	Exposure Medium Total							4.08E-06						1.87E-01
	Air	Outdoor Air (Particulates and VOCs)	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4,4'-DDD	--	--	9.35E-14	--	9.35E-14	Liver	--	--	2.18E-09	--	2.18E-09
			4,4'-DDT	--	--	4.14E-13	--	4.14E-13	Liver	--	--	6.82E-09	--	6.82E-09
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	2.54E-07	--	2.54E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.65E-07	--	1.65E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.05E-07	--	1.05E-07
			Acetone	--	--	--	--	--	Kidney	--	--	2.07E-07	--	2.07E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	9.67E-04	--	9.67E-04
			Anthracene	--	--	--	--	--	No observed effect	--	--	8.50E-09	--	8.50E-09
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	7.05E-12	--	7.05E-12	Immune System/ Eye/Finger and Toe nails	--	--	4.94E-07	--	4.94E-07
			Arsenic	--	--	4.72E-09	--	4.72E-09	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	1.37E-04	--	1.37E-04
			Benzo(a)anthracene	--	--	7.84E-13	--	7.84E-13	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	1.12E-11	--	1.12E-11	--	--	--	--	--	--

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Air	Outdoor Air	Benzo(b)fluoranthene	--	--	6.99E-13	--	6.99E-13	--	--	--	--	--	--
(Cont.)	(Cont.)	(Particulates and VOCs)	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.14E-10	--	1.14E-10
		(Cont.)	Benzo(k)fluoranthene	--	--	6.37E-14	--	6.37E-14	--	--	--	--	--	--
			Beryllium	--	--	1.11E-09	--	1.11E-09	Immune System/Lung	--	--	6.49E-05	--	6.49E-05
			bis(2-ethylhexyl)phthalate	--	--	7.12E-14	--	7.12E-14	--	--	--	6.47E-10	--	6.47E-10
			Cadmium	--	--	1.64E-09	--	1.64E-09	--	--	--	--	--	--
			Carbazole	--	--	4.25E-12	--	4.25E-12	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.63E-06	--	1.63E-06
			Chloroform	--	--	1.13E-08	--	1.13E-08	--	--	--	2.80E-03	--	2.80E-03
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	8.61E-15	--	8.61E-15	--	--	--	--	--	--
			Cobalt	--	--	5.23E-09	--	5.23E-09	Respiratory system	--	--	2.62E-04	--	2.62E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	4.05E-12	--	4.05E-12	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	--	--	2.21E-04	--	2.21E-04
			Diethylphthalate	--	--	--	--	--	--	--	--	1.04E-11	--	1.04E-11
			Dimethylphthalate	--	--	--	--	--	--	--	--	1.08E-12	--	1.08E-12
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	1.06E-06	--	1.06E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	7.59E-11	--	7.59E-11
			Fluorene	--	--	--	--	--	Blood	--	--	1.55E-07	--	1.55E-07
			Indeno(1,2,3-cd)pyrene	--	--	8.85E-13	--	8.85E-13	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	5.29E-03	--	5.29E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	1.85E-09	--	1.85E-09	Nasal Epithelium	--	--	5.04E-05	--	5.04E-05
			Nickel	--	--	--	--	--	Respiratory system	--	--	1.37E-04	--	1.37E-04
			n-Nitroso-diphenylamine	--	--	1.27E-14	--	1.27E-14	Bladder/Whole Body	--	--	3.63E-10	--	3.63E-10
			o-Xylene	--	--	--	--	--	CNS	--	--	2.53E-05	--	2.53E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	9.20E-09	--	9.20E-09
			Pyrene	--	--	--	--	--	Kidney	--	--	4.61E-08	--	4.61E-08
			Selenium	--	--	--	--	--	--	--	--	--	--	--
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Toluene	--	--	--	--	--	CNS	--	--	3.25E-06	--	3.25E-06
			Trichloroethene	--	--	4.24E-08	--	4.24E-08	CNS/Liver/Endocrine System	--	--	2.97E-05	--	2.97E-05
			Vanadium	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Xylene (Total)	--	--	--	--	--	CNS	--	--	2.43E-05	--	2.43E-05
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	6.82E-08	0.00E+00	6.82E-08		0.00E+00	0.00E+00	1.00E-02	0.00E+00	1.00E-02
		Exposure Point Total						6.82E-08						1.00E-02
	Exposure Medium Total							6.82E-08						1.00E-02
Medium Total								4.14E-06						1.97E-01
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	6.26E-05	--	6.26E-05
			1,1,2-Trichloroethane	--	--	1.79E-08	--	1.79E-08	Blood	--	--	2.24E-04	--	2.24E-04
			1,1-Dichlorethane	--	--	1.26E-07	--	1.26E-07	Kidney	--	--	4.42E-04	--	4.42E-04
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.40E-02	--	3.40E-02
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.69E-03	--	2.69E-03
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	3.26E-05	--	3.26E-05
			1,2-Dichlorethane	--	--	4.90E-08	--	4.90E-08	Liver	--	--	2.20E-06	--	2.20E-06
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	1.19E-02	--	1.19E-02
			1,2-Dichloropropane	--	--	6.68E-10	--	6.68E-10	--	--	--	2.50E-05	--	2.50E-05
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.40E-03	--	2.40E-03
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	3.51E-05	--	3.51E-05
			1,4-Dichlorobenzene	--	--	9.10E-09	--	9.10E-09	Liver	--	--	5.07E-06	--	5.07E-06
			2-Butanone	--	--	--	--	--	Developmental	--	--	3.22E-07	--	3.22E-07
			2-Hexanone	--	--	--	--	--	CNS	--	--	2.99E-08	--	2.99E-08
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	4.33E-07	--	4.33E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.13E-07	--	2.13E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	2.13E-07	--	2.13E-07
			Acetone	--	--	--	--	--	Kidney	--	--	1.18E-05	--	1.18E-05
			Benzene	--	--	9.45E-08	--	9.45E-08	Blood	--	--	1.14E-03	--	1.14E-03
			Bromodichloromethane	--	--	1.11E-08	--	1.11E-08	Kidney	--	--	2.50E-05	--	2.50E-05
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.57E-04	--	1.57E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.13E-04	--	1.13E-04
			Chloroethane	--	--	2.98E-08	--	2.98E-08	Fetus	--	--	9.91E-06	--	9.91E-06
			Chloroform	--	--	1.03E-07	--	1.03E-07	--	--	--	2.55E-02	--	2.55E-02
			Chloromethane	--	--	--	--	--	CNS	--	--	4.47E-04	--	4.47E-04
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	2.25E-03	--	2.25E-03
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	1.70E-05	--	1.70E-05
			Fluorene	--	--	--	--	--	Blood	--	--	6.56E-08	--	6.56E-08
			Hexachlorobutadiene	--	--	5.22E-09	--	5.22E-09	Kidney	--	--	6.24E-04	--	6.24E-04
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	3.78E-03	--	3.78E-03
			m,p-Xylene	--	--	--	--	--	CNS	--	--	3.09E-04	--	3.09E-04

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation) (Cont.)	Methylene Chloride	--	--	1.69E-09	--	1.69E-09	Liver	--	--	3.35E-06	--	3.35E-06
			Methyl-T-Butyl-ether	--	--	1.88E-10	--	1.88E-10	Liver/Kidney/ Periocular Tissue	--	--	6.75E-07	--	6.75E-07
			Naphthalene	--	--	4.22E-08	--	4.22E-08	Nasal Epithelium	--	--	1.15E-03	--	1.15E-03
			n-Butylbenzene	--	--	--	--	--	--	--	--	1.70E-04	--	1.70E-04
			n-propylbenzene	--	--	--	--	--	--	--	--	2.17E-04	--	2.17E-04
			o-Xylene	--	--	--	--	--	CNS	--	--	1.18E-04	--	1.18E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.14E-08	--	1.14E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	4.42E-08	--	4.42E-08
			sec-Butylbenzene	--	--	--	--	--	--	--	--	9.42E-08	--	9.42E-08
			tert-Butylbenzene	--	--	--	--	--	--	--	--	2.22E-05	--	2.22E-05
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	9.23E-04	--	9.23E-04
			Tetrachloroethene	--	--	6.97E-08	--	6.97E-08	CNS	--	--	5.42E-05	--	5.42E-05
			Toluene	--	--	--	--	--	CNS	--	--	3.80E-05	--	3.80E-05
			Trichloroethene	--	--	1.46E-04	--	1.46E-04	CNS/Liver/Endocrine System	--	--	1.02E-01	--	1.02E-01
			Vinyl chloride	--	--	6.12E-07	--	6.12E-07	Liver	--	--	3.75E-03	--	3.75E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	4.09E-04	--	4.09E-04
			Chemical Total	0.00E+00	0.00E+00	1.47E-04	0.00E+00	1.47E-04		0.00E+00	0.00E+00	1.95E-01	0.00E+00	1.95E-01
		Exposure Point Total						1.47E-04						1.95E-01
	Exposure Medium Total							1.47E-04						1.95E-01
Medium Total								1.47E-04						1.95E-01
Receptor Total				Receptor Risk Total				1.52E-04	Receptor HI Total					3.92E-01

TABLE F-9.4.5.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	1.60E-01
Total Organ 2 (Kidney) HI Across All Media =	2.52E-02
Total Organ 3 (Fetus) HI Across All Media =	2.73E-05
Total Organ 4 (Nervous System) HI Across All Media =	1.45E-01
Total Organ 5 (Endocrine system) HI Across All Media =	1.02E-01
Total Organ 6 (Blood) HI Across All Media =	5.01E-02
Total Organ 7 (Skin) HI Across All Media =	2.43E-02
Total Organ 8 (No Observed Effect) HI Across All Media =	2.26E-05
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	3.42E-03
Total Organ 11 (Vision/Eye) HI Across All Media =	6.27E-03
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	1.56E-04
Total Organ 13 (Respiratory/lung) HI Across All Media =	1.43E-03
Total Organ 13 (whole body) HI Across All Media =	1.69E-02
Total Organ 13 (Immune System) HI Across All Media =	2.24E-02
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	6.27E-03
Total Organ 13 (Nasal Tissue) HI Across All Media =	1.20E-03
Total Organ 13 (Fetus) HI Across All Media =	2.73E-05

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	8.15E-06	2.44E-07	--	--	8.39E-06
			4,4'-DDD	8.15E-11	2.44E-12	--	--	8.39E-11	Liver	4.75E-05	1.43E-06	--	--	4.89E-05
			4,4'-DDT	3.61E-10	3.25E-11	--	--	3.93E-10	Liver	1.49E-04	1.34E-05	--	--	1.62E-04
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	1.13E-06	3.38E-08	--	--	1.16E-06
			Acenaphthene	--	--	--	--	--	Liver	4.91E-07	1.91E-07	--	--	6.82E-07
			Acenaphthylene	--	--	--	--	--	Liver	3.12E-07	9.36E-09	--	--	3.21E-07
			Acetone	--	--	--	--	--	Kidney	4.31E-08	1.29E-09	--	--	4.43E-08
			Aluminum	--	--	--	--	--	CNS	3.01E-02	9.04E-05	--	--	3.02E-02
			Anthracene	--	--	--	--	--	No observed effect	9.82E-08	3.83E-08	--	--	1.37E-07
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	4.53E-02	1.36E-04	--	--	4.54E-02
			Aroclor-1260	6.14E-09	2.58E-09	--	--	8.72E-09	Eye/Finger and Toe nails	1.08E-02	4.52E-03	--	--	1.53E-02
			Arsenic	4.11E-07	3.70E-08	--	--	4.48E-07	Skin	6.40E-02	5.76E-03	--	--	6.97E-02
			Barium	--	--	--	--	--	Kidney	5.99E-03	2.57E-04	--	--	6.25E-03
			Benzo(a)anthracene	6.83E-10	2.66E-10	--	--	9.49E-10	--	--	--	--	--	--
			Benzo(a)pyrene	9.73E-09	3.79E-09	--	--	1.35E-08	--	--	--	--	--	--
			Benzo(b)fluoranthene	6.09E-10	2.37E-10	--	--	8.46E-10	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	2.48E-06	9.66E-07	--	--	3.44E-06
			Benzo(k)fluoranthene	5.55E-11	2.16E-11	--	--	7.72E-11	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	4.04E-03	1.73E-03	--	--	5.77E-03
			bis(2-ethylhexyl)phthalate	6.20E-11	--	--	--	6.20E-11	Liver	1.55E-05	4.65E-07	--	--	1.60E-05
			Cadmium	--	--	--	--	--	Kidney	3.17E-02	9.52E-05	--	--	3.18E-02
			Carbazole	3.71E-09	1.11E-10	--	--	3.82E-09	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	Developmental	6.46E-08	4.84E-08	--	--	1.13E-07
			Chloroform	--	--	--	--	--	Liver	1.74E-06	5.23E-08	--	--	1.80E-06
			Chromium	--	--	--	--	--	No observed effect	7.36E-05	2.21E-07	--	--	7.38E-05
			Chrysene	7.50E-12	2.92E-12	--	--	1.04E-11	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	1.63E-03	4.88E-06	--	--	1.63E-03
			Copper	--	--	--	--	--	GI Tract/Kidney	3.40E-03	1.02E-05	--	--	3.41E-03
			Dibenzo(a,h)anthracene	3.53E-09	1.38E-09	--	--	4.90E-09	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	2.38E-03	7.13E-05	--	--	2.45E-03
			Diethylphthalate	--	--	--	--	--	Brain, Liver, Kidneys,Stomach,GI Tract	2.26E-07	6.78E-09	--	--	2.33E-07
			Dimethylphthalate	--	--	--	--	--	Kidney	2.36E-08	7.07E-10	--	--	2.43E-08
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	2.58E-06	7.75E-10	--	--	2.58E-06
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	2.70E-07	8.09E-09	--	--	2.78E-07
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	1.65E-06	6.44E-07	--	--	2.30E-06
			Fluorene	--	--	--	--	--	Blood	9.24E-07	3.60E-07	--	--	1.28E-06
			Indeno(1,2,3-cd)pyrene	7.71E-10	3.01E-10	--	--	1.07E-09	--	--	--	--	--	--

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	Iron	--	--	--	--	--	--	1.89E-01	5.68E-04	--	--	1.90E-01
(Cont.)	(Cont.)	(Cont.)	Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	6.85E-02	2.06E-04	--	--	6.87E-02
			Mercury	--	--	--	--	--	Immune System	2.80E-02	--	--	--	2.80E-02
			Molybdenum	--	--	--	--	--	CNS	1.29E-03	3.87E-06	--	--	1.29E-03
			Naphthalene	5.25E-11	2.05E-11	--	--	7.30E-11	Whole Body	1.53E-06	5.98E-07	--	--	2.13E-06
			Nickel	--	--	--	--	--	Whole Body	8.50E-03	6.37E-04	--	--	9.13E-03
			n-Nitroso-diphenylamine	1.11E-11	3.32E-13	--	--	1.14E-11	Bladder/Whole Body	7.91E-06	2.37E-07	--	--	8.15E-06
			o-Xylene	--	--	--	--	--	CNS/Whole Body	3.63E-07	1.09E-08	--	--	3.74E-07
			Phenanthrene	--	--	--	--	--	No observed effect	2.27E-07	6.81E-09	--	--	2.34E-07
			Pyrene	--	--	--	--	--	Kidney	2.89E-06	1.13E-06	--	--	4.02E-06
			Selenium	--	--	--	--	--	Whole Body	4.00E-04	4.00E-06	--	--	4.04E-04
			Silver	--	--	--	--	--	SKin	3.04E-03	2.28E-04	--	--	3.27E-03
			Thallium	--	--	--	--	--	Liver, Blood	6.32E-02	--	--	--	6.32E-02
			Toluene	--	--	--	--	--	Kidney, Liver	1.22E-07	3.67E-09	--	--	1.26E-07
			Trichloroethene	9.23E-11	2.77E-12	--	--	9.50E-11	Liver, Kidney, Fetus	5.38E-05	1.61E-06	--	--	5.54E-05
			Vanadium	--	--	--	--	--	Kidney	1.73E-02	1.99E-03	--	--	1.92E-02
			Xylene (Total)	--	--	--	--	--	Whole Body	3.49E-07	1.05E-08	--	--	3.59E-07
			Zinc	--	--	--	--	--	Blood	8.11E-04	2.43E-06	--	--	8.14E-04
			Chemical Total	4.37E-07	4.58E-08	0.00E+00	0.00E+00	4.83E-07		5.80E-01	1.63E-02	0.00E+00	0.00E+00	5.97E-01
		Exposure Point Total						4.83E-07						5.97E-01
	Exposure Medium Total							4.83E-07						5.97E-01
	Air	Outdoor Air	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	4,4'-DDD	--	--	3.74E-15	--	3.74E-15	Liver	--	--	2.18E-09	--	2.18E-09
			4,4'-DDT	--	--	1.66E-14	--	1.66E-14	Liver	--	--	6.82E-09	--	6.82E-09
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	2.54E-07	--	2.54E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.65E-07	--	1.65E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.05E-07	--	1.05E-07
			Acetone	--	--	--	--	--	Kidney	--	--	2.07E-07	--	2.07E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	9.67E-04	--	9.67E-04
			Anthracene	--	--	--	--	--	No observed effect	--	--	8.50E-09	--	8.50E-09
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	2.82E-13	--	2.82E-13	mmune System/ Eye/Finger and Toe nails	--	--	4.94E-07	--	4.94E-07
			Arsenic	--	--	1.89E-10	--	1.89E-10	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	1.37E-04	--	1.37E-04
			Benzo(a)anthracene	--	--	3.14E-14	--	3.14E-14	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	4.47E-13	--	4.47E-13	--	--	--	--	--	--

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Air	Outdoor Air	Benzo(b)fluoranthene	--	--	2.79E-14	--	2.79E-14	--	--	--	--	--	--
(Cont.)	(Cont.)	(Particulates and VOCs)	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.14E-10	--	1.14E-10
		(Cont.)	Benzo(k)fluoranthene	--	--	2.55E-15	--	2.55E-15	--	--	--	--	--	--
			Beryllium	--	--	4.45E-11	--	4.45E-11	Immune System/Lung	--	--	6.49E-05	--	6.49E-05
			bis(2-ethylhexyl)phthalate	--	--	2.85E-15	--	2.85E-15	--	--	--	6.47E-10	--	6.47E-10
			Cadmium	--	--	6.56E-11	--	6.56E-11	--	--	--	--	--	--
			Carbazole	--	--	1.70E-13	--	1.70E-13	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.63E-06	--	1.63E-06
			Chloroform	--	--	4.50E-10	--	4.50E-10	--	--	--	2.80E-03	--	2.80E-03
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	3.44E-16	--	3.44E-16	--	--	--	--	--	--
			Cobalt	--	--	2.09E-10	--	2.09E-10	Respiratory system	--	--	2.62E-04	--	2.62E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	1.62E-13	--	1.62E-13	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	--	--	2.21E-04	--	2.21E-04
			Diethylphthalate	--	--	--	--	--	--	--	--	1.04E-11	--	1.04E-11
			Dimethylphthalate	--	--	--	--	--	--	--	--	1.08E-12	--	1.08E-12
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	1.06E-06	--	1.06E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	7.59E-11	--	7.59E-11
			Fluorene	--	--	--	--	--	Blood	--	--	1.55E-07	--	1.55E-07
			Indeno(1,2,3-cd)pyrene	--	--	3.54E-14	--	3.54E-14	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	5.29E-03	--	5.29E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	7.41E-11	--	7.41E-11	Nasal Epithelium	--	--	5.04E-05	--	5.04E-05
			Nickel	--	--	--	--	--	Respiratory system	--	--	1.37E-04	--	1.37E-04
			n-Nitroso-diphenylamine	--	--	5.09E-16	--	5.09E-16	Bladder/Whole Body	--	--	3.63E-10	--	3.63E-10
			o-Xylene	--	--	--	--	--	CNS	--	--	2.53E-05	--	2.53E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	9.20E-09	--	9.20E-09
			Pyrene	--	--	--	--	--	Kidney	--	--	4.61E-08	--	4.61E-08
			Selenium	--	--	--	--	--	--	--	--	--	--	--
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Toluene	--	--	--	--	--	CNS	--	--	3.25E-06	--	3.25E-06
			Trichloroethene	--	--	1.69E-09	--	1.69E-09	CNS/Liver/Endocrine System	--	--	2.97E-05	--	2.97E-05
			Vanadium	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Xylene (Total)	--	--	--	--	--	CNS	--	--	2.43E-05	--	2.43E-05
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	2.73E-09	0.00E+00	2.73E-09		0.00E+00	0.00E+00	1.00E-02	0.00E+00	1.00E-02
		Exposure Point Total						2.73E-09						1.00E-02
	Exposure Medium Total							2.73E-09						1.00E-02
Medium Total								4.86E-07						6.07E-01
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	7.12E-05	--	7.12E-05
			1,1,2-Trichloroethane	--	--	9.10E-10	--	9.10E-10	Blood	--	--	2.84E-04	--	2.84E-04
			1,1-Dichlorethane	--	--	5.50E-09	--	5.50E-09	Kidney	--	--	4.83E-04	--	4.83E-04
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.63E-02	--	3.63E-02
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	--	--	--
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	4.63E-05	--	4.63E-05
			1,2-Dichlorethane	--	--	2.49E-09	--	2.49E-09	Liver	--	--	2.79E-06	--	2.79E-06
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	5.79E-03	--	5.79E-03
			1,2-Dichloropropane	--	--	3.19E-11	--	3.19E-11	--	--	--	2.99E-05	--	2.99E-05
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	--	--	--
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	3.78E-05	--	3.78E-05
			1,4-Dichlorobenzene	--	--	5.08E-05	--	5.08E-05	Liver	--	--	7.08E-01	--	7.08E-01
			2-Butanone	--	--	--	--	--	Developmental	--	--	--	--	--
			2-Hexanone	--	--	--	--	--	CNS	--	--	--	--	--
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	--	--	--
			Acenaphthene	--	--	--	--	--	Liver	--	--	3.49E-07	--	3.49E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	--	--	--
			Acetone	--	--	--	--	--	Kidney	--	--	1.49E-05	--	1.49E-05
			Benzene	--	--	4.51E-09	--	4.51E-09	Blood	--	--	1.36E-03	--	1.36E-03
			Bromodichloromethane	--	--	4.56E-10	--	4.56E-10	Kidney	--	--	2.57E-05	--	2.57E-05
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.77E-04	--	1.77E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.44E-04	--	1.44E-04
			Chloroethane	--	--	--	--	--	Fetus	--	--	--	--	--
			Chloroform	--	--	4.88E-09	--	4.88E-09	--	--	--	3.03E-02	--	3.03E-02
			Chloromethane	--	--	--	--	--	CNS	--	--	--	--	--
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	2.50E-03	--	2.50E-03
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	2.23E-05	--	2.23E-05
			Fluorene	--	--	--	--	--	Blood	--	--	1.01E-07	--	1.01E-07
			Hexachlorobutadiene	--	--	3.05E-10	--	3.05E-10	Kidney	--	--	9.13E-04	--	9.13E-04
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	4.43E-05	--	4.43E-05
			m,p-Xylene	--	--	--	--	--	CNS	--	--	4.10E-04	--	4.10E-04

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation) (Cont.)	Methylene Chloride	--	--	7.73E-11	--	7.73E-11	Liver	--	--	3.84E-06	--	3.84E-06
			Methyl-T-Butyl-ether	--	--	--	--	--	Liver/Kidney/ Periocular Tissue	--	--	--	--	--
			Naphthalene	--	--	2.49E-09	--	2.49E-09	Nasal Epithelium	--	--	1.69E-03	--	1.69E-03
			n-Butylbenzene	--	--	--	--	--	--	--	--	1.86E-04	--	1.86E-04
			n-propylbenzene	--	--	--	--	--	--	--	--	2.71E-04	--	2.71E-04
			o-Xylene	--	--	--	--	--	CNS	--	--	1.63E-04	--	1.63E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	2.66E-08	--	2.66E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	7.24E-08	--	7.24E-08
			sec-Butylbenzene	--	--	--	--	--	--	--	--	3.88E-05	--	3.88E-05
			tert-Butylbenzene	--	--	--	--	--	--	--	--	2.33E-05	--	2.33E-05
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.15E-03	--	1.15E-03
			Tetrachloroethene	--	--	3.48E-09	--	3.48E-09	CNS	--	--	6.77E-05	--	6.77E-05
			Toluene	--	--	--	--	--	CNS	--	--	4.81E-05	--	4.81E-05
			Trichloroethene	--	--	6.97E-06	--	6.97E-06	CNS/Liver/Endocrine System	--	--	1.22E-01	--	1.22E-01
			Vinyl chloride	--	--	2.50E-08	--	2.50E-08	Liver	--	--	3.82E-03	--	3.82E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	5.40E-04	--	5.40E-04
			Chemical Total	0.00E+00	0.00E+00	5.79E-05	0.00E+00	5.79E-05		0.00E+00	0.00E+00	9.17E-01	0.00E+00	9.17E-01
		Exposure Point Total						5.79E-05						9.17E-01
	Exposure Medium Total							5.79E-05						9.17E-01
Medium Total								5.79E-05						9.17E-01
Receptor Total				Receptor Risk Total				5.83E-05	Receptor HI Total					1.52E+00

TABLE F-9.4.6.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 4, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	9.34E-01
Total Organ 2 (Kidney) HI Across All Media =	6.01E-02
Total Organ 3 (Fetus) HI Across All Media =	5.54E-05
Total Organ 4 (Nervous System) HI Across All Media =	2.29E-01
Total Organ 5 (Endocrine system) HI Across All Media =	1.22E-01
Total Organ 6 (Blood) HI Across All Media =	1.22E-01
Total Organ 7 (Skin) HI Across All Media =	7.30E-02
Total Organ 8 (No Observed Effect) HI Across All Media =	7.42E-05
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	9.19E-03
Total Organ 11 (Vision/Eye) HI Across All Media =	1.53E-02
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	1.61E-04
Total Organ 13 (Respiratory/lung) HI Across All Media =	1.44E-03
Total Organ 13 (whole body) HI Across All Media =	5.49E-02
Total Organ 13 (Immune System) HI Across All Media =	7.34E-02
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	1.53E-02
Total Organ 13 (Nasal Tissue) HI Across All Media =	1.74E-03
Total Organ 13 (Fetus) HI Across All Media =	5.54E-05

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	3.46E-06	1.38E-07	--	--	3.59E-06
			4,4'-DDD	8.29E-10	3.31E-11	--	3.37E-11	8.96E-10	Liver	2.02E-05	8.04E-07	--	8.19E-07	2.18E-05
			4,4'-DDT	3.67E-09	4.40E-10	--	1.15E-10	4.23E-09	Liver	6.30E-05	7.54E-06	--	1.98E-06	7.25E-05
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	4.77E-07	1.90E-08	--	--	4.96E-07
			Acenaphthene	--	--	--	--	--	Liver	2.08E-07	1.08E-07	--	--	3.16E-07
			Acenaphthylene	--	--	--	--	--	Liver	1.32E-07	5.28E-09	--	--	1.38E-07
			Acetone	--	--	--	--	--	Kidney	1.83E-08	7.29E-10	--	--	1.90E-08
			Aluminum	--	--	--	--	--	CNS	1.28E-02	5.10E-05	--	--	1.28E-02
			Anthracene	--	--	--	--	--	No observed effect	4.17E-08	2.16E-08	--	--	6.33E-08
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.92E-02	7.66E-05	--	--	1.93E-02
			Aroclor-1260	6.26E-08	3.49E-08	--	3.68E-09	1.01E-07	Eye/Finger and Toe nails	4.56E-03	2.55E-03	--	2.68E-04	7.38E-03
			Arsenic	4.19E-06	5.01E-07	--	1.55E-05	2.02E-05	Skin	2.71E-02	3.25E-03	--	1.01E-01	1.31E-01
			Barium	--	--	--	--	--	Kidney	2.54E-03	1.45E-04	--	--	2.69E-03
			Benzo(a)anthracene	6.95E-09	3.61E-09	--	4.17E-10	1.10E-08	--	--	--	--	--	--
			Benzo(a)pyrene	9.91E-08	5.14E-08	--	3.95E-09	1.54E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	6.20E-09	3.21E-09	--	2.93E-10	9.70E-09	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	1.05E-06	5.45E-07	--	--	1.60E-06
			Benzo(k)fluoranthene	5.65E-10	2.93E-10	--	2.23E-11	8.81E-10	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.71E-03	9.76E-04	--	--	2.69E-03
			bis(2-ethylhexyl)phthalate	6.31E-10	--	--	3.45E-13	6.32E-10	Liver	6.58E-06	2.62E-07	--	3.60E-09	6.84E-06
			Cadmium	--	--	--	--	--	Kidney	1.35E-02	5.37E-05	--	6.30E-01	6.43E-01
			Carbazole	3.77E-08	1.51E-09	--	7.96E-07	8.35E-07	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	Developmental	2.74E-08	2.73E-08	--	--	5.47E-08
			Chloroform	--	--	--	--	--	Liver	7.40E-07	2.95E-08	--	--	7.69E-07
			Chromium	--	--	--	--	--	No observed effect	3.12E-05	1.25E-07	--	--	3.13E-05
			Chrysene	7.64E-11	3.96E-11	--	4.58E-12	1.21E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	6.90E-04	2.75E-06	--	--	6.93E-04
			Copper	--	--	--	--	--	GI Tract/Kidney	1.44E-03	5.76E-06	--	--	1.45E-03
			Dibenzo(a,h)anthracene	3.59E-08	1.86E-08	--	9.32E-10	5.55E-08	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	1.01E-03	4.02E-05	--	--	1.05E-03
			Diethylphthalate	--	--	--	--	--	Brain, Liver, Kidneys,Stomach,GI Tract	9.59E-08	3.83E-09	--	3.62E-06	3.72E-06
			Dimethylphthalate	--	--	--	--	--	Kidney	1.00E-08	3.99E-10	--	1.66E-07	1.77E-07
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	1.10E-06	4.37E-10	--	1.32E-07	1.23E-06
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	1.14E-07	4.56E-09	--	--	1.19E-07
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	7.01E-07	3.64E-07	--	4.54E-08	1.11E-06
			Fluorene	--	--	--	--	--	Blood	3.92E-07	2.03E-07	--	--	5.95E-07
			Indeno(1,2,3-cd)pyrene	7.85E-09	4.07E-09	--	2.66E-10	1.22E-08	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	8.04E-02	3.21E-04	--	--	8.07E-02
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	2.91E-02	1.16E-04	--	--	2.92E-02

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Soil (Cont.)	Site Soil (Cont.)	Mercury	--	--	--	--	--	Immune System	1.19E-02	--	--	6.79E-02	7.97E-02
			Molybdenum	--	--	--	--	--	CNS	5.48E-04	2.18E-06	--	--	5.50E-04
			Naphthalene	5.35E-10	2.77E-10	--	--	8.12E-10	Whole Body	6.50E-07	3.37E-07	--	--	9.87E-07
			Nickel	--	--	--	--	--	Whole Body	3.60E-03	3.60E-04	--	2.18E-02	2.57E-02
			n-Nitroso-diphenylamine	1.13E-10	4.50E-12	--	2.31E-09	2.43E-09	Bladder/Whole Body	3.36E-06	1.34E-07	--	6.87E-05	7.22E-05
			o-Xylene	--	--	--	--	--	CNS/Whole Body	1.54E-07	6.15E-09	--	--	1.60E-07
			Phenanthrene	--	--	--	--	--	No observed effect	9.63E-08	3.84E-09	--	--	1.00E-07
			Pyrene	--	--	--	--	--	Kidney	1.23E-06	6.35E-07	--	--	1.86E-06
			Selenium	--	--	--	--	--	Whole Body	1.70E-04	2.26E-06	--	1.01E-03	1.18E-03
			Silver	--	--	--	--	--	Skin	1.29E-03	1.29E-04	--	--	1.42E-03
			Thallium	--	--	--	--	--	Liver, Blood	2.68E-02	--	--	--	2.68E-02
			Toluene	--	--	--	--	--	Kidney, Liver	5.20E-08	2.07E-09	--	--	5.40E-08
			Trichloroethene	9.39E-10	3.75E-11	--	--	9.77E-10	Liver, Kidney, Fetus	2.28E-05	9.11E-07	--	--	2.37E-05
			Vanadium	--	--	--	--	--	Kidney	7.32E-03	1.12E-03	--	--	8.44E-03
			Xylene (Total)	--	--	--	--	--	Whole Body	1.48E-07	5.90E-09	--	--	1.54E-07
			Zinc	--	--	--	--	--	Blood	3.44E-04	1.37E-06	--	8.31E-03	8.65E-03
			Chemical Total	4.45E-06	6.20E-07	0.00E+00	1.63E-05	2.14E-05		2.46E-01	9.21E-03	0.00E+00	8.30E-01	1.09E+00
		Exposure Point Total						2.14E-05						1.09E+00
	Exposure Medium Total							2.14E-05						1.09E+00
	Air	Outdoor Air (Particulates and VOCs)	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4,4'-DDD	--	--	1.25E-13	--	1.25E-13	Liver	--	--	3.04E-09	--	3.04E-09
			4,4'-DDT	--	--	5.54E-13	--	5.54E-13	Liver	--	--	9.51E-09	--	9.51E-09
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	3.54E-07	--	3.54E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.30E-07	--	2.30E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.47E-07	--	1.47E-07
			Acetone	--	--	--	--	--	Kidney	--	--	2.89E-07	--	2.89E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	1.35E-03	--	1.35E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	1.19E-08	--	1.19E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	9.44E-12	--	9.44E-12	Immune System/ Eye/Finger and Toe nails	--	--	6.88E-07	--	6.88E-07
			Arsenic	--	--	6.32E-09	--	6.32E-09	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	1.92E-04	--	1.92E-04
			Benzo(a)anthracene	--	--	1.05E-12	--	1.05E-12	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	1.49E-11	--	1.49E-11	--	--	--	--	--	--
			Benzo(b)fluoranthene	--	--	9.35E-13	--	9.35E-13	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	1.59E-10	--	1.59E-10
			Benzo(k)fluoranthene	--	--	8.53E-14	--	8.53E-14	--	--	--	--	--	--
			Beryllium	--	--	1.49E-09	--	1.49E-09	Immune System/Lung	--	--	9.04E-05	--	9.04E-05
			bis(2-ethylhexyl)phthalate	--	--	9.53E-14	--	9.53E-14	--	--	--	9.02E-10	--	9.02E-10
			Cadmium	--	--	2.19E-09	--	2.19E-09	--	--	--	--	--	--

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Carbazole	--	--	5.70E-12	--	5.70E-12	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	CNS	--	--	2.27E-06	--	2.27E-06
			Chloroform	--	--	1.51E-08	--	1.51E-08	--	--	--	3.90E-03	--	3.90E-03
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	1.15E-14	--	1.15E-14	--	--	--	--	--	--
			Cobalt	--	--	7.00E-09	--	7.00E-09	Respiratory system	--	--	3.65E-04	--	3.65E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	5.42E-12	--	5.42E-12	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	--	--	3.09E-04	--	3.09E-04
			Diethylphthalate	--	--	--	--	--	--	--	--	1.45E-11	--	1.45E-11
			Dimethylphthalate	--	--	--	--	--	--	--	--	1.51E-12	--	1.51E-12
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	1.48E-06	--	1.48E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	1.06E-10	--	1.06E-10
			Fluorene	--	--	--	--	--	Blood	--	--	2.17E-07	--	2.17E-07
			Indeno(1,2,3-cd)pyrene	--	--	1.18E-12	--	1.18E-12	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	7.37E-03	--	7.37E-03
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	2.48E-09	--	2.48E-09	Nasal Epithelium	--	--	7.03E-05	--	7.03E-05
			Nickel	--	--	--	--	--	Respiratory system	--	--	1.90E-04	--	1.90E-04
			n-Nitroso-diphenylamine	--	--	1.70E-14	--	1.70E-14	Bladder/Whole Body	--	--	5.06E-10	--	5.06E-10
			o-Xylene	--	--	--	--	--	CNS	--	--	3.52E-05	--	3.52E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.28E-08	--	1.28E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	6.43E-08	--	6.43E-08
			Selenium	--	--	--	--	--	--	--	--	--	--	--
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Toluene	--	--	--	--	--	CNS	--	--	4.53E-06	--	4.53E-06
			Trichloroethene	--	--	5.67E-08	--	5.67E-08	CNS/Liver/Endocrine System	--	--	4.13E-05	--	4.13E-05
			Vanadium	--	--	--	--	--	--	--	--	--	--	--
			Xylene (Total)	--	--	--	--	--	CNS	--	--	3.38E-05	--	3.38E-05
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	9.13E-08	0.00E+00	9.13E-08		0.00E+00	0.00E+00	1.40E-02	0.00E+00	1.40E-02
		Exposure Point Total						9.13E-08						1.40E-02
	Exposure Medium Total							9.13E-08						1.40E-02
Medium Total								2.15E-05						1.10E+00

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver	2.18E-03	1.95E-04	--	--	2.38E-03
			1,1,2-Trichloroethane	5.66E-06	1.90E-07	--	--	5.85E-06	Blood	7.24E-02	2.43E-03	--	--	7.48E-02
			1,1-Dichloroethane	5.79E-06	2.68E-07	--	--	6.06E-06	No observed effect	2.96E-02	1.37E-03	--	--	3.10E-02
			1,1-Dichloroethene	--	--	--	--	--	Liver	3.23E-01	2.68E-02	--	--	3.49E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	No observed effect	6.20E-03	3.05E-03	--	--	9.25E-03
			1,2-Dichlorobenzene	--	--	--	--	--	No observed effect	4.07E-03	1.40E-03	--	--	5.47E-03
			1,2-Dichloroethane	1.07E-05	2.97E-07	--	--	1.10E-05	Kidney	1.71E-02	4.77E-04	--	--	1.76E-02
			1,2-Dichloroethene (Total)	--	--	--	--	--	Blood	8.04E-01	6.26E-02	--	--	8.67E-01
			1,2-Dichloropropane	6.39E-08	3.31E-09	--	--	6.72E-08	Blood, Liver, CNS	2.49E-03	1.29E-04	--	--	2.62E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	No observed effect	5.82E-03	2.87E-03	--	--	8.69E-03
			1,3-Dichlorobenzene	--	--	--	--	--	Liver/Thyroid	1.37E-01	5.54E-02	--	--	1.92E-01
			1,4-Dichlorobenzene	1.45E-06	4.68E-07	--	--	1.92E-06	GI Tract, Liver	5.86E-03	1.90E-03	--	--	7.76E-03
			2-Butanone	--	--	--	--	--	Developmental	3.24E-03	1.88E-05	--	--	3.26E-03
			2-Hexanone	--	--	--	--	--	CNS	6.85E-04	1.59E-05	--	--	7.01E-04
			2-Methylnaphthalene	--	--	--	--	--	Lungs	4.79E-03	3.55E-03	--	--	8.35E-03
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	9.93E-03	2.06E-04	--	--	1.01E-02
			Acenaphthene	--	--	--	--	--	Liver	9.13E-04	6.34E-04	--	--	1.55E-03
			Acenaphthylene	--	--	--	--	--	Liver	9.13E-04	6.72E-04	--	--	1.59E-03
			Acetone	--	--	--	--	--	Kidney	5.03E-02	1.50E-04	--	--	5.05E-02
			Aluminum	--	--	--	--	--	CNS	2.71E-02	3.02E-04	--	--	2.74E-02
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	9.79E-01	5.57E-03	--	--	9.84E-01
			Arsenic	2.79E-04	2.81E-06	--	--	2.82E-04	Skin	1.81E+00	1.82E-02	--	--	1.83E+00
			Barium	--	--	--	--	--	Kidney	1.06E-01	3.17E-03	--	--	1.09E-01
			Benzene	8.21E-06	8.87E-07	--	--	9.10E-06	Blood	1.09E-01	1.18E-02	--	--	1.21E-01
			Benzo(a)anthracene	6.86E-07	3.39E-06	--	--	4.08E-06	--	--	--	--	--	--
			Benzo(a)pyrene	6.86E-06	4.44E-05	--	--	5.12E-05	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.94E-02	9.53E-03	--	--	2.89E-02
			bis(2-ethylhexyl)phthalate	9.33E-07	--	--	--	9.33E-07	Liver	9.72E-03	9.99E-02	--	--	1.10E-01
			Bromodichloromethane	4.14E-06	1.08E-07	--	--	4.24E-06	Kidney	9.73E-03	2.55E-04	--	--	9.98E-03
			Cadmium	--	--	--	--	--	Kidney	8.78E-01	1.60E-03	--	--	8.79E-01
			Carbon disulfide	--	--	--	--	--	Developmental	2.06E-03	1.68E-04	--	--	2.23E-03
			Chlorobenzene	--	--	--	--	--	Liver	8.32E-03	1.77E-03	--	--	1.01E-02
			Chloroethane	3.36E-07	1.40E-08	--	--	3.50E-07	No observed effect	8.46E-04	3.52E-05	--	--	8.81E-04
			Chloroform	--	--	--	--	--	Liver	2.04E-02	9.49E-04	--	--	2.13E-02
			Chloromethane	--	--	--	--	--	Liver, Kidney, Spleen, CNS	7.65E-03	1.66E-04	--	--	7.82E-03
			Chromium	--	--	--	--	--	No observed effect	2.78E-03	1.45E-05	--	--	2.79E-03
			Chromium (VI)	--	--	--	--	--	No observed effect	4.31E+00	2.25E-02	--	--	4.33E+00
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	1.52E-01	1.18E-02	--	--	1.64E-01
			Cobalt	--	--	--	--	--	Blood	2.07E-02	1.31E-04	--	--	2.08E-02
			Copper	--	--	--	--	--	GI Tract/Kidney	8.48E-03	1.36E-05	--	--	8.50E-03
			Cyanide	--	--	--	--	--	Thyroid, CNS	9.04E-02	4.09E-04	--	--	9.08E-02
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	1.97E-03	7.59E-04	--	--	2.73E-03

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	1.23E-03	3.30E-03	--	--	4.53E-03
			Fluorene	--	--	--	--	--	Blood	6.85E-04	6.11E-04	--	--	1.30E-03
			Hexachlorobutadiene	2.93E-07	1.85E-07	--	--	4.78E-07	Kidney	3.65E-02	2.31E-02	--	--	5.96E-02
			Iron	--	--	--	--	--	--	1.55E+00	2.00E-03	--	--	1.55E+00
			Isopropylbenzene	--	--	--	--	--	Kidney	1.51E-03	1.10E-03	--	--	2.61E-03
			Lead	--	--	--	--	--	--	--	--	--	--	--
			m,p-Xylene	--	--	--	--	--	CNS/Whole Body	1.81E-03	7.59E-04	--	--	2.57E-03
			Manganese	--	--	--	--	--	CNS	1.13E+01	7.56E-02	--	--	1.14E+01
			Mercury	--	--	--	--	--	Immune System	4.02E-03	3.00E-04	--	--	4.32E-03
			Methylene chloride	6.98E-07	1.62E-08	--	--	7.14E-07	Liver	4.52E-03	1.05E-04	--	--	4.63E-03
			Methyl-T-Butyl-Ether	1.18E-07	1.58E-09	--	--	1.19E-07	Liver/Kidney/Periocular Tissue	2.22E-04	2.98E-06	--	--	2.25E-04
			Molybdenum	--	--	--	--	--	CNS	4.11E-01	1.54E-03	--	--	4.12E-01
			Naphthalene	3.77E-05	1.37E-05	--	--	5.14E-05	Whole Body	4.59E-02	1.66E-02	--	--	6.25E-02
			n-Butylbenzene	--	--	--	--	--	Kidney, Liver	1.64E-03	1.20E-03	--	--	2.85E-03
			Nickel	--	--	--	--	--	Whole Body	2.50E-01	1.08E-02	--	--	2.61E-01
			n-Propylbenzene	--	--	--	--	--	--	--	--	--	--	--
			o-Xylene	--	--	--	--	--	CNS/Whole Body	9.40E-04	3.45E-04	--	--	1.29E-03
			Phenanthrene	--	--	--	--	--	No observed effect	1.83E-04	2.18E-04	--	--	4.01E-04
			Phenol	--	--	--	--	--	Developmental	6.02E-04	1.74E-05	--	--	6.20E-04
			p-Isopropyltoluene	--	0.00E+00	--	--	0.00E+00	--	--	--	--	--	--
			Pyrene	--	--	--	--	--	Kidney	2.74E-03	4.63E-03	--	--	7.37E-03
			sec-Butylbenzene	--	--	--	--	--	Kidney	3.42E-04	--	--	--	3.42E-04
			Selenium	--	--	--	--	--	Whole Body	5.92E-02	9.30E-04	--	--	6.01E-02
			Silver	--	--	--	--	--	Skin	3.00E-02	2.39E-03	--	--	3.24E-02
			Tert-Butanol	--	--	--	--	--	--	--	--	--	--	--
			tert-Butylbenzene	--	--	--	--	--	Kidney	2.05E-04	1.50E-04	--	--	3.56E-04
			Tetrachloroethene	2.96E-05	7.44E-06	--	--	3.71E-05	Liver	1.60E-02	4.02E-03	--	--	2.00E-02
			Thallium	--	--	--	--	--	Liver, Blood	3.37E+00	1.76E-02	--	--	3.39E+00
			Toluene	--	--	--	--	--	Kidney, Liver	8.70E-04	2.06E-04	--	--	1.08E-03
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	1.59E-02	3.99E-03	--	--	1.99E-02
			Trichloroethene	3.76E-03	3.08E-04	--	--	4.07E-03	Liver, Kidney, Fetus	9.14E+01	7.49E+00	--	--	9.88E+01
			Vanadium	--	--	--	--	--	Kidney	1.12E-01	3.03E-02	--	--	1.42E-01
			Vinyl chloride	1.72E-04	1.01E-05	--	--	1.82E-04	Liver	2.32E-01	1.37E-02	--	--	2.45E-01
			Xylene (Total)	--	--	--	--	--	Whole Body	2.40E-03	1.00E-03	--	--	3.40E-03
			Zinc	--	--	--	--	--	Blood	1.37E-02	2.44E-05	--	--	1.37E-02
			Chemical Total	4.32E-03	3.92E-04	0.00E+00	0.00E+00	4.71E-03		1.19E+02	8.05E+00	0.00E+00	0.00E+00	1.27E+02
		Exposure Point Total						4.71E-03						1.27E+02
	Exposure Medium Total							4.71E-03						1.27E+02
	Air	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	1.17E-04	--	1.17E-04
			1,1,2-Trichloroethane	--	--	6.69E-07	--	6.69E-07	Blood	--	--	8.72E-03	--	8.72E-03
			1,1-Dichlorethane	--	--	6.97E-07	--	6.97E-07	Kidney	--	--	2.55E-03	--	2.55E-03
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	3.40E-02	--	3.40E-02

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater (Cont.)	1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.19E-02	--	2.19E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	7.73E-04	--	7.73E-04
			1,2-Dichloroethane	--	--	1.28E-06	--	1.28E-06	Liver	--	--	6.00E-05	--	6.00E-05
			1,2-Dichloroethene (Total)	--	--	--	--	--	Blood	--	--	9.68E-02	--	9.68E-02
			1,2-Dichloropropane	--	--	7.69E-09	--	7.69E-09	--	--	--	3.00E-04	--	3.00E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	2.06E-02	--	2.06E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	4.95E-04	--	4.95E-04
			1,4-Dichlorobenzene	--	--	1.60E-07	--	1.60E-07	Liver	--	--	9.26E-05	--	9.26E-05
			2-Butanone	--	--	--	--	--	Developmental	--	--	1.64E-04	--	1.64E-04
			2-Hexanone	--	--	--	--	--	CNS	--	--	7.67E-06	--	7.67E-06
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	1.11E-04	--	1.11E-04
			Acenaphthene	--	--	--	--	--	Liver	--	--	1.10E-04	--	1.10E-04
			Acenaphthylene	--	--	--	--	--	Liver	--	--	1.10E-04	--	1.10E-04
			Acetone	--	--	--	--	--	Kidney	--	--	6.06E-03	--	6.06E-03
			Benzene	--	--	4.85E-07	--	4.85E-07	Blood	--	--	6.11E-03	--	6.11E-03
			Bromodichloromethane	--	--	4.98E-07	--	4.98E-07	Kidney	--	--	1.17E-03	--	1.17E-03
			Carbon disulfide	--	--	--	--	--	CNS	--	--	1.24E-04	--	1.24E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.17E-03	--	1.17E-03
			Chloroethane	--	--	4.05E-08	--	4.05E-08	Fetus	--	--	1.40E-05	--	1.40E-05
			Chloroform	--	--	6.77E-07	--	6.77E-07	--	--	--	1.75E-01	--	1.75E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	9.31E-04	--	9.31E-04
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.83E-02	--	1.83E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	8.29E-05	--	8.29E-05
			Fluorene	--	--	--	--	--	Blood	--	--	8.24E-05	--	8.24E-05
			Hexachlorobutadiene	--	--	3.53E-08	--	3.53E-08	Kidney	--	--	4.40E-03	--	4.40E-03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	1.65E-04	--	1.65E-04
			m,p-Xylene	--	--	--	--	--	CNS	--	--	1.53E-03	--	1.53E-03
			Methylene Chloride	--	--	1.84E-08	--	1.84E-08	Liver	--	--	3.81E-05	--	3.81E-05
			Methyl-T-Butyl-ether	--	--	7.17E-09	--	7.17E-09	Liver/Kidney/ Periocular Tissue	--	--	2.68E-05	--	2.68E-05
			Naphthalene	--	--	4.54E-06	--	4.54E-06	Nasal Epithelium	--	--	1.29E-01	--	1.29E-01
			n-Butylbenzene	--	--	--	--	--	--	--	--	6.92E-04	--	6.92E-04
			n-propylbenzene	--	--	--	--	--	--	--	--	1.01E-03	--	1.01E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	7.92E-04	--	7.92E-04
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	2.20E-05	--	2.20E-05
			Pyrene	--	--	--	--	--	Kidney	--	--	3.30E-04	--	3.30E-04
			sec-Butylbenzene	--	--	--	--	--	--	--	--	1.44E-04	--	1.44E-04
			tert-Butylbenzene	--	--	--	--	--	--	--	--	8.66E-05	--	8.66E-05
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.91E-03	--	1.91E-03
			Tetrachloroethene	--	--	1.39E-07	--	1.39E-07	CNS	--	--	1.12E-04	--	1.12E-04
			Toluene	--	--	--	--	--	CNS	--	--	1.83E-04	--	1.83E-04

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater (Cont.)	Trichloroethene	--	--	4.52E-04	--	4.52E-04	CNS/Liver/Endocrine System	--	--	3.30E-01	--	3.30E-01
			Vinyl chloride	--	--	8.89E-07	--	8.89E-07	Liver	--	--	2.93E-03	--	2.93E-03
			Xylene (Total)	--	--	--	--	--	CNS	--	--	2.02E-03	--	2.02E-03
			Chemical Total	0.00E+00	0.00E+00	4.63E-04	0.00E+00	4.63E-04		0.00E+00	0.00E+00	8.71E-01	0.00E+00	8.71E-01
		Exposure Point Total						4.63E-04						8.71E-01
	Exposure Medium Total							4.63E-04						8.71E-01
	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	8.72E-04	--	8.72E-04
			1,1,2-Trichloroethane	--	--	2.40E-07	--	2.40E-07	Blood	--	--	3.13E-03	--	3.13E-03
			1,1-Dichloroethane	--	--	1.69E-06	--	1.69E-06	Kidney	--	--	6.16E-03	--	6.16E-03
			1,1-Dichloroethene	--	--	--	--	--	Liver	--	--	4.73E-01	--	4.73E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	3.75E-02	--	3.75E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	4.54E-04	--	4.54E-04
			1,2-Dichloroethane	--	--	6.56E-07	--	6.56E-07	Liver	--	--	3.06E-05	--	3.06E-05
			1,2-Dichloroethene (Total)	--	--	--	--	--	Blood	--	--	1.66E-01	--	1.66E-01
			1,2-Dichloropropane	--	--	8.95E-09	--	8.95E-09	--	--	--	3.49E-04	--	3.49E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	3.35E-02	--	3.35E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	4.90E-04	--	4.90E-04
			1,4-Dichlorobenzene	--	--	1.22E-07	--	1.22E-07	Liver	--	--	7.06E-05	--	7.06E-05
			2-Butanone	--	--	--	--	--	Developmental	--	--	4.49E-06	--	4.49E-06
			2-Hexanone	--	--	--	--	--	CNS	--	--	4.16E-07	--	4.16E-07
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	6.04E-06	--	6.04E-06
			Acenaphthene	--	--	--	--	--	Liver	--	--	2.97E-06	--	2.97E-06
			Acenaphthylene	--	--	--	--	--	Liver	--	--	2.97E-06	--	2.97E-06
			Acetone	--	--	--	--	--	Kidney	--	--	1.65E-04	--	1.65E-04
			Benzene	--	--	1.27E-06	--	1.27E-06	Blood	--	--	1.59E-02	--	1.59E-02
			Bromodichloromethane	--	--	1.48E-07	--	1.48E-07	Kidney	--	--	3.48E-04	--	3.48E-04
			Carbon disulfide	--	--	--	--	--	CNS	--	--	2.19E-03	--	2.19E-03
			Chlorobenzene	--	--	--	--	--	Liver	--	--	1.57E-03	--	1.57E-03
			Chloroethane	--	--	3.98E-07	--	3.98E-07	Fetus	--	--	1.38E-04	--	1.38E-04
			Chloroform	--	--	1.37E-06	--	1.37E-06	--	--	--	3.55E-01	--	3.55E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	6.24E-03	--	6.24E-03
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	3.14E-02	--	3.14E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	2.37E-04	--	2.37E-04
			Fluorene	--	--	--	--	--	Blood	--	--	9.14E-07	--	9.14E-07
			Hexachlorobutadiene	--	--	6.98E-08	--	6.98E-08	Kidney	--	--	8.71E-03	--	8.71E-03
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	5.26E-02	--	5.26E-02
			m,p-Xylene	--	--	--	--	--	CNS	--	--	4.31E-03	--	4.31E-03
			Methylene Chloride	--	--	2.26E-08	--	2.26E-08	Liver	--	--	4.67E-05	--	4.67E-05
			Methyl-T-Butyl-ether	--	--	2.52E-09	--	2.52E-09	Liver/Kidney/ Periocular Tissue	--	--	9.41E-06	--	9.41E-06
			Naphthalene	--	--	5.64E-07	--	5.64E-07	Nasal Epithelium	--	--	1.60E-02	--	1.60E-02

TABLE F-9.4.7.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (Inhalation) (Cont.)	n-Butylbenzene	--	--	--	--	--	--	--	--	2.37E-03	--	2.37E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	3.03E-03	--	3.03E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	1.65E-03	--	1.65E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	1.60E-07	--	1.60E-07
			Pyrene	--	--	--	--	--	Kidney	--	--	6.16E-07	--	6.16E-07
			sec-Butylbenzene	--	--	--	--	--	--	--	--	1.31E-06	--	1.31E-06
			tert-Butylbenzene	--	--	--	--	--	--	--	--	3.10E-04	--	3.10E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	1.29E-02	--	1.29E-02
			Tetrachloroethene	--	--	9.33E-07	--	9.33E-07	CNS	--	--	7.56E-04	--	7.56E-04
			Toluene	--	--	--	--	--	CNS	--	--	5.30E-04	--	5.30E-04
			Trichloroethene	--	--	1.96E-03	--	1.96E-03	CNS/Liver/Endocrine System	--	--	1.43E+00	--	1.43E+00
			Vinyl chloride	--	--	1.59E-05	--	1.59E-05	Liver	--	--	5.22E-02	--	5.22E-02
			Xylene (Total)	--	--	--	--	--	CNS	--	--	5.70E-03	--	5.70E-03
			Chemical Total	0.00E+00	0.00E+00	1.98E-03	0.00E+00	1.98E-03		0.00E+00	0.00E+00	2.72E+00	0.00E+00	2.72E+00
		Exposure Point Total						1.98E-03						2.72E+00
	Exposure Medium Total							1.98E-03						2.72E+00
Medium Total								7.16E-03						1.31E+02
Receptor Total							Receptor Risk Total	7.18E-03					Receptor HI Total	1.32E+02

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard Index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	1.06E+02
Total Organ 2 (Kidney) HI Across All Media =	1.01E+02
Total Organ 3 (Fetus) HI Across All Media =	9.88E+01
Total Organ 4 (Nervous System) HI Across All Media =	1.39E+01
Total Organ 5 (Endocrine system) HI Across All Media =	2.04E+00
Total Organ 6 (Blood) HI Across All Media =	6.08E+00
Total Organ 7 (Skin) HI Across All Media =	1.99E+00
Total Organ 8 (No Observed Effect) HI Across All Media =	4.39E+00
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	4.94E-02
Total Organ 11 (Vision/Eye) HI Across All Media =	7.64E-03
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	6.17E-03
Total Organ 13 (Respiratory/lung) HI Across All Media =	1.03E-02
Total Organ 13 (whole body) HI Across All Media =	1.43E+00
Total Organ 13 (Immune System) HI Across All Media =	1.09E+00
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	7.38E-03
Total Organ 13 (Nasal Tissue) HI Across All Media =	1.45E-01
Total Organ 13 (Fetus) HI Across All Media =	9.88E+01

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	2-Methylnaphthalene	--	--	--	--	--	Lungs	3.23E-05	9.03E-07	--	--	3.32E-05
			4,4'-DDD	1.94E-09	5.42E-11	--	8.43E-12	2.00E-09	Liver	1.88E-04	5.27E-06	--	8.19E-07	1.94E-04
			4,4'-DDT	8.57E-09	7.20E-10	--	2.88E-11	9.32E-09	Liver	5.88E-04	4.94E-05	--	1.98E-06	6.39E-04
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	4.46E-06	1.25E-07	--	--	4.58E-06
			Acenaphthene	--	--	--	--	--	Liver	1.94E-06	7.07E-07	--	--	2.65E-06
			Acenaphthylene	--	--	--	--	--	Liver	1.24E-06	3.46E-08	--	--	1.27E-06
			Acetone	--	--	--	--	--	Kidney	1.70E-07	4.77E-09	--	--	1.75E-07
			Aluminum	--	--	--	--	--	CNS	1.19E-01	3.34E-04	--	--	1.20E-01
			Anthracene	--	--	--	--	--	No observed effect	3.89E-07	1.42E-07	--	--	5.30E-07
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	1.79E-01	5.02E-04	--	--	1.80E-01
			Aroclor-1260	1.46E-07	5.72E-08	--	9.19E-10	2.04E-07	Eye/Finger and Toe nails	4.26E-02	1.67E-02	--	2.68E-04	5.95E-02
			Arsenic	9.77E-06	8.21E-07	--	3.88E-06	1.45E-05	Skin	2.53E-01	2.13E-02	--	1.01E-01	3.75E-01
			Barium	--	--	--	--	--	Kidney	2.37E-02	9.49E-04	--	--	2.47E-02
			Benzo(a)anthracene	1.62E-08	5.91E-09	--	1.04E-10	2.22E-08	--	--	--	--	--	--
			Benzo(a)pyrene	2.31E-07	8.41E-08	--	9.87E-10	3.16E-07	--	--	--	--	--	--
			Benzo(b)fluoranthene	1.45E-08	5.26E-09	--	7.31E-11	1.98E-08	--	--	--	--	--	--
			Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	9.81E-06	3.57E-06	--	--	1.34E-05
			Benzo(k)fluoranthene	1.32E-09	4.80E-10	--	5.57E-12	1.80E-09	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	1.60E-02	6.39E-03	--	--	2.24E-02
			bis(2-ethylhexyl)phthalate	1.47E-09	--	--	8.64E-14	1.47E-09	Liver	6.14E-05	1.72E-06	--	3.60E-09	6.31E-05
			Cadmium	--	--	--	--	--	Kidney	1.26E-01	3.52E-04	--	6.30E-01	7.56E-01
			Carbazole	8.81E-08	2.47E-09	--	1.99E-07	2.90E-07	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	Developmental	2.56E-07	1.79E-07	--	--	4.35E-07
			Chloroform	--	--	--	--	--	Liver	6.90E-06	1.93E-07	--	--	7.10E-06
			Chromium	--	--	--	--	--	No observed effect	2.91E-04	8.15E-07	--	--	2.92E-04
			Chrysene	1.78E-10	6.48E-11	--	1.15E-12	2.44E-10	--	--	--	--	--	--
			Cobalt	--	--	--	--	--	Blood	6.44E-03	1.80E-05	--	--	6.46E-03
			Copper	--	--	--	--	--	GI Tract/Kidney	1.35E-02	3.77E-05	--	--	1.35E-02
			Dibenzo(a,h)anthracene	8.38E-08	3.05E-08	--	2.33E-10	1.15E-07	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	9.41E-03	2.63E-04	--	--	9.67E-03
			Diethylphthalate	--	--	--	--	--	Brain, Liver, Kidneys,Stomach,GI Tract	8.95E-07	2.51E-08	--	3.62E-06	4.54E-06
			Dimethylphthalate	--	--	--	--	--	Kidney	9.33E-08	2.61E-09	--	1.66E-07	2.62E-07
			di-n-Butylphthalate	--	--	--	--	--	Whole Body	1.02E-05	2.86E-09	--	1.32E-07	1.04E-05
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	1.07E-06	2.99E-08	--	--	1.10E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	6.54E-06	2.38E-06	--	4.54E-08	8.97E-06
			Fluorene	--	--	--	--	--	Blood	3.66E-06	1.33E-06	--	--	4.99E-06
			Indeno(1,2,3-cd)pyrene	1.83E-08	6.66E-09	--	6.65E-11	2.50E-08	--	--	--	--	--	--

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	Iron	--	--	--	--	--	--	7.50E-01	2.10E-03	--	--	7.52E-01
(Cont.)	(Cont.)	(Cont.)	Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	2.71E-01	7.60E-04	--	--	2.72E-01
			Mercury	--	--	--	--	--	Immune System	1.11E-01	--	--	6.79E-02	1.79E-01
			Molybdenum	--	--	--	--	--	CNS	5.11E-03	1.43E-05	--	--	5.12E-03
			Naphthalene	1.25E-09	4.54E-10	--	--	1.70E-09	Whole Body	6.07E-06	2.21E-06	--	--	8.28E-06
			Nickel	--	--	--	--	--	Whole Body	3.36E-02	2.36E-03	--	2.18E-02	5.78E-02
			n-Nitroso-diphenylamine	2.63E-10	7.37E-12	--	5.77E-10	8.48E-10	Bladder/Whole Body	3.13E-05	8.77E-07	--	6.87E-05	1.01E-04
			o-Xylene	--	--	--	--	--	CNS/Whole Body	1.44E-06	4.03E-08	--	--	1.48E-06
			Phenanthrene	--	--	--	--	--	No observed effect	8.98E-07	2.52E-08	--	--	9.24E-07
			Pyrene	--	--	--	--	--	Kidney	1.14E-05	4.16E-06	--	--	1.56E-05
			Selenium	--	--	--	--	--	Whole Body	1.59E-03	1.48E-05	--	1.01E-03	2.61E-03
			Silver	--	--	--	--	--	SKin	1.20E-02	8.43E-04	--	--	1.29E-02
			Thallium	--	--	--	--	--	Liver, Blood	2.50E-01	--	--	--	2.50E-01
			Toluene	--	--	--	--	--	Kidney, Liver	4.85E-07	1.36E-08	--	--	4.99E-07
			Trichloroethene	2.19E-09	6.14E-11	--	--	2.25E-09	Liver, Kidney, Fetus	2.13E-04	5.97E-06	--	--	2.19E-04
			Vanadium	--	--	--	--	--	Kidney	6.63E-02	7.36E-03	--	--	7.57E-02
			Xylene (Total)	--	--	--	--	--	Whole Body	1.38E-06	3.87E-08	--	--	1.42E-06
			Zinc	--	--	--	--	--	Blood	3.21E-03	8.99E-06	--	8.31E-03	1.15E-02
			Chemical Total	1.04E-05	1.01E-06	0.00E+00	4.08E-06	1.55E-05		2.30E+00	6.04E-02	0.00E+00	8.30E-01	3.19E+00
		Exposure Point Total						1.55E-05						3.19E+00
	Exposure Medium Total							1.55E-05						3.19E+00
	Air	Outdoor Air	2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	4,4'-DDD	--	--	7.39E-14	--	7.39E-14	Liver	--	--	7.18E-09	--	7.18E-09
			4,4'-DDT	--	--	3.27E-13	--	3.27E-13	Liver	--	--	2.25E-08	--	2.25E-08
			4-Bromophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Chlorophenyl-phenylether	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	8.36E-07	--	8.36E-07
			Acenaphthene	--	--	--	--	--	Liver	--	--	5.44E-07	--	5.44E-07
			Acenaphthylene	--	--	--	--	--	Liver	--	--	3.46E-07	--	3.46E-07
			Acetone	--	--	--	--	--	Kidney	--	--	6.82E-07	--	6.82E-07
			Aluminum	--	--	--	--	--	Respiratory system	--	--	3.18E-03	--	3.18E-03
			Anthracene	--	--	--	--	--	No observed effect	--	--	2.80E-08	--	2.80E-08
			Antimony	--	--	--	--	--	--	--	--	--	--	--
			Aroclor-1260	--	--	5.57E-12	--	5.57E-12	Immune System/ Eye/Finger and Toe nails	--	--	1.63E-06	--	1.63E-06
			Arsenic	--	--	3.73E-09	--	3.73E-09	--	--	--	--	--	--
			Barium	--	--	--	--	--	Developmental	--	--	4.53E-04	--	4.53E-04
			Benzo(a)anthracene	--	--	6.19E-13	--	6.19E-13	--	--	--	--	--	--
			Benzo(a)pyrene	--	--	8.82E-12	--	8.82E-12	--	--	--	--	--	--

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Air	Outdoor Air	Benzo(b)fluoranthene	--	--	5.52E-13	--	5.52E-13	--	--	--	--	--	--
(Cont.)	(Cont.)	(Particulates and VOCs)	Benzo(g,h,i)perylene	--	--	--	--	--	Kidney	--	--	3.75E-10	--	3.75E-10
		(Cont.)	Benzo(k)fluoranthene	--	--	5.03E-14	--	5.03E-14	--	--	--	--	--	--
			Beryllium	--	--	8.79E-10	--	8.79E-10	Immune System/Lung	--	--	2.14E-04	--	2.14E-04
			bis(2-ethylhexyl)phthalate	--	--	5.62E-14	--	5.62E-14	--	--	--	2.13E-09	--	2.13E-09
			Cadmium	--	--	1.30E-09	--	1.30E-09	--	--	--	--	--	--
			Carbazole	--	--	3.36E-12	--	3.36E-12	--	--	--	--	--	--
			Carbon disulfide	--	--	--	--	--	CNS	--	--	5.37E-06	--	5.37E-06
			Chloroform	--	--	8.89E-09	--	8.89E-09	--	--	--	9.21E-03	--	9.21E-03
			Chromium	--	--	--	--	--	--	--	--	--	--	--
			Chrysene	--	--	6.80E-15	--	6.80E-15	--	--	--	--	--	--
			Cobalt	--	--	4.13E-09	--	4.13E-09	Respiratory system	--	--	8.61E-04	--	8.61E-04
			Copper	--	--	--	--	--	--	--	--	--	--	--
			Dibenzo(a,h)anthracene	--	--	3.20E-12	--	3.20E-12	--	--	--	--	--	--
			Dibenzofuran	--	--	--	--	--	Kidney	--	--	7.29E-04	--	7.29E-04
			Diethylphthalate	--	--	--	--	--	--	--	--	3.42E-11	--	3.42E-11
			Dimethylphthalate	--	--	--	--	--	--	--	--	3.56E-12	--	3.56E-12
			di-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	3.49E-06	--	3.49E-06
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	--	--	2.50E-10	--	2.50E-10
			Fluorene	--	--	--	--	--	Blood	--	--	5.12E-07	--	5.12E-07
			Indeno(1,2,3-cd)pyrene	--	--	6.99E-13	--	6.99E-13	--	--	--	--	--	--
			Iron	--	--	--	--	--	--	--	--	--	--	--
			Lead	--	--	--	--	--	--	--	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	1.74E-02	--	1.74E-02
			Mercury	--	--	--	--	--	--	--	--	--	--	--
			Molybdenum	--	--	--	--	--	--	--	--	--	--	--
			Naphthalene	--	--	1.46E-09	--	1.46E-09	Nasal Epithelium	--	--	1.66E-04	--	1.66E-04
			Nickel	--	--	--	--	--	Respiratory system	--	--	4.50E-04	--	4.50E-04
			n-Nitroso-diphenylamine	--	--	1.00E-14	--	1.00E-14	Bladder/Whole Body	--	--	1.20E-09	--	1.20E-09
			o-Xylene	--	--	--	--	--	CNS	--	--	8.31E-05	--	8.31E-05
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	3.03E-08	--	3.03E-08
			Pyrene	--	--	--	--	--	Kidney	--	--	1.52E-07	--	1.52E-07
			Selenium	--	--	--	--	--	--	--	--	--	--	--
			Silver	--	--	--	--	--	--	--	--	--	--	--
			Thallium	--	--	--	--	--	--	--	--	--	--	--
			Toluene	--	--	--	--	--	CNS	--	--	1.07E-05	--	1.07E-05
			Trichloroethene	--	--	3.35E-08	--	3.35E-08	CNS/Liver/Endocrine System	--	--	9.76E-05	--	9.76E-05
			Vanadium	--	--	--	--	--	--	--	--	--	--	--

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs) (Cont.)	Air (Cont.)	Outdoor Air (Particulates and VOCs) (Cont.)	Xylene (Total)	--	--	--	--	--	CNS	--	--	7.99E-05	--	7.99E-05
			Zinc	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	5.39E-08	0.00E+00	5.39E-08		0.00E+00	0.00E+00	3.30E-02	0.00E+00	3.30E-02
		Exposure Point Total						5.39E-08						3.30E-02
	Exposure Medium Total							5.39E-08						3.30E-02
Medium Total								1.55E-05						3.22E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver	5.09E-03	5.75E-04	--	--	5.67E-03
			1,1,2-Trichloroethane	3.30E-06	1.40E-07	--	--	3.44E-06	Blood	1.69E-01	7.17E-03	--	--	1.76E-01
			1,1-Dichlorethane	3.38E-06	1.98E-07	--	--	3.58E-06	No observed effect	6.92E-02	4.04E-03	--	--	7.32E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	7.53E-01	7.90E-02	--	--	8.32E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	No observed effect	1.45E-02	9.01E-03	--	--	2.35E-02
			1,2-Dichlorobenzene	--	--	--	--	--	No observed effect	9.50E-03	4.13E-03	--	--	1.36E-02
			1,2-Dichlorethane	6.22E-06	2.19E-07	--	--	6.44E-06	Kidney	3.99E-02	1.41E-03	--	--	4.13E-02
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	1.88E+00	1.85E-01	--	--	2.06E+00
			1,2-Dichloropropane	3.73E-08	2.44E-09	--	--	3.97E-08	Blood, Liver, CNS	5.81E-03	3.80E-04	--	--	6.19E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	No observed effect	1.36E-02	8.46E-03	--	--	2.20E-02
			1,3-Dichlorobenzene	--	--	--	--	--	Liver/Thyroid	3.20E-01	1.63E-01	--	--	4.83E-01
			1,4-Dichlorobenzene	8.44E-07	3.45E-07	--	--	1.19E-06	GI Tract, Liver	1.37E-02	5.60E-03	--	--	1.93E-02
			2-Butanone	--	--	--	--	--	Developmental	7.56E-03	5.54E-05	--	--	7.62E-03
			2-Hexanone	--	--	--	--	--	CNS	1.60E-03	4.69E-05	--	--	1.65E-03
			2-Methylnaphthalene	--	--	--	--	--	Lungs	1.12E-02	1.05E-02	--	--	2.17E-02
			4-Methyl-2-pentanone	--	--	--	--	--	Whole Body	2.32E-02	6.07E-04	--	--	2.38E-02
			Acenaphthene	--	--	--	--	--	Liver	2.13E-03	1.87E-03	--	--	4.00E-03
			Acenaphthylene	--	--	--	--	--	Liver	2.13E-03	1.98E-03	--	--	4.11E-03
			Acetone	--	--	--	--	--	Kidney	1.17E-01	4.41E-04	--	--	1.18E-01
			Aluminum	--	--	--	--	--	CNS	6.31E-02	8.92E-04	--	--	6.40E-02
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	2.28E+00	1.64E-02	--	--	2.30E+00
			Arsenic	1.63E-04	2.07E-06	--	--	1.65E-04	Skin	4.22E+00	5.38E-02	--	--	4.27E+00
			Barium	--	--	--	--	--	Kidney	2.46E-01	9.36E-03	--	--	2.56E-01
			Benzene	4.79E-06	6.54E-07	--	--	5.44E-06	Blood	2.54E-01	3.47E-02	--	--	2.89E-01
			Benzo(a)anthracene	4.00E-07	2.50E-06	--	--	2.90E-06	--	--	--	--	--	--
			Benzo(a)pyrene	4.00E-06	3.27E-05	--	--	3.67E-05	--	--	--	--	--	--
			Beryllium	--	--	--	--	--	GI Tract	4.52E-02	2.81E-02	--	--	7.33E-02
			bis(2-ethylhexyl)phthalate	5.44E-07	--	--	--	5.44E-07	Liver	2.27E-02	2.95E-01	--	--	3.17E-01
			Bromodichloromethane	2.41E-06	7.99E-08	--	--	2.49E-06	Kidney	2.27E-02	7.52E-04	--	--	2.34E-02
			Cadmium	--	--	--	--	--	Kidney	2.05E+00	4.73E-03	--	--	2.05E+00
			Carbon disulfide	--	--	--	--	--	Developmental	4.81E-03	4.95E-04	--	--	5.31E-03
			Chlorobenzene	--	--	--	--	--	Liver	1.94E-02	5.22E-03	--	--	2.46E-02
			Chloroethane	1.96E-07	1.03E-08	--	--	2.07E-07	No observed effect	1.97E-03	1.04E-04	--	--	2.08E-03

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Chloroform	--	--	--	--	--	Liver	4.76E-02	2.80E-03	--	--	5.04E-02
			Chloromethane	--	--	--	--	--	Liver, Kidney, Spleen, CNS	1.78E-02	4.89E-04	--	--	1.83E-02
			Chromium	--	--	--	--	--	No observed effect	6.48E-03	4.27E-05	--	--	6.52E-03
			Chromium (VI)	--	--	--	--	--	No observed effect	1.01E+01	6.64E-02	--	--	1.01E+01
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	3.55E-01	3.49E-02	--	--	3.90E-01
			Cobalt	--	--	--	--	--	Blood	4.83E-02	3.86E-04	--	--	4.87E-02
			Copper	--	--	--	--	--	Gi Tract/Kidney	1.98E-02	4.01E-05	--	--	1.98E-02
			Cyanide	--	--	--	--	--	Thyroid, CNS	2.11E-01	1.21E-03	--	--	2.12E-01
			Ethylbenzene	--	--	--	--	--	Kidney, Liver	4.59E-03	2.24E-03	--	--	6.83E-03
			Fluoranthene	--	--	--	--	--	Kidney/Liver/Blood	2.88E-03	9.74E-03	--	--	1.26E-02
			Fluorene	--	--	--	--	--	Blood	1.60E-03	1.80E-03	--	--	3.40E-03
			Hexachlorobutadiene	1.71E-07	1.37E-07	--	--	3.07E-07	Kidney	8.52E-02	6.81E-02	--	--	1.53E-01
			Iron	--	--	--	--	--	--	3.62E+00	5.90E-03	--	--	3.62E+00
			Isopropylbenzene	--	--	--	--	--	Kidney	3.52E-03	3.25E-03	--	--	6.76E-03
			Lead	--	--	--	--	--	--	--	--	--	--	--
			m,p-Xylene	--	--	--	--	--	CNS/Whole Body	4.23E-03	2.24E-03	--	--	6.47E-03
			Manganese	--	--	--	--	--	CNS	2.64E+01	2.23E-01	--	--	2.66E+01
			Mercury	--	--	--	--	--	Immune System	9.38E-03	8.84E-04	--	--	1.03E-02
			Methylene chloride	4.07E-07	1.20E-08	--	--	4.19E-07	Liver	1.06E-02	3.11E-04	--	--	1.09E-02
			Methyl-T-Butyl-Ether	6.87E-08	1.17E-09	--	--	6.99E-08	Liver/Kidney/Periocular Tissue	5.18E-04	8.79E-06	--	--	5.27E-04
			Molybdenum	--	--	--	--	--	CNS	9.59E-01	4.56E-03	--	--	9.63E-01
			Naphthalene	2.20E-05	1.01E-05	--	--	3.21E-05	Whole Body	1.07E-01	4.90E-02	--	--	1.56E-01
			n-Butylbenzene	--	--	--	--	--	Kidney, Liver	3.84E-03	3.54E-03	--	--	7.38E-03
			Nickel	--	--	--	--	--	Whole Body	5.84E-01	3.17E-02	--	--	6.16E-01
			n-Propylbenzene	--	--	--	--	--	--	--	--	--	--	--
			o-Xylene	--	--	--	--	--	CNS/Whole Body	2.19E-03	1.02E-03	--	--	3.21E-03
			Phenanthrene	--	--	--	--	--	No observed effect	4.26E-04	6.44E-04	--	--	1.07E-03
			Phenol	--	--	--	--	--	Developmental	1.41E-03	5.13E-05	--	--	1.46E-03
			p-Isopropyltoluene	--	0.00E+00	--	--	0.00E+00	--	--	--	--	--	--
			Pyrene	--	--	--	--	--	Kidney	6.39E-03	1.37E-02	--	--	2.01E-02
			sec-Butylbenzene	--	--	--	--	--	Kidney	7.99E-04	--	--	--	7.99E-04
			Selenium	--	--	--	--	--	Whole Body	1.38E-01	2.74E-03	--	--	1.41E-01
			Silver	--	--	--	--	--	SKin	7.00E-02	7.04E-03	--	--	7.71E-02
			Tert-Butanol	--	--	--	--	--	--	--	--	--	--	--
			tert-Butylbenzene	--	--	--	--	--	Kidney	4.79E-04	4.43E-04	--	--	9.22E-04
			Tetrachloroethene	1.73E-05	5.49E-06	--	--	2.28E-05	Liver	3.74E-02	1.19E-02	--	--	4.92E-02
			Thallium	--	--	--	--	--	Liver, Blood	7.86E+00	5.19E-02	--	--	7.91E+00
			Toluene	--	--	--	--	--	Kidney, Liver	2.03E-03	6.07E-04	--	--	2.64E-03
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	3.71E-02	1.18E-02	--	--	4.89E-02

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater (Cont.)	Domestic Use of Groundwater (Cont.)	Trichloroethene	2.19E-03	2.27E-04	--	--	2.42E-03	Liver, Kidney, Fetus	2.13E+02	2.21E+01	--	--	2.35E+02
			Vanadium	--	--	--	--	--	Kidney	2.61E-01	8.93E-02	--	--	3.50E-01
			Vinyl chloride	1.00E-04	7.47E-06	--	--	1.08E-04	Liver	5.41E-01	4.03E-02	--	--	5.81E-01
			Xylene (Total)	--	--	--	--	--	Whole Body	5.59E-03	2.96E-03	--	--	8.55E-03
			Zinc	--	--	--	--	--	Blood	3.19E-02	7.20E-05	--	--	3.20E-02
			Chemical Total	2.52E-03	2.89E-04	0.00E+00	0.00E+00	2.81E-03		2.77E+02	2.38E+01	0.00E+00	0.00E+00	3.01E+02
		Exposure Point Total						2.81E-03						3.01E+02
	Exposure Medium Total							2.81E-03						3.01E+02
	Air	Domestic Use of Groundwater	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	4.75E-04	--	4.75E-04
			1,1,2-Trichloroethane	--	--	6.81E-07	--	6.81E-07	Blood	--	--	3.55E-02	--	3.55E-02
			1,1-Dichlorethane	--	--	7.10E-07	--	7.10E-07	Kidney	--	--	1.04E-02	--	1.04E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	1.38E-01	--	1.38E-01
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.93E-02	--	8.93E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	3.15E-03	--	3.15E-03
			1,2-Dichlorethane	--	--	1.31E-06	--	1.31E-06	Liver	--	--	2.44E-04	--	2.44E-04
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	3.94E-01	--	3.94E-01
			1,2-Dichloropropane	--	--	7.82E-09	--	7.82E-09	--	--	--	1.22E-03	--	1.22E-03
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.39E-02	--	8.39E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	2.01E-03	--	2.01E-03
			1,4-Dichlorobenzene	--	--	1.62E-07	--	1.62E-07	Liver	--	--	3.77E-04	--	3.77E-04
			2-Butanone	--	--	--	--	--	Developmental	--	--	6.67E-04	--	6.67E-04
			2-Hexanone	--	--	--	--	--	CNS	--	--	3.12E-05	--	3.12E-05
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	4.53E-04	--	4.53E-04
			Acenaphthene	--	--	--	--	--	Liver	--	--	4.47E-04	--	4.47E-04
			Acenaphthylene	--	--	--	--	--	Liver	--	--	4.47E-04	--	4.47E-04
			Acetone	--	--	--	--	--	Kidney	--	--	2.47E-02	--	2.47E-02
			Benzene	--	--	4.94E-07	--	4.94E-07	Blood	--	--	2.49E-02	--	2.49E-02
			Bromodichloromethane	--	--	5.07E-07	--	5.07E-07	Kidney	--	--	4.77E-03	--	4.77E-03
			Carbon disulfide	--	--	--	--	--	CNS	--	--	5.05E-04	--	5.05E-04
			Chlorobenzene	--	--	--	--	--	Liver	--	--	4.76E-03	--	4.76E-03
			Chloroethane	--	--	4.12E-08	--	4.12E-08	Fetus	--	--	5.72E-05	--	5.72E-05
			Chloroform	--	--	6.89E-07	--	6.89E-07	--	--	--	7.14E-01	--	7.14E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	3.79E-03	--	3.79E-03
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.45E-02	--	7.45E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	3.38E-04	--	3.38E-04
			Fluorene	--	--	--	--	--	Blood	--	--	3.36E-04	--	3.36E-04
			Hexachlorobutadiene	--	--	3.59E-08	--	3.59E-08	Kidney	--	--	1.79E-02	--	1.79E-02

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Air (Cont.)	Domestic Use of Groundwater (Cont.)	Isopropylbenzene	--	--	--	--	--	Kidney	--	--	6.71E-04	--	6.71E-04
			m,p-Xylene	--	--	--	--	--	CNS	--	--	6.22E-03	--	6.22E-03
			Methylene Chloride	--	--	1.87E-08	--	1.87E-08	Liver	--	--	1.55E-04	--	1.55E-04
			Methyl-T-Butyl-ether	--	--	7.30E-09	--	7.30E-09	Liver/Kidney/ Periocular Tissue	--	--	1.09E-04	--	1.09E-04
			Naphthalene	--	--	4.62E-06	--	4.62E-06	Nasal Epithelium	--	--	5.24E-01	--	5.24E-01
			n-Butylbenzene	--	--	--	--	--	--	--	--	2.82E-03	--	2.82E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	4.10E-03	--	4.10E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	3.22E-03	--	3.22E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	8.95E-05	--	8.95E-05
			Pyrene	--	--	--	--	--	Kidney	--	--	1.34E-03	--	1.34E-03
			sec-Butylbenzene	--	--	--	--	--	--	--	--	5.87E-04	--	5.87E-04
			tert-Butylbenzene	--	--	--	--	--	--	--	--	3.52E-04	--	3.52E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.79E-03	--	7.79E-03
			Tetrachloroethene	--	--	1.41E-07	--	1.41E-07	CNS	--	--	4.58E-04	--	4.58E-04
			Toluene	--	--	--	--	--	CNS	--	--	7.46E-04	--	7.46E-04
			Trichloroethene	--	--	4.60E-04	--	4.60E-04	CNS/Liver/Endocrine System	--	--	1.34E+00	--	1.34E+00
			Vinyl chloride	--	--	9.05E-07	--	9.05E-07	Liver	--	--	1.19E-02	--	1.19E-02
			Xylene (Total)	--	--	--	--	--	CNS	--	--	8.22E-03	--	8.22E-03
			Chemical Total	0.00E+00	0.00E+00	4.71E-04	0.00E+00	4.71E-04		0.00E+00	0.00E+00	3.55E+00	0.00E+00	3.55E+00
		Exposure Point Total						4.71E-04						3.55E+00
	Exposure Medium Total							4.71E-04						3.55E+00
	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1,1-Trichloroethane	--	--	--	--	--	Liver, Brain	--	--	2.06E-03	--	2.06E-03
			1,1,2-Trichloroethane	--	--	1.42E-07	--	1.42E-07	Blood	--	--	7.39E-03	--	7.39E-03
			1,1-Dichlorethane	--	--	9.95E-07	--	9.95E-07	Kidney	--	--	1.45E-02	--	1.45E-02
			1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	1.12E+00	--	1.12E+00
			1,2,4-Trimethylbenzene	--	--	--	--	--	CNS	--	--	8.85E-02	--	8.85E-02
			1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	1.07E-03	--	1.07E-03
			1,2-Dichlorethane	--	--	3.87E-07	--	3.87E-07	Liver	--	--	7.24E-05	--	7.24E-05
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	--	--	3.92E-01	--	3.92E-01
			1,2-Dichloropropane	--	--	5.28E-09	--	5.28E-09	--	--	--	8.24E-04	--	8.24E-04
			1,3,5-Trimethylbenzene	--	--	--	--	--	CNS	--	--	7.90E-02	--	7.90E-02
			1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	1.16E-03	--	1.16E-03
			1,4-Dichlorobenzene	--	--	7.19E-08	--	7.19E-08	Liver	--	--	1.67E-04	--	1.67E-04
			2-Butanone	--	--	--	--	--	Developmental	--	--	1.06E-05	--	1.06E-05
			2-Hexanone	--	--	--	--	--	CNS	--	--	9.83E-07	--	9.83E-07
			2-MethylNaphthalene	--	--	--	--	--	--	--	--	--	--	--
			4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	1.43E-05	--	1.43E-05
			Acenaphthene	--	--	--	--	--	Liver	--	--	7.00E-06	--	7.00E-06

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	Acenaphthylene	--	--	--	--	--	Liver	--	--	7.00E-06	--	7.00E-06
			Acetone	--	--	--	--	--	Kidney	--	--	3.90E-04	--	3.90E-04
			Benzene	--	--	7.47E-07	--	7.47E-07	Blood	--	--	3.77E-02	--	3.77E-02
			Bromodichloromethane	--	--	8.74E-08	--	8.74E-08	Kidney	--	--	8.23E-04	--	8.23E-04
			Carbon disulfide	--	--	--	--	--	CNS	--	--	5.18E-03	--	5.18E-03
			Chlorobenzene	--	--	--	--	--	Liver	--	--	3.72E-03	--	3.72E-03
			Chloroethane	--	--	2.35E-07	--	2.35E-07	Fetus	--	--	3.26E-04	--	3.26E-04
			Chloroform	--	--	8.10E-07	--	8.10E-07	--	--	--	8.39E-01	--	8.39E-01
			Chloromethane	--	--	--	--	--	CNS	--	--	1.47E-02	--	1.47E-02
			cis-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	7.41E-02	--	7.41E-02
			Cyanide	--	--	--	--	--	--	--	--	--	--	--
			Ethylbenzene	--	--	--	--	--	Developmental	--	--	5.60E-04	--	5.60E-04
			Fluorene	--	--	--	--	--	Blood	--	--	2.16E-06	--	2.16E-06
			Hexachlorobutadiene	--	--	4.12E-08	--	4.12E-08	Kidney	--	--	2.06E-02	--	2.06E-02
			Isopropylbenzene	--	--	--	--	--	Kidney	--	--	1.24E-01	--	1.24E-01
			m,p-Xylene	--	--	--	--	--	CNS	--	--	1.02E-02	--	1.02E-02
			Methylene Chloride	--	--	1.33E-08	--	1.33E-08	Liver	--	--	1.10E-04	--	1.10E-04
			Methyl-T-Butyl-ether	--	--	1.49E-09	--	1.49E-09	Liver/Kidney/ Periocular Tissue	--	--	2.22E-05	--	2.22E-05
			Naphthalene	--	--	3.33E-07	--	3.33E-07	Nasal Epithelium	--	--	3.78E-02	--	3.78E-02
			n-Butylbenzene	--	--	--	--	--	--	--	--	5.61E-03	--	5.61E-03
			n-propylbenzene	--	--	--	--	--	--	--	--	7.15E-03	--	7.15E-03
			o-Xylene	--	--	--	--	--	CNS	--	--	3.90E-03	--	3.90E-03
			Phenanthrene	--	--	--	--	--	No observed effect	--	--	3.77E-07	--	3.77E-07
			Pyrene	--	--	--	--	--	Kidney	--	--	1.45E-06	--	1.45E-06
			sec-Butylbenzene	--	--	--	--	--	--	--	--	3.10E-06	--	3.10E-06
			tert-Butylbenzene	--	--	--	--	--	--	--	--	7.32E-04	--	7.32E-04
			trans-1,2-Dichloroethene	--	--	--	--	--	Blood	--	--	3.04E-02	--	3.04E-02
			Tetrachloroethene	--	--	5.51E-07	--	5.51E-07	CNS	--	--	1.78E-03	--	1.78E-03
			Toluene	--	--	--	--	--	CNS	--	--	1.25E-03	--	1.25E-03
			Trichloroethene	--	--	1.16E-03	--	1.16E-03	CNS/Liver/Endocrine System	--	--	3.37E+00	--	3.37E+00
			Vinyl chloride	--	--	9.37E-06	--	9.37E-06	Liver	--	--	1.23E-01	--	1.23E-01
			Xylene (Total)	--	--	--	--	--	CNS	--	--	1.35E-02	--	1.35E-02
			Chemical Total	0.00E+00	0.00E+00	1.17E-03	0.00E+00	1.17E-03		0.00E+00	0.00E+00	6.43E+00	0.00E+00	6.43E+00
		Exposure Point Total						1.17E-03						6.43E+00
	Exposure Medium Total							1.17E-03						6.43E+00
Medium Total								4.45E-03						3.11E+02
Receptor Total				Receptor Risk Total				4.47E-03	Receptor HI Total					3.14E+02

TABLE F-9.4.8.RME
EPA RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCS
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total

Notes:

--	Not applicable or not available
CNS	Central nervous system
COPC	Chemical of Potential Concern
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
GI	Gastrointestinal
HI	Hazard index
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

Total Organ 1 (Liver) HI Across All Media =	2.52E+02
Total Organ 2 (Kidney) HI Across All Media =	2.39E+02
Total Organ 3 (Fetus) HI Across All Media =	2.35E+02
Total Organ 4 (Nervous System) HI Across All Media =	3.34E+01
Total Organ 5 (Endocrine system) HI Across All Media =	5.41E+00
Total Organ 6 (Blood) HI Across All Media =	1.48E+01
Total Organ 7 (Skin) HI Across All Media =	4.74E+00
Total Organ 8 (No Observed Effect) HI Across All Media =	1.03E+01
Total Organ 9 (Unknown Systems) HI Across All Media =	NA
Total Organ 10 (Gastrointestinal System) HI Across All Media =	1.48E-01
Total Organ 11 (Vision/Eye) HI Across All Media =	6.02E-02
Total Organ 12 (Body Weight) HI Across All Media =	NA
Total Organ 13 (Developmental) HI Across All Media =	1.50E-02
Total Organ 13 (Respiratory/lung) HI Across All Media =	2.64E-02
Total Organ 13 (whole body) HI Across All Media =	3.50E+00
Total Organ 13 (Immune System) HI Across All Media =	2.67E+00
Total Organ 13 (Reproductive System) HI Across All Media =	NA
Total Organ 13 (Finger and Toe Nail) HI Across All Media =	5.95E-02
Total Organ 13 (Nasal Tissue) HI Across All Media =	5.62E-01
Total Organ 13 (Fetus) HI Across All Media =	2.35E+02

TABLE F-10.4.1.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
CURRENT INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Current
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	**Arsenic**	**1.05E-05**	**2.08E-06**	--	--	**1.26E-05**	--	--	--	--	--	--
			Chemical Total	1.05E-05	2.08E-06	0.00E+00	0.00E+00	1.26E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						1.26E-05						0.00E+00
	Exposure Medium Total							1.26E-05						0.00E+00
	Air	Outdoor Air (Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								1.26E-05						0.00E+00
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	**1,1-Dichlorethane**	--	--	**1.26E-06**	--	**1.26E-06**	--	--	--	--	--	--
			Chloroform	--	--	**1.03E-06**	--	**1.03E-06**	--	--	--	--	--	--
			Trichloroethene	--	--	**1.46E-03**	--	**1.46E-03**	--	--	--	--	--	--
			Vinyl chloride	--	--	**6.12E-06**	--	**6.12E-06**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.47E-03	0.00E+00	1.47E-03		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						1.47E-03						0.00E+00
	Exposure Medium Total							1.47E-03						0.00E+00
Medium Total								1.47E-03						0.00E+00
Receptor Total							Receptor Risk Total	1.48E-03					Receptor HI Total	0.00E+00

Notes:

--	Not applicable or not available
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.2.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	**Arsenic**	**1.38E-06**	**1.25E-07**	--	--	**1.51E-06**	--	--	--	--	--	--
			Chemical Total	1.38E-06	1.25E-07	0.00E+00	0.00E+00	1.51E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						1.51E-06						0.00E+00
	Exposure Medium Total							1.51E-06						0.00E+00
	Air	Outdoor Air	--	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								1.51E-06						0.00E+00
Groundwater	Groundwater Vapor	Indoor Air	**1,4-Dichlorobenzene**	--	--	**5.08E-05**	--	**5.08E-05**	--	--	--	--	--	--
	Intrusion Indoor Air	(inhalation)	**Trichloroethene**	--	--	**6.97E-06**	--	**6.97E-06**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	5.78E-05	0.00E+00	5.78E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						5.78E-05						0.00E+00
	Exposure Medium Total							5.78E-05						0.00E+00
Medium Total								5.78E-05						0.00E+00
Receptor Total				Receptor Risk Total				5.93E-05	Receptor HI Total					0.00E+00

Notes:

--	Not applicable or not available
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.3.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	Arsenic	1.41E-05	1.69E-06	--	5.22E-05	6.79E-05	--	--	--	--	--	--
			Cadmium	--	--	--	--	--	Kidney	2.60E-02	1.04E-04	--	1.22E+00	1.24E+00
			Chemical Total	1.41E-05	1.69E-06	0.00E+00	5.22E-05	6.79E-05		2.60E-02	1.04E-04	0.00E+00	1.22E+00	1.24E+00
		Exposure Point Total						6.79E-05						1.24E+00
	Exposure Medium Total							6.79E-05						1.24E+00
	Air	Outdoor Air (Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								6.79E-05						1.24E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,2-Trichloroethane	5.66E-06	1.90E-07	--	--	5.85E-06	--	--	--	--	--	--
			1,1-Dichlorethane	5.79E-06	2.68E-07	--	--	6.06E-06	--	--	--	--	--	--
			1,2-Dichlorethane	1.07E-05	2.97E-07	--	--	1.10E-05	--	--	--	--	--	--
			1,4-Dichlorobenzene	1.45E-06	4.68E-07	--	--	1.92E-06	--	--	--	--	--	--
			Arsenic	2.79E-04	2.81E-06	--	--	2.82E-04	Skin	1.81E+00	1.82E-02	--	--	1.83E+00
			Benzene	8.21E-06	8.87E-07	--	--	9.10E-06	--	--	--	--	--	--
			Benzo(a)anthracene	6.86E-07	3.39E-06	--	--	4.08E-06	--	--	--	--	--	--
			Benzo(a)pyrene	6.86E-06	4.44E-05	--	--	5.12E-05	--	--	--	--	--	--
			Bromodichloromethane	4.14E-06	1.08E-07	--	--	4.24E-06	--	--	--	--	--	--
			Chromium (VI)	--	--	--	--	--	No observed effect	4.31E+00	2.25E-02	--	--	4.33E+00
			Iron	--	--	--	--	--	--	1.55E+00	2.00E-03	--	--	1.55E+00
			Manganese	--	--	--	--	--	CNS	1.13E+01	7.56E-02	--	--	1.14E+01
			Naphthalene	3.77E-05	1.37E-05	--	--	5.14E-05	--	--	--	--	--	--
			Tetrachloroethene	2.96E-05	7.44E-06	--	--	3.71E-05	--	--	--	--	--	--
			Thallium	--	--	--	--	--	Liver, Blood	3.37E+00	1.76E-02	--	--	3.39E+00
			Trichloroethene	3.76E-03	3.08E-04	--	--	4.07E-03	Liver, Kidney, Fetus	9.14E+01	7.49E+00	--	--	9.88E+01
			Vinyl chloride	1.72E-04	1.01E-05	--	--	1.82E-04	--	--	--	--	--	--
			Chemical Total	4.32E-03	3.92E-04	0.00E+00	0.00E+00	4.71E-03		1.14E+02	7.62E+00	0.00E+00	0.00E+00	1.21E+02
		Exposure Point Total						4.71E-03						1.21E+02
	Exposure Medium Total							4.71E-03						1.21E+02
	Air	Domestic Use of Groundwater	1,2-Dichlorethane	--	--	1.28E-06	--	1.28E-06	--	--	--	--	--	--
			Naphthalene	--	--	4.54E-06	--	4.54E-06	--	--	--	--	--	--
			Trichloroethene	--	--	4.52E-04	--	4.52E-04	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	4.58E-04	0.00E+00	4.58E-04		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						4.58E-04						0.00E+00
	Exposure Medium Total							4.58E-04						0.00E+00
	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1-Dichlorethane	--	--	1.69E-06	--	1.69E-06	--	--	--	--	--	--
			Benzene	--	--	1.27E-06	--	1.27E-06	--	--	--	--	--	--
			Chloroform	--	--	1.37E-06	--	1.37E-06	--	--	--	--	--	--
			Trichloroethene	--	--	1.96E-03	--	1.96E-03	CNS/Liver/Endocrine System	--	--	1.43E+00	--	1.43E+00

TABLE F-10.4.3.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air (Cont.)	Indoor Air (inhalation)	**Vinyl chloride**	--	--	**1.59E-05**	--	**1.59E-05**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.98E-03	0.00E+00	1.98E-03		0.00E+00	0.00E+00	1.43E+00	0.00E+00	1.43E+00
		Exposure Point Total						1.98E-03						1.43E+00
	Exposure Medium Total							1.98E-03						1.43E+00
Medium Total								7.15E-03						1.23E+02
Receptor Total				Receptor Risk Total				7.22E-03	Receptor HI Total					1.24E+02

Notes:

--	Not applicable or not available
CNS	Central Nervous System
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.4.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-2 ft bgs)	Soil	Site Soil	Arsenic	3.29E-05	2.76E-06	--	1.30E-05	4.87E-05	Skin	8.52E-01	7.16E-02	--	3.38E-01	1.26E+00
			Cadmium	--	--	--	--	--	Kidney	2.43E-01	6.80E-04	--	1.22E+00	1.46E+00
			Iron	--	--	--	--	--	--	1.09E+00	3.04E-03	--	--	1.09E+00
			Chemical Total	3.29E-05	2.76E-06	0.00E+00	1.30E-05	4.87E-05		2.18E+00	7.53E-02	0.00E+00	1.56E+00	3.81E+00
		Exposure Point Total						4.87E-05						3.81E+00
	Exposure Medium Total							4.87E-05						3.81E+00
	Air	Outdoor Air (Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								4.87E-05						3.81E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,2-Trichloroethane	3.30E-06	1.40E-07	--	--	3.44E-06	--	--	--	--	--	--
			1,1-Dichlorethane	3.38E-06	1.98E-07	--	--	3.58E-06	--	--	--	--	--	--
			1,2-Dichlorethane	6.22E-06	2.19E-07	--	--	6.44E-06	--	--	--	--	--	--
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	1.88E+00	1.85E-01	--	--	2.06E+00
			1,4-Dichlorobenzene	8.44E-07	3.45E-07	--	--	1.19E-06	--	--	--	--	--	--
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	2.28E+00	1.64E-02	--	--	2.30E+00
			Arsenic	1.63E-04	2.07E-06	--	--	1.65E-04	Skin	4.22E+00	5.38E-02	--	--	4.27E+00
			Benzene	4.79E-06	6.54E-07	--	--	5.44E-06	--	--	--	--	--	--
			Benzo(a)anthracene	4.00E-07	2.50E-06	--	--	2.90E-06	--	--	--	--	--	--
			Benzo(a)pyrene	4.00E-06	3.27E-05	--	--	3.67E-05	--	--	--	--	--	--
			Bromodichloromethane	2.41E-06	7.99E-08	--	--	2.49E-06	--	--	--	--	--	--
			Cadmium	--	--	--	--	--	Kidney	2.05E+00	4.73E-03	--	--	2.05E+00
			Chromium (VI)	--	--	--	--	--	No observed effect	1.01E+01	6.64E-02	--	--	1.01E+01
			Iron	--	--	--	--	--	--	3.62E+00	5.90E-03	--	--	3.62E+00
			Manganese	--	--	--	--	--	CNS	2.64E+01	2.23E-01	--	--	2.66E+01
			Naphthalene	2.20E-05	1.01E-05	--	--	3.21E-05	--	--	--	--	--	--
			Tetrachloroethene	1.73E-05	5.49E-06	--	--	2.28E-05	--	--	--	--	--	--
			Thallium	--	--	--	--	--	Liver, Blood	7.86E+00	5.19E-02	--	--	7.91E+00
			Trichloroethene	2.19E-03	2.27E-04	--	--	2.42E-03	Liver, Kidney, Fetus	2.13E+02	2.21E+01	--	--	2.35E+02
			Vinyl chloride	1.00E-04	7.47E-06	--	--	1.08E-04	--	--	--	--	--	--
			Chemical Total	2.52E-03	2.89E-04	0.00E+00	0.00E+00	2.81E-03		2.72E+02	2.27E+01	0.00E+00	0.00E+00	2.94E+02
		Exposure Point Total						2.81E-03						2.94E+02
	Exposure Medium Total							2.81E-03						2.94E+02
	Air	Domestic Use of Groundwater	1,2-Dichlorethane	--	--	1.31E-06	--	1.31E-06	--	--	--	--	--	--
			Naphthalene	--	--	4.62E-06	--	4.62E-06	--	--	--	--	--	--
			Trichloroethene	--	--	4.60E-04	--	4.60E-04	CNS/Liver/Endocrine System	--	--	1.34E+00	--	1.34E+00
			Chemical Total	0.00E+00	0.00E+00	4.66E-04	0.00E+00	4.66E-04		0.00E+00	0.00E+00	1.34E+00	0.00E+00	1.34E+00
		Exposure Point Total						4.66E-04						1.34E+00
	Exposure Medium Total							4.66E-04						1.34E+00

TABLE F-10.4.4.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	**1,1-Dichlorethene**	--	--	--	--	--	**Liver**	--	--	**1.12E+00**	--	**1.12E+00**
			Trichloroethene	--	--	**1.16E-03**	--	**1.16E-03**	**CNS/Liver/Endocrine System**	--	--	**3.37E+00**	--	**3.37E+00**
			Vinyl chloride	--	--	**9.37E-06**	--	**9.37E-06**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.17E-03	0.00E+00	1.17E-03		0.00E+00	0.00E+00	4.49E+00	0.00E+00	4.49E+00
		Exposure Point Total						1.17E-03						4.49E+00
	Exposure Medium Total							1.17E-03						4.49E+00
Medium Total								4.44E-03						3.00E+02
Receptor Total							Receptor Risk Total	4.49E-03					Receptor HI Total	3.04E+02

Notes:

CNS	Central Nervous System
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.5.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED INDUSTRIAL WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	**Arsenic**	**3.12E-06**	**6.17E-07**	--	--	**3.73E-06**	--	--	--	--	--	--
			Chemical Total	3.12E-06	6.17E-07	0.00E+00	0.00E+00	3.73E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						3.73E-06						0.00E+00
	Exposure Medium Total							3.73E-06						0.00E+00
	Air	Outdoor Air (Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								3.73E-06						0.00E+00
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	**Trichloroethene**	--	--	**1.46E-04**	--	**1.46E-04**	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.46E-04	0.00E+00	1.46E-04		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						1.46E-04						0.00E+00
	Exposure Medium Total							1.46E-04						0.00E+00
Medium Total								1.46E-04						0.00E+00
Receptor Total				Receptor Risk Total				1.50E-04	Receptor HI Total					0.00E+00

Notes:

--	Not applicable or not available
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.6.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED CONSTRUCTION WORKER
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Construction Worker
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
	Air	Outdoor Air (Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								0.00E+00						0.00E+00
Groundwater	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	**1,4-Dichlorobenzene**	--	--	**5.08E-05**	--	**5.08E-05**	--	--	--	--	--	--
			Trichloroethene	--	--	**6.97E-06**	--	**6.97E-06**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	5.78E-05	0.00E+00	5.78E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						5.78E-05						0.00E+00
	Exposure Medium Total							5.78E-05						0.00E+00
Medium Total								5.78E-05						0.00E+00
Receptor Total							Receptor Risk Total	5.78E-05					Receptor HI Total	0.00E+00

Notes:

--	Not applicable or not available
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.7.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	Arsenic	4.19E-06	5.01E-07	--	1.55E-05	2.02E-05	--	--	--	--	--	--
			Chemical Total	4.19E-06	5.01E-07	0.00E+00	1.55E-05	2.02E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						2.02E-05						0.00E+00
	Exposure Medium Total							2.02E-05						0.00E+00
	Air	Outdoor Air (Particulates and VOCs)	-	--	--	--	--	--	--	--	--	--	--	--
			--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								2.02E-05						0.00E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,2-Trichloroethane	5.66E-06	1.90E-07	--	--	5.85E-06	--	--	--	--	--	--
			1,1-Dichlorethane	5.79E-06	2.68E-07	--	--	6.06E-06	--	--	--	--	--	--
			1,2-Dichlorethane	1.07E-05	2.97E-07	--	--	1.10E-05	--	--	--	--	--	--
			1,4-Dichlorobenzene	1.45E-06	4.68E-07	--	--	1.92E-06	--	--	--	--	--	--
			Arsenic	2.79E-04	2.81E-06	--	--	2.82E-04	Skin	1.81E+00	1.82E-02	--	--	1.83E+00
			Benzene	8.21E-06	8.87E-07	--	--	9.10E-06	--	--	--	--	--	--
			Benzo(a)anthracene	6.86E-07	3.39E-06	--	--	4.08E-06	--	--	--	--	--	--
			Benzo(a)pyrene	6.86E-06	4.44E-05	--	--	5.12E-05	--	--	--	--	--	--
			Bromodichloromethane	4.14E-06	1.08E-07	--	--	4.24E-06	--	--	--	--	--	--
			Chromium (VI)	--	--	--	--	--	No observed effect	4.31E+00	2.25E-02	--	--	4.33E+00
			Iron	--	--	--	--	--	--	1.55E+00	2.00E-03	--	--	1.55E+00
			Manganese	--	--	--	--	--	CNS	1.13E+01	7.56E-02	--	--	1.14E+01
			Naphthalene	3.77E-05	1.37E-05	--	--	5.14E-05	--	--	--	--	--	--
			Tetrachloroethene	2.96E-05	7.44E-06	--	--	3.71E-05	--	--	--	--	--	--
			Thallium	--	--	--	--	--	Liver, Blood	3.37E+00	1.76E-02	--	--	3.39E+00
			Trichloroethene	3.76E-03	3.08E-04	--	--	4.07E-03	Liver, Kidney, Fetus	9.14E+01	7.49E+00	--	--	9.88E+01
			Vinyl chloride	1.72E-04	1.01E-05	--	--	1.82E-04	--	--	--	--	--	--
			Chemical Total	4.32E-03	3.92E-04	0.00E+00	0.00E+00	4.71E-03		1.14E+02	7.62E+00	0.00E+00	0.00E+00	1.21E+02
		Exposure Point Total						4.71E-03						1.21E+02
	Exposure Medium Total							4.71E-03						1.21E+02
	Air	Domestic Use of Groundwater	1,2-Dichlorethane	--	--	1.28E-06	--	1.28E-06	--	--	--	--	--	--
			Naphthalene	--	--	4.54E-06	--	4.54E-06	--	--	--	--	--	--
			Trichloroethene	--	--	4.52E-04	--	4.52E-04	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	4.58E-04	0.00E+00	4.58E-04		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						4.58E-04						0.00E+00
	Exposure Medium Total							4.58E-04						0.00E+00

TABLE F-10.4.7.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED ADULT RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	**1,1-Dichloroethane**	--	--	**1.69E-06**	--	**1.69E-06**	--	--	--	--	--	--
			Benzene	--	--	**1.27E-06**	--	**1.27E-06**	--	--	--	--	--	--
			Chloroform	--	--	**1.37E-06**	--	**1.37E-06**	--	--	--	--	--	--
			Trichloroethene	--	--	**1.96E-03**	--	**1.96E-03**	**CNS/Liver/Endocrine System**	--	--	**1.43E+00**	--	**1.43E+00**
			Vinyl chloride	--	--	**1.59E-05**	--	**1.59E-05**	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.98E-03	0.00E+00	1.98E-03		0.00E+00	0.00E+00	1.43E+00	0.00E+00	1.43E+00
		Exposure Point Total						1.98E-03						1.43E+00
	Exposure Medium Total							1.98E-03						1.43E+00
Medium Total								7.15E-03						1.23E+02
Receptor Total							Receptor Risk Total	7.17E-03					Receptor HI Total	1.23E+02

Notes:

--	Not applicable or not available
CNS	Central Nervous System
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE F-10.4.8.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Soil (0-8 ft bgs)	Soil	Site Soil	Arsenic	9.77E-06	8.21E-07	--	3.88E-06	1.45E-05	--	--	--	--	--	--
			Chemical Total	9.77E-06	8.21E-07	0.00E+00	3.88E-06	1.45E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						1.45E-05						0.00E+00
	Exposure Medium Total							1.45E-05						0.00E+00
	Air	Outdoor Air	--	--	--	--	--	--	--	--	--	--	--	--
		(Particulates and VOCs)	--	--	--	--	--	--	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Exposure Point Total						0.00E+00						0.00E+00
	Exposure Medium Total							0.00E+00						0.00E+00
Medium Total								1.45E-05						0.00E+00
Groundwater	Groundwater	Domestic Use of Groundwater	1,1,2-Trichloroethane	3.30E-06	1.40E-07	--	--	3.44E-06	--	--	--	--	--	--
			1,1-Dichlorethane	3.38E-06	1.98E-07	--	--	3.58E-06	--	--	--	--	--	--
			1,2-Dichlorethane	6.22E-06	2.19E-07	--	--	6.44E-06	--	--	--	--	--	--
			1,2-Dichlorethene (Total)	--	--	--	--	--	Blood	1.88E+00	1.85E-01	--	--	2.06E+00
			1,4-Dichlorobenzene	8.44E-07	3.45E-07	--	--	1.19E-06	--	--	--	--	--	--
			Antimony	--	--	--	--	--	Whole body, Blood, Immune System	2.28E+00	1.64E-02	--	--	2.30E+00
			Arsenic	1.63E-04	2.07E-06	--	--	1.65E-04	Skin	4.22E+00	5.38E-02	--	--	4.27E+00
			Benzene	4.79E-06	6.54E-07	--	--	5.44E-06	--	--	--	--	--	--
			Benzo(a)anthracene	4.00E-07	2.50E-06	--	--	2.90E-06	--	--	--	--	--	--
			Benzo(a)pyrene	4.00E-06	3.27E-05	--	--	3.67E-05	--	--	--	--	--	--
			Bromodichloromethane	2.41E-06	7.99E-08	--	--	2.49E-06	--	--	--	--	--	--
			Cadmium	--	--	--	--	--	Kidney	2.05E+00	4.73E-03	--	--	2.05E+00
			Chromium (VI)	--	--	--	--	--	No observed effect	1.01E+01	6.64E-02	--	--	1.01E+01
			Iron	--	--	--	--	--	--	3.62E+00	5.90E-03	--	--	3.62E+00
			Manganese	--	--	--	--	--	CNS	2.64E+01	2.23E-01	--	--	2.66E+01
			Naphthalene	2.20E-05	1.01E-05	--	--	3.21E-05	--	--	--	--	--	--
			Tetrachloroethene	1.73E-05	5.49E-06	--	--	2.28E-05	--	--	--	--	--	--
			Thallium	--	--	--	--	--	Liver, Blood	7.86E+00	5.19E-02	--	--	7.91E+00
			Trichloroethene	2.19E-03	2.27E-04	--	--	2.42E-03	Liver, Kidney, Fetus	2.13E+02	2.21E+01	--	--	2.35E+02
			Vinyl chloride	1.00E-04	7.47E-06	--	--	1.08E-04	--	--	--	--	--	--
			Chemical Total	2.52E-03	2.89E-04	0.00E+00	0.00E+00	2.81E-03		2.72E+02	2.27E+01	0.00E+00	0.00E+00	2.94E+02
		Exposure Point Total						2.81E-03						2.94E+02
	Exposure Medium Total							2.81E-03						2.94E+02
	Air	Domestic Use of Groundwater	1,2-Dichlorethane	--	--	1.31E-06	--	1.31E-06	--	--	--	--	--	--
			Naphthalene	--	--	4.62E-06	--	4.62E-06	--	--	--	--	--	--
			Trichloroethene	--	--	4.60E-04	--	4.60E-04	CNS/Liver/Endocrine System	--	--	1.34E+00	--	1.34E+00
			Chemical Total	0.00E+00	0.00E+00	4.66E-04	0.00E+00	4.66E-04		0.00E+00	0.00E+00	1.34E+00	0.00E+00	1.34E+00
		Exposure Point Total						4.66E-04						1.34E+00
	Exposure Medium Total							4.66E-04						1.34E+00

TABLE F-10.4.8.RME
EPA RAGS PART D TABLE 10
RISK SUMMARY
HYPOTHETICAL FUTURE REDEVELOPED CHILD RESIDENT
SITE 21, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Scenario Timeframe:	Hypothetical Future Redeveloped
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient					
				Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Dermal	Inhalation	Ingestion of Home-Grown Produce	Exposure Routes Total
Groundwater (Cont.)	Groundwater Vapor Intrusion Indoor Air	Indoor Air (inhalation)	1,1-Dichlorethene	--	--	--	--	--	Liver	--	--	1.12E+00	--	1.12E+00
			Trichloroethene	--	--	1.16E-03	--	1.16E-03	CNS/Liver/Endocrine System	--	--	3.37E+00	--	3.37E+00
			Vinyl chloride	--	--	9.37E-06	--	9.37E-06	--	--	--	--	--	--
			Chemical Total	0.00E+00	0.00E+00	1.17E-03	0.00E+00	1.17E-03		0.00E+00	0.00E+00	4.49E+00	0.00E+00	4.49E+00
		Exposure Point Total						1.17E-03						4.49E+00
	Exposure Medium Total							1.17E-03						4.49E+00
Medium Total								4.44E-03						2.99E+02
Receptor Total							Receptor Risk Total	4.46E-03					Receptor HI Total	2.99E+02

Notes:

--	Not applicable or not available
CNS	Central Nervous System
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
RAGS	Risk Assessment Guidance for Superfund
RME	Reasonable maximum exposure
VOC	Volatile organic compound

ATTACHMENT F1
SUBSURFACE VAPOR FATE AND TRANSPORT MODELING

Attachment F1
Subsurface Vapor Fate and Transport Modeling

F1 Introduction

This attachment presents the methodology for estimating exposure point concentrations (EPCs) for inhalation of chemicals of potential concern (COPC) in indoor and outdoor air at sites where chemicals may volatilize from impacted subsurface media. As discussed in Section 5.4.2 of Appendix F, volatilization of vapors from groundwater into indoor air was evaluated for the commercial/industrial and residential receptors, and volatilization of vapors to outdoor air was evaluated for the construction worker receptor.

Volatile contamination in a source medium (for example, groundwater) can migrate to other media through volatilization, diffusion, or advection. Volatile organic compounds (VOC) in groundwater can migrate to indoor air through cracks in building foundations. VOCs can also migrate from groundwater through overlying soil to outdoor air.

F2 General Approach

EPCs for indoor air were estimated using the EPA groundwater vapor intrusion model (EPA 2003) which is based on the Johnson and Ettinger model (1991). The model estimates indoor air EPCs using site-specific input parameters, including the EPCs for ingestion of chemicals in groundwater, in combination with hypothetical residential and commercial/industrial building parameters. The EPCs from the model were used in the risk assessment to estimate risk from indoor inhalation of COPCs.

EPCs for COPCs in outdoor air were estimated using the American Society for Testing and Materials (ASTM) emission model, which also uses the EPCs for ingestion of chemicals in groundwater and other site-specific input parameters that are similar to those required by the Johnson and Ettinger model. The EPCs from the model were used in the risk assessment to estimate risks from outdoor inhalation of COPCs.

For the purpose of this investigation, VOC are defined as chemicals with a molecular weight of less than 200 grams per mole and a Henry's Law Constant greater than 1E-05 atmospheres per cubic meter per mole (EPA 2004). The EPCs for ingestion of VOCs in groundwater from Plume 1, which underlies all four sites at OU-2B, served as major input parameters for both the indoor and outdoor air models.

F3 Vapor Intrusion Model and Calculation of Indoor Air Concentrations

Johnson and Ettinger (1991) introduced a screening-level model that incorporates both convective and diffusive mechanisms to estimate the transport of contaminant vapors emanating from groundwater into indoor spaces located directly above or in close proximity to the source of contamination. Johnson and Ettinger reported that results from the model agree qualitatively with published experimental case histories, and that the

results are in good qualitative and quantitative agreement with detailed three-dimensional numerical modeling of radon transport into houses (Loureiro and others 1990).

The vapor intrusion model estimates an attenuation coefficient that relates the vapor concentration in the indoor space to the vapor concentration at the source of contamination. The model is constructed as both a steady-state solution to vapor transport (infinite or nondiminishing source) and as a quasi-steady-state solution (finite or diminishing source). Inputs to the model include chemical properties of the contaminant, saturated and unsaturated zone soil properties, structural properties of the building, and appropriate exposure assumptions for receptors that are being evaluated (EPA 1997, 2000, and 2002).

Estimates of air emissions and transport of volatile COPCs from groundwater to indoor air are based on properties of the contaminant, the saturated and vadose zone soil, and the overlying buildings or residential structures (EPA 1997, 2000, and 2002). Input parameters are discussed in the following subsections.

F3.1 Soil Characteristics

Site-specific soil and hydrogeological data were used for the vapor intrusion evaluation. For the purposes of this evaluation, the soil stratigraphy is assumed to be homogenous from soil surface to groundwater. The following parameters were used in the Johnson and Ettinger model to calculate the target air concentrations:

- Depth to groundwater: 167.6 cm (site-specific)
- Depth below grade to bottom of enclosed space floor: 15 cm (default for crawl space)
- Average soil temperature: 13.89° Celsius (obtained from Figure 8 of EPA 2000)
- Vadose zone soil type: Sand (site-specific)
- Vadose zone soil dry bulk density: 1.62 grams/cm^2 (site-specific)
- Vadose zone soil total porosity: 0.398 (site-specific)
- Vadose zone soil water-filled porosity: 0.163 cm^3/cm^3 (calculated)

F3.2 Building Parameters

To ensure a conservative exposure scenario for potential future exposure, default building parameters were based on a typical building scenario, in case future buildings were constructed at the site. The parameters used for the residential exposure scenario are conservatively based on values established in the *Update to Draft, Interim Soil Gas Screening Levels for Evaluation of Potential Indoor-Air Impacts* (RWQCB 2003). Commercial/industrial parameters are very conservative and are likely to be more representative of a large residential structure than a typical commercial/industrial exposure scenario. Generally speaking, larger buildings have smaller associated risks

and hazards because the air volume is increased and air exchange rates tend to be higher. The building parameters used in the indoor air evaluation were as follows:

- Indoor air exchange rate: 1 per hour for residential exposure scenario, 5 per hour for indoor worker exposure scenario (based upon RWQCB RWQCB 2003)
- Building footprint, residential exposure scenario: 961 cm by 961 cm, with an enclosed space height of 244 cm (based upon RWQCB 2003)
- Building dimensions, commercial/industrial residential exposure scenario: 961 cm by 961 cm, with an enclosed space height of 488 cm (based upon RWQCB 2003)

The modeled indoor air concentrations for the residential and commercial/industrial exposure scenarios are presented as Table F1-1 to this attachment.

F4 ASTM Model and Calculation of Outdoor Air Concentrations

For construction worker receptors, the ASTM model is used to estimate ambient air EPCs based on the concentration of VOCs in groundwater. The model uses site-specific soil characteristics and chemical-specific physical parameters to calculate a groundwater to outdoor air volatilization factor (VF_{wamb}), which is then multiplied by the groundwater EPC to estimate the ambient air EPC. The ASTM model equations are presented as Figure F1-1 to this attachment.

F4.1 Soil Characteristics

Similar to the Johnson and Ettinger model, Site-specific soil and hydrogeological data were used for the vapor intrusion evaluation. For the purposes of this evaluation, the soil stratigraphy is assumed to be homogenous from soil surface to groundwater. The following parameters were used in the ASTM model to calculate the target air concentrations:

- Depth to groundwater: 167.6 cm (site-specific)
- Soil type: Sand (site-specific)
- Capillary fringe air-filled porosity: 0.145 (calculated in J & E model based upon soil type)
- Soil total porosity: 0.398 (site-specific)
- Capillary fringe water filled porosity: 0.253 (calculated in J & E model based upon soil type)
- Soil air filled porosity: 0.235 (calculated: total porosity minus water filled porosity)
- Soil water filled porosity: 0.163 cm^3/cm^3 (site-specific)
- Wind speed above ground in ambient mixing zone: 225 cm/s (ASTM default)

- Height of air in mixing zone: 200 cm (ASTM default)
- Width of source area parallel to the wind: 39,000 cm (site-specific, based upon the north-south length of Plume 1)
- Thickness of capillary fringe: 17.05 cm (calculated in J & E model based upon soil type)
- Thickness of vadose zone: 150.55 cm (calculated in J & E model based upon soil type)

F4.2 Chemical-Specific Diffusion Coefficients and Volatilization Factors

For each COPC in groundwater, chemical-specific diffusion coefficients and volatilization factors were calculated using the equations in Figure F1-1. To calculate the diffusion coefficients and volatilization factors, chemical-specific physical properties (Henry's Law constant, diffusivity in air, and diffusivity in water) were derived from the VLOOKUP table in the Johnson and Ettinger model. The resulting groundwater to outdoor air volatilization factors were then multiplied by the groundwater EPCs to estimate the outdoor air EPCs.

The chemical-specific inputs, diffusion coefficients, volatilization factors, and modeled outdoor air EPCs are presented as Table F1-2 to this attachment.

F1.5 References

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TABLE F1-1: MODELED INDOOR AIR EXPOSURE POINT CONCENTRATIONS

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

CAS Number	Chemical of Potential Concern	EPC for Groundwater Ingestion (mg/L)	EPC for Air - Residential (mg/m3) [1]	EPC for Air - Industrial (mg/m3) [1]
71-55-6	1,1,1-Trichloroethane	2.23E-02	2.01E-03	2.01E-04
79-00-5	1,1,2-Trichloroethane	1.06E-02	4.59E-05	4.59E-06
75-34-3	1,1-Dichlorethane	1.08E-01	3.16E-03	3.16E-04
75-35-4	1,1-Dichlorethene	5.89E-01	9.92E-02	9.92E-03
95-63-6	1,2,4-Trimethylbenzene	1.13E-02	2.33E-04	2.33E-05
95-50-1	1,2-Dichlorobenzene	1.34E-02	9.49E-05	9.49E-06
107-06-2	1,2-Dichlorethane	1.25E-02	7.70E-05	7.70E-06
540-59-0	1,2-Dichlorethene (Total)	2.94E-01	6.08E-03	6.08E-04
78-87-5	1,2-Dichloropropane	1.00E-04	1.41E-06	1.41E-07
108-67-8	1,3,5-Trimethylbenzene	1.06E-02	2.08E-04	2.08E-05
541-73-1	1,3-Dichlorobenzene	4.50E-03	5.39E-05	5.39E-06
106-46-7	1,4-Dichlorobenzene	6.42E-03	5.92E-05	5.92E-06
78-93-3	2-Butanone	7.10E-02	2.35E-05	2.35E-06
591-78-6	2-Hexanone[a]	2.00E-03	1.31E-06	1.31E-07
91-57-6	2-Methylnaphthalene	7.00E-04	8.28E-07	8.28E-08
108-10-1	4-Methyl-2-pentanone	2.90E-02	1.90E-05	1.90E-06
83-32-9	Acenaphthene	2.00E-03	6.52E-07	6.52E-08
208-96-8	Acenaphthylene	2.00E-03	6.52E-07	6.52E-08
67-64-1	Acetone	1.65E+00	5.45E-04	5.45E-05
71-43-2	Benzene	1.59E-02	5.01E-04	5.01E-05
75-27-4	Bromodichloromethane	7.10E-03	2.55E-05	2.55E-06
75-15-0	Carbon disulfide	7.53E-03	1.61E-03	1.61E-04
108-90-7	Chlorobenzene	6.07E-03	9.89E-05	9.89E-06
75-00-3	Chloroethane	1.23E-02	1.47E-03	1.47E-04
67-66-3	Chloroform	7.44E-03	1.82E-04	1.82E-05
74-87-3	Chloromethane	7.26E-03	5.88E-04	5.88E-05
156-59-2	cis-1,2-Dichloroethene	5.55E-02	1.15E-03	1.15E-04
57-12-5	Cyanide	6.60E-02	9.60E-05	9.60E-06
100-41-4	Ethylbenzene	7.18E-03	2.48E-04	2.48E-05
86-73-7	Fluorene	1.00E-03	1.34E-07	1.34E-08
87-68-3	Hexachlorobutadiene	4.00E-04	9.57E-06	9.57E-07
98-82-8	Isopropylbenzene	5.50E-03	2.12E-02	2.12E-03
106-42-3	m,p-Xylene	1.32E-02	4.52E-04	4.52E-05
75-09-2	Methylene Chloride	9.90E-03	1.47E-04	1.47E-05
1634-04-4	Methyl-T-Butyl-ether	6.97E-03	2.95E-05	2.95E-06
91-20-3	Naphthalene	3.35E-02	5.03E-05	5.03E-06
104-51-8	n-Butylbenzene	2.40E-03	9.94E-05	9.94E-06
103-65-1	n-propylbenzene	1.22E-02	4.44E-04	4.44E-05
95-47-6	o-Xylene	6.86E-03	1.73E-04	1.73E-05
85-01-8	Phenanthrene[b]	2.00E-03	1.75E-07	1.75E-08

TABLE F1-1: MODELED INDOOR AIR EXPOSURE POINT CONCENTRATIONS

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

CAS Number	Chemical of Potential Concern	EPC for Groundwater Ingestion (mg/L)	EPC for Air - Residential (mg/m3) [1]	EPC for Air - Industrial (mg/m3) [1]
129-00-0	Pyrene	3.00E-03	6.77E-08	6.77E-09
135-9-88	sec-Butylbenzene	5.00E-04	5.50E-08	5.50E-09
98-06-6	tert-Butylbenzene	3.00E-04	1.30E-05	1.30E-06
127-18-4	trans-1,2-Dichloroethene	1.16E-02	9.43E-04	9.43E-05
127-18-4	Tetrachloroethene	5.84E-03	4.75E-04	4.75E-05
108-88-3	Toluene	6.35E-03	2.22E-04	2.22E-05
79-01-6	Trichloroethene	1.00E+00	5.23E-02	5.23E-03
75-01-4	Vinyl chloride	2.54E-02	5.47E-03	5.47E-04
106-42-3	Xylene (Total)	1.75E-02	5.96E-04	5.96E-05

Notes:

1. Exposure Point Concentrations (EPC) for indoor air were modeled using The Johnson and Ettinger Model availab http://www.dtsc.ca.gov/ScienceTechnology/JE_Models.html

a 4-methyl-2-pentanone was used as a surrogate based on similar chemical structure

b Chrysene was used as a surrogate based on similar chemical structure

TABLE F1-2: MODELED OUTDOOR AIR EXPOSURE POINT CONCENTRATIONS

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

CAS Number	Chemical of Potential Concern	C_g (mg/L)	H[a]	D_{air} (1)	D_{wat} (1)	D_{cap} (2)	D_s (2)	VF_{wamb} (2)	Air EPC (mg/m3)
71-55-6	1,1,1-Trichloroethane	2.23E-02	2.01E-04	7.05E-01	8.80E-06	7.95E-04	2.82E-03	1.03E-02	2.29E-04
79-00-5	1,1,2-Trichloroethane	1.06E-02	4.59E-06	7.80E-02	8.80E-06	8.09E-04	2.84E-03	5.49E-04	5.80E-06
75-34-3	1,1-Dichlorethane	1.08E-01	3.16E-04	7.42E-02	1.05E-05	7.58E-04	2.68E-03	3.19E-03	3.45E-04
75-35-4	1,1-Dichlorethene	5.89E-01	9.92E-03	9.00E-02	1.04E-05	9.16E-04	3.25E-03	1.80E-02	1.06E-02
95-63-6	1,2,4-Trimethylbenzene	1.13E-02	2.52E-01	6.06E-02	7.92E-06	6.19E-04	2.19E-03	2.86E-03	3.23E-05
95-50-1	1,2-Dichlorobenzene	1.34E-02	7.79E-02	6.90E-02	7.90E-06	7.09E-04	2.50E-03	1.01E-03	1.35E-05
107-06-2	1,2-Dichlorethane	1.25E-02	4.01E-02	1.04E-01	9.90E-06	1.07E-03	3.78E-03	7.84E-04	9.78E-06
540-59-0	1,2-Dichlorethene (Total)[a]	2.94E-01	1.67E-01	7.36E-02	1.13E-05	7.53E-04	2.67E-03	2.30E-03	6.76E-04
78-87-5	1,2-Dichloropropane	1.00E-04	1.15E-01	7.82E-02	8.73E-06	8.01E-04	2.83E-03	1.68E-03	1.68E-07
108-67-8	1,3,5-Trimethylbenzene	1.06E-02	2.41E-01	6.02E-02	8.67E-06	6.15E-04	2.18E-03	2.71E-03	2.88E-05
541-73-1	1,3-Dichlorobenzene	4.50E-03	1.27E-01	6.92E-02	7.86E-06	7.08E-04	2.51E-03	1.64E-03	7.39E-06
106-46-7	1,4-Dichlorobenzene	6.42E-03	9.96E-02	6.90E-02	7.90E-06	7.07E-04	2.50E-03	1.29E-03	8.27E-06
78-93-3	2-Butanone	7.10E-02	2.29E-03	8.08E-02	9.80E-06	1.10E-03	3.25E-03	3.84E-05	2.73E-06
591-78-6	2-Hexanone[b]	2.00E-03	5.64E-03	7.50E-02	7.80E-06	8.53E-04	2.83E-03	8.25E-05	1.65E-07
91-57-6	2-Methylnaphthalene	7.00E-04	2.12E-02	5.22E-02	7.75E-06	5.55E-04	1.92E-03	2.10E-04	1.47E-07
108-10-1	4-Methyl-2-pentanone	2.90E-02	5.64E-03	7.50E-02	7.80E-06	8.53E-04	2.83E-03	8.25E-05	2.39E-06
83-32-9	Acenaphthene	2.00E-03	6.36E-03	4.21E-02	7.69E-06	5.07E-04	1.62E-03	5.33E-05	1.07E-07
208-96-8	Acenaphthylene[c]	2.00E-03	6.36E-03	4.21E-02	7.69E-06	5.07E-04	1.62E-03	5.33E-05	1.07E-07
67-64-1	Acetone	1.65E+00	1.59E-03	1.24E-01	1.14E-05	1.73E-03	5.02E-03	4.13E-05	6.83E-05
71-43-2	Benzene	1.59E-02	2.28E-01	8.80E-02	9.80E-06	8.98E-04	3.18E-03	3.75E-03	5.97E-05
75-27-4	Bromodichloromethane	7.10E-03	6.56E-02	2.98E-02	1.06E-05	3.14E-04	1.09E-03	3.70E-04	2.63E-06
75-15-0	Carbon disulfide	7.53E-03	1.24E+00	1.04E-01	1.00E-05	1.06E-03	3.76E-03	2.41E-02	1.81E-04
108-90-7	Chlorobenzene	6.07E-03	1.52E-01	7.30E-02	8.70E-06	7.47E-04	2.64E-03	2.08E-03	1.26E-05
75-00-3	Chloroethane	1.23E-02	3.61E-01	2.71E-01	1.15E-05	2.76E-03	9.79E-03	1.83E-02	2.26E-04
67-66-3	Chloroform	7.44E-03	1.50E-01	1.04E-01	1.00E-05	1.06E-03	3.76E-03	2.92E-03	2.17E-05
74-87-3	Chloromethane	7.26E-03	3.61E-01	1.26E-01	6.50E-06	1.28E-03	4.55E-03	8.49E-03	6.17E-05
156-59-2	cis-1,2-Dichloroethene	5.55E-02	1.67E-01	7.36E-02	1.13E-05	7.53E-04	2.67E-03	2.30E-03	1.28E-04
57-12-5	Cyanide[d]	6.60E-02	5.44E-03	1.93E-01	2.10E-05	2.22E-03	7.31E-03	2.06E-04	1.36E-05
100-41-4	Ethylbenzene	7.18E-03	3.23E-01	7.50E-02	7.80E-06	7.65E-04	2.71E-03	4.53E-03	3.25E-05
86-73-7	Fluorene	1.00E-03	2.61E-03	3.63E-02	7.88E-06	5.66E-04	1.53E-03	2.06E-05	2.06E-08
87-68-3	Hexachlorobutadiene	4.00E-04	3.34E-01	5.61E-02	6.16E-06	5.72E-04	2.03E-03	3.50E-03	1.40E-06
98-82-8	Isopropylbenzene	5.50E-03	4.74E+01	6.50E-02	7.10E-06	6.61E-04	2.35E-03	5.76E-01	3.17E-03
106-42-3	m,p-Xylene	1.32E-02	3.14E-01	7.69E-02	8.44E-06	7.84E-04	2.78E-03	4.52E-03	5.98E-05
75-09-2	Methylene Chloride	9.90E-03	8.98E-02	1.01E-01	1.17E-05	1.04E-03	3.66E-03	1.70E-03	1.68E-05
1634-04-4	Methyl-T-Butyl-ether	6.97E-03	2.56E-02	1.02E-01	1.05E-05	1.07E-03	3.74E-03	4.94E-04	3.44E-06
91-20-3	Naphthalene	3.35E-02	1.98E-02	5.90E-02	7.50E-06	6.25E-04	2.17E-03	2.22E-04	7.42E-06
104-51-8	n-Butylbenzene	2.40E-03	5.38E-01	5.70E-02	8.12E-06	5.81E-04	2.06E-03	5.73E-03	1.38E-05
103-65-1	n-propylbenzene	1.22E-02	4.37E-01	6.01E-02	7.83E-06	6.13E-04	2.17E-03	4.91E-03	6.00E-05
95-47-6	o-Xylene	6.86E-03	2.13E-01	8.70E-02	1.00E-05	8.88E-04	3.15E-03	3.47E-03	2.38E-05
85-01-8	Phenanthrene	2.00E-03	3.88E-03	2.48E-02	6.21E-06	3.56E-04	1.02E-03	2.04E-05	4.07E-08
129-00-0	Pyrene	3.00E-03	4.51E-04	2.72E-02	7.24E-06	1.32E-03	1.59E-03	3.70E-06	1.11E-08
135-9-88	sec-Butylbenzene	5.00E-04	5.68E-01	5.70E-02	8.12E-06	5.81E-04	2.06E-03	6.05E-03	3.03E-06
98-06-6	tert-Butylbenzene	3.00E-04	4.87E-01	5.65E-02	8.02E-06	5.76E-04	2.04E-03	5.14E-03	1.54E-06
127-18-4	trans-1,2-Dichloroethene	1.16E-02	3.85E-01	7.07E-02	1.19E-05	7.21E-04	2.56E-03	5.09E-03	5.91E-05
127-18-4	Tetrachloroethene	5.84E-03	7.54E-01	7.20E-02	8.20E-06	7.33E-04	2.60E-03	1.01E-02	5.93E-05
108-88-3	Toluene	6.35E-03	2.72E-01	8.70E-02	8.60E-06	8.87E-04	3.15E-03	4.43E-03	2.81E-05

TABLE F1-2: MODELED OUTDOOR AIR EXPOSURE POINT CONCENTRATIONS

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

CAS Number	Chemical of Potential Concern	C_g (mg/L)	H[a]	D_{air} (1)	D_{wat} (1)	D_{cap} (2)	D_s (2)	VF_{wamb} (2)	Air EPC (mg/m3)
79-01-6	Trichloroethene	1.00E+00	4.22E-01	7.90E-02	9.10E-06	8.05E-04	2.86E-03	6.23E-03	6.23E-03
75-01-4	Vinyl chloride	2.54E-02	1.11E+00	1.06E-01	1.23E-05	1.08E-03	3.83E-03	2.20E-02	5.58E-04
106-42-3	Xylene (Total)	1.75E-02	3.14E-01	7.69E-02	8.44E-06	7.84E-04	2.78E-03	4.52E-03	7.89E-05

Notes:

a cis-1,2-dichloroethene was used as a surrogate based on similar chemical structure
b 4-methyl-2-pentanone was used as a surrogate based on similar chemical structure
c Acenaphthene was used as a surrogate based on similar chemical structure
d Hydrogen cyanide was used as a surrogate

(1) Dair and Dw values were taken from the VLOOKUP table in the Johnson and Ettinger Indoor Air Model
(2) D_{cap}, D_{ws}, and VF_{wamb} values were derived from the equations in Figure F1-1

C_g Groundwater exposure point concentration
H Chemical-specific Henry's Law constant
D_{air} Chemical-specific air diffusion coefficient
D_{wat} Chemical-specific water diffusion coefficient
D_{cap} Chemical-specific effective diffusion coefficient through the capillary fringe
D_s Chemical-specific effective diffusion coefficient in soil based on vapor-phase concentration
VF_{wamb} Chemical-specific groundwater to outdoor air volatilization factor

FIGURE F1-1: ASTM EQUATION FOR CALCULATION OF OUTDOOR AIR CONCENTRATIONS FROM GROUNDWATER

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Volatilization factor (VF_{wamb}) for groundwater to outdoor air:

$$VF_{wamb}\left[\frac{\frac{mg}{m^3-air}}{\frac{mg}{L-H_2O}}\right] = \frac{H}{1+\left[\frac{U_{air} * \partial * L_{GW}}{W * D_{ws}}\right]} * 10^3 \frac{L}{m^3}$$

where:

D_{ws} = Effective diffusion coefficient between groundwater and soil surface

$$D_{ws}\left[\frac{cm^2}{s}\right] = (h_{cap} + h_v) * \left[\frac{h_{cap}}{D_{cap}} + \frac{h_v}{D_s}\right]^{-1}$$

where:

D_{cap} = Effective diffusion coefficient through the capillary fringe

D_s = Effective diffusion coefficient in soil based on vapor-phase concentration

$$D_{cap}\left[\frac{cm^2}{s}\right] = D_{air} * \frac{\theta_{acap}^{3.33}}{\theta_T^2} + D_{wat} * \frac{1}{H} * \frac{\theta_{wcap}^{3.33}}{\theta_T^2}$$

$$D_s\left[\frac{cm^2}{s}\right] = D_{air} * \frac{\theta_{as}^{3.33}}{\theta_T^2} + D_{wat} * \frac{1}{H} * \frac{\theta_{ws}^{3.33}}{\theta_T^2}$$

FIGURE F1-1: ASTM EQUATION FOR CALCULATION OF OUTDOOR AIR CONCENTRATIONS FROM GROUNDWATER

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Acronyms/Abbreviations:

C_{ag}	COPC concentration in air (mg/m^3)
C_g	COPC concentration in groundwater (mg/L)
cm	centimeter
cm^2/sec	square centimeters per second
cm^3-air/cm^3-soil	cubic centimeters of air per cubic centimeters of soil
cm^3-H_2O/cm^3-air	cubic centimeters of water per cubic centimeters of air
cm^3-H_2O/cm^3-soil	cubic centimeters of water per cubic centimeters of soil
∂	height of air in mixing zone (cm)
D_{air}	diffusion coefficient in air (cm^2/sec)
D_{cap}	effective diffusion coefficient through capillary fringe (cm^2/sec)
D_s	effective diffusivity in vadose zone (cm^2/sec)
D_{wat}	diffusion coefficient in water (cm^2/sec)
D_{ws}	effective diffusion coefficient between groundwater and soil surface
H	Henry's Law constant (chemical-specific, cm^3-H_2O/cm^3-air)
h_{cap}	thickness of capillary fringe (cm)
h_v	thickness of vadose zone (cm)
L_{gw}	depth to groundwater (cm)
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mg/m^3-air/mg/L-H_2O	milligrams per cubic meter air per milligrams per liter water
θ_{acap}	volumetric air content in capillary fringe soils (cm^3-air/cm^3-soil)
θ_{as}	volumetric air content in vadose zone soils (cm^3-H_2O/cm^3-soil)
θ_t	total soil porosity (cm^3/cm^3-soil)
θ_{wcap}	volumetric water content in capillary fringe soils (cm^3-H_2O/cm^3-soil)
θ_{ws}	volumetric water content in vadose zone soils (cm^3-H_2O/cm^3-soil)
U_{air}	wind speed above ground surface in ambient mixing zone (cm/sec)
VF_{wamb}	volatilization factor (mg/m^3-air/mg/L-H_2O)
W	width of source parallel to the wind, or groundwater flow direction (cm)

ATTACHMENT F2
CENTRAL TENDENCY ESTIMATES (ON CD)

N00236.002042
ALAMEDA POINT
SSIC NO. 5090.3

ATTACHMENT F2 – CENTRAL TENDENCY ESTIMATES IS CONTAINED IN ELECTRONIC FORMAT AND IS TOO VOLUMINOUS TO PRINT OR IMAGE

TO VIEW THE DATA, CONTACT:

DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

TABLES

Site 3 Chemical Noncancer Hazards

F-7.1.1.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Current Industrial Worker

F-7.1.2.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Construction Worker

F-7.1.3.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Adult Resident

F-7.1.4.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Child Resident

F-7.1.5.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Redeveloped Industrial Worker

F-7.1.6.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Redeveloped Construction Worker

F-7.1.7.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Redeveloped Adult Resident

F-7.1.8.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 3, Hypothetical Future Redeveloped Child Resident

Site 3 Chemical Cancer Risks

F-8.1.1.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Current Industrial Worker

F-8.1.2.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Construction Worker

F-8.1.3.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Adult Resident

F-8.1.4.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Child Resident

F-8.1.5.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Redeveloped Industrial Worker

F-8.1.6.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Redeveloped Construction Worker

TABLES (Continued)

F-8.1.7.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Redeveloped Adult Resident

F-8.1.8.CTE EPA RAGS Part D Table ~~7a~~ 7b, Calculation of CTE Chemical Cancer Risks, Site 3, Hypothetical Future Redeveloped Child Resident

Site 3 Summaries of Receptor Risks and Hazards for COPCs

F-9.1.1.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Current Industrial Worker

F-9.1.2.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Construction Worker

F-9.1.3.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Adult Resident

F-9.1.4.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Child Resident

F-9.1.5CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Redeveloped Industrial Worker

F-9.1.6.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Redeveloped Construction Worker

F-9.1.7.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Redeveloped Adult Resident

F-9.1.8.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 3, Hypothetical Future Redeveloped Child Resident

Site 3 Risk Summaries

F-10.1.1.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Current Industrial Worker

F-10.1.2.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Construction Worker

F-10.1.3.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Adult Resident

F-10.1.4.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Child Resident

F-10.1.5.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Redeveloped Industrial Worker

TABLES (Continued)

F-10.1.6.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Redeveloped Construction Worker

F-10.1.7.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Redeveloped Adult Resident

F-10.1.8.CTE EPA RAGS Part D Table 10, Risk Summary, Site 3, Hypothetical Future Redeveloped Child Resident

Site 4 Chemical Noncancer Hazards

F-7.2.1.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Current Industrial Worker

F-7.2.2.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Construction Worker

F-7.2.3.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Adult Resident

F-7.2.4.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Child Resident

F-7.2.5.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Redeveloped Industrial Worker

F-7.2.6.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Redeveloped Construction Worker

F-7.2.7.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Redeveloped Adult Resident

F-7.2.8.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 4, Hypothetical Future Redeveloped Child Resident

Site 4 Chemical Cancer Risks

F-8.2.1.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Current Industrial Worker

F-8.2.2.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Construction Worker

F-8.2.3.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Adult Resident

F-8.2.4.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Child Resident

TABLES (Continued)

F-8.2.5.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Redeveloped Industrial Worker

F-8.2.6.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Redeveloped Construction Worker

F-8.2.7.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Redeveloped Adult Resident

F-8.2.8.CTE EPA RAGS Part D Table ~~7a~~ 7b, Calculation of CTE Chemical Cancer Risks, Site 4, Hypothetical Future Redeveloped Child Resident

Site 4 Summaries of Receptor Risks and Hazards for COPCs

F-9.2.1.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Current Industrial Worker

F-9.2.2.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Construction Worker

F-9.2.3.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Adult Resident

F-9.2.4.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Child Resident

F-9.2.5.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Redeveloped Industrial Worker

F-9.2.6.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Redeveloped Construction Worker

F-9.2.7.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Redeveloped Adult Resident

F-9.2.8.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 4, Hypothetical Future Redeveloped Child Resident

Site 4 Risk Summaries

F-10.2.1.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Current Industrial Worker

F-10.2.2.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Construction Worker

F-10.2.3.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Adult Resident

F-10.2.4.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Child Resident

F-10.2.5.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Redeveloped Industrial Worker

F-10.2.6.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Redeveloped Construction Worker

F-10.2.7.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Redeveloped Adult Resident

F-10.2.8.CTE EPA RAGS Part D Table 10, Risk Summary, Site 4, Hypothetical Future Redeveloped Child Resident

Site 11 Chemical Noncancer Hazards

F-7.3.1.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Current Industrial Worker

F-7.3.2.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Construction Worker

F-7.3.3.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Adult Resident

F-7.3.4.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Child Resident

F-7.3.5.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Redeveloped Industrial Worker

F-7.3.6.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Redeveloped Construction Worker

F-7.3.7.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Redeveloped Adult Resident

F-7.3.8.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 11, Hypothetical Future Redeveloped Child Resident

Site 11 Chemical Cancer Risks

F-8.3.1.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Current Industrial Worker

F-8.3.2.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Construction Worker

TABLES (Continued)

F-8.3.3.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Adult Resident

F-8.3.4.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Child Resident

F-8.3.5.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Redeveloped Industrial Worker

F-8.3.6.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Redeveloped Construction Worker

F-8.3.7.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Redeveloped Adult Resident

F-8.3.8.CTE EPA RAGS Part D Table ~~7a~~ 7b, Calculation of CTE Chemical Cancer Risks, Site 11, Hypothetical Future Redeveloped Child Resident

Site 11 Summaries of Receptor Risks and Hazards for COPCs

F-9.3.1.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Current Industrial Worker

F-9.3.2.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Construction Worker

F-9.3.3.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Adult Resident

F-9.3.4.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Child Resident

F-9.3.5.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Redeveloped Industrial Worker

F-9.3.6.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Redeveloped Construction Worker

F-9.3.7.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Redeveloped Adult Resident

F-9.3.8.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 11, Hypothetical Future Redeveloped Child Resident

Site 11 Risk Summaries

F-10.3.1.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Current Industrial Worker

TABLES (Continued)

F-10.3.2.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Construction Worker

F-10.3.3.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Adult Resident

F-10.3.4.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Child Resident

F-10.3.5.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Redeveloped Industrial Worker

F-10.3.6.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Redeveloped Construction Worker

F-10.3.7.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Redeveloped Adult Resident

F-10.3.8.CTE EPA RAGS Part D Table 10, Risk Summary, Site 11, Hypothetical Future Redeveloped Child Resident

Site 21 Chemical Noncancer Hazards

F-7.4.1.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Current Industrial Worker

F-7.4.2.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Construction Worker

F-7.4.3.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Adult Resident

F-7.4.4.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Child Resident

F-7.4.5.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Redeveloped Industrial Worker

F-7.4.6.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Redeveloped Construction Worker

F-7.4.7.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Redeveloped Adult Resident

F-7.4.8.CTE EPA RAGS Part D Table 7b, Calculation of CTE Chemical Noncancer Hazards, Site 21, Hypothetical Future Redeveloped Child Resident

Site 21 Chemical Cancer Risks

F-8.4.1.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Current Industrial Worker

F-8.4.2.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Construction Worker

F-8.4.3.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Adult Resident

F-8.4.4.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Child Resident

F-8.4.5.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Redeveloped Industrial Worker

F-8.4.6.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Redeveloped Construction Worker

F-8.4.7.CTE EPA RAGS Part D Table 7a, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Redeveloped Adult Resident

F-8.4.8.CTE EPA RAGS Part D Table ~~7a~~ 7b, Calculation of CTE Chemical Cancer Risks, Site 21, Hypothetical Future Redeveloped Child Resident

Site 21 Summaries of Receptor Risks and Hazards for COPCs

F-9.4.1.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Current Industrial Worker

F-9.4.2.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Construction Worker

F-9.4.3.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Adult Resident

F-9.4.4.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Child Resident

F-9.4.5.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Redeveloped Industrial Worker

F-9.4.6.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Redeveloped Construction Worker

F-9.4.7.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Redeveloped Adult Resident

TABLES (Continued)

F-9.4.8.CTE EPA RAGS Part D Table 9, Summary of Receptor Risks and Hazards for COPCs, Site 21, Hypothetical Future Redeveloped Child Resident

Site 21 Risk Summaries

F-10.4.1.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Current Industrial Worker

F-10.4.2.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Construction Worker

F-10.4.3.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Adult Resident

F-10.4.4.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Child Resident

F-10.4.5.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Redeveloped Industrial Worker

F-10.4.6.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Redeveloped Construction Worker

F-10.4.7.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Redeveloped Adult Resident

F-10.4.8.CTE EPA RAGS Part D Table 10, Risk Summary, Site 21, Hypothetical Future Redeveloped Child Resident

ATTACHMENT F3
PHYSICAL CHEMICAL DATA USED IN THE RISK ASSESSMENT

TABLE F3-1: Volatilization Factor (VF) and Particulate Emission Factor (PEF)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	Volatilization Factor (m^3/kg)[a]	Particulate Emission Factor (m3/kg)
1,1-Dichloroethane	2.42E+03	--
1,1-Dichloroethene	1.43E+03	--
1,1,1-Trichloroethane	2.21E+03	--
1,1,2-Trichloroethane	6.49E+03	--
1,1,2,2-Tetrachloroethane	1.40E+04	--
1,2-Dichlorobenzene	1.50E+04	--
1,2-Dichloroethane	3.90E+03	--
1,2-Dichloroethene (Total)[b]	2.90E+03	--
1,2-Dichloropropane	3.60E+03	--
1,2,4-Trimethylbenzene	2.00E+04	--
1,3-Dichlorobenzene	1.50E+04	--
1,3,5-Trimethylbenzene[c]	8.04E+03	--
1,4-Dichlorobenzene	1.29E+04	--
2-Butanone	1.90E+04	--
2-Hexanone[d]	2.50E+04	--
2-Methylnaphthalene[e]	4.30E+04	--
2,4-Dimethylphenol	--	1.32E+09
2,4-Dinitrotoluene	--	1.32E+09
3,3 Dichlorobenzidine	--	1.32E+09
4-Bromophenyl-phenylether	--	1.32E+09
4-Chlorophenyl-phenylether	--	1.32E+09
4-Methyl-2-pentanone	2.50E+04	--
4,4-DDD	--	1.32E+09
4,4-DDE	--	1.32E+09
4,4-DDT	--	1.32E+09
alpha-BHC	--	1.32E+09
alpha-Chlordane	--	1.32E+09
Acenaphthene	1.80E+05	--
Acenaphthylene[f]	1.80E+05	--
Acetone	1.26E+04	--
Aluminum	--	1.32E+09
Anthracene	7.00E+05	--
Antimony	--	1.32E+09
Aroclor-1254	--	1.32E+09
Aroclor-1260	--	1.32E+09
Arsenic	--	1.32E+09
Barium	--	1.32E+09
Beryllium	--	1.32E+09
Benzene	2.70E+03	--
Benzo(a)anthracene	--	1.32E+09
Benzo(a)pyrene	--	1.32E+09
Benzo(b)fluoranthene	--	1.32E+09
Benzo(g,h,i)perylene	--	1.32E+09

TABLE F3-1: Volatilization Factor (VF) and Particulate Emission Factor (PEF)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	Volatilization Factor (m^3/kg)[a]	Particulate Emission Factor (m3/kg)
Benzo(k)fluoranthene	--	1.32E+09
Beta-BHC	--	1.32E+09
bis(2-ethylhexyl)phthalate	--	1.32E+09
Bromodichloromethane	8.26E+03	--
Butylbenzylphthalate	--	1.32E+09
Cadmium	--	1.32E+09
Carbazole	--	1.32E+09
Carbon disulfide	1.20E+03	--
Chlordane	--	1.32E+09
Chlorobenzene	6.30E+03	--
Chloroethane	1.30E+03	--
Chloroform	2.70E+03	--
Chloromethane	1.18E+03	--
Chromium	--	1.32E+09
Chromium (VI)	--	1.32E+09
Chrysene	--	1.32E+09
cis-1,2-Dichloroethene	2.90E+03	--
Cobalt	--	1.32E+09
Copper	--	1.32E+09
Cyanide	--	1.32E+09
Dibenzo(a,h)anthracene	--	1.32E+09
Dibenzofuran	6.50E+05	--
Dieldrin	--	1.32E+09
Diethylphthalate	--	1.32E+09
Dimethylphthalate	--	1.32E+09
di-n-Butylphthalate	--	1.32E+09
di-n-Octylphthalate	--	1.32E+09
Endrin Ketone	--	1.32E+09
Ethylbenzene	5.40E+03	--
Fluoranthene	--	1.32E+09
Fluorene	3.60E+05	--
gamma-BHC (Lindane)	--	1.32E+09
gamma-chlordane	--	1.32E+09
Heptachlor Epoxide	--	1.32E+09
Hexachlorobutadiene	--	1.32E+09
Indeno(1,2,3-cd)pyrene	--	1.32E+09
Iron	--	1.32E+09
Isopropylbenzene	3.6E+03	--
Lead	--	1.32E+09
Manganese	--	1.32E+09
Mercury	--	1.32E+09

TABLE F3-1: Volatilization Factor (VF) and Particulate Emission Factor (PEF)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	Volatilization Factor (m^3/kg)[a]	Particulate Emission Factor (m3/kg)
Methoxychlor	--	1.32E+09
Methylene Chloride	2.49E+03	--
Methyl-T-Butyl-ether	4.70E+03	--
Molybdenum	--	1.32E+09
m,p-Xylene	6.10E+03	--
m-Xylene	6.10E+03	--
Naphthalene	4.30E+04	--
Nickel	--	1.32E+09
n-Butylbenzene	1.10E+04	--
n-Nitroso-diphenylamine	--	1.32E+09
n-Nitroso-di-n-propylamine	--	1.32E+09
n-propylbenzene	1.10E+04	--
o-Xylene	6.10E+03	--
Pentachlorophenol	--	1.32E+09
Phenol	--	1.32E+09
Phenanthrene[g]	7.00E+05	--
p-Isopropyltoluene[h]	2.10E+04	--
Pyrene	3.80E+06	--
sec-Butylbenzene	8.30E+03	--
Selenium	--	1.32E+09
Silver	--	1.32E+09
tert-Butanol[h]	4.64E+04	--
tert-Butylbenzene	1.00E+04	--
Tetrachloroethene	2.60E+03	--
Thallium	--	1.32E+09
Titanium	--	1.32E+09
Toluene	4.00E+03	--
trans-1,2-Dichloroethene	2.30E+03	--
Trichloroethene	3.30E+03	--
Vanadium	--	1.32E+09
Vinyl chloride	1.00E+03	--
Xylene (Total)	6.10E+03	--
Zinc	--	1.32E+09

Notes:

Volatile chemcial were assigned volatilization factors and non-volatile chemicals were assigned particulate emission factors.

EPA 2004 PRG Tables used to determine if the chemical was a VOC. Chemicals not listed on the PRG table were determined to be a VOC defined as having Henry's Law constant equal or greater than 0.00001 and vapor pressure equal or greater than 0.001 mm Hg (DTSC 1990: PEA Guidance).

-- Not applicable

m^3/kg cubic meters per kilogram

VF Volatilization Factor

TABLE F3-1: Volatilization Factor (VF) and Particulate Emission Factor (PEF)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	Volatilization Factor (m^3/kg)[a]	Particulate Emission Factor (m3/kg)

[a] EPA (2004) Region 9 PRG Tables

[b] Chemical specific VF for cis-1,2-dichloroethene is used as a surrogate value.

[c] Chemical specific VF for 1,2,4-trimethylbenzene is used as a surrogate value.

[d] Chemcial specific VF for methyl isobutyl ketone is used as a surrogate value.

[e] Chemcial specific VF for napthalene is used as a surrogate value.

[f] Chemcial specific VF for acenapthene is used as a surrogate value.

[g] Chemcial specific VF for anthracene is used as a surrogate value.

[h] VF calculated based on VF equation: $VF = Q/C \times CF \times [(3.14 \times DA \times T)^{1/2} / (2 \times P_b \times D_A)]$

EPA (2004) PRG Intercalculation Tables: Physical Chemical Data

TABLE F3-2: Dermal Absorption Factor (ABS)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	ABS (cm/hr)[a]
1,1-Dichloroethane	0.01
1,1-Dichloroethene	0.01
1,1,1-Trichloroethane	0.01
1,1,2-Trichloroethane	0.01
1,1,2,2-Tetrachloroethane	0.01
1,2-Dichlorobenzene	0.01
1,2-Dichloroethane	0.01
1,2-Dichloroethene (Total)[b]	0.01
1,2-Dichloropropane	0.01
1,2,4-Trimethylbenzene	--
1,3-Dichlorobenzene	0.01
1,3,5-Trimethylbenzene	0.01
1,4-Dichlorobenzene	--
2-Butanone	0.01
2-Hexanone	0.01
2-Methylnaphthalene	0.01
2,4-Dimethylphenol	0.01
2,4-Dinitrotoluene	0.102
3,3 Dichlorobenzidine	0.01
4-Bromophenyl-phenylether	0.01
4-Chlorophenyl-phenylether	--
4-Methyl-2-pentanone	0.01
4,4-DDD	0.01
4,4-DDE	0.01
4,4-DDT	0.03
alpha-BHC	0.01
alpha-Chlordane[c]	--
Acenaphthene	0.13
Acenaphthylene	0.01
Acetone	0.01
Aluminum	0.001
Anthracene	0.13
Antimony	0.001
Aroclor-1254	0.14
Aroclor-1260	0.14
Arsenic	0.03
Barium	0.001
Beryllium	0.001
Benzene	0.01
Benzo(a)anthracene	0.13
Benzo(a)pyrene	0.13
Benzo(b)fluoranthene	0.13
Benzo(g,h,i)perylene	0.13
Benzo(k)fluoranthene	0.13
Beta-BHC	0.01

TABLE F3-2: Dermal Absorption Factor (ABS)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	ABS (cm/hr)[a]
bis(2-ethylhexyl)phthalate	0.01
Bromodichloromethane	0.01
Butylbenzylphthalate	0.01
Cadmium	0.001
Carbazole	0.01
Carbon disulfide	0.25
Chlordane	--
Chlorobenzene	0.01
Chloroethane	0.01
Chloroform	0.01
Chloromethane	0.01
Chromium	0.001
Chromium (VI)	0.001
Chrysene	0.13
cis-1,2-Dichloroethene	0.01
Cobalt	0.001
Copper	0.001
Cyanide	0.01
Dibenzo(a,h)anthracene	0.13
Dibenzofuran	0.01
Dieldrin	0.01
Diethylphthalate	0.01
Dimethylphthalate	0.01
di-n-Butylphthalate	0.01
di-n-Octylphthalate	0.01
Endrin Ketone	--
Ethylbenzene	0.01
Fluoranthene	0.13
Fluorene	0.13
gamma-BHC (Lindane)	0.04
gamma-chlordane	--
Heptachlor Epoxide	0.01
Hexachlorobutadiene	0.01
Indeno(1,2,3-cd)pyrene	0.13
Iron	0.001
Isopropylbenzene	0.01
Lead	0.001
Manganese	0.001
Mercury	--
Methoxychlor	0.01
Methylene Chloride	0.01
Methyl-T-Butyl-ether	0.01
Molybdenum	0.001
m,p-Xylene	0.01
m-Xylene	0.01

TABLE F3-2: Dermal Absorption Factor (ABS)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

Chemical of Potential Concern	ABS (cm/hr)[a]
Naphthalene	0.13
Nickel	0.001
n-Butylbenzene	--
n-Nitroso-diphenylamine	0.01
n-Nitroso-di-n-propylamine	0.01
n-propylbenzene	--
o-Xylene	0.01
Pentachlorophenol	0.25
Phenol	0.1
Phenanthrene	0.01
p-Isopropyltoluene	--
Pyrene	0.13
sec-Butylbenzene	--
Selenium	0.001
Silver	0.001
tert-Butanol	--
tert-Butylbenzene	--
Tetrachloroethene	0.01
Thallium	--
Titanium	--
Toluene	0.01
trans-1,2-Dichloroethene	0.01
Trichloroethene	0.01
Vanadium	0.001
Vinyl chloride	0.01
Xylene (Total)	0.01
Zinc	0.001

Notes:

[a] Chemical specific ABS are taken from Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. July 2004.
An ABS of 0.010 was used for inorganics when a value was unavailable.

[b] Chemical specific ABS for cis-1,2-dichloroethene is used as a surrogate value.

[c] Chemical specific ABS for Chlordane used as a surrogate value.

TABLE F3-3: Permeability Factor (Kp)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, Ca

Chemical of Potential Concern	Kp (unitless)
1,1-Dichloroethane	0.0089
1,1-Dichloroethene	0.0159
1,1,1-Trichloroethane	0.0171
1,1,2-Trichloroethane	0.0064
1,1,2,2-Tetrachloroethane	0.0090
1,2-Dichlorobenzene	0.0659
1,2-Dichloroethane	0.0053
1,2-Dichloroethene (Total)	0.0149
1,2-Dichloropropane	0.0099
1,2,4-Trimethylbenzene[a]	0.0944
1,3-Dichlorobenzene	0.0775
1,3,5-Trimethylbenzene	0.0944
1,4-Dichlorobenzeneb	0.0620
2-Butanone	0.0011
2-Hexanone	0.0045
2-Methylnaphthalene	0.1420
2,4-Dimethylphenol	0.0147
2,4-Dinitrotoluene	0.0038
3,3 Dichlorobenzidine	0.0169
4-Bromophenyl-phenylether	0.1850
4-Chlorophenyl-phenylether[c]	0.1850
4-Methyl-2-pentanone	0.0040
4,4-DDD	0.4000
4,4-DDE	0.9160
4,4-DDT	1.0600
alpha-BHC	0.0279
alpha-Chlordane[b]	0.0460
Acenaphthene	0.1330
Acenaphthylene	0.1410
Acetone	0.0006
Aluminum	0.0021
Anthracene	0.2250
Antimony	0.0011
Aroclor-1254	1.2900
Aroclor-1260	5.4800
Arsenic	0.0019
Barium	0.0004

TABLE F3-3: Permeability Factor (Kp)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, Ca

Chemical of Potential Concern	Kp (unitless)
Beryllium	0.0007
Benzene	0.0207
Benzo(a)anthracene	0.9480
Benzo(a)pyrene	1.2400
Benzo(b)fluoranthene	0.6990
Benzo(g,h,i)perylene	2.0000
Benzo(k)fluoranthene	1.2000
Beta-BHC	0.0279
bis(2-ethylhexyl)phthalate	1.9700
Bromodichloromethane	0.0050
Butylbenzylphthalate	0.0541
Cadmium	0.0004
Carbazole	0.0797
Carbon disulfide	0.0156
Chlordane[b]	0.0520
Chlorobenzene	0.0407
Chloroethane	0.0080
Chloroform	0.0089
Chloromethane	0.0042
Chromium	0.0010
Chromium (VI)	0.0010
Chrysene	1.0300
cis-1,2-Dichloroethene	0.0149
Cobalt	0.0012
Copper	0.0003
Cyanide	0.0009
Dibenzo(a,h)anthracene	1.6800
Dibenzofuran	0.1510
Dieldrin	0.0445
Diethylphthalate	0.0044
Dimethylphthalate	0.0017
di-n-Butylphthalate	0.0598
di-n-Octylphthalate	4.4500
Endrin Ketone[b, d]	0.0160
Ethylbenzene	0.0739
Fluoranthene	0.5130
Fluorene	0.1710

TABLE F3-3: Permeability Factor (Kp)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, Ca

Chemical of Potential Concern	Kp (unitless)
gamma-BHC (Lindane)	0.0279
gamma-chlordane[b]	0.0460
Heptachlor Epoxide	0.0276
Hexachlorobutadiene	0.1210
Indeno(1,2,3-cd)pyrene	2.2300
Iron	0.0002
Isopropylbenzene	0.1400
Lead	0.0003
Manganese	0.0013
Mercury	0.0010
Methoxychlor	0.0600
Methylene Chloride	0.0045
Methyl-T-Butyl-ether	0.0026
Molybdenum	0.0007
m,p-Xylene	0.0802
m-Xylene	0.0802
Naphthalene	0.0694
Nickel	0.0003
n-Butylbenzene[e]	0.1400
n-Nitroso-diphenylamine	0.0196
n-Nitroso-di-n-propylamine	0.0028
n-propylbenzene[e]	0.1400
o-Xylene	0.0704
Pentachlorophenol	0.1950
phenol	0.0055
Phenanthrene	0.2290
p-Isopropyltoluene[e]	0.1400
Pyrene	0.3240
sec-Butylbenzene[e]	0.1400
Selenium	0.0009
Silver	0.0006
tert-Butanol[b, f]	0.0019
tert-Butylbenzene[e]	0.1400
Tetrachloroethene	0.0481
Thallium[b]	0.0010
Titanium	0.0014

TABLE F3-3: Permeability Factor (Kp)

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, Ca

Chemical of Potential Concern	Kp (unitless)
Toluene	0.0453
trans-1,2-Dichloroethene	0.0481
Trichloroethene	0.0157
Vanadium	0.0014
Vinyl chloride	0.0113
Xylene (Total)	0.0802
Zinc	0.0003

Notes:

Unless noted, Kp values were taken from the Risk Assessment Information System website: http://risk.lsd.ornl.gov/cgi-bin/tox/TOX_select?select=csf

a Chemical Parameter from 1,3,5-Trimethylbenzene used as a surrogate

b Kp value from EPA 1992, Dermal Exposure Assessment: Principles and Applications. January 1992. EPA/600/8-91/011B

c Chemical Parameter from 4-Bromophenyl-phenylether used as surrogate

d Chemical Parameter from Edrin used as surrogate

e Chemcial Parameter from isopropyl-benzene used as a surrogate

f Chemical parameter from n-butanol used as a surrogate

TABLE F3-4: Uptake Factors For The Ingestion of Homegrown Produce Pathway

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

$$\text{Uptake Factor} = \frac{0.03 \times Kow^{0.77} + 0.82}{Koc \times Foc}$$

Chemical of Potential Concern	Volatile?	Lipophilic?	Kow	Log Kow	Kow Source	Koc	Log Koc	Koc Source	Uptake Factor
Metals									
Aluminum	--	--	--	--		--	--		--
Antimony	--	--	--	--		--	--		--
Arsenic	--	--	--	--		--	--		**1.14E-02**
Barium	--	--	--	--		--	--		--
Beryllium	--	--	--	--		--	--		--
Cadmium	--	--	--	--		--	--		**1.44E-01**
Chromium	--	--	--	--		--	--		--
Chromium VI	--	--	--	--		--	--		--
Cobalt	--	--	--	--		--	--		--
Copper	--	--	--	--		--	--		--
Iron	--	--	--	--		--	--		--
Lead	--	--	--	--		--	--		--
Manganese	--	--	--	--		--	--		--
Mercury	--	--	--	--		--	--		**1.76E-02**
Molybdenum	--	--	--	--		--	--		--
Nickel	--	--	--	--		--	--		**1.86E-02**
Selenium	--	--	--	--		--	--		**1.83E-02**
Silver	--	--	--	--		--	--		--
Thallium	--	--	--	--		--	--		--
Titanium	--	--	--	--		--	--		--
Vanadium	--	--	--	--		--	--		--
Zinc	--	--	--	--		--	--		**7.43E-02**
Volatile Organic Chemicals									
1,1,1-Trichloroethane	Yes	--	--	--		--	--		--
1,1,2,2-Tetrachloroethane	Yes	--	--	--		--	--		--
1,1,2-Trichloroethane	Yes	--	--	--		--	--		--
1,1-Dichloroethane	Yes	--	--	--		--	--		--
1,1-Dichloroethene	Yes	--	--	--		--	--		--
1,2,4-Trimethylbenzene	Yes	--	--	--		--	--		--

TABLE F3-4: Uptake Factors For The Ingestion of Homegrown Produce Pathway

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

$$\text{Uptake Factor} = \frac{0.03 \times Kow^{0.77} + 0.82}{Koc \times Foc}$$

Chemical of Potential Concern	Volatile?	Lipophilic?	Kow	Log Kow	Kow Source	Koc	Log Koc	Koc Source	Uptake Factor
1,2-Dichlorobenzene	Yes	--	--	--		--	--		--
1,2-Dichloroethane	Yes	--	--	--		--	--		--
1,2-Dichloroethene (Total)[d]	Yes	--	--	--		--	--		--
1,2-Dichloropropane	Yes	--	--	--		--	--		--
1,3,5-Trimethylbenzene	Yes	--	--	--		--	--		--
1,3-Dichlorobenzene	Yes	--	--	--		--	--		--
1,4-Dichlorobenzene	Yes	--	--	--		--	--		--
2-Butanone	Yes	--	--	--		--	--		--
2-Hexanone	--	--	--	--		--	--		--
4-Methyl-2-pentanone	Yes	--	--	--		--	--		--
Acetone	Yes	--	--	--		--	--		--
Benzene	Yes	--	--	--		--	--		--
Bromodichloromethane	Yes	--	--	--		--	--		--
Carbon disulfide	Yes	--	--	--		--	--		--
Chlorobenzene	Yes	--	--	--		--	--		--
Chloroethane	Yes	--	--	--		--	--		--
Chloroform	Yes	--	--	--		--	--		--
Chloromethane	Yes	--	--	--		--	--		--
cis-1,2-Dichloroethene	Yes	--	--	--		--	--		--
Ethylbenzene	Yes	--	--	--		--	--		--
m,p-Xylene[f]	Yes	--	--	--		--	--		--
Methylene Chloride	Yes	--	--	--		--	--		--
Methyl-T-Butyl-Ether	Yes	--	--	--		--	--		--
o-Xylene	Yes	--	--	--		--	--		--
Tetrachloroethene	Yes	--	--	--		--	--		--
Toluene	Yes	--	--	--		--	--		--
Trichloroethene	Yes	--	--	--		--	--		--
Vinyl chloride	Yes	--	--	--		--	--		--

TABLE F3-4: Uptake Factors For The Ingestion of Homegrown Produce Pathway

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

$$\text{Uptake Factor} = \frac{0.03 \times Kow^{0.77} + 0.82}{Koc \times Foc}$$

Chemical of Potential Concern	Volatile?	Lipophilic?	Kow	Log Kow	Kow Source	Koc	Log Koc	Koc Source	Uptake Factor
Xylene (Total)	Yes	--	--	--		--	--		--
Semivolatile Organic Chemicals									
2,4-Dimethylphenol	No	No	2.0E+02	2.3	EPA 2004	2.1E+02	2.3	EPA 2002	**1.24E-01**
2,4-Dinitrotoluene	No	No	1.0E+02	2.0	EPA 1996	9.6E+01	2.0	EPA 2002	**1.97E-01**
2-Methylnaphthalene[a]	Yes	--	--	--		--	--		--
3,3'-Dichlorobenzidine	No	No	3.2E+03	3.5	EPA 1996	7.2E+02	2.9	EPA 2002	**2.20E-01**
4-Bromophenyl-phenylether	No	Yes	1.1E+05	5.0	EPA 1998	1.2E+05	5.1	EPA 1998	**1.90E-04**
4-Chlorophenyl-phenylether[b]	No	Yes	5.9E+04	4.8	EPA 1998	7.4E+04	4.9	EPA 1998	**1.91E-04**
Acenaphthene	Yes	--	--	--		--	--		--
Acenaphthylene	Yes	--	--	--		--	--		--
Anthracene	Yes	--	--	--		--	--		--
Benzo(a)anthracene	No	Yes	5.0E+05	5.7	EPA 2004	4.0E+05	5.6	EPA 2002	**1.85E-04**
Benzo(a)pyrene	No	Yes	1.0E+06	6.0	EPA 2004	1.0E+06	6.0	EPA 2002	**1.23E-04**
Benzo(b)fluoranthene	No	Yes	1.6E+06	6.2	EPA 1996	1.2E+06	6.1	EPA 2002	**1.45E-04**
Benzo(g,h,i)perylene	Yes	--	--	--		--	--		--
Benzo(k)fluoranthene	No	Yes	1.3E+06	6.1	EPA 2004	1.2E+06	6.1	EPA 2002	**1.21E-04**
bis(2-ethylhexyl)phthalate	No	Yes	1.3E+05	5.1	EPA 2004	1.5E+07	7.2	EPA 2002	**1.68E-06**
Butylbenzylphthalate	No	Yes	7.9E+04	4.9	EPA 2004	5.8E+04	4.8	EPA 2002	**3.11E-04**
Carbazole	No	No	5.0E+03	3.7	EPA 2004	3.4E+03	3.5	EPA 2002	**6.50E-02**
Chrysene	No	Yes	5.0E+05	5.7	EPA 2004	4.0E+05	5.6	EPA 2002	**1.85E-04**
Dibenzo(a,h)anthracene	No	Yes	3.2E+06	6.5	EPA 2004	3.8E+06	6.6	EPA 2002	**7.99E-05**
Dibenzofuran	Yes	--	--	--		--	--		--
Diethylphthalate	No	No	3.2E+02	2.5	EPA 2004	2.9E+02	2.5	EPA 2002	**1.16E-01**
Dimethylphthalate	No	No	4.3E+01	1.6	EPA 1998	2.7E+02	2.4	EPA 1998	**5.12E-02**
di-n-Butylphthalate	No	Yes	5.0E+04	4.7	EPA 2004	3.4E+04	4.5	EPA 2002	**3.70E-04**
di-n-Octylphthalate	No	Yes	1.3E+08	8.1	EPA 2004	8.3E+07	7.9	EPA 2002	**6.22E-05**
Fluoranthene	No	Yes	1.0E+05	5.0	EPA 2004	1.1E+05	5.0	EPA 2002	**1.99E-04**
Fluorene	Yes	--	--	--		--	--		--
Hexachlorobutadiene	No	Yes	6.3E+04	4.8	EPA 2004	5.4E+04	4.7	EPA 2002	**2.79E-04**

TABLE F3-4: Uptake Factors For The Ingestion of Homegrown Produce Pathway

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

$$\text{Uptake Factor} = \frac{0.03 \times Kow^{0.77} + 0.82}{Koc \times Foc}$$

Chemical of Potential Concern	Volatile?	Lipophilic?	Kow	Log Kow	Kow Source	Koc	Log Koc	Koc Source	Uptake Factor
Indeno(1,2,3-cd)pyrene	No	Yes	4.0E+06	6.6	EPA 2004	3.5E+06	6.5	EPA 2002	**1.04E-04**
Naphthalene	Yes	--	--	--		--	--		--
n-Nitroso-di-n-propylamine	No	No	2.5E+01	1.4	EPA 1996	2.4E+01	1.4	EPA 2002	**4.91E-01**
n-Nitroso-diphenylamine	No	No	1.3E+03	3.1	EPA 2004	1.3E+03	3.1	EPA 2002	**6.30E-02**
Pentachlorophenol	No	Yes	1.3E+05	5.1	EPA 2004	5.9E+02	2.8	EPA 2002	**4.30E-02**
Phenanthrene	--	--	--	--		--	--		--
Phenol	No	No	3.2E+01	1.5	EPA 2004	5.9E+02	2.8	EPA 2002	**2.11E-02**
Pyrene	Yes	--	--	--		--	--		--
Pesticides/PCBs									
4,4'-DDD[f]	No	Yes	1.0E+06	6.0	EPA 2004	1.0E+06	6.0	EPA 2002	**1.25E-04**
4,4'-DDE[g]	No	Yes	5.0E+05	5.7	EPA 2004	4.5E+06	6.7	EPA 2002	**1.65E-05**
4,4-DDT[h]	No	Yes	2.5E+06	6.4	EPA 2004	2.6E+06	6.4	EPA 2002	**9.67E-05**
alpha-BHC	No	No	6.3E+03	3.8	EPA 2004	1.2E+03	3.1	EPA 2002	**2.12E-01**
alpha-Chlordane	No	Yes	3.2E+05	5.5	EPA 2004	1.2E+05	5.1	EPA 2002[c]	**4.30E-04**
Aroclor 1254	No	Yes	5.0E+06	6.7	EPA 2004[d]	1.0E+06	6.0	EPA 1998	**4.34E-04**
Aroclor 1260	No	Yes	1.6E+06	6.2	EPA 2004[a]	1.0E+06	6.0	EPA 1998[e]	**1.81E-04**
beta-BHC	No	No	6.3E+03	3.8	EPA 2004	1.3E+03	3.1	EPA 2002	**2.07E-01**
Chlordane	No	Yes	3.2E+05	5.5	EPA 2004	1.2E+05	5.1	EPA 2002[c]	**4.30E-04**
Dieldrin	No	Yes	3.2E+04	4.5	EPA 2004	2.1E+04	4.3	EPA 2002	**4.13E-04**
Endrin Ketone[i]	No	Yes	4.0E+04	4.6	EPA 2004	1.2E+04	4.1	EPA 2002	**8.56E-04**
gamma-BHC	No	No	4.0E+03	3.6	EPA 2004	1.1E+03	3.0	EPA 2002	**1.73E-01**
gamma-Chlordane	No	Yes	3.2E+05	5.5	EPA 2004	1.2E+05	5.1	EPA 2002[c]	**4.30E-04**
Heptachlor Epoxide	No	Yes	2.5E+05	5.4	EPA 2004	8.3E+04	4.9	EPA 2002	**5.20E-04**
Methoxychlor	No	Yes	6.3E+04	4.8	EPA 2004	9.8E+04	5.0	EPA 2002	**1.53E-04**
Other									
Cyanide	--	--	--	--		--	--		--

TABLE F3-4: Uptake Factors For The Ingestion of Homegrown Produce Pathway

Appendix F, HHRA for CERCLA Sites 3, 4, 11, and 21, Alameda Point, Alameda, California

$$\text{Uptake Factor} = \frac{0.03 \times Kow^{0.77} + 0.82}{Koc \times Foc}$$

Chemical of Potential Concern	Volatile?	Lipophilic?	Kow	Log Kow	Kow Source	Koc	Log Koc	Koc Source	Uptake Factor

Notes:

a	Values for naphthalene used
b	Values for 3-chlorophenyl-phenylether used
c	Koc value for chlordane used
d	Kow value for polychlorinated biphenyls used
e	Koc value for Aroclor-1254 used
f	Values for DDD used
g	Values for DDE used
h	Values for DDT used
i	Values for endrin used
j	Values for alpha-BHC used

References:

U.S. Environmental Protection Agency (EPA). 1996. "Soil Screening Guidance: Technical Background Document." EPA/540/R-95/128. Office of Solid Waste and Emergency Response (OSWER), Washington, D.C. May.

EPA. 1998. "Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Volume 2." EPA/530-D-98-001B. OSWER. July.

EPA. 2002. "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites." OSWER 9355.4-24. December.

EPA. 2004. "Superfund Chemical Data Matrix." Available online at http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm. January.

ATTACHMENT F4
TOXICITY PROFILES

ATTACHMENT F4
TOXICITY PROFILES FOR OU-2B RISK DRIVERS

F4.1 ARSENIC

Arsenic is a naturally occurring element with widespread distribution. Arsenic is used in metallurgy to harden copper, lead, and alloys, in the manufacture of certain types of glass, and in medical applications. Because arsenic is present in many mineral ores, it is frequently concentrated near mining sites as a by-product of smelting. Historically, inorganic and organic forms of arsenic were widely used as pesticides. Consequently, arsenic concentrations are frequently elevated in agricultural areas.

Human arsenic exposure occurs primarily through oral ingestion of both organic and inorganic forms of arsenic. The ingestion of arsenic in food items constitutes the largest source of arsenic exposure on a daily basis (approximately 25 to 50 micrograms per day). The particular form of arsenic ingested is a critical factor, since it is well established that trivalent arsenic compounds are more toxic than pentavalent forms. However, exposure to individuals at hazardous waste sites is usually to the pentavalent form because natural oxidation processes in the environment favor this formation (Agency for Toxic Substances and Disease Registry [ATSDR] 2000c).

Water-soluble arsenic is efficiently absorbed from the gastrointestinal tract. Reaching the systemic circulation, trivalent arsenic is detoxified in the liver by conversion to methylarsenic acid and dimethylarsenic acid, which are the principal forms excreted in the urine. The body burden of arsenic can reach considerable levels since it can be sequestered in nails, hair, bones, teeth, skin, liver, kidneys, and lungs (ATSDR 2000c).

The adverse health effects produced by arsenic are highly dose-dependent. For example, at low concentrations arsenic may be an essential nutrient and substitute for phosphorus in key biochemical reactions (ATSDR 2000c). However, at high levels, arsenic has been recognized, and used since ancient times, as an effective human poison. At toxic levels, it produces a severe form of peripheral arteriosclerosis known as blackfoot disease.

Chronic exposure to low levels of arsenic can produce malaise and fatigue, gastrointestinal distress, anemia, basophilic stippling, and neuropathy. The prominent pathological effect, however, is plantar and palmar hyperpigmentation and hyperkeratotic lesions (ATSDR 2000c). Although these lesions alone do not pose a significant health concern, they may ultimately develop into malignant skin cancers and metastasize to other parts of the body.

The oral reference dose (RfD) for arsenic is 0.0003 mg/kg-day based on pathological changes in skin as well as lesions in blood vessels and includes an uncertainty factor of 3 (EPA 2003). EPA has not established an inhalation reference concentration (RfC) for arsenic.

Arsenic is classified as a class A carcinogen. The basis for the classification is an increased lung cancer mortality observed in multiple human populations exposed through the inhalation route. An increased mortality was observed in multiple internal organs (liver, kidney, lung, and bladder) and increased incidences of skin cancer were observed in populations consuming drinking water containing high concentration of inorganic arsenic. An oral cancer slope factor (CSF) of 1.5 $(mg/kg\text{-}day)^{-1}$ and an inhalation unit risk factor (URF) of 0.0043 $(ug/m^3)^{-1}$ have been established by EPA (EPA 2003).

F4.2 BENZENE

Benzene is a highly volatile organic compound, and inhalation is its primary route of exposure. An estimated 40 to 50 percent of the inhaled dose is estimated to be absorbed into the bloodstream. Benzene is readily absorbed from the gastrointestinal tract following oral ingestion because of its lipophilic nature. In contrast, dermal absorption of benzene is limited. Benzene is distributed to fatty tissues in the body and has an affinity for adipose and nervous tissue, bone marrow, liver, spleen, and blood. Benzene is metabolized in the liver to phenol that is subsequently excreted in the urine.

Long-term exposure to benzene can result in central nervous system (CNS) and gastrointestinal effects; however, the primary pathological target is the bone marrow, the principal blood-forming organ in adults. Symptoms include anemia, leukemia, and thrombocytopenia as well as other hematologic abnormalities. Triggered by chronic benzene exposure, these hematologic abnormalities may progress to leukemia. Benzene does not appear to be teratogenic.

Both the oral RfD (0.004 mg/kg-day) and inhalation RfC (0.03 mg/m^3) are based on a decreased lymphocyte count in an occupational study and includes an uncertainty factor of 300 (EPA 2003).

Benzene is classified as a class A weight-of-evidence carcinogen (EPA 2003), based on nonlymphocytic leukemia associated with occupational exposures and neoplasia in experimental animals. An oral CSF of 0.055 $(mg/kg\text{-}day)^{-1}$ and an inhalation URF of 0.0000078 $(ug/m^3)^{-1}$ have been established by EPA.

F4.3 BROMODICHLOROMETHANE

Bromodichloromethane is used as a chemical intermediate and solvent, but is best known as one of the trihalomethanes found in treated (chlorinated) drinking water in municipal water supplies.

Bromodichloromethane is absorbed rapidly by the respiratory and GI tracts and is distributed widely, especially to fatty organs and tissues. It is metabolized in the liver to carbon monoxide, which is responsible for some of its toxic effects.

Single, large doses of bromodichloromethane can cause CNS and lesions in the liver. The kidney is another target but is affected much less severely. Repeated doses to animals cause similar effects, as well as kidney and liver tumors. No data are available on reproductive toxicity and environmental toxicity.

The oral RfD for bromodichloromethane is 0.02 mg/kg-day. This RfD is based on a critical effect of renal cytomegaly in experimental animals (EPA 2003). Route-to-route extrapolation (RTR) is used to evaluate noncancer effects from inhalation exposure.

Bromodichloromethane is classified as a class B2 probable human carcinogen based on inadequate human data and sufficient evidence of carcinogenicity in mice and rats. The oral and inhalation CSFs for bromodichloromethane are both 0.062 $(mg/kg\text{-}day)^{-1}$.

F4.4 CHLOROMETHANE

Chloromethane is a naturally occurring and man-made chemical. Most of the chloromethane released into air comes from chemical reactions in plants, wood, charcoal, burning coal, the ocean, and rotting wood. Formally, chloromethane was used as a refrigerant, pesticide, and fumigant. Today, chloromethane is used in the production of silicone, agricultural chemicals, methylcellulose, quaternary amines, and butyl rubber (ATSDR 1998a).

The main routes of exposure include ingestion and inhalation. Chloromethane in the lungs or GI tract rapidly enters the bloodstream where it is transported to the liver, kidneys, and brain. Most chloromethane breaks down into other products where it is excreted in urine. The small amount of chloromethane that remains unchanged is expelled through the lungs. Prolonged dermal contact is rare as chloromethane volatilizes at room temperature. The amount of chloromethane absorbed dermally is unknown (ATSDR 1998a).

Acute exposure can result in mild to severe neurological effects (confusion staggering, impaired speech), tachycardia, increased heart rate, decreased blood pressure, nausea, vomiting, renal and endocrine effects, cerebellar lesions, and sometimes death. Chronic exposure effects can cause, jaundice, cirrhosis, liver necrosis, neurotoxic effects (such as

impaired memory, impaired vision, or impaired gait and speech), disorientation, delirium, and sometimes death (ATSDR 1998a).

EPA provides an inhalation RfD of 0.026 mg/kg-day (EPA 2003) based on the critical effect of cerebellar lesions in mice and includes an uncertainty factor of 1,000 (EPA 2003). Because chloromethane exists primarily as a gas, no adequate oral exposure studies exist from which an oral RfD may be derived.

Chloromethane is classified as a Class D carcinogen, which means that it is not classifiable as to its human carcinogenicity. Chloromethane was classified as an agent whose carcinogenic potential cannot be determined (EPA 2003). The Health Effects Assessment Summary Tables (HEAST) list oral and inhalation CSFs of 0.013 and 0.0063 $(mg/kg\text{-}day)^{-1}$, respectively (EPA 1997). The oral and inhalation CSFs are based on kidney tumors in mice.

F4.5 CHROMIUM (VI)

Chromium is an element that occurs naturally in many different mineralogic forms and is present in high concentrations at mining sites. Chromium has many industrial uses including steel fabrication, paint manufacturing, and chrome plating.

The primary routes of chromium exposure are ingestion and inhalation. Its absorption from the lungs and GI tract is significant but not complete. Chromium exists in a variety of oxidation states. Like other elements, its toxicity depends on the particular species (ATSDR 2000a). Hexavalent chromium is the most toxic form of chromium, while trivalent chromium is an essential nutrient.

Chromic toxicity is most commonly reported after industrial exposure to chromate, or to mixed chromate and chromic acid forms of chromium. In this setting, the routes of exposure are inhalation and dermal contact, with pathological effects developing at the site of exposure. Typical symptoms of chronic exposure involve allergic contact dermatitis, skin ulcers, rhinitis and nasal ulceration with nasal septum perforation. Lung tumors are common in chromate-exposed workers and particularly in those who smoke cigarettes, who are predisposed due to the inhalation of chromium from tobacco smoke. Although not as common, liver and kidney lesions have also been reported.

EPA provides an oral RfD of 0.003 mg/kg-day (EPA 2003) based on no observed effects and includes an uncertainty factor of 300 (EPA 2003). Confidence in this study is low based on the small number of animals tested, small number of parameters measured, and the lack of toxic effect at the highest dose tested (EPA 2003). EPA provides an inhalation RfC of 0.0000022 mg/kg-day based on the critical effect of nasal septum atrophy following occupational exposures to chromic acid mists. Confidence in the chosen study is low because of uncertainties regarding the exposure characterization and the role of direct contact for the critical effect.

Hexavalent chromium exposure by the inhalation route is a class A carcinogen based on evidence of lung cancer in epidemiological studies. Carcinogenicity of hexavalent chromium exposure by the oral route cannot be determined and it is listed as class D carcinogen (EPA 2003). The inhalation URF for hexavalent chromium is 0.012 $(ug/m^3)^{-1}$. The Integrated Risk Information System (IRIS) toxicity profile notes that the inhalation URF should not be used if the air concentration exceeds 0.8 ug/m^3.

F4.6 1,4-DICHLOROBENZENE

1,4-Dichlorobenzene does not occur naturally and is a chemical used to control moths, molds, and mildew, and to deodorize restrooms and waste containers. It also has applications in fumigants, insecticides, lacquers, paints, and seed disinfection products. Exposure to 1,4-dichlorobenzene happens mostly from breathing high levels in indoor air or workplace air (ATSDR 1998b). Extremely high exposures can cause dizziness, headaches, and liver problems. At room temperature, 1,4-dichlorobenzene is a white solid with a strong, pungent odor. When exposed to air, it slowly changes from a solid to a vapor (ATSDR 1998b).

The EPA National Center for Environmental Assessment (NCEA) provides an oral RfD for 1,4-dichlorobenzene of 0.03 mg/kg-day (EPA 2002). The inhalation RfC (0.8 mg/m^3) is based on the critical effect of significantly increased liver weights of P1, parental male rats (EPA 2003). The inhalation RfC is based on a subchronic no observed adverse effect level (NOAEL) dose; an uncertainty factor of 100 was applied. Confidence in the primary study is medium (EPA 2003).

1,4-Dichlorobenzene is a class C possible human carcinogen, based on an increase in liver tumors in mice administered 1,4-dichlorobenzene for 103 weeks (RAIS 2003). HEAST lists an oral CSF of 0.024 $(mg/kg\text{-}day)^{-1}$ (EPA 1997). EPA-NCEA lists an inhalation CSF of 0.022 $(mg/kg\text{-}day)^{-1}$ (EPA 2002).

F4.7 1,2-DICHLOROETHANE

1,2-Dichloroethane can be absorbed via the ingestion, inhalation, and dermal exposure routes. The oral RfD (0.03 mg/kg-day) is based on a subchronic NOAEL dose; an uncertainty factor of 1,000 was applied. At the NOAEL dose, liver weight was increased; however no lesions were observed (RAIS 2003). No chronic studies were available for the derivation of a chronic NOAEL (RAIS 2003).

The inhalation RfC (0.005 mg/m^3) is based on a lowest observed adverse effect level (LOAEL) dose for an increased incidence of gastrointestinal effects as well as liver and gall bladder disease in workers occupationally exposed to 1,2-dichloroethane. The inhalation reference concentration includes an uncertainty factor of 3,000.

1,2-Dichloroethane is classified as a class B2 weight-of-evidence carcinogen (EPA 2003) based on the induction of several types of tumors in rats and mice via gavage and lung papillomas in mice after topical administration (RAIS 2003). An oral CSF of 0.091 $(mg/kg\text{-}day)^{-1}$ was derived from a long-term study in which rats and mice were administered technical grade 1,2-dichloroethane via gavage. The unit risk should not be used if the air concentration exceeds 400 ug/m^3, since above this concentration the unit risk may not be appropriate.

The inhalation URF of 0.000026 $(ug/m^3)^{-1}$ is based on the same study used to determine the oral CSF. Reitz and others (1982 as cited in EPA 2003) found the major urinary metabolites to be the same (and generated in the same relative amounts) in rats that ingested or inhaled 1,2-dichloroethane. The IRIS toxicity profile notes that the inhalation URF should not be used if the air concentration exceeds 0.04 ug/m^3.

F4.8 1,2-DICHLOROETHENE

1,2-DCE enters the environment through human industrial activity, and is a known degradation product of TCE and PCE in certain media and under certain dechlorinating conditions in the environment. 1,2-DCE is released to the environment from chemical factories that make or use this chemical, from landfills and hazardous waste sites containing this chemical, from chemical spills, from burning of vinyl-containing objects, and from the breakdown of other chlorinated chemicals. Inhalation, oral, and dermal routes of exposure to 1,2-dichloroethene are of concern to humans because 1,2-DCE has been found in air, groundwater that may be used for drinking in the future, and soil.

Toxicokinetic data are very limited for both human and animal exposures. Partition coefficients suggest that 1,2-DCE has a much stronger affinity for blood and fats than for air. Although the compound is relatively lipophilic, there is no good evidence of accumulation in important organs such as liver, brain, kidney, and adipose tissue. It is likely that 1,2-DCE is metabolized to more hydrophilic by-products, and, therefore, eliminated quickly as metabolites.

The most significant effects of 1,2-DCE exposures are hematological and hepatic. At high levels of exposure, clinical symptoms that have been reported in humans exposed to 1,2-DCE in air include nausea, drowsiness, fatigue, intracranial pressure and ocular irritation. No information is available on oral toxicity for 1,2-DCE in humans. No information is available on the relative toxicities of the cis- and trans-isomers of 1,2-DCE in humans. Pathological lesions of the heart, liver, and lung have been reported in rats exposed to trans-1,2-DCE in air. Ataxia and respiratory depression occur in the terminal stages prior to death in animals. Since these conditions have not been observed in humans, their relevance to public health is not known.

A variety of genotoxicity tests have been performed for 1,2-DCE. The predominant results are negative, and no carcinogenicity studies were found in the literature. EPA has found that both the cis- and trans-1,2-DCE isomers are "not classifiable" as to their

carcinogenicity. Toxicity factors for cis-1,2-DCE were used to estimate the toxicity of 1,2-DCE (total). The oral RfD for cis-1,2-DCE (0.01 mg/kg-day) is based on hematopoetic system effects (EPA 1997) in a 90-day gavage study in rats, and includes an uncertainty factor of 3,000. An inhalation RfD was route-extrapolated from the oral RfD following the EPA Region IX approach.

F4.9 MANGANESE

Manganese is an essential element in humans; however, it can cause toxic effects with prolonged exposure at high concentrations via the oral or inhalation routes. The National Research Council (NRC) recommends a dietary allowance of 2 to 5 mg/day as a "safe and adequate" intake of manganese for an adult human (NRC 1989 as cited in RAIS 2003). The primary target organ for manganese toxicity is the central nervous system. Symptoms include headache, insomnia, and disorientation. These symptoms progress with continued exposure and the motor skill effects are often irreversible. Based on human epidemiological studies, 0.8 mg/kg-day for drinking water exposure and 0.34 mg/m^3 in air for inhalation exposure are estimated as LOAELs for central nervous system effects (RAIS 2003).

Intestinal absorption has been estimated to be between 3 and 10 percent of the amount of manganese ingested (RAIS 2003). Due to the greater bioavailability of manganese from water, separate RfDs for water and diet have been determined (RAIS 2003).

Kawamura and others (1941) reported incidences of manganese toxicity resulting from the consumption of contaminated water. Symptoms included lethargy, tremors, increased muscle tonus, and, mental disturbances. The drinking water was estimated to contain at least 28 mg/L manganese, which is equivalent to an intake of 0.8 mg/kg-day for a 70-kg adult drinking 2 L/day of water.

No single study was used to determine the oral dietary RfD for manganese (0.14 mg/kg-day), which accounts for intake from all sources (e.g., diet, soil, and water). Information from many large populations consuming normal diets over an extended period of time with no adverse effects was used to determine the RfD. The IRIS assessment for manganese recommends that the dietary contribution from the normal U.S. diet (an upper limit of 5 mg/day) be subtracted when evaluating non-food (such as drinking water or soil) exposures to manganese, leading to an RfD of 0.071 mg/kg-day for non-food items. The explanatory text in IRIS further recommends using a modifying factor of 3 when calculating risks associated with non-food sources due to a number of uncertainties that are discussed in the IRIS file for manganese, leading to a RfD of 0.024 mg/kg-day.

A study conducted by Roels and others (1987; as cited in RAIS 2003) compared occupationally exposed workers (through the inhalation pathway) to a non-exposed group. A higher frequency of coughs, dyspnea during exercise, episodes of acute bronchitis, and altered lung parameters were found in the exposed group; however, these

effects were only significant in workers who smoked. Respiratory effects were determined to be secondary to neurological effects. Workplace exposure to manganese dioxide resulted in decreased performance on tests measuring neurobehavioral function. Based on these and other occupational studies, low-level occupational exposure to manganese is associated with neurotoxic effects (EPA 2003). After an UF of 1,000 is applied, an inhalation RfC of 0.00005 mg/m^3 was calculated (EPA 2003).

Manganese is assigned to weight of evidence Group D based on a lack of existing studies to assess its carcinogenicity. See Section 8.3.8 of Appendix H for additional information on manganese.

F4.10 METHYLENE CHLORIDE

Methylene chloride is a colorless liquid with a mild, sweet odor and does not occur naturally in the environment. Methylene chloride is used as an industrial solvent and as a paint stripper. It may also be found in some aerosol and pesticide products and is used in the manufacture of photographic film (ATSDR 2000b). Exposure to methylene chloride occurs mostly from breathing contaminated air, but may also occur through skin contact or by drinking contaminated water. Breathing in large amounts of methylene chloride can damage the central nervous system and can cause unsteadiness, dizziness, and nausea and a tingling or numbness in fingers and toes. Contact of eyes or skin with methylene chloride can result in burns and redness of the skin (ATSDR 2000b).

The oral RfD for methylene chloride is 0.06 mg/kg-day and is based on liver toxicity in rats, and has an associated uncertainty factor of 100. Confidence in the RfD is medium, though confidence in the study is high (EPA 2003). HEAST lists the inhalation RfC for methylene chloride as 3 mg/m^3, based on critical liver effects; an uncertainty factor of 100 is applied (EPA 1997).

Methylene chloride is classified as a class B2 weight-of-evidence carcinogen (EPA 2003) based on inadequate human data and sufficient evidence of carcinogenicity in animals; including increased incidence of hepatocellular and alveolar/bronchiolar neoplasms in male and female mice, and increased incidence of benign mammary tumors in both sexes of rats, salivary gland sarcomas in male rats and leukemia in female rats (EPA 2003). HEAST lists an oral and inhalation CSF of 0.013 $(mg/kg\text{-}day)^{-1}$ and 0.0063 $(mg/kg\text{-}day)^{-1}$, respectively (EPA 1997).

F4.11 POLYNUCLEAR AROMATIC HYDROCARBONS

PAHs include more than 100 different compounds (ATSDR 1995). They have no known use in manufacturing or industry and are associated primarily with incomplete combustion of organic substances. Common sources of exposure to PAHs include tobacco, smoke, wood, coal, oil, and gasoline.

Although PAHs can enter the body through ingestion and dermal exposure, the most significant route of exposure is inhalation. Dermal and gastrointestinal absorption of individual PAHs varies considerably. For example, gastrointestinal absorption of benzo(a)anthracene is rapid and efficient, while only limited amounts of benzo(a)pyrene are absorbed into the systemic circulation. Due to their lipophilic properties, PAHs can be stored in tissues and organs with high fat content such as adipose tissue, the liver, and the kidneys.

EPA considers seven PAHs to be probable human carcinogens (EPA 2003). These include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. When admistered by gavage, several PAHs have been shown to induce papillomas and malignant (and benign) tumors of the forestomach and/or lung adenomas and hepatomas. Administered topically, the carcinogenic PAHs induce skin papillomas and carcinomas in test animals. While there is adequate evidence for the carcinogenicity of PAHs in humans, a number of epidemiologic and mortality studies indicate increased incidences of cancer in humans exposed to mixtures of PAHs. Benzo(a)pyrene is the most studied of the carcinogenic PAHs and has become the archetypal carcinogenic PAH used in animal experiments.

RfDs for noncarcinogenic PAHs have been established for acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, and pyrene. Of these, only naphthalene was retained as a COPC for the HHRA. Naphthalene has an oral RfD of 0.02 mg/kg-day based on decreased body weights in male rats and includes an uncertainty factor of 3,000. The inhalation RfC for naphthalene is 0.003 mg/m^3 (EPA 2003) based on the LOAEL dose for the formation of hyperplasia and metaplasia in respiratory and olfactory epithelium. The RfC includes an uncertainty factor of 3,000.

EPA has established an oral CSF of 7.3 $(mg/kg\text{-}day)^{-1}$ for benzo(a)pyrene. An inhalation URF has not been established (EPA 2003). The EPA Region 9 PRGs list a provisional inhalation CSF of 3.1 $(mg/kg\text{-}day)^{-1}$ for benzo(a)pyrene. Toxicity equivalency factors for other PAHs, as developed by EPA (1993) for determining SFs relative to benzo(a)pyrene for the remaining carcinogenic PAHs, are:

- Benzo(a)anthracene = 0.1
- Benzo(b)fluoranthene = 0.1
- Benzo(k)fluoranthene = 0.1
- Chrysene = 0.001
- Dibenzo(a,h)anthracene = 1.0
- Indeno(1,2,3-c,d)pyrene = 0.1

These values were used to determine the oral CSFs and inhalation CSFs for this HHRA.

F4.12 TETRACHLOROETHENE

Tetrachloroethene (PCE) is used primarily as a solvent in industry, and less frequently in commercial dry cleaning operations (ATSDR 1997a). Exposure to the general population can occur via exposure to contaminated air, food, and water.

PCE is rapidly absorbed by the lungs and the digestive tract but not through the skin (RAIS 2003); therefore, the inhalation and oral routes are the major routes of human exposure to PCE. The main target organs of PCE are the liver and kidney by both the oral and inhalation exposure routes. Chronic exposure can cause various effects such as respiratory tract irritation, headache, nausea, sleeplessness, abdominal pain, cirrhosis of the liver, hepatitis, and nephritis.

Oral exposure to PCE is primarily through drinking contaminated groundwater. PCE readily volatilizes from water, therefore contaminated water is also a potential source of inhalation exposure to PCE. Compared to inhalation exposure, little PCE vapor is absorbed across the skin. However, when PCE is trapped against the skin beneath an impermeable barrier, small amounts of the solvent are absorbed.

The RfD for chronic oral exposure to PCE (0.01 mg/kg-day) is based on hepatotoxicity observed in mice given 100 mg PCE per kg body weight for 6 weeks and a NOAEL of 20 mg/kg (Buben and O'Flaherty 1985 as cited in EPA 2003). The PCE RfD includes an uncertainty factor of 1,000. Because a RfC for PCE is not available on IRIS (EPA 2003), a provisional RfC provided by NCEA was used. The provisional RfC (0.6 mg/m^3) is based on a benchmark dose for renal tubular effects in chronically exposed male and female mice (National Toxicology Program [NTP] 1986 as cited in RAIS 2003).

Although several human studies of PCE exposures in the dry cleaning industry exist, the Superfund Technical Support Center (STSC) concluded that the small number of subjects used in some studies, the uncertainty associated with the adversity of some of the observed effects, and the lack of adequate exposure information preclude deriving a provisional reference concentration from the available occupational exposure studies. Thus, the NTP (1986 as cited in RAIS 2003) animal study was selected as the basis of the provisional RfC. In this study, a LOAEL of 678 mg/m^3 was identified for the chronic mouse study based on kidney effects (renal tubule cell karyomegaly, nephrosis, hepatic degeneration and necrosis, and acute passive congestion in the lungs). To calculate the provisional PCE RfC, the STSC selected the benchmark dose of 17 mg/m^3 for renal tubular cell karyomegaly in chronically exposed male and female mice (NTP 1986 as cited in RAIS 2003) because it was the lowest critical concentration for a relevant. A provisional chronic RfC of 0.6 mg/m^3 PCE was determined and includes an uncertainty factor of 30.

The PCE toxicity values used in this HHRA are the most current, and reflect recent (December 2001) recommendations by the STSC. However, these toxicity values have not met with consensus in the formal EPA peer review process. Although the EPA's Science Advisory Board recommended a cancer weight-of-evidence classification of C-B2 continuum, the agency has not adopted a current position on the PCE carcinogenic classification and the oral CSF and URF have been withdrawn from IRIS and HEAST. A provisional oral CSF of 0.052 $(mg/kg\text{-}day)^{-1}$ and inhalation URF of 0.000003 $(ug/m^3)^{-1}$ are available from the National Center for Environmental Assessment (EPA-NCEA 2003).

F4.13 THALLIUM

Thallium is a relatively rare metal that exists in a variety of combinations with iron, copper, sulfide, and selenium. It has been used as a rodenticide, but was banned in the United States in 1972 because of unintended poisoning of birds and other animals, as well as small children. Currently, thallium has several minor uses as alloys for electrical and electronic devices.

Thallium is readily absorbed from the gastrointestinal tract and through the skin and is distributed in a pattern much like that of potassium. Because its chemical properties are similar to potassium, it can substitute for this essential element in biochemical reactions and lead to disruptions of normal cellular metabolic function. Following high doses, thallium is concentrated in the kidney and urine. The body burden of thallium can increase for a protracted period because it is excreted slowly.

The toxic effects of thallium have been well characterized after many years of medicinal and pesticide use. After acute doses, even lethal ones, effects do not appear until many hours or even days postdose. Symptoms range from gastrointestinal disturbances, limb pain and paralysis, polyneuritis, high blood pressure, optic nerve atrophy and blindness, psychic excitement, liver and kidney lesions, and lymphocytosis. With chronic exposure, a latent period with no clinical signs also is observed. When symptoms are present, they are manifested as polyneuritis, optic nerve atrophy, and alopecia with eyebrow loss.

Thallium has not been shown to exert any reproductive toxicity, although it has been shown to be fetotoxic in experimental animals.

The EPA has not determined the carcinogenic potential or derived an oral CSF or inhalation URF for thallium (EPA 2003). The oral RfD for thallium is dependent on the species of thallium present. For this HHRA, the oral RfD for thallium sulfate (0.00008 mg/kg-day) was used after an adjustment based on the molecular weight of the thallium salt resulting in an adjusted oral RfD of 0.000066 mg/kg-day (EPA 2002). The oral RfD for thallium sulfate is based on the NOAEL dose identified in a subchronic study conducted on rats and includes an uncertainty factor of 3,000. No inhalation RfCs have been established for any of the thallium species listed in the IRIS database.

F4.14 1,1,2-TRICHLOROETHANE

1,1,2-Trichloroethane, known commercially as vinyl trichloride, is a colorless, sweet-smelling liquid that does not burn easily and boils at a higher temperature than water. 1,1,1-Trichloroethane is an intermediate in the production of 1,1-dichlorethene, can be used as a solvent, and can occur naturally in landfills as an intermediate in 1,1,2,2-tetrachloroethane biodegradation (ATSDR 1989). Its relatively high toxicity has led to the general substitution of other chlorinated hydrocarbon solvents (ATSDR 1989). 1,1,2-Trichloroethane is found primarily in air due to its volatilization in industrial wastewater discharge and the release of fugitive emissions from its use as a solvent (ATSDR 1989).

1,1,2-Trichloroethane is absorbed readily by all routes. It is metabolized in the liver, primarily by oxidative dechlorination, to products such as chloroacetic acid, which are excreted in the urine. Some of the unmetabolized chemical is exhaled. Several chemicals potentiate the toxicity of 1,1,2-trichloroethane, including acetone and isopropanol, apparently through metabolic interactions in the liver.

Human dermal exposure to 1,1,2-trichloroethane can cause temporary stinging and burning pain. No other information is available on the human health effects of exposure to 1,1,2-trichloroethane. Most of what is known about the health effects of 1,1,2-trichloroethane has been extrapolated from animal experiments. As with most chemicals, exposure to large amounts of 1,1,2-trichlorethane can cause more damage than small amounts. Acute exposure has caused death in animals, while chronic exposure has caused a shortened lifespan. 1,1,2-Trichloroethane exposures may also produce skin irritation, cause sleeplessness, affect the body's ability to fight infection, and affect the liver, kidneys, central nervous system (CNS), lungs, and digestive tract (ATSDR 1989).

EPA (2003) lists an oral RfD for 1,1,2-trichloroethane of 0.004 mg/kg-day. This oral RfD is based on the critical effect of liver damage evidenced by levels of serum liver enzymes (EPA 2003). RTR is used to evaluate noncancer effects from inhalation exposure.

EPA has categorized 1,1,2-trichloroethane as a class C possible human carcinogen because limited animal evidence is available. EPA (2003) provides an oral CSF of 0.057 and an inhalation URF of 0.000016 ug/m^3. The IRIS toxicity profile notes that the inhalation URF should not be used if the air concentration exceeds 600 ug/m^3.

F4.15 TRICHLOROETHENE

Trichloroethene (TCE) is an industrial solvent used primarily in metal degreasing and cleaning operations. TCE can be absorbed through the lungs, mucous membranes, gastrointestinal tract, and the skin; therefore, exposure to TCE may occur via the inhalation, oral, or dermal routes. TCE is extensively metabolized in humans with most of the absorbed dose excreted in urine (ATSDR 1997b). Human and animal data indicate TCE exposure can result in toxic effects on a number of organs including the liver,

kidney, blood, skin, immune system, reproductive system, nervous system, and cardiovascular system.

In the past, TCE was used as a human anesthetic. TCE also has been used by individuals who intentionally inhale it for its narcotic properties. Therefore, most of the information regarding the effects of TCE in humans comes from case studies and experiments describing effects of TCE after inhalation exposure. These studies indicate that the primary effect of exposure to TCE is on the central nervous system. Effects include headache, vertigo, fatigue, short-term memory loss, decreased word associations, central nervous system depression, and anesthesia.

Much of the most recently available information on TCE was summarized by EPA in an external review draft *Trichloroethylene Health Risk Assessment: Synthesis and Characterization* (EPA 2001). However, that review draft was the subject of some controversy, and does not yet represent agency policy. In particular, the external review draft discussed several CSFs, with most between 0.02 and 0.4 per mg/kg-day. Several sources of uncertainty have been identified and quantified (EPA 2001). EPA's external draft review slope factor range, 0.02 to 0.4 per mg/kg-day, lies just above EPA's previous slope factor for TCE, 0.011 per mg/kg-day. The upper bound of the slope factor range (0.4 per mg/kg-day) was used as the oral CSF for this HHRA.

Despite the existence of numerous studies, EPA noted that the database for developing a noncancer RfD or RfC is problematic. ATSDR (1997b) did not derive chronic-duration levels for TCE, viewing the chronic studies as limited by inadequate characterization of exposure, inadequate quantification of results, or lack of endpoints suitable for deriving chronic levels (ATSDR 1997b). Adverse effects have been observed in several studies at a human-equivalent dose range of 1–10 mg/kg-day (EPA 2001). Among these liver values, EPA recommended 1 mg/kg-day is chosen as the point of departure, supported by studies indicating this is a dose where liver toxicity can begin to be observed in two species after subchronic dosing.

The provisional draft NCEA oral RfD of 0.0003 mg/kg-day based on critical effects in the liver, kidney, and developing fetus proposed in the external review draft was used in this HHRA; however as stated above, this value has not met with peer review consensus and does not yet reflect the final agency position on the most appropriate TCE RfD. The inhalation RfC of 0.04 mg/m^3 proposed in the external review draft was used in this HHRA based on critical effects in the central nervous system, liver, and endocrine system. Similarly, this value has not met with peer review consensus and does not yet reflect the final agency position on the most appropriate TCE RfC.

F4.16 VINYL CHLORIDE

VC is among the few chemicals that have been conclusively linked to human cancer, and VC is classified as a Class A weight-of-evidence carcinogen. EPA recently studied VC in detail and established two sets of CSFs for VC, considering lifetime (since birth)

exposure as well as exposure only in adulthood. EPA established the oral SF of 0.72 per mg/kg-day to account for continuous lifetime exposure during adulthood, based on use of the linearized multistage model, with a twofold increase (doubling) to 1.4 per mg/kg-day to account for continuous lifetime exposure from birth (EPA 2003). Among the specific types of statistically significant cancers induced in the animal studies were increases in liver angiosarcomas, neoplastic nodules, and hepatocellular carcinomas, and risk was calculated based on animals exhibiting any of these endpoints. EPA (2003) notes that the oral URF (and SF) should not be used if the water concentration exceeds 10^5 μg/L, because above this concentration the slope factor may differ from that stated.

VC is also carcinogenic via inhalation. VC metabolism becomes nonlinear at high exposure concentrations; therefore, cumulative exposure is not sufficient for quantitating risk. Instead, animal studies were pharmacokinetically converted to human equivalents. The pharmacokinetic model employed by EPA was linear up to nearly 100 mg/m^3; the calculated equivalence factor was used to convert the risk from the inhalation experiments conducted in animals (in the units of the dose metric) to human risk values (EPA 2003). The slope factor is thus based on the 95 percent upper confidence on risk in female rats. Calculation of a SF is appropriate in this case, in spite of the use of a pharmacokinetic model, because VC metabolism is linear in humans in this exposure range (EPA 2003). EPA (2003) notes that the inhalation URF (4.4 $[mg/m^3]^{-1}$ for continuous exposure during adulthood) should not be used if the air concentration exceeds 10^4 $\mu g/m^3$, because above this concentration the slope factor may differ from that stated.

Noncancer effects of VC also have been studied. Preneoplastic liver cell polymorphism was found to be the critical noncancer effect upon which EPA based the oral RfD (0.003 mg/kg-day) for oral VC exposure. After two lifetime studies in rats, a NOAEL for cellular changes in the liver (0.13 mg/kg-day) was established, and converted with a total uncertainty factor of 30.

The same underlying chronic dietary study in rats is the principal study for both the inhalation RfC and oral RfD (EPA 2003). EPA found the inhalation database for VC deficient in chronic inhalation studies from which a RfC could be derived, but determined that the mode of action is common to exposures from either route (liver toxicity) and found that pharmacokinetic models were adequate for route-to-route extrapolations. The critical effect, increases in the incidence of liver cell polymorphism and cysts, was reported in both oral studies (lifetime feeding studies) and inhalation studies (EPA 2003). In addition, the existing inhalation studies report no direct effects at the portal of entry (i.e., the respiratory tract). Therefore, the same study NOAEL was used in the EPA RfC derivation for VC, and included the same uncertainty factor of 30.

F4.17 XYLENES

Xylene is a solvent that is composed of a mixture of dimethyl phenyl compounds (or isomers, such as m-, p-, and o-), often referred to as xylenes. Approximately 60 percent

of the inhaled dose of xylenes is retained and absorbed; they also are readily absorbed through the skin and probably from the gastrointestinal tract based on their lipophilic nature. The highest levels are found in fatty tissues such as adipose tissue, subcutaneous fat, adrenal glands, brain, and liver. Excretion is primarily in the urine but some is exhaled.

The acute toxic potential is relatively low as is the chronic toxicity. The vapor may be irritating to eyes, skin, and mucous membranes. Xylenes cause CNS effects. Mice given high doses exhibited hyperactivity. Effects on eyes, kidneys, liver and lungs also are reported. Xylenes are fetotoxic and teratogenic in mice at high oral doses. Similar results have been reported in women exposed to solvents including xylene. Xylenes have not been found to be mutagenic (EPA 2003).

Available EPA toxicity values for total xylenes were used to evaluate the toxicity of the m- and p-xylene isomers. The oral RfD for xylenes is 0.2 mg/kg-day and includes an uncertainty factor of 1,000. The oral RfD is based on the NOAEL dose for decreased body weight and increased mortality in experimental animals. The inhalation RfC (0.1 mg/m^3) is based on the NOAEL dose for decreased motor coordination (central nervous system effect) in male rats and includes an uncertainty factor of 300.

Xylenes are classified in the class D weight-of-evidence group and no cancer toxicity values have been established.

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ATTACHMENT F5
LEADSPREAD MODELING RESULTS

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	369.0
Lead in Water (ug/l)	210
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	13.2	24.2	28.6	34.8	39.6	-2618	-2231
BLOOD Pb, CHILD	18.6	34.1	40.3	49.0	55.7	-841	-740
BLOOD Pb, PICA CHILD	21.2	38.8	45.9	55.8	63.5	-540	-475
BLOOD Pb, OCCUPATION	12.3	22.4	26.5	32.2	36.7	-13475	-11486

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	166.1	

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PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	0%	1.4E-5	0.01	0%
Soil Ingestion	8.8E-4	0.32	2%	6.3E-4	0.23	2%
Inhalation, bkgrnd		0.05	0%		0.03	0%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		####	89%		11.76	96%
Food Ingestion, bkgrnd		0.22	2%		0.23	2%
Food Ingestion	2.4E-3	0.88	7%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.02	0%		0.02	0%
Soil Ingestion	7.0E-3	2.60	14%	1.4E-2	5.20	24%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	0%		0.04	0%
Water Ingestion		####	72%		13.44	63%
Food Ingestion, bkgrnd		0.50	3%		0.50	2%
Food Ingestion	5.5E-3	2.05	11%		2.05	10%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	369.0
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.9	3.5	4.1	5.0	5.7	805	1192
BLOOD Pb, CHILD	5.7	10.4	12.3	14.9	17.0	185	286
BLOOD Pb, PICA CHILD	8.3	15.1	17.9	21.7	24.7	119	184
BLOOD Pb, OCCUPATION	0.9	1.7	2.0	2.4	2.7	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	166.1	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.01	1%
Soil Ingestion	8.8E-4	0.32	17%	6.3E-4	0.23	25%
Inhalation, bkgrnd		0.05	2%		0.03	4%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	22%		0.41	45%
Food Ingestion, bkgrnd		0.22	11%		0.23	25%
Food Ingestion	2.4E-3	0.88	47%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.02	0%		0.02	0%
Soil Ingestion	7.0E-3	2.60	46%	1.4E-2	5.20	63%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	0%
Water Ingestion		0.47	8%		0.47	6%
Food Ingestion, bkgrnd		0.50	9%		0.50	6%
Food Ingestion	5.5E-3	2.05	36%		2.05	25%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	369.0
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.5	2.7	3.2	3.9	4.5	927	1314
BLOOD Pb, CHILD	5.2	9.5	11.3	13.7	15.6	221	323
BLOOD Pb, PICA CHILD	7.8	14.3	16.9	20.5	23.4	142	207
BLOOD Pb, OCCUPATION	0.5	0.9	1.1	1.3	1.5	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
rmal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	166.1	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.01	1%
Soil Ingestion	8.8E-4	0.32	22%	6.3E-4	0.23	45%
Inhalation, bkgrnd		0.05	3%		0.03	6%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	1%		0.01	2%
Food Ingestion, bkgrnd		0.22	15%		0.23	46%
Food Ingestion	2.4E-3	0.88	59%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.02	0%		0.02	0%
Soil Ingestion	7.0E-3	2.60	50%	1.4E-2	5.20	67%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	0%
Water Ingestion		0.01	0%		0.01	0%
Food Ingestion, bkgrnd		0.50	10%		0.50	6%
Food Ingestion	5.5E-3	2.05	39%		2.05	26%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	180.0
Lead in Water (ug/l)	210
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	12.6	23.1	27.3	33.2	37.7	-2618	-2231
BLOOD Pb, CHILD	16.3	29.7	35.1	42.7	48.6	-841	-740
BLOOD Pb, PICA CHILD	17.5	32.0	37.9	46.0	52.4	-540	-475
BLOOD Pb, OCCUPATION	12.1	22.2	26.2	31.9	36.3	-13475	-11486

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown produce	ug/kg	81.0	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.16	1%	6.3E-4	0.11	1%
Inhalation, bkgrnd		0.05	0%		0.03	0%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		####	93%		11.76	97%
Food Ingestion, bkgrnd		0.22	2%		0.23	2%
Food Ingestion	2.4E-3	0.43	3%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	1.27	8%	1.4E-2	2.53	14%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	0%		0.04	0%
Water Ingestion		####	83%		13.44	77%
Food Ingestion, bkgrnd		0.50	3%		0.50	3%
Food Ingestion	5.5E-3	1.00	6%		1.00	6%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-8 ft bgs)
CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	180.0
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.3	2.3	2.8	3.3	3.8	805	1192
BLOOD Pb, CHILD	3.3	6.0	7.1	8.6	9.8	185	286
BLOOD Pb, PICA CHILD	4.6	8.3	9.8	12.0	13.6	119	184
BLOOD Pb, OCCUPATIO	0.8	1.5	1.7	2.1	2.4	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
:rmal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.19
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown prc	ug/kg	81.0	

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PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.16	12%	6.3E-4	0.11	14%
Inhalation, bkgrnd		0.05	4%		0.03	4%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	32%		0.41	52%
Food Ingestion, bkgrnd		0.22	17%		0.23	29%
Food Ingestion	2.4E-3	0.43	34%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	1.27	39%	1.4E-2	2.53	56%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	1%
Water Ingestion		0.47	14%		0.47	10%
Food Ingestion, bkgrnd		0.50	15%		0.50	11%
Food Ingestion	5.5E-3	1.00	30%		1.00	22%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 3: 0-8 ft bgs)
CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	180.0
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.9	1.6	1.9	2.3	2.6	927	1314
BLOOD Pb, CHILD	2.8	5.2	6.1	7.4	8.4	221	323
BLOOD Pb, PICA CHILD	4.1	7.5	8.8	10.7	12.2	142	207
BLOOD Pb, OCCUPATION	0.4	0.7	0.8	1.0	1.2	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	81.0	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.00	1%
Soil Ingestion	8.8E-4	0.16	18%	6.3E-4	0.11	29%
Inhalation, bkgrnd		0.05	5%		0.03	8%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	1%		0.01	2%
Food Ingestion, bkgrnd		0.22	25%		0.23	60%
Food Ingestion	2.4E-3	0.43	50%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	1.27	45%	1.4E-2	2.53	62%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	1%
Water Ingestion		0.01	0%		0.01	0%
Food Ingestion, bkgrnd		0.50	18%		0.50	12%
Food Ingestion	5.5E-3	1.00	35%		1.00	24%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 4: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	55.9
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.9	1.6	1.9	2.3	2.6	805	1192
BLOOD Pb, CHILD	1.7	3.1	3.7	4.5	5.1	185	286
BLOOD Pb, PICA CHILD	2.1	3.9	4.6	5.5	6.3	119	184
BLOOD Pb, OCCUPATION.	0.7	1.3	1.5	1.9	2.1	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	25.2	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.05	6%	6.3E-4	0.04	5%
Inhalation, bkgrnd		0.05	5%		0.03	5%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	48%		0.41	58%
Food Ingestion, bkgrnd		0.22	25%		0.23	33%
Food Ingestion	2.4E-3	0.13	16%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.39	23%	1.4E-2	0.79	37%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	2%		0.04	2%
Water Ingestion		0.47	27%		0.47	22%
Food Ingestion, bkgrnd		0.50	29%		0.50	24%
Food Ingestion	5.5E-3	0.31	18%		0.31	15%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 4: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	55.9
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.5	0.8	1.0	1.2	1.4	927	1314
BLOOD Pb, CHILD	1.3	2.3	2.7	3.3	3.8	221	323
BLOOD Pb, PICA CHILD	1.6	3.0	3.6	4.3	4.9	142	207
BLOOD Pb, OCCUPATION	0.3	0.6	0.7	0.8	0.9	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	25.2	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.05	11%	6.3E-4	0.04	11%
Inhalation, bkgrnd		0.05	10%		0.03	11%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	2%		0.01	3%
Food Ingestion, bkgrnd		0.22	48%		0.23	75%
Food Ingestion	2.4E-3	0.13	29%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.39	31%	1.4E-2	0.79	48%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	3%		0.04	2%
Water Ingestion		0.01	1%		0.01	1%
Food Ingestion, bkgrnd		0.50	40%		0.50	30%
Food Ingestion	5.5E-3	0.31	25%		0.31	19%

Click here for REFERENCES

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 4: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	134.0
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.1	2.0	2.4	2.9	3.3	805	1192
BLOOD Pb, CHILD	2.7	4.9	5.8	7.1	8.1	185	286
BLOOD Pb, PICA CHILD	3.6	6.7	7.9	9.6	10.9	119	184
BLOOD Pb, OCCUPATION	0.8	1.4	1.7	2.0	2.3	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown prc	ug/kg	60.3	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.12	11%	6.3E-4	0.08	11%
Inhalation, bkgrnd		0.05	4%		0.03	4%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	37%		0.41	54%
Food Ingestion, bkgrnd		0.22	19%		0.23	30%
Food Ingestion	2.4E-3	0.32	29%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	0.94	35%	1.4E-2	1.89	52%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	1%
Water Ingestion		0.47	17%		0.47	13%
Food Ingestion, bkgrnd		0.50	19%		0.50	14%
Food Ingestion	5.5E-3	0.74	27%		0.74	20%

Click here for REFERENCES

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 4: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	134.0
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.7	1.3	1.5	1.9	2.1	927	1314
BLOOD Pb, CHILD	2.2	4.1	4.8	5.9	6.7	221	323
BLOOD Pb, PICA CHILD	3.2	5.8	6.9	8.4	9.5	142	207
BLOOD Pb, OCCUPATION	0.4	0.7	0.8	0.9	1.1	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	60.3	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.00	1%
Soil Ingestion	8.8E-4	0.12	16%	6.3E-4	0.08	23%
Inhalation, bkgrnd		0.05	6%		0.03	9%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	1%		0.01	2%
Food Ingestion, bkgrnd		0.22	30%		0.23	65%
Food Ingestion	2.4E-3	0.32	45%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	0.94	42%	1.4E-2	1.89	59%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	2%		0.04	1%
Water Ingestion		0.01	0%		0.01	0%
Food Ingestion, bkgrnd		0.50	22%		0.50	16%
Food Ingestion	5.5E-3	0.74	33%		0.74	23%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 11: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	70.8
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.9	1.7	2.0	2.4	2.7	805	1192
BLOOD Pb, CHILD	1.9	3.5	4.1	5.0	5.7	185	286
BLOOD Pb, PICA CHILD	2.4	4.4	5.2	6.3	7.2	119	184
BLOOD Pb, OCCUPATION,	0.7	1.3	1.6	1.9	2.2	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	31.9	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.06	7%	6.3E-4	0.04	6%
Inhalation, bkgrnd		0.05	5%		0.03	5%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	45%		0.41	57%
Food Ingestion, bkgrnd		0.22	24%		0.23	32%
Food Ingestion	2.4E-3	0.17	19%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.50	26%	1.4E-2	1.00	41%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	2%		0.04	2%
Water Ingestion		0.47	25%		0.47	20%
Food Ingestion, bkgrnd		0.50	26%		0.50	21%
Food Ingestion	5.5E-3	0.39	21%		0.39	16%

Click here for REFERENCES

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 11: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	70.8
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.5	0.9	1.1	1.3	1.5	927	1314
BLOOD Pb, CHILD	1.4	2.6	3.1	3.8	4.3	221	323
BLOOD Pb, PICA CHILD	1.9	3.5	4.2	5.1	5.8	142	207
BLOOD Pb, OCCUPATION	0.3	0.6	0.7	0.8	1.0	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	31.9	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	1%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.06	12%	6.3E-4	0.04	14%
Inhalation, bkgrnd		0.05	9%		0.03	10%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	2%		0.01	3%
Food Ingestion, bkgrnd		0.22	43%		0.23	73%
Food Ingestion	2.4E-3	0.17	33%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.50	35%	1.4E-2	1.00	51%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	3%		0.04	2%
Water Ingestion		0.01	1%		0.01	0%
Food Ingestion, bkgrnd		0.50	35%		0.50	26%
Food Ingestion	5.5E-3	0.39	27%		0.39	20%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 11: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	29.1
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.8	1.4	1.7	2.0	2.3	805	1192
BLOOD Pb, CHILD	1.4	2.5	3.0	3.6	4.1	185	286
BLOOD Pb, PICA CHILD	1.6	2.9	3.4	4.2	4.7	119	184
BLOOD Pb, OCCUPATION,	0.7	1.3	1.5	1.8	2.1	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	13.1	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.03	3%	6.3E-4	0.02	3%
Inhalation, bkgrnd		0.05	6%		0.03	5%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	53%		0.41	59%
Food Ingestion, bkgrnd		0.22	28%		0.23	33%
Food Ingestion	2.4E-3	0.07	9%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.20	15%	1.4E-2	0.41	26%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	3%		0.04	2%
Water Ingestion		0.47	34%		0.47	30%
Food Ingestion, bkgrnd		0.50	36%		0.50	32%
Food Ingestion	5.5E-3	0.16	12%		0.16	10%

Click here for REFERENCES

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 11: 0-8 ft bgs)
CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	29.1
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.4	0.7	0.8	1.0	1.1	927	1314
BLOOD Pb, CHILD	0.9	1.7	2.0	2.4	2.7	221	323
BLOOD Pb, PICA CHILD	1.1	2.0	2.4	2.9	3.4	142	207
BLOOD Pb, OCCUPATION	0.3	0.5	0.6	0.8	0.9	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	13.1	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.03	7%	6.3E-4	0.02	6%
Inhalation, bkgrnd		0.05	12%		0.03	11%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	2%		0.01	3%
Food Ingestion, bkgrnd		0.22	59%		0.23	80%
Food Ingestion	2.4E-3	0.07	19%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.20	22%	1.4E-2	0.41	37%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	4%		0.04	3%
Water Ingestion		0.01	1%		0.01	1%
Food Ingestion, bkgrnd		0.50	55%		0.50	45%
Food Ingestion	5.5E-3	0.16	18%		0.16	14%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 21: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	132.0
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.1	2.0	2.4	2.9	3.3	805	1192
BLOOD Pb, CHILD	2.7	4.9	5.8	7.0	8.0	185	286
BLOOD Pb, PICA CHILD	3.6	6.6	7.8	9.5	10.8	119	184
BLOOD Pb, OCCUPATION.	0.8	1.4	1.7	2.0	2.3	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	59.4	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.12	10%	6.3E-4	0.08	11%
Inhalation, bkgrnd		0.05	4%		0.03	4%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	37%		0.41	54%
Food Ingestion, bkgrnd		0.22	19%		0.23	31%
Food Ingestion	2.4E-3	0.32	28%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	0.93	35%	1.4E-2	1.86	51%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	1%		0.04	1%
Water Ingestion		0.47	18%		0.47	13%
Food Ingestion, bkgrnd		0.50	19%		0.50	14%
Food Ingestion	5.5E-3	0.73	27%		0.73	20%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 21: 0-2 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	132.0
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.7	1.3	1.5	1.9	2.1	927	1314
BLOOD Pb, CHILD	2.2	4.1	4.8	5.8	6.6	221	323
BLOOD Pb, PICA CHILD	3.1	5.7	6.8	8.3	9.4	142	207
BLOOD Pb, OCCUPATION	0.4	0.7	0.8	0.9	1.1	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	59.4	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.01	1%	1.4E-5	0.00	1%
Soil Ingestion	8.8E-4	0.12	16%	6.3E-4	0.08	23%
Inhalation, bkgrnd		0.05	6%		0.03	9%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	1%		0.01	2%
Food Ingestion, bkgrnd		0.22	31%		0.23	65%
Food Ingestion	2.4E-3	0.32	45%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.01	0%		0.01	0%
Soil Ingestion	7.0E-3	0.93	42%	1.4E-2	1.86	59%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	2%		0.04	1%
Water Ingestion		0.01	0%		0.01	0%
Food Ingestion, bkgrnd		0.50	23%		0.50	16%
Food Ingestion	5.5E-3	0.73	33%		0.73	23%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 21: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	37.0
Lead in Water (ug/l)	7.38
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.8	1.5	1.7	2.1	2.4	805	1192
BLOOD Pb, CHILD	1.5	2.7	3.2	3.9	4.4	185	286
BLOOD Pb, PICA CHILD	1.7	3.2	3.8	4.6	5.2	119	184
BLOOD Pb, OCCUPATION	0.7	1.3	1.5	1.8	2.1	4138	6127

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
mal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	16.7	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.03	4%	6.3E-4	0.02	3%
Inhalation, bkgrnd		0.05	6%		0.03	5%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.41	52%		0.41	59%
Food Ingestion, bkgrnd		0.22	27%		0.23	33%
Food Ingestion	2.4E-3	0.09	11%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.26	18%	1.4E-2	0.52	30%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	2%		0.04	2%
Water Ingestion		0.47	32%		0.47	27%
Food Ingestion, bkgrnd		0.50	34%		0.50	29%
Food Ingestion	5.5E-3	0.21	14%		0.21	12%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

LEAD RISK ASSESSMENT SPREADSHEET (Site 21: 0-8 ft bgs)

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	37.0
Lead in Water (ug/l)	0.15
% Home-grown Produce	7%
(ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	0.4	0.7	0.9	1.0	1.2	927	1314
BLOOD Pb, CHILD	1.0	1.9	2.2	2.7	3.0	221	323
BLOOD Pb, PICA CHILD	1.3	2.3	2.8	3.4	3.8	142	207
BLOOD Pb, OCCUPATION	0.3	0.5	0.6	0.8	0.9	4766	6755

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area occupational	cm^2	2900	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/d	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/d	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/d	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown pro	ug/kg	16.7	

Click here for REFERENCES

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	8.8E-4	0.03	8%	6.3E-4	0.02	8%
Inhalation, bkgrnd		0.05	12%		0.03	11%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.01	2%		0.01	3%
Food Ingestion, bkgrnd		0.22	55%		0.23	78%
Food Ingestion	2.4E-3	0.09	22%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.00	0%		0.00	0%
Soil Ingestion	7.0E-3	0.26	26%	1.4E-2	0.52	41%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.04	4%		0.04	3%
Water Ingestion		0.01	1%		0.01	1%
Food Ingestion, bkgrnd		0.50	49%		0.50	39%
Food Ingestion	5.5E-3	0.21	20%		0.21	16%

The leadspread model was taken directly from the California Department of Toxic Substance Control webpage (2005).
http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html

APPENDIX G
ECOLOGICAL RISK ASSESSMENT

A-E CERCLA/RCRA/UST Contract Number N68711-03-D-5104
Contract Task Order 00102

Draft Final
Appendix G
ECOLOGICAL RISK ASSESSMENT
SITES 3, 4, 11, and 21
Alameda Point, Alameda, California

May 16, 2005

Prepared for

DEPARTMENT OF THE NAVY
Glenna Clark, Remedial Project Manager
Base Realignment and Closure
Program Management Office West
San Diego, California

Prepared by

NAVFAC
Naval Facilities Engineering Command

AND

SulTech

A JOINT VENTURE OF SULLIVAN CONSULTING GROUP
AND TETRA TECH EM INC.
1230 Columbia Street, Suite 1000
San Diego, California 92101
619) 525-7188

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ACRONYMS AND ABBREVIATIONS

amu	Atomic mass units
AST	Above ground storage tank
ATSDR	Agency for Toxic Substances and Disease Registry
AVGAS	Aviation gasoline
AWQC	Ambient Water Quality Criteria
BA_{mammal}	Biotransfer factor for mammals
BCF	Bioconcentration factor
$BCF_{food\ item\text{-}to\text{-}mammal}$	Bioconcentration factor for uptake of constituent from food item tissues to mammal tissues
$BCF_{plant\text{-}to\text{-}mammal}$	Bioconcentration factor for uptake of constituent from plant tissues to mammal tissues
$BCF_{soil\text{-}to\text{-}invert}$	Bioconcentration factor for uptake of constituent from soil to invertebrate tissue
$BCF_{soil\text{-}to\text{-}mammal}$	Bioconcentration factor for uptake of constituent from soil to mammal tissue
$BCF_{soil\text{-}to\text{-}plant}$	Bioconcentration factor for uptake of constituent from soil to plant tissue
BTAG	Biological Technical Advisory Group
BW	Body weight
$C_{groundsquirrel}$	Concentration of chemical in ground squirrel tissue
C_{invert}	Concentration of chemical in invertebrate tissue
C_{plant}	Concentration of chemical in plant tissue
C_{soil}	Concentration of chemical in soil
CAA	Corrective Action Areas
Cal/EPA	California Environmental Protection Agency
CCC	Criteria Continuous Concentration
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMC	Criteria Maximum Concentration
COPC	Chemical of potential concern
CSM	Conceptual site model
CWA	Clean Water Act
DDD	4,4'-Dichlorodiphenyldichloroethane
DDE	4,4'-Dichlorodiphenyldichloroethene
DDT	4,4'-Dichlorodiphenyltrichloroethane
DDTt	Total DDT
DTSC	California Environmental Protection Agency Department of Toxic Substances Control

EFA WEST	Naval Facilities Engineering Command, Engineering Field Activity West
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ERA	Ecological risk assessment
ERM-West	Environmental Resources Management-West, Inc.
ERV	Ecological reference value
Fi	The fraction of the ground squirrel diet that consists of invertebrates
F_p	The fraction of the ground squirrel diet that consists of plants
FCM	Food-chain multiplier
FWS	U.S. Fish and Wildlife Service
GI	Gastrointestinal
HERD	Human and Ecological Risk Division
HMW	High-molecular weight
HQ	Hazard quotient
HSDB	Hazardous Substances Database
$IR_{food\ item}$	Ingestion rate of food item
$IR_{groundsquirrel}$	Ground squirrel tissue ingestion rate
IR_{invert}	Invertebrate tissue ingestion rate
IR_{plant}	Plant tissue ingestion rate
IR_{soil}	Incidental soil ingestion rate
IT	International Technology Corporation
K_{ow}	Octanol-water partition coefficient
LMW	Low-molecular weight
Log	Logarithm
mg/kg	Milligram per kilogram
mg/kg-day	Milligram per kilogram per day
mg/kg-DW	Milligram per kilogram Dry Weight
mg/kg-FW	Milligram per kilogram Fresh Weight
mg/L	Milligram per liter
MOGAS	Motor gasoline
Navy	U.S. Department of the Navy
NLM	National Library of Medicine
NOAA	National Oceanic and Atmospheric Administration

ORNL	Oak Ridge National Laboratory
OU	Light Industrial Operable Unit
OWS	Oil-water separator
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyl
QE	Qualitative evaluation
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
SUF	Site use factor
SVOC	Semivolatile organic compound
TCA	Trichloroethane
TRV	Toxicity reference value
Tetra Tech	Tetra Tech EM Inc.
UCL95	95th percentile upper confidence limit on the arithmetic mean
UST	Underground storage tank
VOC	Volatile organic compound

G.1 INTRODUCTION

This ecological risk assessment (ERA) is part of a remedial investigation (RI) being conducted by the U.S. Department of the Navy (Navy) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at CERCLA Sites 3, 4, 11, and 21 at Alameda Point (formerly Naval Air Station Alameda) in Alameda County, California. These sites are located within the Light Industrial Operable Unit (OU), referred to as "OU-2B." All of the sites are industrial areas with limited habitat for ecological receptors, and the reuses planned for the sites involve industrial, commercial, and residential settings. The purpose of this ERA was to evaluate residual chemicals at the OU-2B sites to determine their potential risks to ecological receptors.

A screening-level ERA was prepared for the OU-2B sites in 1999 (Tetra Tech EM Inc. [Tetra Tech) 1999]. The screening-level ERA for the OU-2B sites indicated that risk to ecological receptors was possible at the sites based on the conservative assumptions used and that additional investigations were needed to address significant data gaps. These additional data gap investigations resulted in the collection of additional soil and groundwater samples for analysis from the sites.

To reduce the level of uncertainty in the screening-level ERA, a baseline ERA, including the new data from the data gap sampling, was deemed to be necessary. The urban nature of the sites, however, precluded the collection of site-specific tissue samples that could be used to reduce the uncertainty in the screening-level ERA. Because limited habitat at the sites does not support site-specific ecological sampling needed for baseline ERAs, a typical baseline ERA is not feasible. A modified ERA was conducted for OU-2B. This modified ERA is intended to be a conservative estimate that uses more realistic exposure parameters for the ecological endpoints defined than would typically be used for a screening-level ERA. In addition, because habitat is limited at the sites and future land use would not result in additional habitat, it is unlikely that ecological receptors would use the sites in any significant manner. The methodology used to conduct the assessments and the results of the ERA are presented in this appendix. This ERA methodology follows U.S. Environmental Protection Agency (EPA) guidance for screening-level and baseline ERAs as well as Navy ERA guidance (EPA 1997a; Navy 1999).

This ERA is organized into the following sections:

- Section G.1 presents the scope and process used to conduct the modified screening-level ERA at Sites 3, 4, 11, and 21.
- Section G.2 presents the site-specific modified ERA results and conclusions for Sites 3, 4, 11, and 21.
- Attachment A presents the ecotoxicological profiles for ecological chemicals of potential concern (COPC) at Alameda Point.

References are provided after Section G.2 of this appendix.

G.1.1 SCOPE

A modified ERA was conducted for OU-2B Sites 3, 4, 11, and 21. Figure G-1 identifies the locations of these sites relative to other features at Alameda Point.

The following presents the ERA process used to evaluate potential risks to ecological receptors associated with ecological COPCs at OU-2B. This ERA is composed of two major steps: (1) problem formulation and (2) exposure estimates and risk calculations. The problem formulation step results in development of an ecological conceptual site model (CSM) for exposure at each site and selection of assessment and measurement endpoints. The exposure estimate and risk calculation parameters used in the assessment were generally based on average values instead of the most conservative values. These modifications resulted in a more realistic estimate of potential risk to selected assessment endpoints; however, these estimates are still relatively conservative.

This ERA incorporates conservative assumptions to represent site-specific information in a manner that minimizes the probability of underestimating ecological risks. Because of the conservative nature of the assessment, potential risks identified in the ERA should not be interpreted to imply that a risk actually exists.

G.1.2 DESCRIPTION OF THE ECOLOGICAL RISK ASSESSMENT PROCESS

The following sections present a description of the process used in conducting the modified screening-level ERA for Sites 3, 4, 11, and 21.

G.1.2.1 Screening for Ecological Chemicals of Potential Concern

Soil and groundwater sampling data were collected within and near Sites 3, 4, 11, and 21 through several sampling efforts, and these data were used to characterize the sites. Only data collected under the Installation Restoration Program with the objective of characterizing CERCLA activities and that reflect the current conditions at the sites were used in the ERA. Groundwater data collected from 1998 through 2002 were used. Data from soils that are no longer present at the sites because of removal actions were not included because they do not reflect the current conditions at the sites. Only the polynuclear aromatic hydrocarbon (PAH) data from the 2003 sampling event, rather than historic data, were included in the ERA. See Section 3.4.3 of the main RI report for more information regarding quality of the data used in the final data set for the ERA evaluations.

The data described above were used to develop ecological COPCs for the OU-2B sites. Ecological COPCs are site-related chemicals that have the potential for causing adverse effects to ecological receptors. The 95th percentile upper confidence limit on the arithmetic mean (UCL95) and standard deviation values were calculated for each detected constituent. For chemicals detected in less than 15 percent of the samples collected, one-half the reporting limit

was substituted for each nondetect measurement in all calculations. The exposure point concentration (EPC) for each site was the lower of the UCL95 or maximum detected value and was used to identify ecological COPCs. The distribution of each chemical (that is, normal, lognormal, or unknown) was taken into consideration when calculating the UCL95. When a constituent was detected in less than three of the total samples collected, a UCL95 was not calculated, and the maximum detected value was used as the EPC.

The following sections discuss the identification of ecological COPCs in soil.

G.1.2.1.1 Identification of Ecological Chemicals of Potential Concern in Soil

EPCs were calculated as discussed in Section G.1.2.1. Constituents detected in the soils were subjected to a screening process to focus the ERA on chemicals that are site-specific and that pose the greatest potential risk to ecological receptors. The screening was a sequential process that considered factors such as frequency of detection, spatial distribution of detected chemicals, statistical comparison to background concentrations for inorganic chemicals, and chemical properties such as bioaccumulation and toxicity. The following are the steps involved in the chemical screening process; a detailed flow chart is presented in Figure G-2.

Step 1: Certain inorganic chemicals are essential nutrients that may be eliminated as ecological COPCs, according to guidance documents issued by EPA and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). These chemicals are calcium, iron, magnesium, potassium, and sodium. The first step in the ecological COPC screening process was to exclude these essential nutrients as ecological COPCs. Chemicals not identified as essential nutrients were screened further by the criteria in Step 2.

Step 2: The second step in the ecological COPC screening process was to calculate the frequency of detection for all detected chemicals. All chemicals with a frequency of detection of 5 percent or less were further screened in Step 3. Inorganic chemicals with a frequency of detection of greater than 5 percent were screened further in Step 4. Organic chemicals with a frequency of detection greater than 5 percent were selected as ecological COPCs.

Step 3: Chemicals with a frequency of detection of 5 percent or less were screened based on their bioaccumulation potential and toxicity. Octanol-water partition coefficient (K_{ow}) values for a chemical are correlated with their bioaccumulation potential because K_{ow} values provide a measure of the tendency of a chemical to partition into lipids (fat tissues). Constituents detected in the soils, with K_{ow} values greater than 3.0, were considered to have significant bioaccumulation potential. Chemical toxicity was evaluated by literature review. If the chemical was associated with significant bioaccumulation or high toxicity (to a specific receptor), it was retained as an ecological COPC.

Step 4: The concentrations of inorganic chemicals with a frequency of detection greater than 5 percent were compared statistically to background levels established for Alameda Point in a manner that was consistent with the methodology identified in the document "Procedural

Guidance for Statistically Analyzing Environmental Background Data (Navy 1998a)." Any inorganic chemical detected at levels determined to be statistically similar to or less than background was removed from consideration as an ecological COPC. This comparison was not conducted for organic chemicals because organic chemicals are not naturally occurring and do not have a natural background level with which to compare.

G.1.2.1.2 Identification of Chemicals of Potential Ecological Concern in Groundwater

UCL95s were calculated as discussed previously in Section G.1.2.1. Like the soil ecological COPC screening process, described in Section G.1.2.1.1, the screening of groundwater was a sequential process. All groundwater at Sites 3, 4, 11, and 21 was considered as a single unit for evaluating groundwater exposure to ecological receptors. The following are the steps involved in the constituent screening process for groundwater; a detailed flow chart is presented in Figure G-3.

Steps 1 through 4: Ecological COPC screening for groundwater was conducted as described in Section G.1.2.1.1 of this appendix. Chemicals retained from these steps were further evaluated in Step 5.

Step 5: Water quality criteria issued pursuant to the Clean Water Act (CWA), Section 304(a), were used to identify groundwater ecological COPCs based on the groundwater to surface water exposure pathway. According to the CWA, water quality criteria are intended to accurately reflect the latest scientific knowledge of the effects of many chemicals on aquatic and marine life. EPA, state agencies, and other organizations use water quality criteria to evaluate the potential impacts of concentrations of chemicals in freshwater and marine ecosystems. The concentrations of chemicals detected in the groundwater at OU-2B were compared to the California Toxic Rule Criteria (EPA) for Enclosed Bays and Estuaries, Saltwater Aquatic Life Protection, or if these values were not available, to the EPA National Ambient Water Quality Criteria (AWQC) for Saltwater Aquatic Life Protection (California Environmental Protection Agency [Cal/EPA] 2000; EPA 1999a). Chemicals exceeding the criteria continuous concentration (CCC) or one-tenth the criteria maximum concentration (CMC) for salt water (when no CCC was available) were retained as ecological COPCs and screened further in Step 6. The CCC is an estimate of the highest concentration of a chemical in surface water to which an aquatic community can be exposed indefinitely without resulting in unacceptable effects, which is synonymous with a chronic effect. The CMC is a single maximum dose that produces adverse effects, which is synonymous with an acute effect. Precedence was given to the CCC when available because chronic effects are more applicable at Alameda Point. When a CCC was not available, one-tenth of the CMC was used as a default value to estimate chronic effects. Those chemicals for which the maximum concentration detected was less than the CCC or one-tenth of the CMC, whichever was applicable, were not retained as ecological COPCs. Those above the CCC or one-tenth of the CMC were screened further in Step 6.

Step 6: The National Oceanographic and Atmospheric Administration (NOAA) applies a dilution factor of 10 to compare chemical concentrations in groundwater to surface water quality

criteria to account for dilution and attenuation as groundwater mixes with surface water at a discharge point (NOAA 1999). Based on NOAA's practice, chemicals with maximum groundwater concentrations exceeding water quality criteria were divided by a factor of 10 to account for the dilution that occurs as groundwater mixes with surface water in the Seaplane Lagoon. This diluted value was compared to the CCC or one-tenth of the CMC. Chemicals for which the diluted maximum concentration was less than the CCC or one-tenth of the CMC for salt water were not retained as ecological COPCs. Those chemicals for which the diluted maximum concentration exceeded the CCC or one-tenth of the CMC were selected as ecological COPCs.

G.1.2.2 Problem Formulation

Problem formulation represents the stage of the ERA process where the goals, breadth, and focus of the assessment are determined. The major goal of the problem formulation step was to develop an ecological CSM that addressed the following five issues:

1. Environmental setting and chemicals known or suspected to exist at the site
2. Chemical fate and transport mechanisms that might exist at the site
3. Mechanisms of ecotoxicity associated with chemicals and likely categories of receptors that could be affected
4. Complete exposure pathways that might exist at the site (a complete exposure pathway is one in which the chemical has traveled, or could travel, from the source to a receptor)
5. Selection of assessment and measurement endpoints to screen for ecological risk

The following sections summarize specific issues associated with problem formulation for OU-2B sites.

G.1.2.2.1 Evaluation of Environmental Setting and Chemicals

The screening-level problem formulation began with the collection of information on the environmental setting and a listing of the physical and chemical characteristics of chemicals known to exist at each site. The environmental setting information included site (1) history, (2) habitats, and (3) animal and plant species, including special status species. In addition, a literature search of site reports, review of maps and aerial photographs, communications with regulatory agencies, and site visits were used to gather information on valuable ecological resources at the facility. Valuable ecological resources include those that are critical to ecosystem function, provide critical resources, or are perceived by humans as being valuable.

Habitat and animal and plant species were identified by (1) reviewing site-specific literature and data, (2) conducting site reconnaissance in June 1995 and June 1997, and (3) conducting a site visit in October 1998. The U.S. Fish and Wildlife Service (FWS) identified special status species that occur or are expected to occur at Alameda Point (1993). Special status species are defined as (1) plants and animals officially listed or proposed for listing under state or federal Endangered Species Acts, (2) state or federal candidate species for possible listing, (3) California Department of Fish and Game (CDFG) "Species of Special Concern," and (4) species designated as "sensitive" by federal land managers. In addition, "special species" that are not state or federally designated as threatened or endangered were identified by CDFG. These "special species" fall into one or more of the following categories (1) species that are biologically rare, very restricted in distribution, declining throughout their range, or reside in California during a critical stage in their life cycle; (2) populations in California that may be peripheral to the major population of a species range, but are threatened with extermination in California; and (3) species closely associated with habitats that are declining in California such as wetland, riparian, and primary forest habitats. Based on literature reviews, four rare plants, four rare fishes, one special status species reptile, 29 special status species birds and associated sensitive habitat, and seven special status species mammals could potentially occur at Alameda Point (see Tables G-1 and G-2).

Site reconnaissance of Alameda Point was conducted in 1995 and 1997 to assess habitats and species at Alameda Point and to augment literature sources. These reconnaissance efforts were conducted following the protocols presented in the EPA Region 9 Reconnaissance Work Plan (PRC Environmental Management, Inc. 1995). Terrestrial habitats were delineated, and the dominant vegetation was identified. Additionally, these reconnaissance efforts provided information on the physical layout of each site; existing habitat types and distributions, potential migration pathways, and exposure pathways; and the potential for nonchemical stressors at each site. Table G-3 identifies the dominant vegetation and fauna present at OU-2B sites, and Figure G-4 depicts the habitat at Sites 3, 4, 11, and 21.

G.1.2.2.2 Evaluation of Chemical Fate and Transport

The physical and chemical properties of ecological COPCs at each site were evaluated because these properties govern chemical and biological transformation processes, bioaccumulation potential, and transport properties. Based on this evaluation, the fate and transport potential of each ecological COPC was assessed. The fate and transport assessment was used to evaluate potential exposure pathways.

The movement of chemicals in the environment depends on several factors such as vapor pressure, solubility, and adsorption. These factors govern the distribution of chemicals among various phases (gas, liquid, or solid) and a chemical's mobility and persistence in the environment. Chemical and structural properties of organic chemicals determine resistance to biological and chemical degradation and, therefore, govern persistence of the chemical in the environment. Physical properties are more important when developing the ecological CSM because current chemical concentrations and their potential transport mechanisms are being

assumed. Literature data on the following physical properties were evaluated to assist in development of the ecological CSM.

Water Solubility

Water solubility is a critical property affecting the fate of chemicals in the environment. Highly soluble chemicals can be leached rapidly from wastes and soils into groundwater, where they are transported by groundwater. The mobility of chemicals in soil is proportional to their water solubility. Solubilities can range from less than 1 milligram per liter (mg/L) to totally miscible, with most common organic chemicals exhibiting solubilities greater than 1 mg/L (Lyman and others 1982). Water solubility is influenced by several factors such as pH, temperature, salinity, dissolved organic carbon, and the presence of cosolvents. Chemicals with solubilities greater than 1,000 mg/L are expected to be mobile in soil. The pesticides and polychlorinated biphenyls (PCB) detected in the soils at OU-2B sites have a water solubility of less than 1 mg/L, and most of the semivolatile organic chemicals (SVOC) and volatile organic chemicals (VOC) have water solubilities of greater than 1000 mg/L.

Vapor Pressure

Volatilization is the transformation of a compound from a liquid or solid to a gas. As a gas, a compound's mobility is generally higher because of advection (flow) of air and diffusion. Volatilization of a compound depends on its vapor pressure, water solubility, and air diffusion coefficient. Highly water-soluble chemicals generally have lower volatilization rates from water, unless they also have high vapor pressures. Vapor pressure (a relative measure of the volatility of a chemical in its pure state) ranges from roughly 0.001 to 760 millimeters of mercury for liquids. Henry's Law constant, which is a function of vapor pressure and solubility, is more appropriate than vapor pressure alone for estimating releases from water to air. Chemicals with Henry's Law constants greater than 0.001 atmosphere per cubic meters per mole can be expected to volatilize readily from water; those with values ranging from 0.001 to 0.00001 are associated with moderate volatilization; chemicals with values less than 1.0E-05 will volatilize from water only to a limited extent (Lyman and others 1982). Chemicals with high vapor pressure will preferentially partition from soils and surface water to the air.

Octanol-water Partition Coefficient

The K_{ow} indicates the tendency of dissolved organic chemicals to partition from water into the lipids of an organism or into organic matter found in soil or sediment. High K_{ow} values are strongly correlated with a chemical's propensity to bioaccumulate. K_{ow} is the ratio of the solute concentration in octanol to the solute concentration in water at equilibrium and is calculated by dissolving a given mass of the chemical of interest in a container holding octanol and water. K_{ow} can be measured accurately up to values in the range of 106 (Mackay and others 1992). In the event that measured K_{ow} values are not available, Lyman and others (1982) have summarized estimation methods for predicting K_{ow} values for a chemical based on substituent groups or fragment constants.

Bioconcentration, Bioaccumulation, and Biomagnification

Bioconcentration is the process resulting in a net accumulation of a chemical in an organism (such as fish) from direct exposure to a medium such as water (EPA 1997b).

Bioaccumulation is the process by which chemicals are taken up by an organism, either directly from a contaminated medium or by consumption of contaminated foods (EPA 1997b). In the dose assessment of an ERA, it is sometimes necessary to assess chemical exposure from multiple routes if each route contributes significantly to the total dose. It is often possible in most ERAs to assume that one route of exposure is dominant and others are negligible (Suter 1993).

Biomagnification results from the processes of bioaccumulation and biotransfer, through which tissue concentrations of chemicals in organisms at one trophic level exceed tissue concentrations in organisms at the next lower trophic level in a food chain (EPA 1997b). The term implies an efficient transfer of chemical from food to consumer so that residue concentrations increase systematically from one trophic level to the next.

Fate and Transport Assumptions

To develop the ecological CSM, site conditions and the physical and chemical properties of the ecological COPCs were evaluated. Physical fate processes of concern include transport to groundwater, volatilization to air, transfer to surface water, and movement of contaminated soil particles through windblown dust or as suspended soil particles in surface water. The following assumptions were used to evaluate various transport mechanisms.

All ecological COPCs in soils were assumed to be leaching to groundwater. Groundwater was assumed to be inaccessible to terrestrial ecological receptors unless evidence of groundwater discharge was present in the immediate area of the site. If evidence of groundwater discharge occurred in the immediate area of the site, groundwater was assumed to be surface water that could be consumed by ecological receptors. It was assumed that impacted groundwater was discharging into Seaplane Lagoon from OU-2B sites; therefore, groundwater expression was a complete exposure pathway at OU-2B for aquatic receptors.

The air exposure pathway was considered to be complete for inhalation of contaminated dust or vapors if the site had significant areas of exposed soils or volatile ecological COPCs. Limited areas of exposed soils exist at the OU-2B sites. VOCs only occur in relatively low concentrations; therefore, exposure to airborne vapors and dust was not considered a significant exposure pathway for evaluation purposes

Each site was evaluated to determine whether rainfall runoff went into the storm sewer system or collected in low spots on the site. Exposure to surface water did not occur in association with the OU-2B sites.

Direct contact and ingestion pathways for contaminated soils were assumed to be complete at OU-2B sites.

Food chain exposure to chemicals was assumed to occur at the sites with complete exposure pathways. The food chain exposure evaluation was based on the food web presented in Figure G-5.

G.1.2.2.3 Ecotoxicity Evaluation

Ecological COPCs associated with OU-2B sites of Alameda Point include metals, pesticides, PCBs, SVOCs, and VOCs. A literature review was conducted to identify potential toxic effects posed by the ecological COPCs on ecological receptors. These ecological COPCs induce a variety of effects that depend on species and trophic level. Literature information collected on potential ecotoxicological effects is summarized in Attachment A of this appendix. This information was used in the selection of assessment and measurement endpoints.

G.1.2.2.4 Development of Toxicity Reference Values for Soil

Toxicity reference values (TRV) or ecological reference values (ERV) were used to assess the toxicity of ecological COPCs in the soil. A TRV or ERV is a concentration or daily dose at which a particular biological effect may occur in an organism, based on laboratory toxicological investigations. The Navy, the EPA Region 9 Biological Technical Advisory Group (BTAG), and Tetra Tech (Navy 1998b) developed TRVs as a result of an ecological effect evaluation for mammalian and avian receptors. This evaluation resulted in development of high and low TRVs for a number of ecological COPCs commonly detected at Navy facilities in California (Navy 1998b). The low TRV is a conservative screening value consistent with a chronic no effects level; the high TRV is a less conservative value consistent with an effect level, at which a specific biological effect was observed in a laboratory test organism. The high TRV, therefore, is a value at which the potential for adverse effects exists. If a Navy TRV was not available for an ecological COPC or endpoint, ERVs previously developed for other Navy facilities in California were used, if available. If no ERVs for Navy facilities were available, other sources of conservative ERVs, such as Toxicological Benchmarks for Wildlife (Sample and others 1996), were used.

The Navy established a low, mammalian TRV for lead of 0.0015 milligram per kilogram per day (mg/kg-day) in 1997, which was based on a study by Krasovskii and others (1979). This study evaluated reproductive, hematological, and neurological effects of lead in rats; however, this TRV was revised by BTAG in November 2002 based on a request by the U.S. Department of the Army (2001), which stated that the Krasovskii and others (1979) study was inadequate for the purpose of TRV development. The new low mammalian TRV of 1 mg/kg-day was developed based primarily on a study by Fowler and others (1980). This study evaluated renal effects in rats. The justification and rationale for the establishment of the new low mammalian TRV is presented in the DTSC Human and Ecological Risk Division (HERD), HERD Ecological Risk Assessment Note, No. 5 (2002).

If the species representing the measurement endpoint was different from the species used to develop the ERV, dietary concentrations were converted to dose (that is, milligram of ecological COPC per kilogram of body weight per day) for comparison with estimated ecological COPC ingestion rates in receptor species. All TRVs and ERVs were adjusted to account for the difference in body weights between the study organism and the measurement endpoint receptor, based on the allometric equations recommended by Sample and Arenal (1998). The mean, chemical-specific, scaling factors determined were 1.2 and 0.94 for birds and mammals, respectively (Sample and Arenal 1998). The resulting ERVs were used in risk calculations.

Toxicity was evaluated by one of the following methods for ecological COPCs and endpoints not covered by the Navy TRV list:

1. Available literature was evaluated to identify studies that could be used to develop a conservative ERV. If appropriate studies were found, the relevant, most sensitive ecological effect was used to develop the ERV. ERVs were developed in accordance with EPA guidance (EPA 1997b). This was relevant when a high or low TRV was not established by the BTAG (Navy 1999) and sufficient literature data were available to evaluate potentially significant ecological effects. If data were available for only a single effects level (no observable adverse effects level or lowest observable effects level), the ERV for the other effects level was estimated by multiplying or dividing the ERV by a factor of 10, as appropriate.

2. The existing literature was evaluated to determine whether the ERV for a similar chemical could be used as a surrogate when insufficient information existed to develop a specific ERV for the ecological COPC and endpoint. If the literature indicated similar effects and mechanisms of actions for the chemicals, surrogate ERVs were used for the preliminary ecological effects evaluation conducted in the ERA.

3. The ecological COPC and endpoint were evaluated on a qualitative basis if an ERV or surrogate ERV could not be developed. Available literature information, ecological COPC concentrations and distribution, and other information were used to arrive at a conclusion concerning potential ecological effects.

High and low ERVs and TRVs used in risk calculations for each receptor endpoint are presented in Tables G-4 through G-11.

G.1.2.2.5 Exposure Pathway Evaluation

Complete exposure pathways were evaluated for OU-2B sites, based on the fate and transport properties of each ecological COPC, including food chain transfer in the food web postulated to exist at each site. Complete exposure pathways were identified to focus the quantitative evaluation of toxicity on those contaminants that can reach ecological receptors. For an exposure pathway to be considered complete, an ecological COPC must be able to travel from

the source to ecological receptors and to be taken up by the receptors through one or more exposure routes. As required by EPA and DTSC, the ERA assumes that all existing buildings and pavement are removed and that the underlying soil provides suitable habitat for higher-trophic-level receptors. The ERA assesses groundwater expression as a complete exposure pathway only if the potential exists for the groundwater located beneath the site to reach the Seaplane Lagoon, Oakland Inner Harbor, or the Seaplane Lagoon.

The ecological CSM for the OU-2B sites is based on site media, potential food chain transport pathways, assessment endpoints, and measurement endpoints associated with each assessment endpoint. The ecological CSM supports selection of completed exposure pathways that present the greatest potential risk of adverse effects. A generic ecological CSM for OU-2B sites is presented in Figure G-6. The CSM depicts the guilds chosen as assessment endpoints as well as those species representing those endpoints. Additionally, other guilds not chosen as assessment endpoints are presented in the CSM because they represent a food source for the assessment endpoints.

G.1.2.2.6 Selection of Assessment and Measurement Endpoints

EPA defines an assessment endpoint as an "explicit expression of an environmental value to be protected" (EPA 1997a). Ecological resources may be considered valuable when (1) their absence would significantly impair ecosystem function; (2) they provide critical resources, such as habitat or fisheries; and (3) they are perceived by humans as being valuable such as endangered species. An assessment endpoint should define both the valuable ecological entity at each site and a characteristic of the entity to protect, such as reproductive success or production per unit area.

Unlike a human health risk assessment, which evaluates only one species, the ERA involves multiple species with different degrees of exposure and toxicological responses. For the purpose of a CERCLA ERA, investigations should focus on endpoints most likely to be affected, given the fate and transport mechanisms of the chemicals involved, ecotoxicological properties of the chemicals, habitats at each site (and future use), and potential ecological receptors (EPA 1997a).

OU-2B sites consist primarily of developed and paved areas within Alameda Point; therefore, suitable wildlife habitats are limited. This modified ERA, however, assumes that all pavement and buildings are removed and that soil is fully exposed. Based on EPA guidance, three generic assessment endpoints were selected for OU-2B to evaluate potential ecological risk at the sites. The following paragraphs summarize the assessment endpoints selected and the rationale for selection. Plants and invertebrate populations were not selected as assessment endpoints because of the urban habitat at the sites. The habitat available for most species is expected to remain minimal.

Sufficient Rates of Survival, Growth, and Reproduction to Sustain Small Mammal Populations Typical to the Area. Literature data indicate that ecological COPCs associated with Alameda Point can cause reproductive impairment, reduced growth, altered behavior,

various physiological effects, mortality, mutagenic, teratogenic, and other effects on mammals (Peterle 1991; EPA 1975). Small mammals, such as the California ground squirrel (*Citellus beecheyi*) and various voles, are secondary consumers that provide a major food source for upper-trophic-level consumers such as raptors. Adverse effects on the small mammal community of Alameda Point could result in a reduction in the amount of food available to and corresponding reductions in, populations of predators. The small mammal community, was therefore, considered to be an ecological value to be protected.

Sufficient Rates of Survival, Growth, and Reproduction to Sustain Passerine Populations Typical to the Area. Literature data indicate that ecological COPCs associated with Alameda Point can cause reproductive impairment, reduced growth, altered behavior, various physiological effects, mortality, teratogenic, and other effects on passerine species (Beyer and others 1996; Peterle 1991; EPA 1995; Hoffman and others 1996). Passerines, such as the Alameda song sparrow (*Melospiza melodia pusillula*) and the American robin (*Turdus migratorius*), are secondary consumers that provide a food source for upper trophic level predators. In addition, some small birds, such as songbirds, are considered to be important and worthy of protection for aesthetic or other functional reasons. Adverse effects on the passerine community at Alameda Point could result in a reduction of food available to and corresponding reductions in populations of predators; therefore, the passerine community was considered to be an ecological value to be protected.

Sufficient Rates of Survival, Growth, and Reproduction to Sustain Raptor Populations Typical to the Area. Literature data indicate that ecological COPCs associated with Alameda Point can cause reproductive impairment, reduced growth, altered behavior, various physiological effects, mortality, teratogenic, and other effects on birds (Beyer and others 1996; Peterle 1991; EPA 1995; Hoffman and others 1996). The facility has a strong presence of raptors such as red-tailed hawks (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and other species. At least one of these, the northern harrier (*Circus cyaneus*), is a species of special concern. Raptors are the major tertiary consumers at the sites and are strongly susceptible to effects of bioaccumulating chemicals. A decrease in the raptor population at Alameda Point would be undesirable because of the effects of the loss of predation on prey; therefore, the raptor population was considered to be an ecological value to be protected.

Assessment endpoints usually are not amenable to direct measurement. Instead, measurement endpoints that are related to assessment endpoints must be developed. EPA defines a measurement endpoint as "a measurable ecological characteristic that is related to the valued characteristic chosen as the assessment endpoint and is a measure of biological effects (e.g., mortality, reproduction, growth)" (EPA 1997a). Measurement endpoints can include measures of exposure or measures of effect. They are frequently numerical expressions of observations that can be compared statistically to a control or reference site or scientific study to detect adverse responses to an ecological COPC. Each measurement endpoint correlates directly with one of the defined assessment endpoints and was based on available literature mechanisms of toxicity.

The following generic measurement endpoints for Alameda Point were selected based on ecotoxicity data for ecological COPCs found at each site. Each measurement endpoint corresponds directly to an assessment endpoint. Each generic measurement endpoint (1) is based on populations or communities present or potentially present at each site, (2) is amenable to evaluation based on literature research, and (3) can be used to infer information about the related assessment endpoint. The following measurement endpoints were used to evaluate potential ecological impacts to assessment endpoints. The organisms identified here as measurement endpoints were selected based on their ability to represent more ecologically relevant endpoints that would be exposed at the sites.

Reproductive or Physiological Impacts to the California Ground Squirrel. The California ground squirrel was used as a surrogate to represent the small mammal population associated with each site. Potential reproductive or physiological impacts were evaluated against existing, consensus TRVs. For ecological COPCs that have not been assigned an existing, consensus TRV, ERVs were identified or developed, as described in Section G.1.2.2.4 of this appendix, or evaluated on a qualitative basis if information in the literature was insufficient to support ERV development. A conservative daily dose was calculated based on site-specific ecological COPC concentrations and natural history information about the California ground squirrel (Linsdale 1946). A hazard quotient (HQ) was developed by dividing the daily dose by the appropriate TRV or ERV for each ecological COPC.

Reproductive or Physiological Impacts to the Alameda Song Sparrow and the American Robin. The Alameda song sparrow and the American robin were used as surrogates to represent the passerine population associated with each site. Both species were assessed because the Alameda song sparrow resides in a more estuarine habitat and is a special status species, and the American robin resides in a more terrestrial or upland habitat. Potential reproductive or physiological impacts were evaluated against existing, consensus TRVs. For ecological COPCs that have not been assigned an existing, consensus TRV, ERVs were identified or developed, as described in Section G.1.2.2.4 of this appendix, or evaluated on a qualitative basis if information in the literature was insufficient to support ERV development. A conservative daily dose was calculated based on site-specific ecological COPC concentrations and natural history information about the Alameda song sparrow or the American robin (EPA 1993). An HQ was developed by dividing the daily dose by the appropriate TRV or ERV for each ecological COPC.

Reproductive or Physiological Impacts to the Red-tailed Hawk. The red-tailed hawk was used as a surrogate to represent the raptor population associated with each site. Potential reproductive or physiological impacts were evaluated against existing, consensus TRVs. For ecological COPCs that have not been assigned an existing, consensus TRV, ERVs were identified or developed, as described in Section G.1.2.2.4 of this appendix, or evaluated on a qualitative basis if information in the literature was insufficient to support ERV development. A conservative daily dose was calculated based on site-specific ecological COPC concentrations and natural history information about the red-tailed hawk (EPA 1993). An HQ was developed by dividing the daily dose by the appropriate TRV or ERV for each ecological COPC.

Table G-12 presents generic assessment and associated measurement endpoints.

G.1.2.3 Exposure Estimates and Risk Evaluation

The exposure estimate and risk calculation step results in a conservative estimate of potential risk to the selected measurement endpoints. For each measurement endpoint and ecological COPC, a conservative estimate of the dose to an organism was developed using soil EPCs and either site-specific or literature-derived exposure parameters. Using risk calculations, doses were compared to TRVs or ERVs to evaluate potential risks to each ecological receptor. The following sections describe the development of exposure estimates and risk calculations.

G.1.2.3.1 Development of Exposure Estimates

It is important that risk is conservatively estimated with a screening-level ERA to ensure that the assessment does not indicate insignificant risk when a significant risk exists. The screening-level ERA for the OU-2B sites indicated that risk to ecological receptors was possible at the sites based on the conservative assumptions that were used. The urban nature of the sites, however, precluded the collection of site-specific tissue samples that could be used to reduce the uncertainty in the baseline ERA. In the absence of site- or species-specific tissue data, a modified ERA based on the use of more average exposure parameters was deemed appropriate for the OU-2B sites. These average exposure parameters were used to provide a more realistic estimate of potential risk to ecological receptors. The following assumptions were used for the exposure assessment to calculate a conservative dose to each receptor.

Site Use Factors (SUF). All species considered in the ERA were assumed to live and feed within each site at all times.

Bioavailability. All ecological COPCs were assumed to be 100 percent bioavailable for all trophic levels and species.

Body Weight and Food Ingestion. The average body weight indicated in the literature was used to calculate an ingestion rate based on the formulas presented in Nagy 2001.

Bioconcentration and Bioaccumulation Factors. Soil-to-plant and soil-to-soil invertebrate bioconcentration factors (BCF) were obtained from EPA 1999b or calculated using the following formulas also presented by EPA 1999b:

$$\log BCF_{soil\text{-}to\text{-}invert} = (0.819)(\log K_{ow}) - 1.146 \quad \text{(G-1)}$$

$$\log BCF_{soil\text{-}to\text{-}plant} = 1.588 - (0.578)(\log K_{ow}) \quad \text{(G-2)}$$

where Log = Logarithm

$BCF_{soil\text{-}to\text{-}invert}$ = Bioconcentration factor for uptake of constituent from soil to invertebrate tissue

$BCF_{soil\text{-}to\text{-}plant}$ = Bioconcentration factor for uptake of constituent from soil to plant tissue

Table G-13 presents the plant and soil invertebrate BCFs.

BCFs for uptake of chemicals from food items to mammal tissues also were based on EPA protocol (1999b). The ecological COPC-specific biotransfer factor for mammals (Ba_{mammal}) was based upon studies of beef cattle ingesting food items. The Ba_{mammal} for inorganic chemicals are presented by EPA 1998, and the Ba_{mammal} for organic chemicals were calculated using the following Travis and Arms (1988) correlation equation, which also is presented by EPA 1999b:

$$\log Ba_{mammal} = -7.6 + \log K_{ow} \qquad \text{(G-3)}$$

The $BCF_{soil\text{-}to\text{-}mammal}$ and the $BCF_{food\ item\text{-}to\text{-}mammal}$ were then calculated from the following equations (EPA 1999b):

$$BCF_{soil\text{-}to\text{-}mammal} = (Ba_{mammal})\ (IR_{soil}) \qquad \text{(G-4)}$$

$$BCF_{food\ item\text{-}to\text{-}mammal} = (Ba_{mammal})\ (IR_{food\ item}) \qquad \text{(G-5)}$$

where

$BCF_{soil\text{-}to\ mammal}$ = Bioconcentration factor for uptake of constituent from soil to mammal tissue (based on milligram per kilogram dry weight [mg/kg-DW] soil to milligram per kilogram fresh weight [mg/kg-FW] mammal tissue [unitless] [EPA 1999b])

$BCF_{food\ item\text{-}to\text{-}mammal}$ = Bioconcentration factor for uptake of constituent from food item tissues to mammal tissues (based on mg/kg-DW soil to mg/kg-DW plant tissue [unitless])

IR_{soil} = Incidental soil ingestion rate

$IR_{food\ item}$ = Ingestion rate of food item

Table G-14 presents the Ba_{mammal} values and the calculated mammal BCFs used in exposure estimate calculations, which are discussed in the following text.

Dietary Composition. The diet of each of the receptors was based on the percentages of dietary items, as reported in the literature.

Ecological COPC Concentration. The EPC used in the evaluation was the lower of the maximum detected concentration or the UCL95 concentration.

Exposure was assessed in the context of the following linear food chains:

Soil→Invertebrates and Plants→California ground squirrel→Red-tailed hawk

Soil→Invertebrates and Plants→Alameda song sparrow or American robin

These food chains were used in this modified ERA to evaluate potential ecological effects on small mammals, passerines, and raptors. The postulated food web for Alameda Point is presented in Figure G-5.

The model presented in the following equations is adequate to estimate daily doses to various receptors in a modified ERA.

Ground squirrel dose (mg/kg-day) =

$$(SUF)\ \frac{\left[(C_{soil})(IR_{soil}) + (C_{invert})(IR_{invert}) + (C_{plant})(IR_{plant})\right]}{BW} \qquad \text{(G-6)}$$

Alameda song sparrow dose (mg/kg-day) =

$$(SUF)\ \frac{\left[(C_{soil})(IR_{soil}) + (C_{invert})(IR_{invert}) + (C_{plant})(IR_{plant})\right]}{BW} \qquad \text{(G-7)}$$

American robin dose (mg/kg-day) =

$$(SUF)\ \frac{\left[(C_{soil})(IR_{soil}) + (C_{invert})(IR_{invert}) + (C_{plant})(IR_{plant})\right]}{BW} \qquad \text{(G-7)}$$

Red-tailed hawk dose (mg/kg-day) =

$$(SUF)\ \frac{\left[(C_{ground\ squirrel})(IR_{ground\ squirrel}) + (C_{soil})(IR_{soil})\right]}{BW} \qquad \text{(G-8)}$$

where BW = Body weight

C_{soil} = EPC of chemical in soil (milligram per kilogram [mg/kg])

$C_{invert} = (C_{soil})(BCF_{soil\text{-}to\text{-}invert})$ (mg/kg- FW) (EPA 1999b)

$C_{plant} = (C_{soil})(BCF_{soil\text{-}to\text{-}plant})$ (0.12) (mg/kg-FW) (EPA 1999b)

(0.12 is a default value to convert the plant concentration from dry weight to fresh weight and is presented by EPA [1999b]. This value is an average based on 80 to 95 percent water content in herbaceous plants and nonwoody plant parts.)

$C_{ground\ squirrel}$ = $[(C_{invert})(FCM^3/FCM^2)(F_i) + (C_{plant})\ (BCF_{plant\text{-}to\text{-}mammal})(F_p)(0.12) + (C_{soil})(BCF_{soil\text{-}to\text{-}mammal})](mg/kg)]$ (EPA 1999b)

$BCF_{plant\text{-}to\text{-}mammal}$ = Bioconcentration factor for uptake of constituent from plant tissues to mammal tissues (based on mg/kg-DW soil to mg/kg-DW plant tissue [unitless])

FCM^3/FCM^2 = Food-chain multiplier, which models an ecological COPC concentration in a predator item (FCM^3), such as the California ground squirrel, from the ingestion of a prey item (FCM^2), such as a soil invertebrate (unitless).

Table G-15 presents the FCMs as presented in EPA 1999b.

Fi = The fraction of the ground squirrel diet that consists of invertebrates

F_p = The fraction of the ground squirrel diet that consists of plants

IR = Ingestion rate [the amount of prey items (including inverts, plants, and ground squirrel) and soil ingested per day] (mg/kg-day)

SUF = Site use factor

Values for the exposure factors for each vertebrate receptor are presented in Table G-16. The following overall procedures and assumptions are associated with the exposure estimates for each receptor.

Small Mammal and Passerine Endpoints

- Small mammal and passerine receptors were assumed to have a diet consisting of a mixture of plants and invertebrates. For small mammals, diet consisted of 80 percent vegetation and 20 percent invertebrates; for passerines, diet consisted of 50 percent vegetation and 50 percent invertebrates. The primary source of the dietary information was collected from the Cal/EPA (2000).

- The EPC is the ecological COPC soil concentration used in risk calculations. Multiplying the EPC by the appropriate plant and invertebrate BCF and natural history information on ingestion rates and body weights for the receptors derived the dose for each ecological COPC (See Equations G-6 and G-7). The dose was calculated in mg/kg-day for each ecological COPC.

- For 4,4'-dichlorodiphenyltrichloroethane (DDT); 4,4'-dichlorodiphenyldichloroethane (DDD); and 4,4'-dichlorodiphenyldichloroethene (DDE), the EPCs were summed and evaluated as total DDT (DDTt). The DDTt value was used in calculations as the soil concentration.

- All PAH compounds were segregated into low molecular weight (LMW) and high molecular weight (HMW) PAH categories. LMW PAHs are defined as measured PAHs with a molecular weight below 200 atomic mass units (amu) and include acenaphthene, anthracene, fluorene, naphthalene, 2-methylnaphthalene, and phenanthrene. HMW PAHs are defined as measured PAHs with a molecular weight greater than 200 amu and include benzo(a)fluorene, benzo(b)fluorene, fluoranthene, benzo(k)fluoranthene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, benzo(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, pyrene, and benzo(a)pyrene. The EPC for each category was calculated by summing the individual compound concentrations detected in each medium and area. Total LMW and HMW PAH concentrations were used in the calculations as the soil concentration.

- For PCB compounds, the EPCs of detected Aroclors were summed to develop a total PCB concentration, which was used in the calculations as the soil concentration.

Raptor Endpoints

- Raptors at each site were assumed to have a diet consisting exclusively of the California ground squirrel, which is considered to be the most conservative diet for the raptor. This diet was selected based on the screening-level ERA, which estimated that the concentrations of chemicals in small mammals were higher than passerines.

- The EPC is the ecological COPC soil concentration used in risk calculations. Multiplying the EPC by the soil and ground squirrel concentrations and natural history information on ingestion rates and body weights for the receptors derived the dose for each ecological COPC (See Equation G-8). The dose was calculated in mg/kg-day for each ecological COPC.

- Multiplying the EPC by the appropriate plant and invertebrate BCF and natural history information on ingestion rates and body weights for the receptors derived the dose for each ecological COPC. The dose was calculated in mg/kg-day for each ecological COPC.

- The EPCs for DDT, DDD, and DDE were summed and evaluated as DDTt. The DDTt value was used in calculations as the soil EPC.

- PAH compounds were segregated into LMW and HMW PAH categories defined previously. The soil concentration for each category was calculated by summing the individual EPCs in each medium and area. Total LMW and HMW PAH concentrations were used in the calculations as the soil concentration.

- For PCB compounds, the EPCs of each detected Aroclor were summed to develop a total PCB concentration, which was used in the calculations as the soil concentration.

Depending on ecological COPCs identified at each site, additional site-specific considerations were used, where appropriate.

G.1.2.3.2 Risk Calculations

Risk calculations were prepared for each receptor based on exposure assumptions for the individual receptor. Risk calculations for terrestrial receptors consist of dividing the calculated dose by the appropriate ERV or TRV for each receptor and ecological COPC, deriving an HQ. Risk calculations for marine receptors consist of applying a dilution factor of 10 to the calculated EPC and then dividing this value by the saltwater screening criteria, thus deriving an HQ. HQs greater than 1.0 indicate potential risk to the assessment endpoint being evaluated. Depending on the ecological COPCs present at a site, risk calculations were based on the following assumptions.

Small Mammal Endpoint

- The calculations for total PCBs were based on the TRV for Aroclor 1254. No TRV was identified or developed for Aroclor 1260.

- No specific TRVs or ERVs were identified for the individual PAHs. The TRV for naphthalene was used as a surrogate for the LMW PAHs, and the benzo(a)pyrene TRV was used as a surrogate for the HMW PAHs. These surrogates were based on Navy guidance (1998b).

- No specific TRV or ERV was identified for the metal silver; therefore, this chemical was qualitatively evaluated (QE).

- No specific TRV or ERV was identified for the SVOC n-nitrosodiphenylamine; therefore, this chemical was QE.

- No specific TRVs or ERVs were identified for the VOCs 2-butanone, carbon disulfide, and ethylbenzene; therefore, these chemicals were QE.

Passerine and Raptor Endpoints

- The calculations for total PCBs were based on the TRV for Aroclor 1254. No TRV was identified or developed for Aroclor 1260.

- No specific TRVs or ERVs were identified for the metals beryllium, and silver; therefore, these chemicals were QE.

- No specific TRVs or ERVs were identified for the LMW and HMW PAH ecological COPCs; therefore, these chemicals were QE.

- No specific TRVs or ERVs were identified for the SVOCs n-nitroso-diphenylamine and pentachlorophenol; therefore, these chemicals were QE.

- No specific TRVs or ERVs were identified for the VOCs 1,1,1-trichloroethane (TCA), 2-butanone, acetone, benzene, carbon disulfide, chloroform, ethylbenzene, toluene, and xylene; therefore, these chemicals were QE.

G.1.2.4 Evaluation of Assessment Results

Using the high and low TRV values to evaluate ecological endpoints bounds the estimate of risk to each endpoint. The high TRV is the lowest reported dose in the literature at which adverse effects are known to occur and represents an upper bounding limit. The low TRV is the highest reported dose in the literature at which adverse effects are known not to occur and represents the lower bounding limit. Based on this information, HQ results using the high and low TRV were evaluated. Generally, concentrations of ecological COPCs with calculated HQs less than 1.0 based on the low TRV would not be considered to pose an appreciable risk to ecological receptors, and HQs greater than 1.0 based on the high TRVs may pose an unacceptable level of risk and require evaluation of the need for remedial actions at a site.

Following calculation of the low and high HQs, further assessment of the potential risk was conducted using a weight-of-evidence approach. This evaluation was conducted as follows.

1. If both HQ values for a constituent were below 1.0, then no potential risk to the ecological endpoint was anticipated.

2. If one or both bounding-limit HQs exceeded 1.0, then the constituent was further compared to calculated background or ambient HQs.

3. Additional factors such as frequency of detection, distribution, concentration, and absorption potential of the chemical also were used to evaluate risk.

G.1.2.5 Uncertainties

The ERA process involves a large number of uncertainties and extrapolations to evaluate potential risk to ecological receptors. Uncertainties and extrapolations associated with the evaluation of each site were identified and explained so that risk managers can make risk management decisions with an understanding of how the HQs were developed. Many of the assumptions in the screening-level ERA process are conservative and result in overestimates of site-specific parameters. The following uncertainties apply to all sites for the modified ERA.

SUFs. The risk calculations assumed that all receptors lived and fed in the area of each site at all times. This will not be true for the upper-trophic-level receptors that have large foraging ranges. Sites 3, 4, 11, and 21, are 50, 14, 5.3, and 7 acres in size, respectively. Based on the assumption of 100 percent site use, the exposure is overestimated for receptors, such as the red-tailed hawk, that feed over a range of about 200 acres (EPA 1993). The actual ingestion of ecological COPCs from each site, therefore, will be much less than the value used in the risk calculations.

Dietary Composition. The percent composition and type of prey ingested by the endpoint receptors were based on nonsite-specific literature studies. Additionally, the models were simplified to assume a limited diet, such as the raptor diet, consisting of 100 percent California ground squirrels. Receptors at the facility may use different food sources or have different percentages of available food sources.

Bioavailability. All ecological COPCs were assumed to be 100 percent bioavailable to all receptors. Depending on the ecological COPCs and receptor, bioavailability may be significantly less than 100 percent.

Development of TRVs. TRVs and ERVs used in risk calculations were derived from literature studies. These studies were not conducted on the receptors used in this assessment. TRVs and ERVs were extrapolated using uncertainty factors to account for differences between species. The effect of this uncertainty cannot be estimated.

QEs of Ecological COPCs. Studies were not available to develop TRVs for a number of the constituents and measurement endpoints. The potential effects of these ecological COPCs were evaluated on a qualitative basis, relying heavily on professional judgment. The potential exists that these QEs may not have adequately judged the potential effects of these ecological COPCs.

Surrogate TRVs. The use of surrogate TRV values for some compounds, such as the DDT TRV for other chlorinated pesticides, increases the uncertainty associated with the evaluation. While every effort was made to select conservative TRVs, the effect of this uncertainty cannot be estimated.

Bioconcentration Factors. The use of the $\log K_{ow}$ to calculate the $Ba_{mammals}$ and the BCFs for receptors and food items can overestimate the uptake of organic chemicals into the tissues of organisms and plants.

Background Concentrations. Another consideration is risk associated with background levels of metals and ambient concentrations of pesticides and PAHs that are not specific to the various sites but are ubiquitous across Alameda Point. Documentation of background soil and groundwater is presented in Appendix E of the RI. To place site-specific risks in the proper context, the risks associated with background and ambient concentrations of chemicals were considered. Areas of the installation with geologically similar soils that represent a single background data set were designated as the pink, blue, or yellow areas. These areas correspond with a particular fill event. Sites 3, 11, and 21 are designated to be in the pink background area, and Site 4 is designated to be in the blue background area. Additionally, groundwater samples from background areas of Alameda also were collected. These background samples collected for Alameda underwent statistical analysis, the results of which are presented in Tables G-17 (the pink soil background area), G-18 (the blue soil background area), and G-19 (the groundwater background). For soils, the background or ambient concentration risks, based on the modified ERA exposure assumptions, are presented in Tables G-20 and G-21 for each receptor.

G.2 SITE-SPECIFIC SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENTS

This section describes the results of the modified ERA for Sites 3, 4, 11, and 21, including site-specific considerations, factors, and uncertainties in the assessment. These sites are very similar in environmental setting and the ERA conducted for each used the same parameters. The following sections describe the ERA process for the sites.

G.2.1 PROBLEM FORMULATION

The problem formulation process was discussed previously in Section G.1.2.2. The following sections relate site-specific information of this process for each of the OU-2B sites.

G.2.1.1 Environmental Setting and Contaminants

The environmental setting for each of the OU-2B sites and the groundwater is described in the following text.

Site 3

Site 3 is located at the eastern entrance of Alameda Point along West Atlantic Avenue and West Seaplane Lagoon Street, and is bordered to the south by Site 4 (see Figure G-1). The site is approximately 50 acres in size, roughly rectangular in shape, and comprises Parcels 116A, 116B, 116C, 117, 118A, 118B, 120, 122, 128, 129A, 129B, 131, and 209. Site 3 currently is considered a developed area and is bordered by developed or airfield/paved areas (Naval Facilities Engineering Command, Engineering Field Activity West [EFA WEST]) (see Figure G-4).

Site 3 also is known as the Abandoned Fuel Storage Area. Five underground storage tanks (UST) containing aviation gasoline (AVGAS) are known to have been placed at Site 3. Three of the five fuel USTs were cleaned and closed in place in 1975 after leaks were detected in one of the tanks. The other two tanks were closed in place but were not cleaned before closure. Alameda Point personnel estimated that as much as 365,000 gallons of AVGAS may have leaked into the surrounding soil and groundwater in the 1960s and early 1970s. In addition, a nearby fuel line burst in 1972 releasing an unknown amount of AVGAS into the surrounding soil. (Kennedy Engineers 1979) AVGAS has been found in utility ducts, storm drains and soil samples in and around Site 3. Site 3 also has been designated as Corrective Action Area (CAA)-3. See Section 5.0 of the RI for more information concerning the features of Site 3.

Approximately 80 percent of Site 3 is open space consisting of lawn and landscaped areas, roadways, general vehicle parking lots, container storage areas, gardening supply storage areas, and vehicle parking specifically associated with a retail store, credit union, and resturant. Most parking and roadway areas are paved with concrete aprons adjacent to some buildings. The paved parking areas show the typical vehicle stains associated with a parking space. In 1947,

some of the northern portions of Site 3 were used as a storage area before being developed (Environmental Resources Management-West, Inc. [ERM-West] 1994). Typical urban wildlife, such as the California ground squirrel, scrub jays, and American robins, may be observed in the developed areas but to a lesser extent than in the landscaped areas because less foraging habitat is available. Feral cats also are found in the developed areas of Site 3 (EFA WEST 1999).

Site 4

Site 4 is located in the eastern portion of Alameda Point. The site is located south of West Atlantic Avenue and north of OU-2A (see Figure G-1). It is approximately 14 acres in size, rectangular in shape, and comprises Parcels 133, 143, and 144 and sub-parcels 134A and 164A. Site 4 currently is considered a developed area and is bordered by developed areas (EFA WEST 1999) (see Figure G-4).

Site 4 is known as Building 360 and also as the aircaft engine facility because it was constructed in 1953 to operate as an aircraft engine and air frame overhaul facility. Operations ceased in April 1997 (International Technology Corporation [IT] 2001). Site 4 also includes portions of areas designated as CAA-3C, CAA-4A, CAA-4B, CAA-4C, and CAA-13 because of the presence of petroleum contamination in groundwater at these locations. Three USTs, five oil-water separators (OWS), underground fuel lines, and three Resource Conservation and Recovery Act (RCRA) sites are physical features of concern at the site. See Section 6.0 of the RI for more information concerning the features of Site 4.

Approximately 65 percent of Site 4 consists of open space that historically was used for fuel storage in both USTs and aboveground storage tanks (AST), hazardous materials storage lockers, motor gasoline (MOGAS) refueling, miscellaneous parts and equipment storage, aircraft engine storage (in the northeast portion), trash disposal dumpsters, and chemical storage on the south side of Building 163, drum storage, and parking (ERM-West 1994). Currently these open areas are paved vehicle parking, storage areas, and a large landscaped sports field, which is located along the eastern border. Typical urban wildlife, such as the California ground squirrel, scrub jays, and American robins, may be observed in the developed areas but to a lesser extent than in the landscaped areas, because less foraging habitat is available. Feral cats also are found in the developed areas of Site 4 (EFA WEST 1999).

Site 11

Site 11 is located in the eastern portion of Alameda Point. The site is located south of Ingersol Street, west of Viking Street, north of CAA-11B and east of Ferry Point Road (see Figure G-1). It is approximately 5.3 acres in size, triangular in shape, and comprises Parcel 137 and subparcels 138A and 140A. Site 11 currently is considered a developed area consisting primarily of buildings, roads, and parking lots and is bordered by developed areas (EFA WEST 1999) (see Figure G-4).

Site 11 is known as Building 14 and was constructed in 1940 and operated as an aircraft testing and repair facility. Operations ceased in April 1997 (IT 2001). Site 11 also is designated as CAA-11A and CAA-11B because of petroleum contamination in the groundwater at these locations. An OWS, 8 ASTs, 11 USTs, fuel lines, and storm sewers are physical features of concern at the site. See Section 7.0 of the RI for more information concerning the features of Site 11.

Site 11 is approximately 90 percent open space that was historically used for fuel storage (via USTs and ASTs), hazardous materials storage lockers, MOGAS refueling, miscellaneous parts and equipment storage, aircraft engine storage (in the northeast portion), trash disposal dumpsters, and chemical storage on the south side of Building 162 (ERM-West 1994). Currently the open areas are used as paved vehicle parking and storage areas. There is little vegetation occurring at Site 11. Typical urban wildlife, such as the California ground squirrel, scrub jays, and American robins, may be observed in the developed areas but to a lesser extent than in the landscaped areas because less foraging habitat is available. Feral cats also are found in the developed areas of Site 11 (EFA WEST 1999).

Site 21

Site 21 is located in the eastern portion of Alameda Point. The site is located south of West Sea Plane Lagoon Street, west of Viking Street, north of CAA-11B and east of Ferry Point Road (see Figure G-1). It is approximately 7 acres in size, irregularly shaped, and comprises Parcels 127, 135, 136, 200 and subparcel 155A. Site 21 is currently considered a developed area, consisting primarily of buildings, roads, and parking lots and is bordered by developed areas (EFA WEST 1999) (see Figure G-4).

The main feature of Site 21 is Building 162 , which was constructed in 1945 and operated as a ship and aircraft maintenance shop until operations ceased in April 1997 (IT 2001). The northern portion of Site 21 is designated as part of CAA-3A and the southwestern corner of the site is designated as part of CAA-11A because of petroleum contamination in the groundwater at these locations. An OWS, an AST, four USTs, underground fuel lines, and six RCRA sites are other physical features of concern at the site. See Section 8.0 of the RI for more information concerning the features of Site 21.

Approximately 50 percent of Site 21 is open space that historically was used as a smelting and storage area, parking lots, and storage areas (Pacific Aerial Surveys 1947). Currently the open areas are used as asphalt parking and storage areas, concrete storage aprons associated with buildings, and concrete paved areas near the Sea Plane Lagoon. Typical urban wildlife, such as the California ground squirrel, scrub jays, and American robins, may be observed in the developed areas but to a lesser extent than in the landscaped areas because less foraging habitat is available. Feral cats also are found in the developed areas of Site 21 (EFA WEST 1999).

Groundwater at OU-2B

The groundwater at OU-2B was addressed in this ERA on a plume basis because the groundwater plumes originating in different OU-2B sites have converged to form a large groundwater plume covering most of OU-2B. Based on the concentrations observed during the various groundwater sample events, this plume primarily is a TCE plume; however, data collected for all potential contaminants were evaluated for the ERA. Groundwater data that were evaluated were obtained from samples collected in 2000, the 2001 data gap sampling event, monitoring well sampling events in 2002 and 2003. Certain groundwater samples collected in 1998 also were included. Details pertaining to groundwater data and nature and extent can be found in Section 9.0 of the RI.

G.2.1.2 Selection of Ecological Chemicals of Potential Concern

The screening of chemicals for soils and groundwater was conducted as described in Section G.1 and presented in Figures G-2 and G-3 of this appendix. The data concerning the statistical comparison to background concentrations for inorganic constituents are presented in Appendix E of the RI.

Data concerning all detected chemicals for Sites 3, 4, 11, and 21 and the results of the screening process are presented in Tables G-22 through G-25 for soils and Table G-26 for groundwater. Based on the screening of ecological COPCs in surface soils at each of the sites and groundwater for the entire OU-2B, the following chemicals were retained for further evaluation:

Site 3 Soils: The metals aluminum, arsenic, barium, cobalt, copper, lead, manganese, vanadium, and zinc; the SVOCs 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene; and the VOCs 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, toluene, and xylene (see Table G-22).

Site 4 Soils: The metals antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, copper, lead, manganese, mercury, molybdenum, nickel, silver, vanadium, and zinc; the SVOCs 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, n-nitrosodiphenylamine, naphthalene, pentachlorophenol, phenanthrene, and pyrene; the VOCs 1,1,1-TCA, ethylbenzene, toluene, and xylene (see Table G-23)

Site 11 Soils: The metals beryllium, cobalt, copper, lead, manganese, vanadium and zinc; the SVOCs 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene; and the VOC chloroform (see Table G-24).

Site 21 Soils: The metals aluminum, arsenic, barium, beryllium, cobalt, copper, lead, manganese, vanadium, and zinc; the PCB Aroclor 1260; the pesticides DDD and DDT; the SVOCs 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene (see Table G-25).

OU-2B Groundwater: The metals aluminum, barium, chromium, cobalt, manganese, molybdenum, nickel, and vanadium; and the VOCs 1,2,4-trichloromethylbenzene, acetone, carbon disulfide, isopropylbenzene, tert-butanol, TCE, vinyl chloride, and xylene (see Table G-26).

G.2.1.3 Fate and Transport of Ecological Chemicals of Potential Concern

Physical properties of all of the ecological COPCs, with the exception of VOCs, indicate that they will bind preferentially to the soil and are relatively insoluble in water. Major ecological COPC movement will be through erosion processes, such as wind and surface water runoff, as well as infiltration to subsurface soils and groundwater.

G.2.1.4 Ecotoxicity Assessment

Ecological COPCs associated with the OU-2B sites include metals, pesticides, PCBs, PAHs, SVOCs, and VOCs. A literature review was conducted to identify the potential toxic effects of the ecological COPCs on ecological receptors. These ecological COPCs have a variety of effects dependent on species and trophic level. Known effects of these chemicals are described in Attachment A of this appendix.

The ecological effects evaluation was conducted as described in Section G.1 of this appendix. Tables G-4 through G-11 provides detailed information on the derivation of the TRVs and ERVs used to evaluate each measurement endpoint and ecological COPC for the OU-2B sites.

G.2.1.5 Potential Receptors

Tables G-1 and G-2 list species observed or potentially present at the OU-2B sites.

G.2.1.6 Exposure Pathways

Both existing and potential exposure pathways were identified for terrestrial receptors. Potential terrestrial exposure pathways to contaminated soil include direct contact, incidental ingestion, volatilization, windblown dust, and food chain effects. As requested by EPA and DTSC, the ERA assumes that all existing buildings and pavement at the OU-2B sites are removed and that the underlying soil provides suitable habitat for higher-trophic-level receptors.

Complete exposure pathways were assessed for Site 3, 4, 11, and 21 as discussed in Section G.1.2.2.5. The following discussion summarizes each potential exposure pathway under this scenario.

Direct Exposure to Soil. Animals in contact with the soil at the OU-2B sites can be exposed directly to metals, pesticides, PCBs, PAHs, SVOCs, and VOCs through ingestion and dermal contact. Direct exposure is expected to involve all trophic levels. Direct exposure to soil at the OU-2B sites is, therefore, a complete exposure pathway under the fully exposed soil scenario. In addition to the potential direct effects to receptors, contaminated soil at the sites is a probable source of ecological COPCs migrating to the underlying groundwater.

Direct Exposure to Surface Water. Precipitation and runoff infiltrates soil and moves to groundwater. The surface water pathway is considered to be a complete pathway for the sites; however, the only surface water available at the sites is ponded water that exists for a short period of time after rainfall events. Even though this exposure pathway is complete, it is not significant and was not evaluated. Because the groundwater at the OU-2B sites is expected to reach the Seaplane Lagoon, the groundwater discharge to surface water is a complete exposure pathway for marine receptors at these sites (Tetra Tech 2000).

Direct Exposure to Air. Many of the ecological COPCs associated with the OU-2B sites have extremely low volatilization rates. Ecological COPCs with low volatilization rates include metals (except mercury) and SVOCs. The exceptions are VOCs, which generally were detected at low levels in soil. Minimal volatilization from ecological COPCs from soil to the air is expected. Windblown dust could represent a complete exposure pathway because exposed soil exists at least on a portion of each of the OU-2B sites. The air exposure pathway is considered to be a complete exposure pathway under the fully exposed soil scenario, primarily resulting from airborne dust ingestion at OU-2B sites. Although this exposure pathway is complete, it is postulated to be insignificant compared to direct soil exposure.

Food Chain Exposure. A number of higher-trophic-level receptors could be exposed to ecological COPCs through diet. Of the ecological COPCs associated with OU-2B sites, Aroclor 1260, DDD, DDT, total HMW and LMW PAHs, bis(2-ethylhexyl)phthalate, n-nitroso-diphenylamine, pentachlorophenol, ethylbenzene, and xylene have a K_{ow} greater than 3.0, which could indicate significant tendencies for these chemicals to bioaccumulate and biomagnify in food chains. Food chain exposure is a complete exposure pathway under the fully exposed soil scenario.

G.2.1.7 Assessment and Measurement Endpoints

Habitat associated with the OU-2B sites is of low ecological value because of current limited habitat existing at the sites. The sites are expected to have long-term reuse potential including research and development, light industrial, supporting retail, office, commercial, and residential uses. Community oriented institutions, such as places of worship and nonprofit organizations

also are considered allowable and desirable uses. Based on the anticipated future uses of the sites, the value of the habitat is not expected to increase.

Ecological COPCs present at the OU-2B sites have different effects on different trophic levels. The assessment endpoints and associated measurement endpoints presented in Section G.1.2.2.6 of this appendix are necessary to adequately evaluate the risk to environmental receptors associated with the ecological COPCs.

G.2.2 EXPOSURE ESTIMATES AND RISK EVALUATION

For each measurement endpoint and ecological COPC, an estimate of the exposure of the organism to the ecological COPC was developed using life history information, site chemical concentrations, and other data. This exposure information was then compared with TRVs or ERVs to develop a QE of risk to ecological receptors.

Exposure estimates for each receptor were developed using the assumptions described in Section G.1.2.3.1 of this appendix. General exposure factors used for the California ground squirrel, Alameda song sparrow, American robin, and red-tailed hawk are presented in Table G-16. Risk calculations were conducted using the procedures described in Section G.1.2.3.2.

G.2.3 RESULTS OF THE ECOLOGICAL RISK ASSESSMENT FOR TERRESTRIAL RECEPTORS

HQs calculated for each site using high and low TRV values for each measurement endpoint are presented in Tables G-27 through G-30. HQs were evaluated based on the discussion presented in Section G.1.2.4. The following sections relate calculated HQs to assessment endpoints for each site and discuss these results. Uncertainties that exist in this ERA for the OU-2B sites are presented in Section G.1.2.5.

G.2.3.1 Ecological Risk Assessment Results for Site 3

The following sections contain the results of the ERA for Site 3 for each of the assessment endpoints evaluated. HQ values for Site 3 are presented in Table G-27.

G.2.3.1.1 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Small Mammal Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for mammals included aluminum, lead, vanadium, toluene, and xylene (Table G-27). Literature data were not adequate to develop ERVs for 2-butanone, carbon disulfide, and ethylbenzene for small mammals. All other ecological COPCs presented in Table G-22 had HQ values of less than 1.0

and pose no significant risk to small mammals. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Aluminum: The high TRV HQ value for aluminum was 8.24, while the low TRV HQ value was 82.4. These values were only about 1.8 times above the background high and low HQs of 4.56 and 45.6, respectively. Aluminum was detected in all 14 samples collected at Site 3, with concentrations ranging from 3,820 mg/kg to 22,400 mg/kg, and background concentrations ranged from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in the food chains (Agency for Toxic Substances and Disease Registry [ATSDR] 1999a). Based on this information, aluminum poses no significant potential risk to small mammals at Site 3 above background concentrations.

Lead: The high TRV HQ value for lead was below 1.0. The low TRV HQ value was 3.6, which was over 60 times above the background HQ of 0.05672. Lead was detected at Site 3 in 37 of 42 samples collected. The concentrations at the site ranged from 1.7 mg/kg to 3,870 mg/kg, while background concentrations ranged from 0.47 mg/kg to 165 mg/kg. Five sample locations exceeded a concentration of 100 mg/kg, and appear to represent two separate hotspots rather than a representation of soils at Site 3 (see Figure 5-11). Three of these samples are above 1,000 mg/kg and are skewing the calculated EPC of 634.15 mg/kg. If these 3 samples were removed from the dataset, the site EPC would be approximately 240 mg/kg, which would make the low TRV HQ 3.27. Additionally, the extent and rate of GI absorption of lead are influenced by the age of the organism; presence of essential nutrients, such as calcium and iron, in the diet; the physiological state of the organism, such as pregnancy; and the form of lead ingested (ATSDR 1999b). The absorption of lead in contaminated soil is lower than that of easily dissolvable forms, such as lead acetate. Absorption studies in rats determined that the bioavailability of ingested lead acetate was about 15 percent. Using this estimate, the "absolute" bioavailability of lead in soils from this study was 2.7 percent (ATSDR 1999b). Also, bioavailability of lead in soil decreased with increasing soil-lead concentration.

There are two small hotspot areas within Site 3 where concentrations of lead may represent a potential risk to small mammals. Based on the low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of lead in soil, lead at Site 3 poses a low potential for risk to small mammals.

Vanadium: The high HQ value for vanadium was less than 1.0. The low HQ value was 2.27, which was less than 2 times above the background HQ of 1.38. Vanadium was detected in all 14 samples collected at Site 3. Concentrations at the site ranged from 16 mg/kg to 69.3 mg/kg, while background concentrations ranged from 10.5 mg/kg to 55.3 mg/kg. Based on these ranges of concentrations, most of the vanadium dose to small mammals is attributable to background concentrations. Additionally, the GI absorption of vanadium is relatively low, with absorption ranging from 0.1 to 2.6 percent in rats (ATSDR 1992a). Based on this information, vanadium at Site 3 poses no significant potential for risk to small mammals.

Xylene and Toluene: The HQ value for toluene using the high TRV was less than 1.0. The low TRV HQ value was 1.79. The high TRV HQ for xylene was 50.1, while the low TRV HQ value was 62.1. Toluene was detected in 6 of 13 samples at concentrations ranging from 0.002 mg/kg to 210 mg/kg, while xylene was detected only in 2 of 13 samples at concentrations of 2.3 mg/kg and 250 mg/kg. Except for short-term hazards from concentrated spills, toluene frequently has been associated more with risk to humans than with risk to other species such as fish and wildlife. This is partly because plants, fish, and birds take up only very small amounts and because this VOC tends to evaporate into the atmosphere rather than persist in surface waters or soils (ATSDR 1994a).

Large amounts of xylene can cause changes in the liver and harmful effects in the kidneys, heart, lungs, and nervous system (ATSDR 1993). Long-term exposures of animals to low doses of xylene have not been well studied (ATSDR 1993).

The HQ values for toluene and xylene are driven by the relatively conservative $BCFs_{soil\text{-}to\text{-}invert}$ of 12.3 and 29.84, respectively, which were calculated using the K_{ow}s of 2.73 and 3.2. Based on these factors, the ecological risk of toluene and xylene to small mammals cannot be discounted fully, but are expected to be low.

Other VOCs: The literature data were not adequate to develop ERVs for small mammals for the VOCs 2-butanone, carbon disulfide, and ethylbenzene. 2-butanone and carbon disulfide were detected in 1 of 13 samples collected at Site 3. The maximum concentrations for both of these chemicals were below the maximum reporting limit of 13 mg/kg. Ethylbenzene was detected in 2 of 13 samples at concentrations of 0.94 mg/kg and 50 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Based on this information, the low detection frequency, and the relatively low concentrations, the impact to small mammals from the residual levels of VOCs at Site 3 is expected to be low.

G.2.3.1.2 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Passerine Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for the Alameda song sparrow or the American robin included aluminum, barium, copper, lead, and zinc (Table G-27). Literature data were not adequate to develop ERVs for HMW PAHs, LMW PAHs, 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, toluene, and xylene. All other ecological COPCs presented in Table G-22 had HQ values of less than 1.0 and pose no significant risk to passerines. The following sections discuss each chemical or chemical grouping that requires a QE.

Aluminum: The high and low TRV HQ values for aluminum for the Alameda song sparrow were 1.88 and 17.2, respectively, which were 1.8 times the background high and low TRVs of 1.04 and 9.49, respectively. The high TRV HQ for aluminum for the American robin was below 1.0. The low TRV HQ value for the robin was 7.68, which was 1.8 times the background HQ

of 4.24. Aluminum was detected in all 14 samples collected at Site 3, with concentrations ranging from 3,820 mg/kg to 22,400 mg/kg, while background concentrations ranged from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in food chains (ATSDR 1999a). Based on this information, aluminum poses no significant potential risk to passerines at Site 3.

Barium: The high and low TRV HQs for barium for the American robin were less than 1.0. The high TRV HQ value for barium for the Alameda song sparrow was less than 1.0. The low TRV HQ was 1.71, which was above the background low TRV HQ of 0.369. Barium was detected in all 14 samples collected from Site 3 at concentrations ranging from 17.3 mg/kg to 1,060 mg/kg, while background concentrations of barium ranged from 6.91 mg/kg to 156 mg/kg. Based on the relatively low HQ values (not significantly above 1.0), barium poses no significant potential for risk to passerines at Site 3.

Copper: The high TRV HQs for copper for the Alameda song sparrow and the American robin were less than 1.0. The low TRV HQs for these receptors were 2.66 and 1.22, respectively, which were five times above the background low TRV HQs of 0.513 and 0.234, respectively. Copper was detected in 13 out of 14 samples collected from Site 3 at concentrations ranging from 4.9 mg/kg to 119 mg/kg. The background concentrations ranged from 3.12 mg/kg to 49.1 mg/kg. Based on the low HQ values (not significantly above 1.0), the risk from copper at Site 3 to passerines is expected to be low.

Lead: HQs for the Alameda song sparrow and the American robin using the high TRV for lead were 5.51 and 2.58, respectively. The song sparrow and the robin low TRV HQs for lead were 2,280 and 1,070, which exceeded the background HQs of 35.9 and 16.9, respectively. Lead was detected in 37 of 42 samples collected from Site 3 at concentrations ranging from 1.7 mg/kg to 3,870 mg/kg. As discussed in Section G.2.3.1.1, two small hotspot areas of lead occur at Site 3, which is skewing (on the high side) the EPC used in the risk calculations. The EPC decreases from 634.15 mg/kg to approximately 240 mg/kg, when the 3 highest sample results, all above 1,000 mg/kg, are removed from the dataset. Additionally, the HQ values may be driven by an overly conservative low TRV value of 0.014 mg/kg-day. This TRV was originally developed by the Navy and the EPA Region 9 BTAG and is based on a study by Edens and others (1976) that found that physiological effects on birds measurable at a dose of 0.014 mg/kg-day are not believed to be ecologically significant. When the HQ was calculated using an alternative TRV value of 3.85 mg/kg-day, developed by Oak Ridge National Laboratory for the U.S. Department of Energy, the lead HQ value was reduced significantly. This TRV was established based on a study by Pattee (1984), which administered inorganic lead to an avian receptor. Using an allometrically converted TRV of 2.65 mg/kg-day for song sparrows and 3.50 mg/kg-day for robins, reevaluation of the lead HQ at Site 3 was calculated as 8.68 for the song sparrow with a background HQ of 0.0.137, and an HQ of 4.08 for the robin with a background HQ of 0.0641. When the alternate low TRVs for the song sparrow and robin were used with the unskewed EPC of 240 mg/kg, the resulting HQs using the alternate low TRVs were 3.29 and 1.54, respectively.

There are two small hotspot areas within Site 3 where concentrations of lead may represent a potential risk to passerines. However, based on the alternate low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of lead in soil, lead at Site 3 poses a low potential for risk to passerines.

Zinc: The high TRV HQs for zinc for the Alameda song sparrow and the American robin were less than 1.0. The low TRV HQs for these receptors were 6.82 and 3.01, respectively, which were less than 8 times above the background HQs of 0.863 and 0.38. Zinc was detected in all 14 samples collected from Site 3 at concentrations ranging from 18 mg/kg to 1,260 mg/kg. The sample containing 1,260 mg/kg appears to have been collected in a hotspot because the next highest concentration detected at the site was 108 mg/kg. The background concentrations ranged from 9.98 mg/kg to 191 mg/kg. This hotspot appears to be skewing the calculated EPC of 231.35 mg/kg. If this sample were removed from the dataset, the site EPC would be approximately 100 mg/kg, which would result in low TRV HQs for the song sparrow and the robin 2.95 and 1.3, respectively. Zinc can have varying toxicities to different species of birds.

There is one small hotspot area within Site 3 where concentrations of zinc may represent a potential risk to passerines. However, based on the low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of zinc in soil, zinc at Site 3 poses a low potential for risk to passerines.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The LMW and HMW PAHs were detected in 49 to 94 percent from a total of 156 samples collected at Site 3. The EPCs calculated for the chemicals ranged from 0.015 to 1.05 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to passerines from HMW and LMW PAHs associated with Site 3 cannot be discounted.

VOCs: The literature data were not adequate to develop avian ERVs for the VOCs 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, toluene, and xylene. These compounds were detected in 6 of 13 samples collected at Site 3. Concentrations ranged from 0.01 mg/kg to 250 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Based on this information, the low detection frequency, and the relatively low concentrations, the impact to passerines from residual levels of VOCs at Site 3 is expected to be low.

G.2.3.1.3 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Raptor Populations Typical to the Area

Aluminum and lead were the only ecological COPCs that exceeded an HQ of 1.0 for the red-tailed hawk (Table G-27). Literature data were not adequate to develop ERVs for HMW PAHs, LMW PAHs, 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, toluene, and xylene. All other ecological COPCs presented in Table G-22 had HQ values of less than 1.0 and pose no

significant risk to raptors. The following sections discuss each chemical or chemical grouping that requires a QE.

Aluminum: The high TRV HQ value for aluminum for the red-tailed hawk was less than 1.0. The low TRV HQ value was 1.0, which was about 1.8 times above the background low HQ of 0.555. Aluminum was detected in all 14 samples collected at Site 3, with concentrations ranging from 3,820 mg/kg to 22,400 mg/kg, while background concentrations ranged from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in food chains (ATSDR 1999a). Based on this information and the low HQ value (not above 1.0), aluminum poses no significant potential risk to raptors at Site 3.

Lead: The high TRV HQ value for lead for the red-tailed hawk was below 1.0. The low TRV HQ value was 64.4, which was over 60 times higher than the background HQ of 1.01. This HQ may be driven by a skewed dataset from two small hotspot areas, as discussed in Section G.2.3.1.1, and by an inappropriately conservative low TRV, as discussed in G.2.3.1.2. When the HQ was calculated for the red-tailed hawk using the alternate allometrically converted TRV of 5.93 mg/kg-day, the HQ for lead at Site 3 was 0.245, with a background HQ of 0.00386. When the alternate low TRV for the red-tailed hawk was used with the unskewed EPC of 240 mg/kg, the resulting HQ was 0.0928 using the alternate low TRV.

There are two small hotspot areas within Site 3 where concentrations of lead may represent a potential risk to raptors. However, based on the alternate low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of lead in soil, lead at Site 3 poses a low potential for risk to raptors.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The LMW and HMW PAHs were detected in 49 to 94 percent from a total of 156 samples collected at Site 3. The EPCs calculated for the chemicals ranged from 0.015 mg/kg to 1.05 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to raptors from HMW and LMW PAHs associated with Site 3 cannot be discounted.

VOCs: The literature data were not adequate to develop avian ERVs for the VOCs 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, toluene, and xylene. These compounds were detected in 6 of 13 samples collected at Site 3. Concentration ranged from 0.01 mg/kg to 250 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Based on this information, the low detection frequency, and the relatively low concentrations, the impact to passerines from residual levels of VOCs at Site 3 is expected to be low.

G.2.3.1.4 Discussion of Conclusions of the Ecological Risk Assessment for Site 3

Results of the modified ERA for Site 3 indicated potential risk to small mammals, passerines, and raptors from lead; however most of the risk from lead appears to be from two small hotspot areas (see Figure 5-11). There also is a potential risk to passerines from a small hotspot area of zinc. Based on available information, the impact to passerines and raptors from residual levels of PAHs cannot be discounted. Also, the impact to mammals from residual levels of xylene and toluene cannot be discounted. However, the risk of exposure to these chemicals will be low based on the lack of habitat for these receptor populations at Site 3.

G.2.3.2 Ecological Risk Assessment Results for Site 4

The following sections present the results of the ERA for Site 4 for each of the assessment endpoints evaluated. HQ values for Site 4 are presented in Table G-28.

G.2.3.2.1 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Small Mammal Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for mammals included cadmium, nickel, vanadium, bis(2-ethylhexyl)phthalate, and pentachlorophenol (Table G-28). Literature data were not adequate to develop ERVs for silver, n-nitroso-diphenylamine, and ethylbenzene for small mammals. All other ecological COPCs presented in Table G-23 had HQ values of less than 1.0 and pose no significant risk to small mammals. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Cadmium: The high TRV HQ value for cadmium was less than 1.0. The low TRV HQ value was 8.22, which was less than 20 times above the background HQs of 0.0.42, respectively. Cadmium was detected in 37 of 79 soil samples collected at Site 4 at concentrations ranging from 0.1 mg/kg to 105 mg/kg, while background concentrations ranged from 0.1 mg/kg to 0.82 mg/kg. Only four of the detected samples had cadmium concentrations above the maximum background concentration, while one of these samples was above 100 mg/kg. These samples represent small hotspots that are not representative of cadmium concentrations throughout Site 4. Cadmium is a known teratogen in mammals; however, the GI absorption of cadmium in mammals is very limited. Based on the ATSDR (1999c) "Toxicological Profile for Cadmium," GI absorption of cadmium in mammals ranges from 0.5 to 3 percent for monkeys, 1 to 2 percent for mice and rats, 2 percent for goats, 5 percent for pigs and lambs, and 16 percent for cattle. Assuming a conservative absorption rate of 16 percent, the revised low TRV HQ values for cadmium would be 1.31.

There are small hotspot areas within Site 4 where concentrations of cadmium may represent a potential risk to small mammals. However, based on the low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of cadmium in soil, cadmium at Site 4 poses a low potential for risk to small mammals.

Nickel: The high HQ value for nickel was less than 1.0. The low HQ value was 2.44, which was two times above the background HQ of 1.19. Nickel was detected in all 71 samples collected at Site 4 at concentrations ranging from 17 mg/kg to 1,400 mg/kg. The 1,400 mg/kg maximum detected value appears to be an outlier as the EPC was calculated as 64.8 mg/kg. Background concentrations ranged from 11.6 mg/kg to 88.5 mg/kg. Only two of the detected samples had nickel concentrations above 170 mg/kg. These samples represent small hotspots that are not representative of nickel concentrations throughout Site 4. Additionally, GI absorption studies in dogs and rats indicate that only 1 to 10 percent of nickel, nickel sulfate, or nickel chloride in the diet is absorbed (ATSDR 1997). Assuming a conservative absorption rate of 10 percent, a revised low TRV HQ value for nickel would be 0.244.

There are small hotspot areas within Site 4 where concentrations of nickel may represent a potential risk to small mammals. However, based on the low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of nickel in soil, nickel at Site 4 poses a low potential for risk to small mammals.

Silver: The literature data were not adequate to develop a mammalian ERV for the metal silver. Silver was detected in 30 of 71 samples collected with concentrations ranging from 0.8 mg/kg to 81.1 mg/kg. Silver was detected in 2 of 88 background soil samples collected from Alameda Point with concentrations ranging from 0.44 mg/kg to 0.61 mg/kg. Very little information is available concerning the effects of silver on mammalian species. Potential impact to small mammals cannot be discounted but is expected to be low.

Vanadium: The high HQ value for vanadium was less than 1.0. The low HQ value was 1.25, which was not above the background HQ of 1.34. Vanadium was detected in all 68 samples collected at Site 4. Concentrations at the site ranged from 13 mg/kg to 35 mg/kg, while background concentrations ranged from 12.8 mg/kg to 62.3 mg/kg. Based on these ranges of concentrations, vanadium appears to be naturally elevated in soils at Alameda. Based on this information and the low HQ value (not significantly above 1.0), vanadium at Site 4 does not pose a significant risk to small mammals above background.

Bis(2-ethylhexyl)phthalate: The HQ value for bis(2-ethylhexyl)phthalate using the high TRV was 5.19, and the low TRV HQ value was 51.9. Bis(2-ethylhexyl)phthalate was detected in only 2 of 95 samples at concentrations of 0.69 mg/kg and 7.6 mg/kg. These high HQ values are attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,309. This value is based upon the high K_{ow} value of 7.6. Based on the low frequency of detection and the overestimation likely caused by calculating the BCFs, the risk of bis(2-ethylhexyl)phthalate to small mammals at Site 4 is expected to be low.

Pentachlorophenol: The HQ value using the high TRV was 3.06, and the low TRV HQ value was 30.6. Pentachlorophenol was detected in only 1 of 95 samples at a concentration of 0.13 mg/kg. The relatively high HQ values are directly attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,034 (EPA 2001). This value was calculated based on the K_{ow} value of 5.12 and the fact that pentachlorophenol is absorbed rapidly by ecological receptors. In

mammals, however, the degree of accumulation into the tissues is small because pentachlorophenol is efficiently and rapidly excreted (EPA 2001). Based on these factors, the potential risk to small mammals from exposure to pentachlorophenol at Site 4 is expected to be low.

SVOCs: The literature data were not adequate to develop an ERV for small mammals for the SVOC n-nitroso-diphenylamine. N-Nitroso-diphenylamine was detected in 3 of 95 samples, which is only 3 percent of the total samples collected. The maximum detected value was 0.32 mg/kg, which is below the maximum reporting limit of 3.8 mg/kg. The impact on small mammals from n-nitroso-dipheynlyamine is not well documented; however, based on the low frequency of detection and low concentration, the impact is expected to be low.

VOCs: The literature data were not adequate to develop a mammalian ERV for the VOC ethylbenzene. Ethylbenzene was detected in 21 of 61 samples at concentrations ranging from 0.001 mg/kg to 0.028 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Based on these factors, the impact to small mammals from the residual levels of ethylbenzene at Site 4 cannot be discounted but is expected to be low.

G.2.3.2.2 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Passerine Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for the Alameda song sparrow or the American robin included cadmium, chromium, copper, lead, mercury, nickel, zinc, and bis(2-ethylhexyl)phthalate (Table G-28). Literature data were not adequate to develop ERVs for silver, HMW PAHs, LMW PAHs, n-nitroso-diphenylamine, pentachlorophenol, 1,1,1-TCA, ethylbenzene, toluene, and xylene. All other ecological COPCs presented in Table G-23 had HQ values of less than 1.0 and pose no significant risk to passerines. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Cadmium: The high TRV HQ values for cadmium for the song sparrow and the robin were below 1.0. The low TRV HQ values were 100 and 44.1, respectively, which were over 19 times above the background HQ of 5.14 and 2.25, respectively. Cadmium was detected in 37 of 79 soil samples collected at Site 4 at concentrations ranging from 0.1 mg/kg to 105 mg/kg, and background concentrations ranged from 0.1 mg/kg to 0.82 mg/kg. As discussed in Section G.2.3.2.1, only 4 samples exceeded the maximum background concentration and represent hotspots. Sublethal effects of cadmium in birds include growth retardation, nephrotoxicity, anemia, damage to the testicles and absorptive epithelium of the duodenum, reduced egg production, and effects on calcium absorption (Scheuhammer 1987).

There are small hotspot areas within Site 4 where concentrations of cadmium may represent a potential risk to passerines. However, based on the limited areal extent of the hotspots skewing

the dataset, and the low bioavailability of cadmium in soil, cadmium at Site 4 poses a low potential for risk to passerines.

Chromium: The high TRV HQ value for chromium was 1.10 for the song sparrow and below 1.0 for the robin. The low TRV HQ values were 5.47 and 2.62, respectively, which were over two times above the background HQ of 2.21 and 1.06, respectively. Chromium was detected in 76 of 77 soil samples collected at Site 4 at concentrations ranging from 19.8 mg/kg to 1,530 mg/kg, and background concentrations ranged from 11.4 mg/kg to 81.7 mg/kg. Very limited information is available in the literature pertaining to toxic effects of chromium to birds. The risk to passerines from chromium at Site 4 cannot be discounted.

Copper: The high and low TRV HQ values for copper for the robin were below 1.0. The high TRV for the song sparrow was below 1.0, while the low TRV HQ was 1.18, which was less than two times above the background low TRV HQ of 0.743. Copper was detected in 70 of 71 soil samples collected at Site 4 at concentrations ranging from 4.3 mg/kg to 326 mg/kg, and background concentrations ranged from 4.2 mg/kg to 89.4 mg/kg. Based on the low HQ values (not significantly above 1.0), the risk from copper at Site 4 to passerines is expected to be low.

Lead: HQs for the Alameda song sparrow and the American robin using the high TRV for lead were below 1.0. The low TRV HQs for these receptors were 198 and 93.1, respectively, which exceeded the background HQs of 27.1 and 12.7, respectively. These HQs may, however, be driven by the overly conservative low TRV value as described in Section G.2.3.1.2. Using the allometrically converted TRVs, reevaluation of the lead low TRV HQ at Site 4 was calculated as 0.753 for the song sparrow with a background HQ of 0.103, and an HQ of 0.354 for the robin with a background HQ of 0.0484. Based on this information, lead at Site 4 poses no significant potential for risk to passerines.

Mercury: The high TRV HQ values for mercury for the song sparrow and the robin were below 1.0. The low TRV HQs for these receptors were 3.06 and 1.34, respectively. Mercury was not detected in background soil samples. At Site 4, mercury was detected in only 14 of 50 soil samples collected at concentrations ranging from 0.05 mg/kg and 0.24 mg/kg. There can be reproductive and other physiological effects of mercury to birds; however, based on the low HQ values (not significantly above 1.0) and low frequency of detection, the risk to passerines from mercury at Site 4 is expected to be low.

Nickel: The high TRV HQ values for nickel for the song sparrow and the robin were below 1.0. The low TRV HQs for these receptors were 2.98 and 1.41, respectively, which were two times above the background low TRV HQs of 1.45 and 0.687, respectively. Nickel was detected in all 71 soil samples collected at Site 4 at concentrations ranging from 17 mg/kg to 1,400 mg/kg, while background concentrations ranged from 11.6 mg/kg and 88.5. As discussed in Section G.2.3.2.1, the maximum detected at Site 4 appears to be an outlier, and only two of the detected samples had nickel concentrations above 170 mg/kg. These samples represent small hotspots that are not representative of nickel concentrations throughout Site 4. Based on this and

the low HQ values (not significantly above 1.0), the risk to passerines from mercury at Site 4 is expected to be low.

Silver: The literature data were not adequate to develop an avian ERV for silver. Silver was detected in 30 of 71 samples collected with concentrations ranging from 0.8 to 81.1 mg/kg. Silver was detected in 2 of 88 background soil samples collected from Alameda Point with concentrations ranging from 0.44 mg/kg to 0.61 mg/kg. Very little information is available concerning the effects of silver on avian species. Potential impact to passerines cannot be discounted but is expected to be low.

Bis(2-ethylhexyl)phthalate: For the Alameda song sparrow the high TRV HQ for bis(2-ethylhexyl)phthalate was 88.5, while the low TRV HQ was 885. For the American robin the high TRV HQ was 38.6 and the low TRV HQ was 386. Bis(2-ethylhexyl)phthalate was detected in only 2 of 95 samples at concentrations of 0.69 mg/kg and 7.6 mg/kg. These high HQ values are directly attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,309. This value is based on the high K_{ow} value of 7.6. Based on these factors, the risk of bis(2-ethylhexyl)phthalate to passerines is expected to be low.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The LMW and HMW PAHs were detected 36 to 90 percent of the samples collected at Site 4. The EPCs calculated for the chemicals ranged from 0.014 mg/kg to 0.201 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to passerines from HMW and LMW PAHs associated with Site 4 cannot be discounted; however, based on the low concentrations of chemicals, this risk is expected to be low.

SVOCs: The literature data were not adequate to develop avian ERVs for the SVOCs n-nitroso-diphenylamine and pentachlorophenol. N-Nitroso-diphenylamine was detected at Site 4 in 3 of 95 samples collected, which is only 3 percent of the total samples collected. The maximum detected value was 0.32 mg/kg, which is below the maximum reporting limit of 3.8 mg/kg. Pentachlorophenol was detected in 1 of 95 samples collected at a concentration of 0.13 mg/kg, which is below the maximum reporting-limit of 19 mg/kg. The impacts of these SVOCs on wildlife are not well documented; however, based on the low frequency of detection and low concentration, the impact is expected to be low.

VOCs: The literature data were not adequate to develop avian ERVs for the VOCs 1,1,1-TCA, ethylbenzene, toluene, and xylene. These chemicals were detected in 5, 21, 15, and 30 out of 62 samples collected at Site 4, respectively. Concentration ranged from 0.001 mg/kg to 0.19 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Mixtures of VOCs with other aromatics, such as, PAHs, alkyl PAHs, and benzene, may be more toxic or hazardous, in general, than the chemical would be alone (Hazardous Substance Database [HSDB] 1999). The impact to

passerines from residual levels of VOCs at Site 4 cannot be discounted; however, this risk is expected to be low given the low concentrations in soils.

G.2.3.2.3 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Raptor Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for raptors included cadmium, lead, and bis(2-ethylhexyl)phthalate (Table G-28). Literature data were not adequate to develop ERVs for silver, HMW PAHs, LMW PAHs, n-nitroso-diphenylamine, pentachlorophenol, 1,1,1-TCA, ethylbenzene, toluene, and xylene. All other ecological COPCs presented in Table G-23 had HQ values of less than 1.0 and pose no significant risk to raptors. The following sections discuss each chemical or chemical grouping that requires a QE.

Cadmium: The high TRV HQ for cadmium was less than 1.0. The low TRV HQ was 6.27, which was less than 20 times above the background concentration of 0.32. Cadmium was detected in 37 of 79 soil samples collected at Site 4 at concentrations ranging from 0.1 mg/kg to 105 mg/kg, and background concentrations ranged from 0.1 mg/kg to 0.82 mg/kg. As discussed in Section G.2.3.2.1, only 4 samples exceeded the maximum background concentration and represent hotspots. Sublethal effects in birds include growth retardation, nephrotoxicity, anemia, damage to the testicles and absorptive epithelium of the duodenum, reduced egg production, and effects on calcium absorption (Scheuhammer 1987).

There are small hotspot areas within Site 4 where concentrations of cadmium may represent a potential risk to raptors. However, based on the low TRV HQ value, the limited areal extent of the hotspots skewing the dataset, and the low bioavailability of cadmium in soil, cadmium at Site 4 poses a low potential for risk to raptors.

Lead: The high TRV HQ value for lead for the red-tailed hawk was less than 1.0. The low TRV HQ value was 5.58, which was over 7 times higher than the background HQ value of 0.765. However, as discussed in Section G.2.3.1.2, the Navy believes that this HQ value may be driven by an inappropriately conservative low TRV. When the HQ was calculated for the red-tailed hawk using the alternate allometrically converted TRV of 5.93, the HQ for lead at Site 4 was 0.0231, with a background HQ of 0.00292. Based on this information, lead at Site 4 poses no significant potential for risk to raptors.

Silver: The literature data were not adequate to develop an avian ERV for silver. Silver was detected in 30 of 71 samples collected at Site 4 with concentrations ranging from 0.8 mg/kg to 81.1 mg/kg. Silver was detected in 2 of 88 background soil samples collected from Alameda Point with concentrations ranging from 0.44 mg/kg to 0.61 mg/kg. Very little information is available concerning the effects of silver on avian species; the potential impact to raptors cannot be discounted but is expected to be low.

Bis(2-ethylhexyl)phthalate: The high TRV HQ for bis(2-ethylhexyl)phthalate for the red-tailed hawk was 72.7, while the low TRV HQ was 727. Bis(2-ethylhexyl)phthalate was detected in

only 2 of 95 samples at concentrations of 0.69 mg/kg and 7.6 mg/kg. As discussed for small mammals, these high HQ values are directly attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,309. Based on these factors, the risk of bis(2-ethylhexyl)phthalate to raptors is expected to be low.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The LMW and HMW PAHs were detected 36 to 90 percent of the samples collected at Site 4. The EPCs calculated for the chemicals ranged from 0.014 mg/kg to 0.201 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to raptors from HMW and LMW PAHs associated with Site 4 cannot be discounted.

SVOCs: The literature data were not adequate to develop avian ERVs for the SVOCs n-nitroso-diphenylamine and pentachlorophenol. N-Nitroso-diphenylamine was detected at Site 4 in 3 of 95 samples collected, which is only 3 percent of the total samples collected. The maximum detected value was 0.32 mg/kg, which is below the maximum reporting limit of 3.8 mg/kg. Pentachlorophenol was detected in 1 of 95 samples collected at a concentration of 0.13 mg/kg, which is below the maximum reporting-limit of 19 mg/kg. The impact of these SVOCs on wildlife is not well documented; however, based on the low frequency of detection and low concentration, the impact is expected to be low.

VOCs: The literature data were not adequate to develop avian ERVs for the VOCs 1,1,1-TCA, ethylbenzene, toluene, and xylene. These chemicals were detected in 5, 21, 15, and 30 of 62 samples collected at Site 4, respectively. Concentration ranged from 0.001 mg/kg to 0.19 mg/kg. In general, VOCs will have toxic effects only at higher concentrations, in the 500 to 1,000 mg/kg range (ATSDR 1992b, 1996a, 1996b). Mixtures of VOCs with other aromatics, such as, PAHs, alkyl PAHs, and benzene, may be more toxic or hazardous, in general, than the chemical would be alone (HSDB 1999). The impact to raptors from residual levels of VOCs at Site 4 cannot be discounted; however, given the low concentrations in soils this risk is expected to be low.

G.2.3.2.4 Discussion of Conclusions of the Ecological Risk Assessment for Site 4

Results of the modified ERA for Site 4 indicated potential risk to passerines from chromium. Additionally, the impact to passerines and raptors from residual levels of silver and PAHs cannot be discounted. Also, the impact to small mammals from residual levels of silver cannot be discounted. However, the risk of exposure to these chemicals will be low based on the lack of habitat for these receptor populations at Site 4.

G.2.3.3 Ecological Risk Assessment Results for Site 11

The following sections contain the results of the ERA for Site 11 for each of the assessment endpoints evaluated. HQ values for Site 11 are presented in Table G-29.

G.2.3.3.1 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Small Mammal Populations Typical to the Area

Vanadium was the only ecological COPCs with an HQ above 1.0 using the low TRV value for mammals (Table G-29). All other ecological COPCs presented in Table G-24 had HQ values of less than 1.0 and pose no significant risk to small mammals. The following sections discuss each chemical or chemical grouping with an HQ above 1.0.

Vanadium: The high HQ value for vanadium was less than 1.0. The low HQ value was 1.81, which was less than 2 times above the background HQ of 1.38. Vanadium was detected in all 30 samples collected at Site 11. Concentrations at the site ranged from 14.5 mg/kg to 82.5 mg/kg, while background concentrations ranged from 10.5 mg/kg to 55.3. The GI absorption of vanadium is relatively low, with absorption ranging from 0.1 to 2.6 percent in rats (ATSDR 1992a). Based on this information, vanadium at Site 11 poses no significant potential for risk to small mammals above background.

G.2.3.3.2 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Passerine Populations Typical to the Area

The ecological COPCs with an HQ above 1.0 using the low TRV values for the Alameda song sparrow included copper, lead, and zinc (Table G-29). Lead was the only ecological COPEC with an HQ above 1.0 using the low TRV value for the American robin. Literature data were not adequate to develop ERVs for beryllium, HMW PAHs, LMW PAHs, and chloroform. All other ecological COPCs presented in Table G-24 had HQ values less than 1.0 and pose no significant risk to passerines. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Beryllium: The literature data were not adequate to develop an avian ERV for beryllium. Beryllium was detected at Site 11 in 27 of 30 samples with concentrations ranging from 0.21 mg/kg to 2 mg/kg, while background concentrations ranged from 0.25 mg/kg to 1.47 mg/kg. Based on this, beryllium at Site 11 poses no significant potential for risk to passerines above background.

Copper: The high and low TRV HQs for copper for the robin were below 1.0. The high TRV HQ for the song sparrow was less than 1.0, while the low TRV HQ was 1.40, which was two times above the background low TRV HQ of 0.513. Copper was detected in 28 of 30 soil samples collected from Site 11 with concentrations ranging from 4.77 mg/kg to 83.2 mg/kg, while background concentrations ranged from 3.12 mg/kg to 49.1 mg/kg. Based on the low HQ values (not significantly above 1.0), the risk from copper at Site 11 to passerines is expected to be low.

Lead: HQs for the song sparrow and the robin using the high TRV for lead were below 1.0. The song sparrow and the robin low TRV HQs for lead were 369 and 180, which exceeded the background HQs of 35.9 and 16.9, respectively; however, these HQs may be driven by the

overly conservative low TRV value, as described in Section G.2.3.1.2. Using the allometrically converted TRVs, reevaluation of the lead low TRV HQ at Site 11 was calculated as 1.41 for the song sparrow with a background HQ of 0.137, and an HQ of 0.685 for the robin with a background HQ of 0.0641. Based on this information, lead at Site 11 poses no significant potential for risk to passerines.

Zinc: The high and low TRV HQ values for zinc for the robin were below 1.0. The high TRV HQ for the song sparrow was below 1.0, while the low TRV HQ was 1.4, which was less than two times above the background low TRV HQ of 0.863. Zinc was detected in all 30 soil samples collected from Site 11 at concentrations ranging from 16.1 mg/kg to 196 mg/kg, while background concentrations ranged from 9.98 mg/kg to 191 mg/kg. Based on this information, zinc at Site 11 poses no significant potential for risk to passerines above background.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The HMW and LMW PAHs were detected at Site 11 at frequencies ranging from 33 to 85 percent out of a total of 60 samples collected. Calculated EPCs ranged from 0.018 mg/kg to 1.23 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to passerines from residual levels of PAHs associated with Site 11 cannot be discounted.

VOCs: The literature data were not adequate to develop an avian ERV for the VOC chloroform. Chloroform was detected in only 1 of 15 samples collected at Site 11, at a concentration of 0.002 mg/kg. The risk posed to passerines from such residual levels of chloroform in soils at Site 11 is postulated to be low because mammals and birds quickly metabolize VOCs.

G.2.3.3.3 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Raptor Populations Typical to the Area

Lead was the only ecological COPCs with an HQ above 1.0 using the low TRV value for raptors (Table G-29). Literature data were not adequate to develop ERVs for beryllium, HMW PAHs, LMW PAHs, and chloroform. All other ecological COPCs presented in Table G-24 had HQ values less than 1.0 and pose no significant risk to raptors. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Beryllium: The literature data were not adequate to develop an avian ERV for beryllium. Beryllium was detected at Site 11 in 27 of 30 samples collected with concentrations ranging from 0.21 mg/kg to 2 mg/kg, while background concentrations ranged from 0.25 mg/kg to 1.47 mg/kg. Based on this, beryllium at Site 11 poses no significant potential for risk to passerines above background.

Lead: The high TRV HQ value for lead for the red-tailed hawk was below 1.0. The low TRV HQ value was 10.4, which was more than 10 times above the background HQ value of 1.01. As discussed in Section G.2.3.1.2, however, the Navy believes that this HQ value may be driven by

an inappropriately conservative low TRV. When HQs were calculated using the alternate allometrically converted TRV of 5.93, the HQ for lead at Site 11 was 0.0398, with a background HQ of 0.00386. Based on this information, lead at Site 11 poses no significant potential for risk to raptors.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The HMW and LMW PAHs were detected at Site 11 at frequencies ranging from 33 to 85 percent out of a total of 60 samples collected. Calculated EPCs ranged from 0.018 mg/kg to 1.23 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to raptors from residual levels of HMW and LMW PAHs associated with Site 11 cannot be discounted.

VOCs: The literature data were not adequate to develop an avian ERV for the VOC chloroform. Chloroform was detected in only 1 of 15 samples collected at Site 11, at a concentration of 0.002 mg/kg. The risk posed to raptors from such residual levels of chloroform in soils at Site 11 is postulated to be low because mammals and birds quickly metabolize VOCs.

G.2.3.3.4 Discussion of Conclusions of the Ecological Risk Assessment for Site 11

Results of the modified ERA for Site 11 indicated that the potential impacts to passerines and raptors from residual levels of PAHs cannot be discounted. However, the risk of exposure to these chemicals for these receptors will be low based on the lack of habitat for these receptor populations at Site 11.

G.2.3.4 Ecological Risk Assessment Results for Site 21

The following sections present the results of the ERA for Site 21 for each of the assessment endpoints evaluated. HQ values for Site 21 are presented in Table G-30.

G.2.3.4.1 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Small Mammal Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV value for mammals included aluminum, lead, and vanadium (Table G-30). All other ecological COPCs presented in Table G-25 had HQ values of less than 1.0 and pose no significant risk to small mammals. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Aluminum: The high TRV HQ value for aluminum was 9.96, while the low TRV HQ value was 99.6. These values were about two times above the background high and low HQs of 4.56 and 45.6, respectively. Aluminum was detected in all 12 samples collected at Site 21, with concentrations ranging from 3,940 mg/kg to 21,600 mg/kg. Background concentrations ranged

from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in food chains (ATSDR 1999a). Based on this information, aluminum poses no significant potential risk to small mammals at Site 21 above background.

Lead: The high TRV HQ value for lead was below 1.0. The low TRV HQ value was 1.43, which was over 25 times above the background HQ of 0.0567. Lead was detected at Site 21 in 10 of 12 samples collected. The concentrations at the site ranged from 2.86 to 416 mg/kg, while background concentrations range from 0.47 to 165 mg/kg. As discussed in Section G.2.3.1.1, GI absorption of lead in soils is limited (ATSDR 1999b). Based on this and the low HQ value (not significantly above 1.0), lead at Site 21 poses a low potential for risk to small mammals.

Vanadium: The high HQ value for vanadium was less than 1.0. The low HQ value was 2.70, which was less than two times above the background HQ of 1.38. Vanadium was detected in all 12 samples collected at Site 21. Concentrations at the site ranged from 17.1 mg/kg to 86.7 mg/kg, while background concentrations ranged from 10.5 mg/kg to 55.3 mg/kg. Based on these ranges of concentrations, most of the vanadium dose to small mammals is attributable to background concentrations. Additionally, the GI absorption of vanadium is relatively low, with absorption ranging from 0.1 to 2.6 percent in rats (ATSDR 1992a). Based on this information, vanadium at Site 21 poses no significant potential for risk to small mammals above background.

G.2.3.4.2 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Passerine Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV values for the Alameda song sparrow and the American robin included aluminum, copper, lead, vanadium, zinc, and DDTt (Table G-30). Literature data were not adequate to develop ERVs for beryllium, HMW PAHs, and LMW PAHs. All other ecological COPCs presented in Table G-25 had HQ values less than 1.0 and pose no significant risk to passerines. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Aluminum: The high and low TRV HQ values for aluminum for the song sparrow were 2.28 and 20.7, while the high and low TRV HQs for the robin were 1.03 and 9.4, respectively. These HQs were two times above the background HQs (see Table G-20). Aluminum was detected in all 12 samples collected at Site 21, with concentrations ranging from 3,940 mg/kg to 21,600 mg/kg. Background concentrations ranged from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in food chains (ATSDR 1999a). Based on this information, aluminum poses no significant potential risk to passerines at Site 21 above background.

Beryllium: The literature data were not adequate to develop avian ERVs for beryllium and cobalt. Beryllium was detected at Site 21 in 10 of 12 samples collected with concentrations ranging from 0.68 mg/kg to 9.5 mg/kg, while background concentrations ranged from 0.25 mg/kg to 1.47 mg/kg. Based on this, potential risk to passerines from beryllium at Site 21 is not expected to be above background.

Copper: The high and low TRV HQ values for copper for the robin were below 1.0. The high TRV HQ for the song sparrow was below 1.0, while the low TRV HQ was 2.01. This value was three times above its respective background low TRV HQ (see Table 20). Copper was detected in all 12 samples collected at Site 21. Concentrations detected at the site ranged from 5.4 to 71.4 mg/kg, while background concentrations ranged from 3.12 mg/kg to 49.1 mg/kg. Based on these ranges of concentrations and the low HQ values (not significantly above 1.0), the risk from copper at Site 21 to passerines is expected to be low.

Lead: High and low TRV HQs for lead for the song sparrow were 2.19 and 906, respectively. The high and low TRV HQs for the robin were 1.06 and 442, respectively. These HQs were 25 times above their respective background HQs (see Table G-20). These HQs may be driven by the overly conservative low TRV value as described in Section G.2.3.1.2. Using the allometrically converted TRVs, reevaluation of the low TRV HQ at Site 21 was calculated as 3.45 for the song sparrow with a background HQ of 0.137 and an HQ of 1.68 for the robin with a background HQ of 0.0641. Based on this information, lead at Site 21 poses a potential for risk to passerines.

Vanadium: The high and low TRV HQ values for vanadium for the robin were less than 1.0. The high TRV HQ value for the song sparrow was less than 1.0, while the low TRV HQ value was 1.01. This HQ was less than two times above its respective background low TRV HQ (see Table G-20). Vanadium was detected in all 12 samples collected at Site 21. Concentrations at the site ranged from 17.1 mg/kg to 86.7 mg/kg, while background concentrations ranged from 10.5 mg/kg to 55.3 mg/kg. Based on these ranges of concentrations and the low HQ values (not significantly above 1.0), the risk from vanadium at Site 21 to passerines is expected to be low.

Zinc: The high TRV HQ values for zinc for the song sparrow and the robin were less than 1.0. The low TRV HQ values for these receptors were 2.78 and 1.24, respectively. These HQs were three times above their respective background low TRV HQs (see Table G-20). Zinc was detected in all 12 samples collected at Site 21. The concentrations ranged from 16.1 mg/kg to 267 mg/kg, while the background concentrations ranged from 9.98 mg/kg to 191 mg/kg. Based on these ranges of concentrations and the low HQ values (not significantly above 1.0), the risk from zinc at Site 21 to passerines is expected to be low.

Chlorinated Pesticides: The high TRV HQ values for DDTt for the song sparrow and the robin were below 1.0. The low TRV HQ values for these receptors were 6.53 and 2.87, respectively. DDD and DDT were detected in only 1 of 10 samples collected from Site 21 at concentrations of 0.012 and 0.058 mg/kg, respectively. These compounds are insecticides or insecticide breakdown products that bioconcentrate and bioaccumulate in food chains. Reproductive and

physiologic effects are seen in mammal and birds from exposure to such compounds (ATSDR 1992c). However, the high HQs associated with these compounds are attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,202.4, which is based upon the K_{ow} value of 5.16. Based on this and the low frequency of detection, the risk to passerines from residual levels of DDD and DDT at Site 21 is expected to be low.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The HMW and LMW PAHs were detected at Site 21 at frequencies ranging from 11 to 95 percent out of a total of 63 samples collected. Calculated EPCs ranged from 0.005 mg/kg to 0.045 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to passerines from residual levels of HMW and LMW PAHs associated with Site 21 cannot be discounted.

G.2.3.4.3 Sufficient Rates of Survival, Growth, and Reproduction to Sustain Raptor Populations Typical to the Area

Ecological COPCs with HQs above 1.0 using either the high or low TRV values for raptors included aluminum, lead, and DDTt (Table G-30). Literature data were not adequate to develop ERVs for beryllium, HMW PAHs, and LMW PAHs. All other ecological COPCs presented in Table G-25 had HQ values less than 1.0 and pose no significant risk to raptors. The following sections discuss each chemical or chemical grouping with an HQ above 1.0 or that requires a QE.

Aluminum: The high TRV HQ value for aluminum for the red-tailed hawk was less than 1.0, while the low TRV HQ was 1.21. This HQ was two times above its respective background HQ (see Table G-20). Aluminum was detected in all 12 samples collected at Site 21, with concentrations ranging from 3,940 mg/kg to 21,600 mg/kg. Background concentrations ranged from 1,760 mg/kg to 22,600 mg/kg. Based on these ranges of concentrations, aluminum appears to be naturally elevated in soils at Alameda. Aluminum is relatively nontoxic, with most adverse effects caused by inhalation of highly concentrated aluminum dust. Additionally, aluminum does not bioaccumulate in food chains (ATSDR 1999a). Based on this information and the low HQ value (not significantly above 1.0), aluminum poses no significant potential risk to raptors at Site 21 above background concentrations.

Beryllium: The literature data were not adequate to develop avian ERVs for beryllium and cobalt. Beryllium was detected at Site 21 in 10 of 12 samples collected with concentrations ranging from 0.68 mg/kg to 9.5 mg/kg, while background concentrations ranged from 0.25 mg/kg to 1.47 mg/kg. Based on these ranges of concentrations, potential risk to raptors from beryllium at Site 21 is not expected to be above background.

Lead: The high TRV HQ value for lead for the red-tailed hawk was below 1.0. The low TRV HQ value was 25.6, which was 25 times above the background low TRV HQ (see Table G-20). As discussed in Section G.2.3.1.2, however, the Navy believes that this HQ value may be driven by an inappropriately conservative low TRV. When HQs were calculated using the alternate

allometrically converted TRV of 5.93, the HQ for lead at Site 21 was 0.0975, with a background HQ of 0.00386. Based on this information, lead at Site 21 poses a low potential for risk to raptors.

Chlorinated Pesticides: The high TRV HQ value for DDTt for the red-tailed hawk was below 1.0. The low TRV HQ value for was 5.98. DDD and DDT were detected in only 1 of 10 samples collected from Site 21 at concentrations of 0.012 and 0.058 mg/kg, respectively. These compounds are insecticides or insecticide breakdown products that bioconcentrate and bioaccumulate in food chains. Reproductive and physiologic effects are seen in mammal and birds from exposure to such compounds (ATSDR 1992c). However, the high HQs associated with these compounds are attributable to the conservative $BCF_{soil\text{-}to\text{-}invert}$ value of 1,202.4, which is based upon the K_{ow} value of 5.16. Based on the low frequency of detection, the risk to raptors from residual levels of DDD and DDT at Site 21 is expected to be low.

PAHs: The literature data were not adequate to develop avian ERVs for PAHs. The HMW and LMW PAHs were detected at Site 21 at frequencies ranging from 11 to 95 percent out of a total of 63 samples collected. Calculated EPCs ranged from 0.005 mg/kg to 0.045 mg/kg. PAHs can cause genotoxic, reproductive, and mutagenic effects; however, studies indicate that PAH compounds do not appear to bioaccumulate in mammals and birds (Eisler 1987). Given the relatively high frequency of detection, the risk posed to raptors from residual levels of HMW and LMW PAHs associated with Site 21 cannot be discounted.

G.2.3.4.5 Discussion of Conclusions of the Ecological Risk Assessment for Site 21

Results of the modified ERA for Site 21 indicated potential risk to passerines from lead. The impact to passerines and raptors from residual levels of PAHs cannot be discounted. However, the risk of exposure to these chemicals will be low based on the lack of habitat for these receptor populations at Site 21.

G.2.4 RESULTS OF THE ECOLOGICAL RISK ASSESSMENT FOR MARINE RECEPTORS

The following sections contain the results of the modified ERA for groundwater at OU-2B sites for marine receptors. Retained ecological COPCs evaluated are presented in Table G-26.

G.2.4.1 Results of the Screening-level Ecological Risk Assessment for Surface Water (Marine Receptors)

Chemicals detected in groundwater collected from OU-2B that were retained as ecological COPCs included the metals aluminum, barium, chromium, cobalt, manganese, molybdenum, nickel, and vanadium; and the VOCs 1,2,4-trichloromethylbenzene, acetone, carbon disulfide, isopropylbenzene, tert-butanol, TCE, vinyl chloride, and xylene (see Table G-26). HQs for chromium, nickel and TCE were calculated by dividing their EPCs by 10, as a dilution factor, and then dividing the result by the relevant saltwater screening criterion. The HQ value for chromium was 0.226, the HQ value for nickel was 0.374, and the HQ value for TCE

was 0.393 (see Table G-26). Based on these HQ values these chemicals pose no significant potential risk to marine receptors in the Seaplane Lagoon. The other retained chemicals did not have published saltwater screening values. Impacts of these chemicals to marine receptors are qualitatively assessed in the following paragraphs.

Aluminum: Aluminum is a naturally occurring element in surface waters; however, aluminum is very reactive and rarely is found as a free metal in nature. Generally, it is combined with other elements such as silicon and oxygen (ATSDR 1999a). Studies have shown that approximately 0.002 mg/L of dissolved aluminum occurs in seawater (National Library of Medicine 2003). Aluminum was detected in 37 of 70 samples collected in the groundwater at OU-2B, at concentrations ranging from 0.0056 mg/L to 2.24 mg/L. Background groundwater concentrations of aluminum at Alameda Point ranged from 0.003 mg/L to 4.53 mg/L (Table G-19). Based on background concentrations, the aluminum detected in groundwater at OU-2B appears to be consistent with background conditions.

Barium: Barium is a naturally occurring element in surface waters. In an aquatic environment, barium most likely will precipitate out of solution as a barium sulfate or barium carbonate or the barium ion will adsorb to particulate matter. Barium can bioaccumulate in terrestrial and aquatic organisms and marine plants can bioconcentrate barium by a factor of 1,000 times the concentration found in water. Marine animals, plankton, and brown algae have reported BCFs of 100, 120, and 260, respectively (ATSDR 1990a). Barium was detected in 64 of 70 samples collected in the groundwater at OU-2B, with concentrations ranging from 0.00002 mg/L to 0.00011 mg/L. Background concentrations of barium at Alameda Point ranged from 0.0023 mg/L to 1.26 mg/L (Table G-19). Based on background concentrations, the barium detected in groundwater at OU-2B appears to be consistent with background conditions.

Cobalt: Most of the cobalt emitted into the environment settles into the soil or sediment. Mollusks, crustaceans, and other bottom feeders have been reported to accumulate large quantities of cobalt (Jenkins 1980). A study of organisms in Ottawa River sediments, however, showed no detectable bioaccumulation of cobalt-60 (Evans and others 1988). BCFs for cobalt on a DW basis were 100 to 4,000 for marine fish (Smith and Carson 1981). Cobalt was detected in 60 of 70 samples collected in the groundwater at OU-2B, with concentrations ranging from 0.00006 mg/L to 0.041 mg/L. The reporting limits for this compound were 0.00021 mg/L to 0.01 mg/L. Background groundwater concentrations of cobalt at Alameda Point ranged from 0.0008 mg/L to 0.0105 mg/L (Table G-19). Applying a dilution factor of 10 to the maximum concentration detected in groundwater results in a concentration of 0.0041 mg/L at the discharge point in the Seaplane Lagoon (NOAA 1999). Two freshwater criteria were identified for cobalt and were: (1) the Oak Ridge National Laboratory (ORNL) Tier II Benchmarks for Priority Pollutants of 0.023 mg/L (Suter and Tsao 1996), and (2) the EPA Chronic Freshwater value of 0.003 mg/L. Even though a large uncertainty exists when comparing freshwater criteria with marine environments, these values serve as a comparison. Based on the freshwater criterion and the background concentrations, the cobalt detected in groundwater at OU-2B is not expected to pose a significant risk to marine receptors.

Manganese: Manganese occurs naturally in rock and in soils and sediments weathered by rock. Dissolution of manganese from rocks and soils into groundwater and surface water causes natural concentrations of manganese in aquatic systems. These natural concentrations have been determined to range from 0.01 to 1.7 mg/L (Riemer 1999). Manganese is an essential nutrient in aquatic species (Alken-Murray Corporation 2003). Manganese was detected in 68 of 70 samples collected in the groundwater at OU-2B, with concentrations ranging from 0.00082 to 26 mg/L. Background groundwater concentrations of manganese at Alameda Point ranged from 0.0011 to 2.48 mg/L (Table G-19). Applying a dilution factor of 10 to the maximum concentration detected in groundwater results in a potential surface water concentration of 2.6 mg/L of cobalt at the discharge point in the Seaplane Lagoon (NOAA 1999). The only water criterion identified in the literature for manganese was the freshwater ORNL Tier II value of 0.12 mg/L (Suter and Tsao 1996). Based on this information, the manganese detected in groundwater at OU-2B may present a risk to marine receptors; however, this risk is expected to be low.

Molybdenum: Molybdenum is an essential nutrient to all terrestrial, freshwater, and marine organisms, which assists in the metabolism of carbon, nitrogen, and sulfur compounds. Molybdenum is the most abundant metal in oceans because it becomes soluble when exposed to oxygen. In anoxic conditions, molybdenum would be less available (National Aeronautics and Space Administration Astrobiology Institute 2003). Molybdenum was detected in 53 of 70 samples collected in the groundwater at OU-2B, with concentrations in groundwater ranging from 0.00074 mg/L to 0.39 mg/L. Background groundwater concentrations of molybdenum at Alameda Point ranged from 0.0005 mg/L to 0.0194 mg/L (Table G-19). Applying a dilution factor of 10 to the maximum concentration detected in groundwater results in a concentration of 0.039 mg/L of molybdenum potentially reaching the Seaplane Lagoon (NOAA 1999). Two freshwater criteria were identified for molybdenum: the ORNL Tier II value of 0.37 mg/L (Suter and Tsao 1996) and the EPA ecotoxicity threshold value of 0.24 mg/L. Based on the freshwater criteria, the molybdenum detected in groundwater at OU-2B is not expected to present a risk to marine receptors.

Vanadium: Metallic vanadium does not occur in nature. Production of vanadium is linked with that of other metals such as iron, uranium, titanium, and aluminum. Vanadium can be extracted from fossil fuels as well. Vanadium and its compounds are considered toxic, although this toxicity is variable. Toxicity depends on the valence; it increases with increasing valence, with pentavalent vanadium being the most toxic. Vanadium is recognized as an essential element for certain species of algae; however, studies have not verified whether vanadium is essential to higher plants and animals (Irwin 1997). Vanadium was detected in 43 of 70 samples collected in the groundwater at OU-2B, with concentrations ranging from 0.00072 mg/L to 0.046 mg/L. Background groundwater concentrations of vanadium at Alameda Point ranged from 0.002 to 0.0508 mg/L (Table G-19). Based on background concentrations, the vanadium detected in groundwater at OU-2B appears to be consistent with background conditions

VOCs: The VOCs 1,2,4-trichloromethylbenzene, acetone, carbon disulfide, isopropylbenzene, tert-butanol, vinyl chloride, and xylene were detected in the groundwater at OU-2B in 5.5 to 24 percent of the samples collected.

1,2,4-trichloromethylbenzene was detected in 8 of 128 samples collected at concentrations ranging from 0.0002 mg/L and 0.046 mg/L. A screening benchmark criterion has not been developed for this compound. Applying a dilution factor of 10 to the maximum concentration detected in the groundwater results in a concentration of 0.0046 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on this information, and the relatively low toxicity and low persistence of VOCs in aquatic, aerobic environments, this chemical poses a low potential for risk to marine receptors.

Acetone was detected in 22 of 231 samples collected at concentrations ranging from 0.0005 mg/L to 63 mg/L and a calculated EPC of 1.54 mg/L. The only water criterion identified in the literature for acetone was the freshwater ORNL Tier II value of 1.5 mg/L (Suter and Tsao 1996). A review of the detected data for acetone indicated that only three samples exceeded a value of 1 mg/L, these sample concentrations were 1.6 mg/L, 10 mg/L, and 63 mg/L. Applying a dilution factor of 10 to the EPC for acetone results in a concentration of 0.154 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on these factors and the relatively low toxicity and low persistence of VOCs in aquatic, aerobic environments, this chemical poses a low potential for risk to marine receptors.

Carbon disulfide was detected in 42 of 237 samples collected at concentrations ranging from 0.002 mg/L to 0.017 mg/L. The freshwater ORNL Tier II value for carbon disulfide was 0.00092 mg/L. Applying a dilution factor of 10 to the maximum concentration detected in the groundwater results in a concentration of 0.0017 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on the low persistence of VOCs in aquatic, aerobic environments, this chemical poses a low potential for risk to marine receptors.

Isopropylbenzene was detected in 6 of 109 samples collected at concentrations ranging from 0.0005 mg/L to 0.0055 mg/L. A screening benchmark criterion has not been developed for this compound. Applying a dilution factor of 10 to the maximum concentration detected in the groundwater results in a concentration of 0.00055 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on the low frequency of detection (5.5 percent), low concentrations detected, and the relatively low toxicity and low persistence of VOCs in aquatic, aerobic environments, this chemical poses a low potential for risk to marine receptors.

Tert-butanol was detected in 12 of 73 samples collected at concentrations ranging from 0.0027 mg/L to 0.5 mg/L. A screening benchmark criterion has not been developed for this compound. Applying a dilution factor of 10 to the maximum concentration detected in the groundwater results in a concentration of 0.05 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on this information, and the relatively low toxicity and low persistence of VOCs in aquatic, aerobic environments, this chemical poses a low potential for risk to marine receptors.

Vinyl chloride was detected in 62 of 256 samples collected with concentrations ranging from 0.0003 mg/L to 1.4 mg/L and an EPC of 0.0335 mg/L. The U.S. Department of Energy freshwater chronic preliminary remediation goal for vinyl chloride was established at

0.782 mg/L. Applying a dilution factor of 10 to the maximum concentration detected in the groundwater results in a concentration of 0.14 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on the low persistence of VOCs in aquatic, aerobic environments and the comparison to the available aquatic criteria, this chemical poses a low potential for risk to marine receptors.

Xylene was detected in 23 of 128 samples collected at concentrations ranging from 0.0003 mg/L to 0.32 mg/L and an EPC of 0.0186 mg/L. The freshwater ORNL benchmark for xylene was 0.013 mg/L. Applying a dilution factor of 10 to the EPC concentration in the groundwater results in a concentration of 0.00186 mg/L potentially reaching the Seaplane Lagoon (NOAA 1999). Based on the low persistence of VOCs in aquatic, aerobic environments and the expected low concentration reaching Seaplane Lagoon, this chemical poses a low potential for risk to marine receptors.

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