

Table 5-16
Human Health Risk Screening Evaluation for Contaminants in Surface Sediment Samples - WS-002

Bellows OU1 EE/CA, Bellows AFS, Hawaii

Chemical Name	Chemical Class	Concentration in Sediment (mg/kg)	Dermal Absorption Factor	Chemical Intake (mg/kg-day)				Oral RfD (mg/kg-day)	Oral SF (kg-day/mg)	Ingestion HQ	Dermal HQ	Ingestion ILCR	Dermal ILCR	Chemical-specific HI	% Contrib.	Chemical-specific ILCR	% Contrib.
				Ingestion (non-carcinogen exposure)	Dermal contact (non-carcinogen exposure)	Ingestion (carcinogen exposure)	Dermal contact (carcinogen exposure)										
TPH-Diesel	TPH	6.40E+01	0.1	1.96E-04	1.33E-04	1.68E-05	1.14E-05	0.08			2.45E-03	1.67E-03			4.12E-03	0.48	
4,4'-DDD	PEST/PCE	1.80E-02	0.03	5.51E-08	1.13E-08	4.73E-09	9.64E-10		0.24			1.13E-09	2.31E-10		1.37E-09	0.01	
4,4'-DDE	PEST/PCE	5.40E-03	0.03	1.65E-08	3.38E-09	1.42E-09	2.89E-10		0.34			4.82E-10	9.84E-11		5.81E-10	0.00	
Aldrin	PEST/PCE	3.80E-03	0.1	1.16E-08	7.92E-09	9.98E-10	6.79E-10	0.00003	17	3.88E-04	2.64E-04	1.70E-08	1.15E-08	6.52E-04	0.08	2.85E-08	0.21
Chlordane (alpha)	PEST/PCE	3.90E-02	0.04	1.19E-07	3.25E-08	1.02E-08	2.79E-09	0.00006	1.3	1.99E-03	5.42E-04	1.33E-08	3.62E-09	2.53E-03	0.30	1.69E-08	0.13
Chlordane (gamma)	PEST/PCE	7.20E-03	0.04	2.21E-08	6.00E-09	1.89E-09	5.14E-10	0.00006	1.3	3.68E-04	1.00E-04	2.46E-09	6.69E-10	4.68E-04	0.06	3.13E-09	0.02
Dieldrin	PEST/PCE	1.10E-02	0.1	3.37E-08	2.29E-08	2.89E-09	1.96E-09	0.00005	16	6.74E-04	4.58E-04	4.62E-08	3.14E-08	1.13E-03	0.13	7.76E-08	0.58
Endosulfan I	PEST/PCE	5.20E-03	0.1	1.59E-08	1.08E-08	1.37E-09	9.29E-10	0.006		2.66E-06	1.81E-06			4.46E-06	<0.01		
Endosulfan II	PEST/PCE	2.40E-02	0.1	7.35E-08	5.00E-08	6.30E-09	4.29E-09	0.006		1.23E-05	8.33E-06			2.06E-05	<0.01		
Endosulfan Sulfate	PEST/PCE	1.40E-02	0.1	4.29E-08	2.92E-08	3.68E-09	2.50E-09										
Endrin	PEST/PCE	3.10E-02	0.1	9.50E-08	6.46E-08	8.14E-09	5.54E-09	0.0003		3.17E-04	2.15E-04			5.32E-04	0.06		
Heptachlor	PEST/PCE	4.40E+00	0.1	1.35E-05	9.17E-06	1.16E-06	7.86E-07	0.0005	4.5	2.70E-02	1.83E-02	5.20E-06	3.54E-06	4.53E-02	5.33	8.74E-06	65.53
Heptachlor Epoxide	PEST/PCE	1.10E-02	0.1	3.37E-08	2.29E-08	2.89E-09	1.96E-09	1.3E-05	9.1	2.59E-03	1.76E-03	2.63E-08	1.79E-08	4.36E-03	0.51	4.42E-08	0.33
Methoxychlor	PEST/PCE	9.60E-03	0.1	2.94E-08	2.00E-08	2.52E-09	1.71E-09	0.005		5.88E-06	4.00E-06			9.88E-06	<0.01		
a-BHC	PEST/PCE	1.60E-02	0.04	4.90E-08	1.33E-08	4.20E-09	1.14E-09		6.3			2.65E-08	7.20E-09			3.37E-08	0.25
b-BHC	PEST/PCE	2.20E-02	0.04	6.74E-08	1.83E-08	5.78E-09	1.57E-09		1.8			1.04E-08	2.83E-09			1.32E-08	0.10
g-BHC (Lindane)	PEST/PCE	4.70E-01	0.04	1.44E-06	3.92E-07	1.23E-07	3.36E-08	0.0003	1.3	4.80E-03	1.31E-03	1.60E-07	4.36E-08	6.11E-03	0.72	2.04E-07	1.53
Anthracene	PAH	1.50E-02	0.13	4.60E-08	4.06E-08	3.94E-09	3.48E-09	0.3		1.53E-07	1.35E-07			2.89E-07	<0.01		
Benzo (a) anthracene	PAH	1.61E-01	0.13	4.93E-07	4.36E-07	4.23E-08	3.74E-08		0.73			3.09E-08	2.73E-08			5.81E-08	0.44
Benzo (a) pyrene	PAH	1.81E-01	0.13	5.55E-07	4.90E-07	4.75E-08	4.20E-08		7.3			3.47E-07	3.07E-07			6.54E-07	4.90
Benzo (b) fluoranthene	PAH	2.05E-01	0.13	6.28E-07	5.55E-07	5.38E-08	4.76E-08		0.73			3.93E-08	3.47E-08			7.40E-08	0.56
Benzo (g,h,i) perylene	PAH	1.86E-01	0.13	5.70E-07	5.04E-07	4.88E-08	4.32E-08										
Benzo(k)fluoranthene	PAH	9.73E-02	0.13	2.98E-07	2.64E-07	2.56E-08	2.26E-08		0.073			1.87E-09	1.65E-09			3.51E-09	0.03
Chrysene	PAH	2.70E-01	0.13	8.27E-07	7.31E-07	7.09E-08	6.27E-08		0.0073			5.18E-10	4.58E-10			9.75E-10	0.01
Fluoranthene	PAH	3.54E-01	0.13	1.08E-06	9.57E-07	9.28E-08	8.21E-08	0.04		2.71E-05	2.39E-05			5.10E-05	<0.01		
Indeno (1,2,3-c,d) pyrene	PAH	3.42E-01	0.13	1.05E-06	9.26E-07	8.98E-08	7.94E-08		0.73			6.56E-08	5.80E-08			1.24E-07	0.93
Phenanthrene	PAH	1.32E-01	0.13	4.04E-07	3.58E-07	3.47E-08	3.06E-08										
Pyrene	PAH	2.39E-01	0.13	7.32E-07	6.47E-07	6.28E-08	5.55E-08	0.03		2.44E-05	2.16E-05			4.60E-05	<0.01		
Aluminum	METALS	2.40E+04	0.01	7.35E-02	5.00E-03	6.30E-03	4.29E-04	1		7.35E-02	5.00E-03			7.85E-02	9.24		
Arsenic	METALS	5.80E+00	0.03	1.78E-05	3.63E-06	1.52E-06	3.11E-07	0.0003	1.5	5.92E-02	1.21E-02	2.28E-06	4.66E-07	7.13E-02	8.39	2.75E-06	20.64
Barium	METALS	1.44E+01	0.01	4.41E-05	3.00E-06	3.78E-06	2.57E-07	0.07		6.30E-04	4.29E-05			6.73E-04	0.08		
Beryllium	METALS	4.20E-01	0.01	1.29E-06	8.75E-08	1.10E-07	7.50E-09	0.005	4.3	2.57E-04	1.75E-05	4.74E-07	3.23E-08	2.75E-04	0.03	5.07E-07	3.80
Cadmium	METALS	1.00E+00	0.01	3.06E-06	2.08E-07	2.63E-07	1.79E-08	0.001		3.06E-03	2.08E-04			3.27E-03	0.38		
Chromium	METALS	1.20E+02	0.01	3.68E-04	2.50E-05	3.15E-05	2.14E-06	0.005		7.35E-02	5.00E-03			7.85E-02	9.24		
Cobalt	METALS	2.47E+01	0.01	7.57E-05	5.15E-06	6.49E-06	4.41E-07	0.06		1.26E-03	8.58E-05			1.35E-03	0.16		
Copper	METALS	5.73E+01	0.01	1.76E-04	1.19E-05	1.50E-05	1.02E-06	0.037		4.74E-03	3.23E-04			5.07E-03	0.60		
Iron	METALS	4.19E+04	0.01	1.28E-01	8.73E-03	1.10E-02	7.48E-04	0.3		4.28E-01	2.91E-02			4.57E-01	53.75		
Lead	METALS	9.00E+00		2.76E-05	0.00E+00	2.36E-06	0.00E+00										
Manganese	METALS	3.71E+02	0.01	1.14E-03	7.73E-05	9.74E-05	6.63E-06	0.0467		2.43E-02	1.66E-03			2.60E-02	3.06		
Nickel	METALS	8.14E+01	0.01	2.49E-04	1.70E-05	2.14E-05	1.45E-06	0.02		1.25E-02	8.48E-04			1.33E-02	1.57		
Vanadium	METALS	1.04E+02	0.01	3.19E-04	2.17E-05	2.73E-05	1.86E-06	0.007		4.55E-02	3.10E-03			4.86E-02	5.72		
Zinc	METALS	8.68E+01	0.01	2.66E-04	1.81E-05	2.28E-05	1.55E-06	0.3		8.86E-04	6.03E-05			9.47E-04	0.11		

Total Hazard Index **8.50E-01** Total Risk **1.33E-05**

EXPOSURE ASSUMPTIONS	
Exposure Setting	Recreational User
Exposure Case	RME
Sediment Ingestion Rate - (mg/day)	200
Exposed Skin Surface Area (cm2)	1360
Sediment Adherence Factor (mg/cm2)	1
Correction Factor	1.00E-06
Fraction of chemical absorbed (unitless)	chemical - specific
Body Weight - (kilograms)	46.5
Number of Days/Year Exposed	260
Number of Years Exposed	6
Averaging Time - Noncancer (yrs)	6
Averaging Time - Noncancer (yrs)	70
Ingestion (Noncancer) (d-1)	3.06E-06
Ingestion (Cancer) (d-1)	2.63E-07
Dermal (Noncancer) (d-1)	2.08E-05
Dermal (Cancer) (d-1)	1.79E-06