

Table 5-17
Human Health Risk Screening Evaluation for Contaminants in Surface Sediment Samples - WS-003
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	1.82E+01	0.1	5.57E-05	3.79E-05	4.77E-06	3.25E-06	0.08		6.96E-04	4.73E-04			1.17E-03	0.16		
Di-n-butylphthalate	SVOC	1.33E-01	0.1	4.06E-07	2.76E-07	3.48E-08	2.37E-08	0.1	0.014	4.06E-06	2.76E-06	4.87E-10	3.31E-10	6.82E-06	<0.01	8.18E-10	0.01
4,4'-DDD	PEST/PCB	4.60E-03	0.03	1.41E-08	2.88E-09	1.21E-09	2.46E-10		0.24			2.90E-10	5.91E-11			3.49E-10	0.00
4,4'-DDE	PEST/PCB	1.60E-03	0.03	4.89E-09	9.98E-10	4.20E-10	8.56E-11		0.34			1.43E-10	2.91E-11			1.72E-10	0.00
Aldrin	PEST/PCB	2.05E-03	0.1	6.28E-09	4.27E-09	5.38E-10	3.66E-10	0.00003	17	2.09E-04	1.42E-04	9.15E-09	6.22E-09	3.52E-04	0.05	1.54E-08	0.22
Chlordane (alpha)	PEST/PCB	6.40E-03	0.04	1.96E-08	5.33E-09	1.68E-09	4.57E-10	0.00006	1.3	3.27E-04	8.89E-05	2.18E-09	5.94E-10	4.16E-04	0.06	2.78E-09	0.04
Chlordane (gamma)	PEST/PCB	1.80E-03	0.04	5.51E-09	1.50E-09	4.73E-10	1.29E-10	0.00006	1.3	9.19E-05	2.50E-05	6.15E-10	1.67E-10	1.17E-04	0.02	7.82E-10	0.01
Dieldrin	PEST/PCB	2.75E-03	0.1	8.43E-09	5.73E-09	7.22E-10	4.91E-10	0.00005	16	1.69E-04	1.15E-04	1.16E-08	7.86E-09	2.83E-04	0.04	1.94E-08	0.28
Endosulfan I	PEST/PCB	3.78E-03	0.1	1.16E-08	7.86E-09	9.91E-10	6.74E-10	0.006		1.93E-06	1.31E-06			3.24E-06	<0.01		
Endosulfan Sulfate	PEST/PCB	3.25E-03	0.1	9.96E-09	6.77E-09	8.53E-10	5.80E-10										
Endrin	PEST/PCB	6.55E-03	0.1	2.01E-08	1.36E-08	1.72E-09	1.17E-09	0.0003		6.69E-05	4.55E-05			1.12E-04	0.02		
Endrin Aldehyde	PEST/PCB	8.10E-03	0.1	2.48E-08	1.69E-08	2.13E-09	1.45E-09										
Heptachlor	PEST/PCB	1.44E+00	0.1	4.40E-06	2.99E-06	3.77E-07	2.56E-07	0.0005	4.5	8.80E-03	5.98E-03	1.70E-06	1.15E-06	1.48E-02	2.07	2.85E-06	40.43
Heptachlor Epoxide	PEST/PCB	2.55E-03	0.1	7.81E-09	5.31E-09	6.70E-10	4.55E-10	0.000013	9.1	6.01E-04	4.09E-04	6.09E-09	4.14E-09	1.01E-03	0.14	1.02E-08	0.15
Methoxychlor	PEST/PCB	6.60E-03	0.1	2.02E-08	1.38E-08	1.73E-09	1.18E-09	0.005		4.04E-06	2.75E-06			6.79E-06	<0.01		
b-BHC	PEST/PCB	1.01E-02	0.04	3.09E-08	8.42E-09	2.65E-09	7.21E-10		1.8			4.77E-09	1.30E-09			6.07E-09	0.09
g-BHC (Lindane)	PEST/PCB	4.65E-01	0.04	1.42E-06	3.88E-07	1.22E-07	3.32E-08	0.0003	1.3	4.75E-03	1.29E-03	1.59E-07	4.32E-08	6.04E-03	0.84	2.02E-07	2.86
Benzo (a) anthracene	PAH	1.45E-02	0.13	4.43E-08	3.91E-08	3.79E-09	3.35E-09		0.73			2.77E-09	2.45E-09			5.22E-09	0.07
Benzo (a) pyrene	PAH	2.24E-02	0.13	6.85E-08	6.05E-08	5.87E-09	5.19E-09		7.3			4.28E-08	3.79E-08			8.07E-08	1.14
Benzo (b) fluoranthene	PAH	2.11E-02	0.13	6.45E-08	5.70E-08	5.53E-09	4.89E-09		0.73			4.04E-09	3.57E-09			7.60E-09	0.11
Benzo (g,h,i) perylene	PAH	2.30E-02	0.13	7.05E-08	6.23E-08	6.04E-09	5.34E-09										
Benzo(k)fluoranthene	PAH	9.63E-03	0.13	2.95E-08	2.61E-08	2.53E-09	2.23E-09		0.073			1.85E-10	1.63E-10			3.48E-10	0.00
Chrysene	PAH	1.70E-02	0.13	5.21E-08	4.60E-08	4.46E-09	3.95E-09		0.0073			3.26E-11	2.88E-11			6.14E-11	0.00
Fluoranthene	PAH	2.25E-02	0.13	6.89E-08	6.09E-08	5.91E-09	5.22E-09	0.04		1.72E-06	1.52E-06			3.25E-06	<0.01		
Indeno (1,2,3-c,d) pyrene	PAH	6.20E-02	0.13	1.90E-07	1.68E-07	1.63E-08	1.44E-08		0.73			1.19E-08	1.05E-08			2.24E-08	0.32
Phenanthrene	PAH	5.75E-03	0.13	1.76E-08	1.56E-08	1.51E-09	1.33E-09										
Pyrene	PAH	2.50E-02	0.13	7.66E-08	6.77E-08	6.57E-09	5.80E-09	0.03		2.55E-06	2.26E-06			4.81E-06	<0.01		
Aluminum	METALS	2.29E+04	0.01	7.00E-02	4.76E-03	6.00E-03	4.08E-04	1		7.00E-02	4.76E-03			7.48E-02	10.46		
Arsenic	METALS	7.05E+00	0.03	2.16E-05	4.41E-06	1.85E-06	3.78E-07	0.0003	1.5	7.20E-02	1.47E-02	2.78E-06	5.67E-07	8.67E-02	12.12	3.34E-06	47.42
Barium	METALS	1.23E+01	0.01	3.77E-05	2.56E-06	3.23E-06	2.20E-07	0.07		5.38E-04	3.66E-05			5.75E-04	0.08		
Beryllium	METALS	4.00E-01	0.01	1.23E-06	8.33E-08	1.05E-07	7.14E-09	0.005	4.3	2.45E-04	1.67E-05	4.52E-07	3.07E-08	2.62E-04	0.04	4.82E-07	6.84
Cadmium	METALS	7.10E-01	0.01	2.18E-06	1.48E-07	1.86E-07	1.27E-08	0.001		2.18E-03	1.48E-04			2.32E-03	0.32		
Chromium	METALS	1.06E+02	0.01	3.25E-04	2.21E-05	2.78E-05	1.89E-06	0.005		6.50E-02	4.42E-03			6.94E-02	9.70		
Cobalt	METALS	1.99E+01	0.01	6.08E-05	4.14E-06	5.21E-06	3.54E-07	0.06		1.01E-03	6.89E-05			1.08E-03	0.15		
Copper	METALS	4.67E+01	0.01	1.43E-04	9.73E-06	1.23E-05	8.34E-07	0.037		3.87E-03	2.63E-04			4.13E-03	0.58		
Iron	METALS	3.50E+04	0.01	1.07E-01	7.28E-03	9.18E-03	6.24E-04	0.3		3.57E-01	2.43E-02			3.81E-01	53.31		
Lead	METALS	8.95E+00	0.01	2.74E-05	1.86E-06	2.35E-06	1.60E-07										
Manganese	METALS	2.26E+02	0.01	6.92E-04	4.71E-05	5.93E-05	4.04E-06	0.0467		1.48E-02	1.01E-03			1.58E-02	2.21		
Nickel	METALS	7.98E+01	0.01	2.44E-04	1.66E-05	2.09E-05	1.42E-06	0.02		1.22E-02	8.31E-04			1.30E-02	1.82		
Vanadium	METALS	8.73E+01	0.01	2.67E-04	1.82E-05	2.29E-05	1.56E-06	0.007		3.82E-02	2.60E-03			4.08E-02	5.70		
Zinc	METALS	6.88E+01	0.01	2.11E-04	1.43E-05	1.81E-05	1.23E-06	0.3		7.03E-04	4.78E-05			7.50E-04	0.10		

Total Hazard Index 7.15E-01 Total Risk 7.05E-06

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