

**Table 5-14**  
**Human Health Risk Screening Evaluation for Contaminants in Surface Sediment Samples - WSU**

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	8.50E+00	0.1	2.60E-05	1.77E-05	2.23E-06	1.52E-06	0.08		3.26E-04	2.21E-04			5.47E-04	0.04		
Di-n-butylphthalate	SVOC	1.30E-01	0.1	3.98E-07	2.71E-07	3.41E-08	2.32E-08	0.1	0.014	3.98E-06	2.71E-06	4.78E-10	3.25E-10	6.69E-06	<0.01	8.03E-10	0.02
4,4'-DDD	PEST/PCE	3.90E-03	0.03	1.19E-08	2.44E-09	1.02E-09	2.09E-10		0.24			2.46E-10	5.01E-11			2.96E-10	0.01
4,4'-DDE	PEST/PCE	2.10E-03	0.03	6.43E-09	1.31E-09	5.51E-10	1.13E-10		0.34			1.88E-10	3.83E-11			2.26E-10	0.01
Aldrin	PEST/PCE	1.30E-03	0.1	3.98E-09	2.71E-09	3.41E-10	2.32E-10	0.00003	17	1.33E-04	9.03E-05	5.80E-09	3.95E-09	2.23E-04	0.01	9.75E-09	0.22
Chlordane (alpha)	PEST/PCE	6.00E-03	0.04	1.84E-08	5.00E-09	1.58E-09	4.29E-10	0.00006	1.3	3.06E-04	8.33E-05	2.05E-09	5.57E-10	3.90E-04	0.03	2.61E-09	0.06
Chlordane (gamma)	PEST/PCE	7.50E-03	0.04	2.30E-08	6.25E-09	1.97E-09	5.36E-10	0.00006	1.3	3.83E-04	1.04E-04	2.56E-09	6.96E-10	4.87E-04	0.03	3.26E-09	0.07
Dieldrin	PEST/PCE	3.60E-03	0.1	1.10E-08	7.50E-09	9.45E-10	6.43E-10	0.00005	16	2.21E-04	1.50E-04	1.51E-08	1.03E-08	3.71E-04	0.02	2.54E-08	0.58
Endosulfan Sulfate	PEST/PCE	1.50E-02	0.1	4.60E-08	3.13E-08	3.94E-09	2.68E-09										
Endrin Aldehyde	PEST/PCE	5.80E-03	0.1	1.78E-08	1.21E-08	1.52E-09	1.04E-09										
Heptachlor	PEST/PCE	1.90E-02	0.1	5.82E-08	3.96E-08	4.99E-09	3.39E-09	0.0005	4.5	1.16E-04	7.92E-05	2.25E-08	1.53E-08	1.96E-04	0.01	3.77E-08	0.86
Heptachlor Epoxide	PEST/PCE	2.60E-03	0.1	7.97E-09	5.42E-09	6.83E-10	4.64E-10	1.3E-05	9.1	6.13E-04	4.17E-04	6.21E-09	4.23E-09	1.03E-03	0.07	1.04E-08	0.24
Methoxychlor	PEST/PCE	2.40E-02	0.1	7.35E-08	5.00E-08	6.30E-09	4.29E-09	0.005		1.47E-05	1.00E-05			2.47E-05	<0.01		
b-BHC	PEST/PCE	2.30E-02	0.04	7.05E-08	1.92E-08	6.04E-09	1.64E-09		1.8			1.09E-08	2.96E-09			1.38E-08	0.32
g-BHC (Lindane)	PEST/PCE	1.30E-02	0.04	3.98E-08	1.08E-08	3.41E-09	9.29E-10	0.0003	1.3	1.33E-04	3.61E-05	4.44E-09	1.21E-09	1.69E-04	0.01	5.65E-09	0.13
Anthracene	PAH	2.90E-02	0.13	8.88E-08	7.85E-08	7.62E-09	6.73E-09	0.3						0.00E+00	<0.01		
Benzo (a) anthracene	PAH	1.35E-01	0.13	4.14E-07	3.66E-07	3.55E-08	3.13E-08		0.73			2.59E-08	2.29E-08			4.88E-08	1.11
Benzo (a) pyrene	PAH	1.32E-01	0.13	4.04E-07	3.58E-07	3.47E-08	3.06E-08		7.3			2.53E-07	2.24E-07			4.77E-07	10.90
Benzo (b) fluoranthene	PAH	1.25E-01	0.13	3.83E-07	3.39E-07	3.28E-08	2.90E-08		0.73			2.40E-08	2.12E-08			4.51E-08	1.03
Benzo (g,h,i) perylene	PAH	1.05E-01	0.13	3.22E-07	2.84E-07	2.76E-08	2.44E-08										
Benzo(k)fluoranthene	PAH	7.35E-02	0.13	2.25E-07	1.99E-07	1.93E-08	1.71E-08		0.073			1.41E-09	1.25E-09			2.65E-09	0.06
Chrysene	PAH	1.80E-01	0.13	5.51E-07	4.88E-07	4.73E-08	4.18E-08		0.0073			3.45E-10	3.05E-10			6.50E-10	0.01
Fluoranthene	PAH	3.77E-01	0.13	1.16E-06	1.02E-06	9.90E-08	8.75E-08	0.04		2.89E-05	2.55E-05			5.44E-05	<0.01		
Indeno (1,2,3-c,d) pyrene	PAH	1.99E-01	0.13	6.10E-07	5.39E-07	5.23E-08	4.62E-08		0.73			3.81E-08	3.37E-08			7.19E-08	1.64
Phenanthrene	PAH	2.72E-01	0.13	8.33E-07	7.37E-07	7.14E-08	6.31E-08										
Pyrene	PAH	3.31E-01	0.13	1.01E-06	8.96E-07	8.69E-08	7.68E-08	0.03		3.38E-05	2.99E-05			6.37E-05	<0.01		
Aluminum	METALS	4.82E+04	0.01	1.48E-01	1.00E-02	1.27E-02	8.61E-04	1		1.48E-01	1.00E-02			1.58E-01	10.45		
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	4.73	2.75E-06	62.88
Barium	METALS	1.03E+02	0.01	3.16E-04	2.15E-05	2.70E-05	1.84E-06	0.07		4.51E-03	3.07E-04			4.81E-03	0.32		
Beryllium	METALS	7.20E-01	0.01	2.21E-06	1.50E-07	1.89E-07	1.29E-08	0.005	4.3	4.41E-04	3.00E-05	8.13E-07	5.53E-08	4.71E-04	0.03	8.68E-07	19.85
Cadmium	METALS	1.40E+00	0.01	4.29E-06	2.92E-07	3.68E-07	2.50E-08	0.001		4.29E-03	2.92E-04			4.58E-03	0.30		
Chromium	METALS	2.20E+02	0.01	6.74E-04	4.58E-05	5.78E-05	3.93E-06	0.005		1.35E-01	9.17E-03			1.44E-01	9.54		
Cobalt	METALS	3.59E+01	0.01	1.10E-04	7.48E-06	9.43E-06	6.41E-07	0.06		1.83E-03	1.25E-04			1.96E-03	0.13		
Copper	METALS	8.52E+01	0.01	2.61E-04	1.78E-05	2.24E-05	1.52E-06	0.037		7.05E-03	4.80E-04			7.53E-03	0.50		
Iron	METALS	7.05E+04	0.01	2.16E-01	1.47E-02	1.85E-02	1.26E-03	0.3		7.20E-01	4.90E-02			7.69E-01	50.95		
Lead	METALS	1.13E+01		3.46E-05	0.00E+00	2.97E-06	0.00E+00										
Manganese	METALS	1.39E+03	0.01	4.26E-03	2.90E-04	3.65E-04	2.48E-05	0.0467		9.12E-02	6.20E-03			9.74E-02	6.45		
Nickel	METALS	1.51E+02	0.01	4.63E-04	3.15E-05	3.97E-05	2.70E-06	0.02		2.31E-02	1.57E-03			2.47E-02	1.64		
Silver	METALS	8.50E-01	0.01	2.60E-06	1.77E-07	2.23E-07	1.52E-08	0.005		5.21E-04	3.54E-05			5.56E-04	0.04		
Vanadium	METALS	1.66E+02	0.01	5.09E-04	3.46E-05	4.36E-05	2.96E-06	0.007		7.27E-02	4.94E-03			7.76E-02	5.14		
Zinc	METALS	1.22E+02	0.01	3.74E-04	2.54E-05	3.20E-05	2.18E-06	0.3		1.25E-03	8.47E-05			1.33E-03	0.09		
2,4,5-TP	HERB	4.00E-02	0.1	1.23E-07	8.33E-08	1.05E-08	7.14E-09	0.008		1.53E-05	1.04E-05			2.57E-05	<0.01		
2,4 D	HERB	5.40E-01	0.05	1.65E-06	5.63E-07	1.42E-07	4.82E-08	0.01		1.65E-04	5.63E-05			2.22E-04	0.01		
Dalapon	HERB	1.10E+02	0.1	3.37E-04	2.29E-04	2.89E-05	1.96E-05	0.03		1.12E-02	7.64E-03			1.89E-02	1.25		
Dicamba	HERB	1.40E-01	0.1	4.29E-07	2.92E-07	3.68E-08	2.50E-08	0.03		1.43E-05	9.72E-06			2.40E-05	<0.01		
MCP	HERB	2.40E+01	0.1	7.35E-05	5.00E-05	6.30E-06	4.29E-06	0.001		7.35E-02	5.00E-02			1.24E-01	8.19		

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

Total Hazard Index 1.51E+00 Total Risk 4.37E-06