

Table 4-6
Chemicals Detected in Surface Sediment at Waimanalo Stream
Bellows OU1 EE/CA, Bellows AFS, Hawaii

Location	Upstream Locations				Downstream Locations									
	WSU-001		WSU-002		WS-001		WS-002		WS-003		WS-004		WS-005	
	WSU-SD001A	SU-SD002A	WS-SD001A	WS-SD002A	WS-SD003A	WS-SD004A	WS-SD005A							
Sample ID														
Sampling Date	11/12/98	11/12/98	11/13/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98
Depth (cm)	0-6	0-10	0-8	0-6	0-6	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Chemicals														
I Group	Chemical	CAS	Units											
TPH	TPH-Diesel	TPH-DIESEL	mg/kg	8.5 F	ND	28 F	64 F	18.175 D F	6.2 F	4.8 F				
TPH	TPH-Gasoline	TPH-GASOLINE	mg/kg	ND	ND	0.15 F	ND	0.0075 D F	ND	ND				
SVOC	Di-n-butylphthalate	84-74-2	mg/kg	ND	0.13 F	ND	ND	0.1325 D F	ND	ND				
PEST	4,4'-DDD	72-54-8	mg/kg	ND	0.0039 F	0.0071 M	0.018 F	0.0046 F	0.0019 F	0.0027 F				
PEST	4,4'-DDE	72-55-9	mg/kg	0.00087 F	0.0021 F	0.0017 M	0.0054 F	0.0016 D F	0.0055 F	0.011 F				
PEST	4,4'-DDT	50-29-3	mg/kg	R	0.0081 F	0.019 F	R	0.0091 F	0.0051 F	0.014 F				
PEST	Aldrin	309-00-2	mg/kg	0.0013 F	0.00088 F	ND	0.0038 F	0.00205 F	0.0005 F	0.00089 F				
PEST	alpha-BHC	319-84-6	mg/kg	0.0007 F	ND	0.0017 M	0.016 F	0.00227 D F	0.0035 F	0.012 F				
PEST	beta-BHC	319-85-7	mg/kg	0.023 F	0.0027 F	0.0093 M	0.022 F	0.0101 F	0.0064 F	0.0054 F				
PEST	Chlordane (Alpha)	5103-71-9	mg/kg	0.0009 F	0.006 F	0.0033 M	0.039 F	0.0064 F	0.0011 F	R				
PEST	Chlordane (Gamma)	5103-74-2	mg/kg	0.0014 F	0.0075 F	0.0019 M	0.0072 F	0.0018 F	0.0049 F	0.0019 F				
PEST	delta-BHC	319-86-8	mg/kg	0.00097 F	0.0012 F	ND	ND	ND	0.0053 F	0.022 J				
PEST	Dieldrin	60-57-1	mg/kg	0.0009 F	0.0036 F	0.0015 M	0.011 F	0.00275 F	0.0032 F	ND				
PEST	Endosulfan I	959-98-8	mg/kg	ND	ND	0.0084 F	0.0052 F	0.00378 D F	ND	ND				
PEST	Endosulfan II	33213-65-9	mg/kg	R	ND	0.011 F	0.024 F	0.00283 D F	0.0021 F	0.0019 F				
PEST	Endosulfan sulfate	1031-07-8	mg/kg	0.015 F	0.012 F	0.015 F	0.014 F	0.00325 F	0.0037 F	0.019 F				
PEST	Endrin	72-20-8	mg/kg	ND	ND	0.014 M	0.031 F	0.00655 D F	ND	ND				
PEST	Endrin aldehyde	7421-93-4	mg/kg	0.0058 F	ND	0.0041 F	R	0.0081 F	R	0.0077 F				
PEST	gamma-BHC (Lindar)	58-89-9	mg/kg	0.0022 F	0.013 F	0.42 M	0.47 J	0.465 J	0.22 J	0.17 J				
PEST	Heptachlor	76-44-8	mg/kg	0.019 F	0.0034 F	0.0031 F	4.4 J	1.436 J	0.0066 F	0.01 F				
PEST	Heptachlor epoxide	1024-57-3	mg/kg	0.0026 F	0.00067 F	0.0045 M	0.011 F	0.00255 F	0.0016 F	0.0024 F				
PEST	Methoxychlor	72-43-5	mg/kg	R	0.024 F	0.025 M	0.0096 F	0.0066 F	0.0032 F	R				
PAH	Anthracene	120-12-7	mg/kg	ND	0.029 F	ND	0.015 F	ND	ND	ND				
PAH	Benzo (a) anthracen	56-55-3	mg/kg	ND	0.135	0.0047 F	0.161	0.01445 D	ND	ND				
PAH	Benzo (a) pyrene	50-32-8	mg/kg	ND	0.132	ND	0.181	0.02235 D	ND	ND				
PAH	Benzo (b) fluoranthe	205-99-2	mg/kg	ND	0.125	ND	0.205	0.02105 D J	ND	ND				
PAH	Benzo (g,h,i) perylen	191-24-2	mg/kg	ND	0.105	0.008 F	0.186	0.023 F	ND	ND				
PAH	Benzo (k) fluoranthe	207-08-9	mg/kg	R	0.0735	ND	0.0973	0.00963 D F	ND	ND				
PAH	Chrysene	218-01-9	mg/kg	ND	0.18 J	0.01 F	0.27 F	0.017 F	ND	ND				
PAH	Fluoranthene	206-44-0	mg/kg	ND	0.377	ND	0.3535 F	0.0225 D F	ND	ND				
PAH	Indeno (1,2,3-c,d) py	193-39-5	mg/kg	ND	0.199 J	0.014 F	0.342 J	0.062 D F	ND	ND				

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	WSU-001	WSU-002	WS-001	WS-002	WS-003	WS-004	WS-005			
Sample ID	WSU-SD001A	SU-SD002A	WS-SD001A	WS-SD002A	WS-SD003A	WS-SD004A	WS-SD005A			
Sampling Date	11/12/98	11/12/98	11/13/98	11/12/98	11/12/98	11/12/98	11/12/98			
Depth (cm)	0-6	0-10	0-8	0-6	0-6	0-10	0-10			
Chemicals										
I Group	Chemical	CAS	Units							
PAH	Phenanthrene	85-01-8	mg/kg	ND	0.272 F	0.004 F	0.132 F	0.00575 D F	ND	ND
PAH	Pyrene	129-00-0	mg/kg	ND	0.331	0.008 F	0.239 F	0.025 F	ND	ND
METALS	Aluminum	7429-90-5	mg/kg	32,000	48,200	26,900 M	24,000	22,850	966	907
METALS	Arsenic	7440-38-2	mg/kg	5.1 F	5.8 F	5.3 M	5.8 F	7.05 F	2.3 F	1.6 F
METALS	Barium	7440-39-3	mg/kg	79.4	103	16.9	14.4	12.3	3.6	4.7
METALS	Beryllium	7440-41-7	mg/kg	0.48 F	0.72 F	0.39 F	0.42 F	0.4 F	ND	ND
METALS	Cadmium	7440-43-9	mg/kg	0.95	1.4	0.92 F	1 F	0.71 F	ND	ND
METALS	Calcium	7440-70-2	mg/kg	9,060	8,650	65,600 M	126,000	91,400	187,000	278,000
METALS	Chromium	7440-47-3	mg/kg	128	220	111 M	120	106	5.4 F	6.6 F
METALS	Cobalt	7440-48-4	mg/kg	20.8	35.9	22.4	24.7 F	19.85 D	ND	ND
METALS	Copper	7440-50-8	mg/kg	51.4	85.2	50.1	57.3	46.7	1 F	0.88 F
METALS	Iron	7439-89-6	mg/kg	45,000 J	70,500 J	40,400 M	41,900 J	34,950 J	1,290 J	1,340 J
METALS	Lead	7439-92-1	mg/kg	3.1 F	11.3	6.7 M	9 F	8.95 F	3.4 F	ND
METALS	Magnesium	7439-95-4	mg/kg	6,390	6,000	7,250 M	12,700	8,750	9,740	13,300
METALS	Manganese	7439-96-5	mg/kg	347	1,390	505 M	371	226	43.9	59.4
METALS	Nickel	7440-02-0	mg/kg	117	151	81.4	81.4	79.75	2 F	3.8
METALS	Potassium	7440-09-7	mg/kg	265 F	394 F	1,330 M	2,080	1,405	166 F	153 F
METALS	Silver	7440-22-4	mg/kg	0.62 F	0.85 F	0.75 F	ND	ND	ND	ND
METALS	Sodium	7440-23-5	mg/kg	684	684	11,300 M	19,500	8,240	4,750	4,180
METALS	Vanadium	7440-62-2	mg/kg	107	166	88.4	104	87.25	4.1	4.6
METALS	Zinc	7440-66-6	mg/kg	71.1	122	62.9	86.8	68.8	3.4	3.4
HERB	2,4,5-TP (Silvex)	93-72-1	mg/kg	ND	0.04	ND	ND	ND	ND	ND
HERB	2,4-D	94-75-7	mg/kg	ND	0.54 J	ND	ND	ND	ND	ND
HERB	Dalapon	75-99-0	mg/kg	ND	110 J	ND	ND	ND	ND	ND
HERB	Dicamba	1918-00-9	mg/kg	ND	0.14 F	ND	ND	ND	ND	ND
HERB	MCPA	94-74-6	mg/kg	ND	7.7 F	ND	ND	ND	ND	ND
HERB	MCPP	93-65-2	mg/kg	ND	24 J	8 F	ND	ND	ND	ND
CONV	Ammonia-N	13767-16-3	mg/kg	20	44	53	151	91 J	ND	ND
CONV	Cyanide	5955-70-0	mg/kg	5.75	ND	0.88 F	1.99	1.35 J	ND	ND
CONV	Total Organic Carbon TOC		mg/kg	65.1 J	504 J	420 M	ND	206.925 D J	262 J	231 J

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Chemicals			
I Group	Chemical	CAS	Units

Notes:

Chemical Groups

TPH = total petroleum hydrocarbons
 SVOC = semivolatiles organic compounds
 PEST = pesticides
 PAH = polynuclear aromatic hydrocarbons
 HERB = herbicides
 CONV = conventionals
 AVS/SEM = acid-volatile sulfides/simultaneously extracted metals

Abbreviations

cm = centimeters
 mg/kg = milligrams per kilogram
 umoles/g = micromoles per gram
 µg/L = micrograms per liter

Data Qualifiers

F The detected concentration is below the reporting limit.
 J The analyte was positively identified; the quantitation is an estimation.
 R The data are unusable because of deficiencies in the ability to analyze the sample and meet QC criteria.
 B The analyte was detected in an associated blank, as well as in the sample.
 M A matrix effect was present.
 ND The analyte was not detected. The associated numerical value is at or below the method detection limit (MDL).
 D Applied to averaged results when non-"U" qualifiers are not identical.