

Well	Coordinates		Top of Casing Elevation (Feet msl)	Ground Elevation (Feet msl)	Total Depth of Well <sup>1/</sup> (Feet bgs)	Depth of Screen Interval (Feet bgs)
	Northing (Feet)	Easting (Feet)				
BH-01	7752943.422	2078460.234	14.94	11.5	20.13	9.63 - 19.63
BH-02	7752723.463	2078373.087	4.92	3.6	15.15	4.65 - 14.65
BH-03	7753081.588	2078557.479	17.64	14.5	22.68	12.38 - 22.38
BH-04	7753052.145	2078435.196	10.46	7.3	18.15	7.65 - 17.65
BH-05	7752958.771	2078347.314	8.60	5.6	17.05	6.55 - 16.55
BH-06	7752871.655	2078356.797	8.16	4.9	17.69	7.19 - 17.19
BH-07	7752699.586	2078784.913	10.51	7.5	18.20	7.70 - 17.70
BH-08	7752718.724	2078915.610	7.73	4.9	15.13	4.63 - 14.63
BH-09	7752513.277	2078690.813	4.95	1.9	14.35	3.85 - 13.85
BH-10	7752719.482	2078685.772	5.98	2.9	15.30	4.80 - 14.80
BH-11	7752784.700	2078661.961	5.51	3.6	15.30	4.80 - 14.80
BH-12	7752726.482	2078610.350	7.11	4.6	15.20	4.70 - 14.70
BH-13	7752719.825	2078522.756	9.96	6.8	17.49	6.99 - 16.99
BH-14	7752781.964	2078481.627	12.83	9.7	20.70	10.20 - 20.20
BH-15	7752809.992	2078387.724	8.19	5.1	17.17	6.67 - 16.67
BH-16	7752861.550	2078292.721	7.38	4.3	16.83	6.33 - 16.33
BH-17	7752908.041	2078470.177	14.98	12.0	21.83	11.33 - 21.33
BH-18	7752802.090	2078791.220	13.66	11.2	20.10	9.60 - 19.60
BH-19	7752858.592	2078557.088	12.48	9.2	20.00	9.50 - 19.50
BH-20	7752981.437	2078688.435	11.96	9.3	20.10	10.00 - 20.00

**Abbreviations and Acronyms:**

bgs - below ground surface  
 msl - mean sea level

**Notes:**

<sup>1/</sup> Measured from the top of casing

The northings and eastings were recorded in NAD27 by the surveyor and converted to WGS84 using the U.S. Army Corps of Engineers Corpcn program

Well	TOC (ft msl)	Low Tide			High Tide		
		Time	DTW (Feet)	Elevation (Feet msl)	Time	DTW (Feet)	Elevation (Feet msl)
BH-01	14.94	0759	14.25	0.69	1417	14.35	0.59
BH-02	4.92	0817	4.38	0.54	1404	4.38	0.54
BH-03	17.64	0801	17.00	0.64	1420	16.97	0.67
BH-04	10.46	0803	9.88	0.58	1418	9.82	0.64
BH-05	8.60	0809	8.00	0.60	1413	8.00	0.60
BH-06	8.16	0808	7.58	0.58	1411	7.57	0.59
BH-07	10.51	0750	9.98	0.53	1427	9.84	0.67
BH-08	7.73	0752	7.18	0.55	1427	7.05	0.68
BH-09	4.95	0748	4.68	0.27	1425	3.88	1.07
BH-10	5.98	0746	5.45	0.53	1423	5.33	0.65
BH-11	5.51	0745	4.95	0.56	1422	4.90	0.61
BH-12	7.11	0815	6.56	0.55	1401	6.51	0.60
BH-13	9.96	0814	9.42	0.54	1403	9.40	0.56
BH-14	12.83	0805	12.27	0.56	1356	12.29	0.54
BH-15	8.19	0807	7.63	0.56	1407	7.63	0.56
BH-16	7.38	0811	6.80	0.58	1409	6.80	0.58
BH-17	14.98	0758	14.38	0.60	1416	14.39	0.59
BH-18	13.66	0754	13.10	0.56	1432	13.06	0.60
BH-19	12.48	0819	11.91	0.57	1414	11.92	0.56
BH-20	11.96	0741	11.31	0.65	1436	11.32	0.64

**Abbreviations and Acronyms:**

ft - Feet

msl - Mean sea level

**Notes:**

Groundwater elevations measured on August 2, 2005

**Notes for Table 4-2****Abbreviations and Acronyms:**

B - Blank: Compound detected in method blank

F - Found: The analyte was positively identified but the associated concentration is estimated above the MDL and below the RL

HxCDD - hexachlorodibenzo dioxin

HpCDD - heptachlorodibenzo dioxin

HxCDF - hexachlorodibenzo furan

HpCDF - heptachlorodibenzo furan

J - Estimated: The analyte was positively identified, but the quantitation is an estimate due to discrepancies in meeting certain analyte-specific quality control criteria.

For dioxins/furans, "J" is used when the concentration exceeds the upper end of the linear calibration range, for reporting an estimated maximum possible concentration, and to indicate the value for TCDF was obtained by analysis using a DB-5 column.

mg/kg - milligrams per kilogram

na - no analysis requested

nc - not calculated

ng/kg - nanograms per kilogram

OCDD - octachlorodibenzo dioxin

OCDF - octachlorodibenzo furan

PAHs - polynuclear aromatic hydrocarbons

PCB - polychlorinated biphenyls

PeCDF - pentachlorodibenzo furan

R - Data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria

sim - selective ion mode

TCDF - tetrachlorodibenzo furan

U - Undetected: The analyte was analyzed for, but not detected

ug/kg - micrograms per kilogram

**Note**

**BH002-013**, BH stand for Bellows Hardfill, 002 is the sample number, -013 is the sampling depth

<sup>1/</sup> Screening criteria based on Table A-2 from *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Hawai'i Department of Health, May 2005) for sites less than 150 meters from surface water and where groundwater is not a source of drinking water

Analytes detected above screening criteria in bold and italics

-- no screening criteria established by HDOH

Sample Number	Units	Screening Criteria <sup>1/</sup>	BH002-013 BH-01	BH005-004 BH-02	BH004-013 BH-03	BH003-008 BH-04	BH008-005 BH-05	BH009-005 BH-06	BH015-007 BH-07	BH016-003 BH-08	BH018-002 BH-09	BH014-004 BH-10	BH013-004 BH-11	BH007-004 BH-12	BH006-006 BH-13
<i>Dioxins/Furans (8290)</i>															
1,2,3,4,7,8-HxCDD	ng/Kg	--	na	na	na	na	0.056 FJ	0.039 U	na	na	na	na	na	na	na
1,2,3,6,7,8-HxCDD	ng/Kg	--	na	na	na	na	0.133 FJ	0.038 U	na	na	na	na	na	na	na
1,2,3,7,8,9-HxCDD	ng/Kg	--	na	na	na	na	0.244 FJ	0.038 U	na	na	na	na	na	na	na
1,2,3,4,6,7,8-HpCDD	ng/Kg	--	na	na	na	na	1.069 BF	0.205 BFJ	na	na	na	na	na	na	na
OCDD	ng/Kg	--	na	na	na	na	3.883 BF	1.014 BFJ	na	na	na	na	na	na	na
2,3,7,8-TCDF	ng/Kg	--	na	na	na	na	0.266 JF	0.373 JF	na	na	na	na	na	na	na
1,2,3,7,8-PeCDF	ng/Kg	--	na	na	na	na	0.071 FJ	0.027 U	na	na	na	na	na	na	na
2,3,4,7,8-PeCDF	ng/Kg	--	na	na	na	na	0.104 FJ	0.080 FJ	na	na	na	na	na	na	na
1,2,3,4,7,8-HxCDF	ng/Kg	--	na	na	na	na	0.311 FJ	0.142 FJ	na	na	na	na	na	na	na
1,2,3,6,7,8-HxCDF	ng/Kg	--	na	na	na	na	0.123 FJ	0.024 U	na	na	na	na	na	na	na
2,3,4,6,7,8-HxCDF	ng/Kg	--	na	na	na	na	0.158 FJ	0.025 U	na	na	na	na	na	na	na
1,2,3,4,6,7,8-HpCDF	ng/Kg	--	na	na	na	na	0.579 FJ	0.205 FJ	na	na	na	na	na	na	na
OCDF	ng/Kg	--	na	na	na	na	0.403 F	0.054 U	na	na	na	na	na	na	na
Total Tetra-Dioxins	ng/Kg	--	na	na	na	na	0.174	0.224	na	na	na	na	na	na	na
Total Penta-Dioxins	ng/Kg	--	na	na	na	na	0.225	0.041 U	na	na	na	na	na	na	na
Total Hexa-Dioxins	ng/Kg	--	na	na	na	na	2.308	0.234	na	na	na	na	na	na	na
Total Hepta-Dioxins	ng/Kg	--	na	na	na	na	2.341	0.194	na	na	na	na	na	na	na
Total Tetra-Furans	ng/Kg	--	na	na	na	na	1.437	1.370	na	na	na	na	na	na	na
Total Penta-Furans	ng/Kg	--	na	na	na	na	1.827	0.341	na	na	na	na	na	na	na
Total Hexa-Furans	ng/Kg	--	na	na	na	na	1.176	0.302	na	na	na	na	na	na	na
Total Hepta-Furans	ng/Kg	--	na	na	na	na	1.142	0.205	na	na	na	na	na	na	na
<i>Volatile Organic Compounds (8260B)</i>															
Acetone	mg/Kg	0.50	0.012 F	0.009 F	0.010 F	0.020 F	0.024 F	0.019 F	0.010 F	0.011 F	0.022 F	0.009 J	0.008 F	0.06 U	0.009 F
Isopropylbenzene	mg/Kg	--	0.005 U	0.005 U	0.006 U	0.006 U	0.004 U	0.006 U	0.005 U	0.006 U	0.005 U	0.005 M	0.005 U	0.0102	0.006 U
p-Isopropyltoluene	mg/Kg	--	0.006 U	0.006 U	0.007 U	0.007 U	0.008 U	0.007 U	0.006 U	0.007 U	0.006 U	0.006 M	0.006 U	0.0016 F	0.007 U
<i>Petroleum Hydrocarbons (8015B)</i>															
Motor oil range hydrocarbons	mg/Kg	500.00	20.0 U	26.79 J	19.8 U	33.20 J	20.0 U	20.0 R	20.0 U	20.0 U	177.47	20.0 U	32.66	33.41	19.8 U
Diesel range hydrocarbons	mg/Kg	500.00	10.0 U	4.73 F	9.9 U	22.31	10.0 U	10.0 U	10.0 U	10.0 U	40.82	10.0 U	6.46 F	4.19 F	9.9 U
Gasoline range hydrocarbons	mg/Kg	100.00	15 R	19 R	2.7 J	18 R	17 U	14 U	13 U	15 U	23 U	17 U	12 U	12 U	15 R
<i>Metals (6020/7471)</i>															
Arsenic	mg/Kg	22.00	0.591 F	2.40000 F	2.50000 U	0.716 F	3.60000	2.20000 F	0.360 F	0.600 F	15.400	1.80 F	<b>26.900</b>	10.400	0.803 F
Lead	mg/Kg	200.00	2.10000	140.000	0.0746 F	0.0559 F	<b>427.000</b>	0.269	0.060 F	0.080 F	19.600	14.500	<b>283.000</b>	144.000	0.207 F
Selenium	mg/Kg	10.00	0.721 U	0.601 U	0.634 U	0.709 U	0.735 U	0.315 F	5.80 U	6.90 U	1.10 U	0.800 U	1.30000 U	0.605 U	6.20000 U
Cadmium	mg/Kg	12.00	0.2036 F	0.9243	0.0604 F	0.0736 F	0.1491 F	0.1705 F	0.070 F	0.070 F	1.7	0.190 F	0.06325	1.066126	0.0586 F
Silver	mg/Kg	20.00	0.28825 U	0.86270	0.25349 U	0.28370 U	0.29412 U	0.06190 F	0.230 U	0.280 U	0.300 F	0.070 F	0.24981	0.21309 F	0.24814 U
Barium	mg/Kg	750.00	6.322232	40.10906	5.117965	5.682544	7.627719	0.40323	5.0	5.6	17.3	12.0	71.96877	50.00259	5.78218
Chromium	mg/Kg	210.00	6.38000	14.00000	7.64000	5.36000	10.80000	18.20000	8.53	11.8	143	20.3	19.20000	30.80000	7.56000
Mercury	mg/Kg	10.00	0.141 U	0.6932	0.128 U	0.140 U	0.0205 F	0.0215 F	0.1000 U	0.1000 U	0.0294 F	0.0198 F	0.0352 F	0.0334 F	0.132 U
<i>Pesticides (8081A)</i>															
4,4'-DDE	mg/Kg	2.40	0.004 U	0.0018 F	0.004 R	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.0002 U	0.004 U	0.0882	0.004 U	0.004 U
4,4'-DDT	mg/Kg	1.70	0.004 U	0.0014 F	0.004 R	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.0003 U	0.004 U	0.0392	0.004 U	0.004 U
alpha-Chlordane	mg/Kg	1.60	0.004 U	0.004 U	0.004 R	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.0003 U	0.004 U	0.0654	0.004 U	0.004 U
gamma-Chlordane	mg/Kg	--	0.004 U	0.004 U	0.004 R	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.0003 U	0.004 U	0.0665	0.004 U	0.004 U
<i>PCBs (8082)</i>															
PCB-1260	mg/Kg	1.10	0.05 U	0.003 F	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 F	0.008 F	0.014 F	0.071	0.05 U
<i>PAHs (8270C-sim)</i>															
Acenaphthene	ug/Kg	16,000	5 U	0.5 F	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	ug/Kg	13,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	ug/Kg	2,800	5 U	2.7 F	5 U	5 U	5 U	1.2 F	5 U	5 U	5 U	5 U	1.2 F	5 U	5 U
Benzo(a)anthracene	ug/Kg	6,200	5 U	11.5	5 U	5 U	5 U	2.4 F	5 U	5 U	5 U	3.0 F	0.8 F	1.5 F	5 U
Benzo(a)pyrene	ug/Kg	620	5 U	8.4	5 U	5 U	5 U	2.6 F	5 U	5 U	5 U	5.7 F	5 U	2.3 F	1.2 F
Benzo(b)fluoranthene	ug/Kg	6,200	5 U	12.3	5 U	5 U	5 U	1.9 F	5 U	5 U	5 U	16.6	1.3 F	2.6 F	0.8 F
Benzo(g,h,i)perylene	ug/Kg	27,000	5 U	4.6 F	5 U	5 U	5 U	1.6 F	5 U	5 U	5 U	6.7 F	5 U	2.8 F	1.9 F
Benzo(k)fluoranthene	ug/Kg	37,000	5 U	5.6 F	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6.1 F	1.0 F	5 U	5 U
Chrysene	ug/Kg	23,000	5 U	13.2	5 U	5 U	5 U	3.1 F	5 U	5 U	5 U	9.8 F	1.2 F	1.8 F	5 U
Dibenzo(a,h)anthracene	ug/Kg	620	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.9 F	5 U	5 U	5 U
Fluoranthene	ug/Kg	40,000	5 U	23.2	5 U	5 U	5 U	4.5 F	5 U	5 U	5 U	8.1 F	1.2 F	2.4 F	5 U
Fluorene	ug/Kg	8,900	5 U	0.6 F	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	ug/Kg	6,200	5 U	6.3	5 U	5 U	5 U	1.2 F	5 U	5 U	5 U	8.3 F	1.1 F	1.8 F	1.0 F
Naphthalene	ug/Kg	1,200	5 U	0.5 F	5 U	5 U	5 U	5 U	0.5 F	5 U	5 U	5 U	5 U	0.7 F	0.7 F
Phenanthrene	ug/Kg	11,000	5 U	12.0	5 U	5 U	5 U	5.1 F	5 U	5 U	5 U	1.2 F	5 U	1.6 F	5 U
Pyrene	ug/Kg	85,000	5 U	18.4	5 U	5 U	5 U	5.4 F	5 U	5 U	5 U	7.4 F	1.1 F	2.5 F	0.5 F

Sample Number	Units	Screening Criteria <sup>1/</sup>	BH012-009 BH-14	BH011-005 BH-15	BH010-005 BH-16	BH001-012 BH-17	BH017-011 BH-18	BH019-009 BH-19	BH020-009 BH-19	RPD	BH021-009 BH-20
<i>Dioxins/Furans (8290)</i>											
1,2,3,4,7,8-HxCDD	ng/Kg	--	0.046 U	na	na	na	na	na	na	nc	na
1,2,3,6,7,8-HxCDD	ng/Kg	--	0.045 U	na	na	na	na	na	na	nc	na
1,2,3,7,8,9-HxCDD	ng/Kg	--	0.044 U	na	na	na	na	na	na	nc	na
1,2,3,4,6,7,8-HpCDD	ng/Kg	--	0.231 BF	na	na	na	na	na	na	nc	na
OCDD	ng/Kg	--	0.948 BF	na	na	na	na	na	na	nc	na
2,3,7,8-TCDF	ng/Kg	--	0.066 U	na	na	na	na	na	na	nc	na
1,2,3,7,8-PeCDF	ng/Kg	--	0.038 U	na	na	na	na	na	na	nc	na
2,3,4,7,8-PeCDF	ng/Kg	--	0.037 U	na	na	na	na	na	na	nc	na
1,2,3,4,7,8-HxCDF	ng/Kg	--	0.034 U	na	na	na	na	na	na	nc	na
1,2,3,6,7,8-HxCDF	ng/Kg	--	0.034 U	na	na	na	na	na	na	nc	na
2,3,4,6,7,8-HxCDF	ng/Kg	--	0.036 U	na	na	na	na	na	na	nc	na
1,2,3,4,6,7,8-HpCDF	ng/Kg	--	0.092 U	na	na	na	na	na	na	nc	na
OCDF	ng/Kg	--	0.103 U	na	na	na	na	na	na	nc	na
Total Tetra-Dioxins	ng/Kg	--	0.048 U	na	na	na	na	na	na	nc	na
Total Penta-Dioxins	ng/Kg	--	0.049 U	na	na	na	na	na	na	nc	na
Total Hexa-Dioxins	ng/Kg	--	0.045 U	na	na	na	na	na	na	nc	na
Total Hepta-Dioxins	ng/Kg	--	0.404	na	na	na	na	na	na	nc	na
Total Tetra-Furans	ng/Kg	--	0.066 U	na	na	na	na	na	na	nc	na
Total Penta-Furans	ng/Kg	--	0.037 U	na	na	na	na	na	na	nc	na
Total Hexa-Furans	ng/Kg	--	0.034 U	na	na	na	na	na	na	nc	na
Total Hepta-Furans	ng/Kg	--	0.092 U	na	na	na	na	na	na	nc	na
<i>Volatile Organic Compounds (8260B)</i>											
Acetone	mg/Kg	0.50	0.012 F	0.010 F	0.010 F	0.015 F	0.011 F	0.011 F	0.013 F	17%	0.013 F
Isopropylbenzene	mg/Kg	--	0.006 U	0.004 U	0.005 U	0.004 U	0.006 U	0.006 U	0.006 U	0%	0.005 U
p-Isopropyltoluene	mg/Kg	--	0.007 U	0.008 U	0.006 U	0.008 U	0.007 U	0.007 U	0.007 U	0%	0.006 U
<i>Petroleum Hydrocarbons (8015B)</i>											
Motor oil range hydrocarbons	mg/Kg	500.00	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	na	nc	20.0 U
Diesel range hydrocarbons	mg/Kg	500.00	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	na	nc	10.0 U
Gasoline range hydrocarbons	mg/Kg	100.00	16 U	17 U	16 U	1.5 F	14 U	14 U	14 U	0%	15 U
<i>Metals (6020/7471)</i>											
Arsenic	mg/Kg	22.00	2.60000 U	0.148 F	1.80000 F	1.00000 F	2.50 U	2.60 U	na	nc	2.70 U
Lead	mg/Kg	200.00	0.0530 F	0.0799 F	9.90000	25.500	0.070 F	0.070 F	na	nc	0.040 F
Selenium	mg/Kg	10.00	0.660 U	0.620 U	0.752 U	0.671 U	1.40 U	6.40 U	na	nc	6.80 U
Cadmium	mg/Kg	12.00	0.0587 F	0.0764 F	0.8231	6.876276	0.070 F	0.080 F	na	nc	0.060 F
Silver	mg/Kg	20.00	0.26385 U	0.24783 U	0.14175 F	0.47623	0.250 U	0.260 U	na	nc	0.270 U
Barium	mg/Kg	750.00	5.492506	6.949846	16.21568	7.596298	5.4	5.3	na	nc	4.9
Chromium	mg/Kg	210.00	5.41000	7.56000	13.70000	9.40000	7.83	5.95	na	nc	6.18
Mercury	mg/Kg	10.00	0.13 U	0.0141 F	0.0244 F	0.131 U	0.1000 U	0.1000 U	na	nc	0.1000 U
<i>Pesticides (8081A)</i>											
4,4'-DDE	mg/Kg	2.40	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	na	nc	0.004 U
4,4'-DDT	mg/Kg	1.70	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	na	nc	0.004 U
alpha-Chlordane	mg/Kg	1.60	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	na	nc	0.004 U
gamma-Chlordane	mg/Kg	--	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	na	nc	0.004 U
<i>PCBs (8082)</i>											
PCB-1260	mg/Kg	1.10	0.05 U	0.05 U	0.009 F	0.05 U	0.05 U	0.05 U	na	nc	0.05 U
<i>PAHs (8270C-sim)</i>											
Acenaphthene	ug/Kg	16,000	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Acenaphthylene	ug/Kg	13,000	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Anthracene	ug/Kg	2,800	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Benzo(a)anthracene	ug/Kg	6,200	5 U	5 U	5 U	0.6 F	5 U	5 U	na	nc	na
Benzo(a)pyrene	ug/Kg	620	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Benzo(b)fluoranthene	ug/Kg	6,200	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Benzo(g,h,i)perylene	ug/Kg	27,000	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Benzo(k)fluoranthene	ug/Kg	37,000	5 U	5 U	5 U	0.6 F	5 U	5 U	na	nc	na
Chrysene	ug/Kg	23,000	5 U	5 U	5 U	0.7 F	5 U	5 U	na	nc	na
Dibenzo(a,h)anthracene	ug/Kg	620	5 U	5 U	5 U	1.4 F	5 U	5 U	na	nc	na
Fluoranthene	ug/Kg	40,000	5 U	5 U	5 U	0.5 F	5 U	5 U	na	nc	na
Fluorene	ug/Kg	8,900	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Indeno(1,2,3-cd)pyrene	ug/Kg	6,200	5 U	5 U	5 U	0.6 F	5 U	5 U	na	nc	na
Naphthalene	ug/Kg	1,200	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Phenanthrene	ug/Kg	11,000	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na
Pyrene	ug/Kg	85,000	5 U	5 U	5 U	5 U	5 U	5 U	na	nc	na

**Notes for Table 4-3*****Abbreviations and Acronyms:***

B - Blank: Compound detected in method blank

BH - borehole

F - Found: The analyte was positively identified but the associated concentration is estimated above the MDL and below the RL.

HxCDD - hexachlorodibenzo dioxin

HpCDD - heptachlorodibenzo dioxin

HxCDF - hexachlorodibenzo furan

HpCDF - heptachlorodibenzo furan

J - Estimated: The analyte positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

For dioxins/furans, "J" is used when the concentration exceeds the upper end of the linear calibration range, for reporting an estimated maximum possible concentration, and to indicate the value for TCDF was obtained by analysis using a DB-5 column

M - matrix affect: The concentration is estimated due to a matrix affect

mg/L - milligrams per liter

na - no analysis requested

nc - not calculated due to insufficient data

pg/L - picograms per liter

OCDD - octachlorodibenzo dioxin

OCDF - octachlorodibenzo furan

PAHs - polynuclear aromatic hydrocarbons

PeCDD - pentachlorodibenzo dioxin

PeCDF - pentachlorodibenzo furan

R - Data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria

RPD - relative percent difference (between primary and duplicate sample)

sim - selective ion mode

SVOCs - semivolatile organic compounds

TCDF - tetrachlorodibenzo furan

U - Undetected: The analyte was analyzed for, but not detected

ug/L - microgram per liter

***Note***

<sup>1/</sup> Screening criteria based on Table D-1a from *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Hawai'i Department of Health, May 2005) for sites less than 150 meters from surface water and where groundwater is not a source of drinking water

Analytes detected above screening criteria in bold and italics

\* duplicate sample

-- no screening criteria established by HDOH

Sample Number Sample Location	Units	Screening Criteria <sup>1/</sup>	BH-023 BH-20	BH-024 BH-17	BH-025 BH-01	TB080205 Trip Blank	BH-026 BH-03	BH-027 BH-04	BH-028 BH-14	BH-029 BH-02	BH-030 BH-15	BH-031 BH-16	BH-032 BH-05	TB080405 Trip Blank	BH-033 BH-12	BH-034 BH-13
<i>Dioxins/Furans (8290)</i>																
1,2,3,7,8-PeCDD	pg/L	--	na	na	2.111 FJ	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,6,7,8-HxCDD	pg/L	--	na	na	6.170 F	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,7,8,9-HxCDD	pg/L	--	na	na	3.700 F	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,4,6,7,8-HpCDD	pg/L	--	na	na	25 U	na	na	na	9.089 BFJ	na	na	na	na	na	na	2.934 BF
OCDD	pg/L	--	na	na	50 U	na	na	na	30.304 BF	na	na	na	na	na	na	16.924 BF
2,3,7,8-TCDF	pg/L	--	na	na	10.978 J	na	na	na	10 U	na	na	na	na	na	na	10 U
2,3,4,7,8-PeCDF	pg/L	--	na	na	3.793 F	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,4,7,8-HxCDF	pg/L	--	na	na	4.451 FJ	na	na	na	25 U	na	na	na	na	na	na	0.807 F
1,2,3,6,7,8-HxCDF	pg/L	--	na	na	0.828 FJ	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,4,6,7,8-HpCDF	pg/L	--	na	na	14.942 F	na	na	na	25 U	na	na	na	na	na	na	25 U
1,2,3,4,7,8,9-HpCDF	pg/L	--	na	na	2.866 F	na	na	na	25 U	na	na	na	na	na	na	25 U
OCDF	pg/L	--	na	na	38.261 BF	na	na	na	50 U	na	na	na	na	na	na	50 U
Total Tetra-Dioxins	pg/L	--	na	na	26.652	na	na	na	10 U	na	na	na	na	na	na	10 U
Total Penta-Dioxins	pg/L	--	na	na	38.952	na	na	na	25 U	na	na	na	na	na	na	25 U
Total Hexa-Dioxins	pg/L	--	na	na	34.390	na	na	na	25 U	na	na	na	na	na	na	25 U
Total Hepta-Dioxins	pg/L	--	na	na	192.963	na	na	na	25 U	na	na	na	na	na	na	8.784
Total Tetra-Furans	pg/L	--	na	na	14.493	na	na	na	10 U	na	na	na	na	na	na	10 U
Total Penta-Furans	pg/L	--	na	na	13.435	na	na	na	25 U	na	na	na	na	na	na	25 U
Total Hexa-Furans	pg/L	--	na	na	14.864	na	na	na	25 U	na	na	na	na	na	na	0.807
Total Hepta-Furans	pg/L	--	na	na	53.151	na	na	na	25 U	na	na	na	na	na	na	25 U
<i>Volatile Organic Compounds (8260B)</i>																
1,2,4-Trimethylbenzene	ug/L	--	1.0 U	0.23 F	0.28 F	1.0 U	0.65 F	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22 F
1,3-Dichlorobenzene	ug/L	65	1.0 U	1.0 U	1.0 U	1.0 U	0.16 F	0.18 F	0.14 F	0.13 F	0.13 F	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	1,500	2.1 F	1.5 F	2.6 F	3.1 F	2.4 F	3.5 F	3.7 F	6.3 F	7.3 F	2.5 F	1.8 F	1.3 F	1.7 F	1.6 F
Benzene	ug/L	5.0	0.88	0.56	0.55	0.4 U	0.63	0.4 U	0.4 U	0.4 U	0.4 U	0.20 F	0.19 F	0.4 U	0.25 F	0.28 F
Bromomethane	ug/L	8.5	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.27 F	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Chloromethane	ug/L	160	0.39 F	1.0 U	1.0 U	1.0 U	0.24 F	0.24 F	1.0 U	0.22 F	0.25 F	0.20 F	0.32 F	1.0 U	0.35 F	1.0 U
Ethylbenzene	ug/L	30	0.56 F	0.73 F	0.82 F	1.0 U	0.96 F	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.21 F
m,p-Xylene	ug/L	20 <sup>1/</sup>	3.23	4.55	5.03	2.0 U	4.63	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.00 F
Methyl ethyl ketone (2-Butanone)	ug/L	7,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.8	10 U	10 U	10 U	10 U	10 U
o-Xylene	ug/L	20 <sup>1/</sup>	0.81 F	1.08	1.28	1.0 U	1.82	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.46 F
p-Isopropyltoluene	ug/L	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	ug/L	10	0.32 F	0.35 F	0.33 F	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	40	6.61	6.02	6.41	1.0 U	5.63	0.18 F	0.19 F	0.13 F	0.18 F	0.13 F	0.13 F	1.0 U	0.32 F	1.06
<i>Petroleum Hydrocarbons (8015B)</i>																
Gasoline range hydrocarbons	mg/L	100				na	0.04 F	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U
<i>Metals (6020/7471)</i>																
Arsenic	mg/L	0.010	0.0196 F	<b>0.0422</b>	0.0148 F	na	0.0118 F	0.0133 F	0.0184 F	0.0134 F	0.0144 F	0.0144 F	<b>0.0205</b>	na	0.0380 F	0.0560 F
Lead	mg/L	0.0056	0.00004 F	0.00007 F	0.00009 F	na	0.00004 F	0.00005 F	0.00005 F	0.00004 F	0.00005 F	0.00009 F	0.00004 F	na	0.0200 U	0.0200 U
Selenium	mg/L	0.0050	0.0486	0.0313	0.0304	na	0.0232 F	0.0279 F	0.0281 F	0.0263 F	0.0284 F	<b>0.0373</b>	<b>0.0304</b>	na	0.148 F	0.144 F
Silver	mg/L	0.0010	0.0020 U	0.0020 U	0.0020 U	na	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	na	0.0200 U	0.0200 U
Barium	mg/L	2.000	0.0208 F	0.0331 F	0.0198 F	na	0.0199 F	0.0225 F	0.0212 F	0.0357 F	0.0478 F	0.0333 F	0.0276 F	na	0.0302	0.0231 F
Chromium	mg/L	0.0740	0.0088 F	0.0095 F	0.0094 F	na	0.0087 F	0.0084 F	0.0103 F	0.0090 F	0.0095 F	0.0080 F	0.0095 F	na	0.0034 F	0.0034 F
<i>Herbicides (8151A)</i>																
Dalapon	ug/L	--	30 U	30 U	30 U	na	30 U	30 U	30 U	30 U	30 U	30 U	30 U	na	4.0 F	30 U
Dicamba	ug/L	--	20 U	20 U	20 U	na	20 U	20 U	20 U	20 U	20 U	20 U	20 U	na	0.1 F	20 U
<i>PAHs (8270C-sim)</i>																
Acenaphthene	ug/L	20	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U
Benzo(k)fluoranthene	ug/L	0.40	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U
Dibenzo(a,h)anthracene	ug/L	0.0092	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	na	0.1 U	0.1 U
Naphthalene	ug/L	6.2	0.02 F	0.02 F	0.02 F	na	0.03 F	0.01 F	0.01 F	0.01 F	0.01 F	0.01 F	0.01 F	na	0.01 F	0.01 F
Phenanthrene	ug/L	4.6	0.005 F	0.1 U	0.1 U	na	0.1 U	0.01 F	0.1 U	0.1 U	0.005 F	0.1 U	0.1 U	na	0.1 U	0.1 U
<i>SVOCs (8270C)</i>																
bis(2-Ethylhexyl)phthalate	ug/L	6.0	10.0 M	10.0 M	10.0 M	na	10.0 U	10.0 U	294.00 J	10.0 U	10.0 U	10.0 U	10.0 U	na	10.0 U	10.0 U
Diethyl phthalate	ug/L	1.5	5.56 F	10.0 U	10.0 M	na	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	na	10.0 U	10.0 U
Phenol	ug/L	5.0	10.0 U	10.0 U	10.0 U	na	10.0 U	10.0 U	10.0 U	10.0 U	3.73 F	10.0 U	10.0 U	na	10.0 U	10.0 U



Sample Number Sample Location	Units	Screening Criteria <sup>1/</sup>	BH001-044 BH-10	BH001-045 BH-11	BH001-046 BH-19	BH001-047 BH-17	BH001-048 * BH-17	RPD	BH001-049 BH-14	BH001-050 BH-05	BH001-051 BH-13	BH001-052 BH-12
<i>Metals</i>												
Arsenic	mg/Kg	22.00	1.320 F	5.850 F	31.100 U	5.370 F	5.930 F	10%	3.250 F	20.700 U	1.310 F	6.550 F
Lead	mg/Kg	200.00	6.630	<b>4907.000</b>	3.780	<b>253.000</b>	<b>247.000</b>	2%	15.000	3.610	43.000	133.000
Selenium	mg/Kg	10.00	5.590 U	5.590 U	7.760 U	5.190 U	5.130 U	nc	5.530 U	5.170 U	5.350 U	5.860 U
Cadmium	mg/Kg	12.00	0.195 F	0.891	0.075 F	7.080	5.000	34%	0.227	0.154 F	0.288	0.621
Silver	mg/Kg	20.00	2.240 U	2.240 U	3.110 U	0.546 F	0.488 F	11%	2.210 U	2.070 U	2.140 U	2.340 U
Barium	mg/Kg	750.00	11.700	64.000	11.500	160.000	147.000	8%	21.700	10.100	19.600	289.000
Chromium	mg/Kg	210.00	12.300	38.100	2.410 F	37.100	42.900	15%	15.900	9.060	14.100	24.700
Mercury	mg/Kg	10.00	0.0256 F	0.1379	0.1947	0.0643 F	0.0602 F	7%	0.0718 F	0.0375 F	0.2093	0.1028 F
<i>PAHs (8270C-sim)</i>												
Acenaphthene	ug/Kg	16,000	5 U	5 U	50 U	0.5 F	5 U	nc	5 U	5 U	5 U	50 U
Acenaphthylene	ug/Kg	13,000	5 U	2.3 F	50 U	5 U	5 U	nc	5 U	5 U	5 U	50 U
Anthracene	ug/Kg	2,800	5 U	5 U	50 U	5.8	5 U	nc	5 U	5 U	5 U	50 U
Benzo(a)anthracene	ug/Kg	6,200	0.6 F	29.1	5.8 F	38.6	2.9 F	172%	2.1 F	1.4 F	1.0 F	6.0 F
Benzo(a)pyrene	ug/Kg	620	0.8 F	32.4	50 U	47.2	5.1	161%	3.5 F	1.9 F	1.8 F	7.6 F
Benzo(b)fluoranthene	ug/Kg	6,200	1.2 F	68.0	8.6 F	62.7	7.8	156%	6.0	3.5 F	3.3 F	12.1 F
Benzo(g,h,i)perylene	ug/Kg	27,000	1.0 F	25.3	8.0 F	19.7	3.9 F	134%	2.6 F	1.5 F	5 U	11.8 F
Benzo(k)fluoranthene	ug/Kg	37,000	0.6 F	23.6	50 U	24	3.1 F	154%	2.3 F	1.6 F	1.2 F	5.0 F
Chrysene	ug/Kg	23,000	0.8 F	34.7	7.7 F	44.7	4.9 F	160%	3.4 F	2.2 F	2.5 F	7.8 F
Dibenzo(a,h)anthracene	ug/Kg	620	5 U	5 U	50 U	5.6	5 U	nc	0.6	5 U	5 U	4.8 F
Fluoranthene	ug/Kg	40,000	1.1 F	30.0	7.7 F	57.3	6.0	162%	4.4 F	3.0 F	2.4 F	7.8 F
Fluorene	ug/Kg	8,900	0.6 F	5 U	32.4 F	0.6 F	1.8 F	100%	2.0 F	5 U	2.3 F	50.0 U
Indeno(1,2,3-cd)pyrene	ug/Kg	6,200	0.9 F	21.2	8.1 F	24.2	3.6 F	148%	2.8 F	1.6 F	1.5 F	8.0 F
Naphthalene	ug/Kg	1,200	5 U	1.0 F	50 U	0.4 F	0.5 F	22%	5 U	5 U	0.5 F	50.0 U
Phenanthrene	ug/Kg	11,000	0.5 F	5.2 F	50 U	21.6	1.7 F	171%	5 U	0.7 F	0.9 F	50.0 U
Pyrene	ug/Kg	85,000	1.0 F	30.3	7.2 F	65.0	6.6	163%	4.6 F	3.0 F	2.2 F	8.2 F

**Abbreviations and Acronyms:**

F - Found: The analyte was positively identified but the associated concentration is estimated above the MDL and below the RL.

mg/kg - milligrams per kilogram

nc - not calculated due to insufficient data

RPD - Relative percent difference

U - Undetected: The analyte was analyzed for, but not detected

**Notes:**

<sup>1/</sup> Screening criteria based on Table A-2 from *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater (Hawai'i Department of Health, May 2005)* for sites less than 150 meters from surface water and where groundwater is not a source of drinking water

Analytes detected above screening criteria in bold and italics

\* indicates a duplicate sample

**Table 5-1** Toxicity Equivalent Factors for Dioxins and Furans

Congener <sup>1</sup>	Toxicity Equivalent Factors (TEFs) <sup>2</sup>			
	Humans and Mammals	Fish	Birds	Maximum
<i>Dioxins/Furans (8290)</i>				
1,2,3,7,8-PeCDD	1	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.5	0.05	0.5
1,2,3,6,7,8-HxCDD	0.1	0.01	0.01	0.1
1,2,3,7,8,9-HxCDD	0.1	0.01	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.001	0.001	0.01
OCDD	0.0001	0.0001	0.0001	0.0001
2,3,7,8-TCDF	0.1	0.05	1	1
1,2,3,7,8-PeCDF	0.05	0.05	0.1	0.1
2,3,4,7,8-PeCDF	0.5	0.5	1.0	1.0
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.0001	0.0001	0.0001	0.0001

Notes:

<sup>1</sup> Dioxins and furans detected in both soil and groundwater presented.<sup>2</sup> Toxic Equivalency Factors (TEFs) taken from Van den Berg et al. 1998. Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans & Wildlife. *Environ. Health Perspectives*. Vol 106, No.12. December. To be conservative, for those TEFs designated with a "<", we used the value of the limit.

**Table 5-2** Toxicity Equivalency Factors and Toxicity Equivalents for Soil for Ecological Risk Screening

Boring ID Sample ID		BH-05 BH008-005		BH-06 BH009-005	
		Detected Concentration (ng/kg)	TEQ <sup>3</sup>	Detected Concentration (ng/kg)	TEQ <sup>3</sup>
Congener <sup>1</sup>	TEFs <sup>2</sup>				
<i>Dioxins/Furans (8290)</i>					
1,2,3,4,7,8-HxCDD	0.5	0.056	0.028	<0.039	0.00975
1,2,3,6,7,8-HxCDD	0.1	0.133	0.0133	<0.038	0.0019
1,2,3,7,8,9-HxCDD	0.1	0.244	0.0244	<0.038	0.0019
1,2,3,4,6,7,8-HpCDD	0.01	1.069	0.01069	<0.038	0.00019
OCDD	0.0001	3.883	0.0003883	<0.038	0.0000019
2,3,7,8-TCDF	1	0.266	0.266	0.373	0.373
1,2,3,7,8-PeCDF	0.1	0.071	0.0071	<0.027	0.00135
2,3,4,7,8-PeCDF	1	0.104	0.104	0.08	0.08
1,2,3,4,7,8-HxCDF	0.1	0.311	0.0311	0.142	0.0142
1,2,3,6,7,8-HxCDF	0.1	0.123	0.0123	<0.024	0.0012
2,3,4,6,7,8-HxCDF	0.1	0.158	0.0158	<0.025	0.00125
1,2,3,4,6,7,8-HpCDF	0.01	0.579	0.00579	0.205	0.00205
OCDF	0.0001	0.403	0.0000403	<0.054	0.0000027
<b>Total Dioxins/Furans<sup>4</sup></b>			<b>0.52</b>		<b>0.49</b>

## Notes:

<sup>1</sup> These congeners were detected in soil samples collected at a biologically relevant depth (<6 feet below ground surface).

<sup>2</sup> Toxicity Equivalency Factors (TEFs) taken from Table 5-1. The maximum TEF for mammals, birds and fish was used.

<sup>3</sup> Toxicity Equivalents (TEQs) for individual congeners are calculated by multiplying the detected concentration of the individual congener to it

<sup>4</sup> Total Dioxin/Furan concentrations are the sum of the TEQs for individual congeners.

**BH008-005**, BH stand for Bellows Hardfill, 008 is the sample number, -005 is the sampling depth

**Table 5-3** Toxicity Equivalency Factors and Toxicity Equivalents for Groundwater for Ecological Risk Screening

Well ID Sample ID	TEFs <sup>2</sup>	BH-01 BH-025		BH-14 BH-028		BH-13 BH-034		BH-06 BH-042	
		Detected Concentration (pg/L)	TEQ <sup>3</sup>	Detected Concentration (pg/L)	TEQ <sup>3</sup>	Detected Concentration (pg/L)	TEQ <sup>3</sup>	Detected Concentration (pg/L)	TEQ <sup>3</sup>
<i>Dioxins/Furans (8290)</i>									
1,2,3,7,8-PeCDD	1	2.111	2.111	<25	12.5	<25	12.5	<25	12.5
1,2,3,6,7,8-HxCDD	0.1	6.17	0.617	<25	1.25	<25	1.25	<25	1.25
1,2,3,7,8,9-HxCDD	0.1	3.7	0.37	<25	1.25	<25	1.25	<25	1.25
2,3,7,8-TCDF	1	10.978	10.978	<10	5	<10	5	<10	5
2,3,4,7,8-PeCDF	1	3.793	3.793	<25	12.5	<25	12.5	<25	12.5
1,2,3,4,7,8-HxCDF	0.1	4.451	0.4451	<25	1.25	0.807	0.0807	<25	1.25
1,2,3,6,7,8-HxCDF	0.1	0.828	0.0828	<25	1.25	<25	1.25	<25	1.25
1,2,3,4,6,7,8-HpCDF	0.01	14.942	0.14942	<25	0.125	<25	0.125	<25	0.125
1,2,3,4,7,8,9-HpCDF	0.01	2.866	0.02866	<25	0.125	<25	0.125	<25	0.125
OCDF	0.0001	38.261	0.0038261	<50	0.0025	<50	0.0025	<50	0.0025
<b>Total Dioxins/Furans</b>			<b>18.6</b>		<b>35.3</b>		<b>34.1</b>		<b>35.3</b>

## Notes:

<sup>1</sup> These congeners were detected in groundwater samples.

<sup>2</sup> Toxicity Equivalency Factors (TEFs) taken from Table 5-1. The maximum TEF for mammals, birds and fish was used.

<sup>3</sup> Toxicity Equivalents (TEQs) for individual congeners are calculated by multiplying the detected concentration of the individual congener to its TEF.

<sup>4</sup> Total Dioxin/Furan concentrations are the sum of the TEQs for individual congeners.

**BH-025**, BH stand for Bellows Hardfill, 025 is the sample number

Table 5-4 Ecological Risk Screening for Soil

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	Detected Value		Detection Limit <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
<i>Dioxins/Furans (8290)</i>										
Total Dioxins/Furans <sup>7</sup>	2	2	ng/kg	0.49	0.52	NA	NA	--	--	--
<i>Volatile Organic Compounds (8260B)</i>										
Acetone	11	10	mg/kg	0.008	0.024	0.06	0.06	--	--	--
Isopropylbenzene	11	1	mg/kg	0.0102	0.0102	0.004	0.006	--	--	--
p-Isopropyltoluene	11	1	mg/kg	0.0016	0.0016	0.006	0.008	--	--	--
<i>Petroleum Hydrocarbons (8015B)</i>										
Motor oil range hydrocarbons	11	5	mg/kg	20	177.47	19.8	20	--	--	--
Diesel range hydrocarbons	11	4	mg/kg	4.19	40.82	9.9	10	--	--	--
<i>Metals (6020/7471)</i>										
Arsenic	20	18	mg/kg	0.148	26.9	20.7	31.1	20	a	Yes
Barium	20	20	mg/kg	0.40323	289	NR	NR	750	a	No
Cadmium	20	20	mg/kg	0.0586	7.08	NR	NR	12	a	No
Chromium	20	20	mg/kg	2.41	143	NR	NR	--	--	--
Lead	20	20	mg/kg	0.0799	4,907	NR	NR	200	a	Yes
Mercury	20	18	mg/kg	0.0141	0.6932	0.1	0.132	10	a	No
Selenium	20	1	mg/kg	0.315	0.315	0.601	7.76	10	a	No
Silver	20	9	mg/kg	0.0619	0.8627	0.24783	3.11	20	a	No
<i>Pesticides (8081A)</i>										
4,4'-DDE <sup>8</sup>	11	2	mg/kg	0.0018	0.0882	0.002	0.004	4.0	a	No
4,4'-DDT <sup>9</sup>	11	2	mg/kg	0.0014	0.0392	0.003	0.004	4.0	a	No
alpha-Chlordane	11	1	mg/kg	0.0654	0.0654	0.003	0.004	--	--	--
gamma-Chlordane	11	1	mg/kg	0.0665	0.0665	0.003	0.004	--	--	--
<i>PCBs (8082)</i>										
PCB-1260	11	6	mg/kg	0.003	0.071	0.05	0.05	--	--	--
<i>PAHs (8270C-sim)</i>										
Acenaphthene	20	2	ug/kg	0.5	0.5	5	50	--	--	--
Acenaphthylene	20	2	ug/kg	0.8	2.3	5	50	--	--	--
Anthracene	20	5	ug/kg	0.6	5.8	5	50	40,000	a	No
Benzo(a)anthracene	20	14	ug/kg	0.6	38.6	5	5	40,000	a	No
Benzo(a)pyrene	20	13	ug/kg	0.8	47.2	5	50	40,000	a	No
Benzo(b)fluoranthene	20	15	ug/kg	0.8	68	5	5	--	--	--
Benzo(g,h,i)perylene	20	13	ug/kg	1	25.3	5	5	40,000	a	No

**Table 5-4** Ecological Risk Screening for Soil

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	<u>Detected Value</u>		<u>Detection Limit</u> <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
Benzo(k)fluoranthene	20	11	ug/kg	0.6	24	5	50	40,000	a	No
Chrysene	20	14	ug/kg	0.8	44.7	5	5	40,000	a	No
Dibenzo(a,h)anthracene	20	4	ug/kg	0.6	5.6	5	50	--	--	--
Fluoranthene	20	14	ug/kg	1.1	57.3	5	5	40,000	a	No
Fluorene	20	7	ug/kg	0.6	32.4	5	5	--	--	--
Indeno(1,2,3-cd)pyrene	20	15	ug/kg	0.9	24.2	5	5	40,000	a	No
Naphthalene	20	8	ug/kg	0.4	1	5	50	40,000	a	No
Phenanthrene	20	10	ug/kg	0.5	21.6	5	50	40,000	a	No
Pyrene	20	15	ug/kg	0.5	65	5	5	--	--	--

## Notes:

<sup>1</sup> These analytes were detected in soil samples collected at a biologically relevant depth (<6 feet below ground surface).

<sup>2</sup> An "NR" or "NA" indicates that the detection limit was Not Reported or Not Applicable. For detection limits for individual dioxin/furan congeners, refer to Table 5-3.

<sup>3</sup> An "--" indicates that a screening level was not available from the sources reviewed.

<sup>4</sup> Sources of screening levels are as follows:

- a. Hawaii Department of Health (HDOH). 2005. Screening for Environmental Concerns at Site with Contaminated Soil and Groundwater. Volumes 1 and 2. Table K: Soil Action Levels for Terrestrial Ecotoxicity Concerns.

<sup>5</sup> For purposes of this table, the maximum detected value was compared to the screening level.

<sup>6</sup> An "--" indicates that an exceedance could not be determined because no screening level was available.

<sup>7</sup> Total Dioxin/Furan concentrations are the sum of the the Toxicity Equivalent (TEQs) concentrations of individual congeners. See Table 5-2 for detailed calculations.

<sup>8</sup> Screening value for DDE was used

<sup>9</sup> Screening value for DDT was used

Table 5-5 Ecological Risk Screening for Groundwater

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	Detected Value		Detection Limit <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
<i>Dioxins/Furans (8290)</i>										
Total Dioxins/Furans (8290)	4	4	pg/L	18.6	35.3	NA	NA	5	a	Yes
<i>Volatile Organic Compounds (8260B)</i>										
1,2,4-Trimethylbenzene	21	10	ug/L	0.13	0.65	<1	<1	--	--	--
1,3-Dichlorobenzene	21	6	ug/L	0.12	0.18	<1	<1	65	a	No
Acetone	21	21	ug/L	1.5	7.3	NR	NR	1,500	a	No
Benzene	21	17	ug/L	0.19	1.14	<0.4	<0.4	46	a	No
Bromomethane	21	1	ug/L	0.27	0.27	<3	<3	160	a	No
Chloromethane	21	18	ug/L	0.2	0.51	<1	<1	3,200	a	No
Ethylbenzene	21	13	ug/L	0.21	0.96	<1	<1	290	a	No
m,p-Xylene <sup>8</sup>	21	14	ug/L	0.21	5.03	<2	<2	100	a	No
Methyl ethyl ketone	21	2	ug/L	0.8	1.4	<10	<10	14,000	a	No
o-Xylene <sup>8</sup>	21	13	ug/L	0.37	1.82	<1	<1	100	a	No
p-Isopropyltoluene	21	1	ug/L	5.85	5.85	<1	<1	--	--	--
Styrene	21	3	ug/L	0.32	0.35	<1	<1	100	a	No
Toluene	21	21	ug/L	0.13	6.61	<1	<1	130	a	No
<i>Petroleum Hydrocarbons (8015B)</i>										
Gasoline range hydrocarbons <sup>9</sup>	18	2	mg/L	0.03	0.04	<0.1	<0.1	0.5	a	No
<i>Metals (6020/7471)</i>										
Arsenic	21	21	mg/L	0.0118	0.056	NR	NR	0.036	a	Yes
Barium	21	21	mg/L	0.0156	0.0478	NR	NR	2	a	No
Chromium <sup>10</sup>	21	21	mg/L	0.0025	0.0103	NR	NR	0.074	a	No
Lead	21	13	mg/L	0.00004	0.0176	<0.0002	<0.02	0.0056	a	Yes
Selenium	21	21	mg/L	0.0232	0.179	NR	NR	0.005	a	Yes
Silver	21	4	mg/L	0.0005	0.00051	<0.0005	<0.002	0.0010	a	No
<i>Herbicides (8151A)</i>										
Dalapon	21	1	ug/L	4	4	<30	<30	--	--	--
Dicamba	21	1	ug/L	0.1	0.1	<20	<20	--	--	--
<i>PAHs (8270C-sim)</i>										
Acenaphthene	21	1	ug/L	0.01	0.01	<0.1	<0.1	23	a	No
Benzo(k)fluoranthene	21	1	ug/L	0.01	0.01	<0.1	<0.1	3.7	a	No
Dibenzo(a,h)anthracene	21	1	ug/L	0.14	0.14	<0.1	<0.1	7.5	a	No
Naphthalene	21	21	ug/L	0.01	0.03	NR	NR	24	a	No
Phenanthrene	21	5	ug/L	0.005	0.01	<0.1	<0.1	4.6	a	No

**Table 5-5** Ecological Risk Screening for Groundwater

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	Detected Value		Detection Limit <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
<i>SVOCs (8270C)</i>										
Bis(2-ethylhexyl)phthalate	21	1	ug/L	294	294	<10	<10	32	a	Yes
Diethyl phthalate	21	1	ug/L	5.56	5.56	<10	<10	1.5	a	Yes
Phenol	21	1	ug/L	3.73	3.73	<10	<10	1,300	a	No

Notes:

<sup>1</sup> These analytes were detected in groundwater.

<sup>2</sup> An "NR" or "NA" indicates that the detection limit was Not Reported or Not Applicable. For detection limits for individual dioxin/furan congeners, refer to Table 5-3.

<sup>3</sup> An "--" indicates that a screening level was not available from the sources reviewed.

<sup>4</sup> Sources of screening levels are as follows:

- a. Hawaii Department of Health (HDOH). 2005. Screening for Environmental Concerns at Site with Contaminated Soil and Groundwater. Volumes 1 and 2. Table D-1c: Groundwater Action Levels. Groundwater at the Site is not a current or potential drinking water resource and a surface water body is within 150 meters. Aquatic Habitat Goal values used.

<sup>5</sup> For purposes of this table, the maximum detected value was compared to the screening level.

<sup>6</sup> An "--" indicates that an exceedance could not be determined because no screening level was available.

<sup>7</sup> Total Dioxin/Furan concentrations are the sum of the the Toxicity Equivalent (TEQs) concentrations of individual congeners. See Table 5-3 for detailed calculations.

<sup>8</sup> Screening value for xylenes was used

<sup>9</sup> Screening value for TPH (gasolines) was used

<sup>10</sup> Screening value for total chromium was used

**Table 5-6** Toxicity Equivalency Factors and Toxicity Equivalents for Soil for Human Health Risk Screening

Boring ID Sample ID	TEFs <sup>2</sup>	BH-05 BH008-005		BH-06 BH009-005		BH-14 BH012-009	
		Detected Concentration (ng/kg)	TEQ <sup>3</sup>	Detected Concentration (ng/kg)	TEQ <sup>3</sup>	Detected Concentration (ng/kg)	TEQ <sup>3</sup>
<i>Dioxins/Furans (8290)</i>							
1,2,3,4,7,8-HxCDD	0.1	0.056	0.0056	<0.039	0.00195	<0.046	0.0023
1,2,3,6,7,8-HxCDD	0.1	0.133	0.0133	<0.038	0.0019	<0.045	0.00225
1,2,3,7,8,9-HxCDD	0.1	0.244	0.0244	<0.038	0.0019	<0.044	0.0022
1,2,3,4,6,7,8-HpCDD	0.01	1.069	0.01069	<0.038	0.00019	<0.044	0.00022
OCDD	0.0001	3.883	0.0003883	<0.038	0.0000019	<0.044	0.0000022
2,3,7,8-TCDF	0.1	0.266	0.0266	0.373	0.0373	<0.066	0.0033
1,2,3,7,8-PeCDF	0.05	0.071	0.00355	<0.027	0.000675	<0.038	0.00095
2,3,4,7,8-PeCDF	0.5	0.104	0.052	0.08	0.04	<0.037	0.00925
1,2,3,4,7,8-HxCDF	0.1	0.311	0.0311	0.142	0.0142	<0.034	0.0017
1,2,3,6,7,8-HxCDF	0.1	0.123	0.0123	<0.024	0.0012	<0.034	0.0017
2,3,4,6,7,8-HxCDF	0.1	0.158	0.0158	<0.025	0.00125	<0.036	0.0018
1,2,3,4,6,7,8-HpCDF	0.01	0.579	0.00579	0.205	0.00205	<0.092	0.00046
OCDF	0.0001	0.403	0.0000403	<0.054	0.0000027	<0.103	0.0000052
<b>Total Dioxins/Furans <sup>4</sup></b>			<b>0.20</b>		<b>0.10</b>		<b>0.026</b>

Notes:

<sup>1</sup> These congeners were detected in all soil samples collected, which range in depth from surficial to 13 feet.<sup>2</sup> Toxicity Equivalency Factors (TEFs) taken from Table 5-1. The maximum TEF for humans was used.<sup>3</sup> Toxicity Equivalents (TEQs) for individual congeners are calculated by multiplying the detected concentration of the individual congener to<sup>4</sup> Total Dioxin/Furan concentrations are the sum of the TEQs for individual congeners.**BH008-005**, BH stand for Bellows Hardfill, 008 is the sample number, -005 is the sampling depth

Table 5-7 Human Health Risk Screening for Soil

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	Detected Value		Detection Limit <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
<i>Dioxins/Furans (8290)</i>										
Total Dioxins/Furans (8290)	3	3	ng/kg	0.026	0.20	NA	NA	2,000	a	No
<i>Volatile Organic Compounds (8260B)</i>										
Acetone	21	20	mg/kg	0.008	0.024	0.06	0.06	100,000	a	No
Isopropylbenzene	21	2	mg/kg	0.005	0.0102	0.004	0.006	--	--	No
p-Isopropyltoluene	21	2	mg/kg	0.0016	0.006	0.006	0.008	--	--	--
<i>Petroleum Hydrocarbons (8015B)</i>										
Motor oil range hydrocarbons <sup>8</sup>	19	5	mg/kg	26.79	177.47	19.8	20	30,000	a	No
Diesel range hydrocarbons <sup>8</sup>	20	5	mg/kg	4.19	40.82	9.9	10	30,000	a	No
Gasoline range hydrocarbons <sup>8</sup>	17	2	mg/kg	1.5	2.7	12	23	30,000	a	No
<i>Metals (6020/7471)</i>										
Arsenic	29	22	mg/kg	0.148	26.9	2.5	31.1	180	a	No
Barium	29	29	mg/kg	0.40323	289	NR	NR	12,000	a	No
Cadmium	29	29	mg/kg	0.0586	7.080	NR	NR	1,500	a	No
Chromium <sup>9</sup>	29	29	mg/kg	2.41	143	NR	NR	220	a	No
Lead	29	29	mg/kg	0.04	4,907	NR	NR	750	a	<b>Yes</b>
Mercury	29	18	mg/kg	0.0141	0.6932	0.1	0.141	570	a	No
Selenium	29	1	mg/kg	0.315	0.315	0.601	7.76	19,000	a	No
Silver	29	10	mg/kg	0.0619	0.8627	0.23	3.11	19,000	a	No
<i>Pesticides (8081A)</i>										
4,4'-DDE <sup>10</sup>	19	2	mg/kg	0.0018	0.0882	0.002	0.004	1,200	a	No
4,4'-DDT <sup>11</sup>	19	2	mg/kg	0.0014	0.0392	0.003	0.004	870	a	No
alpha-Chlordane <sup>12</sup>	19	1	mg/kg	0.0654	0.0654	0.003	0.004	790	a	No
gamma-Chlordane <sup>12</sup>	19	1	mg/kg	0.0665	0.0665	0.003	0.004	790	a	No
<i>PCBs (8082)</i>										
PCB-1260 <sup>13</sup>	20	6	mg/kg	0.003	0.071	0.05	0.05	34	a	No
<i>PAHs (8270C-sim)</i>										
Acenaphthene	28	2	ug/kg	0.5	0.5	5	50	170,000,000	a	No
Acenaphthylene	28	2	ug/kg	0.8	2.3	5	50	57,000,000	a	No
Anthracene	28	5	ug/kg	0.6	5.8	5	50	1,000,000,000	a	No
Benzo(a)anthracene	28	15	ug/kg	0.6	38.6	5	5	240,000	a	No
Benzo(a)pyrene	28	13	ug/kg	0.8	47.2	5	50	24,000	a	No
Benzo(b)fluoranthene	28	15	ug/kg	0.8	68	5	5	240,000	a	No

Table 5-7 Human Health Risk Screening for Soil

Analyte <sup>1</sup>	No. of Samples	No. of Detections	Units	Detected Value		Detection Limit <sup>2</sup>		Screening Level <sup>3</sup>	Screening Level Source <sup>4</sup>	Exceedence of Screening Level? <sup>5,6</sup>
				Minimum	Maximum	Minimum	Maximum			
Benzo(g,h,i)perylene	28	13	ug/kg	1	25.3	5	5	70,000,000	a	No
Benzo(k)fluoranthene	28	12	ug/kg	0.6	24	5	50	2,400,000	a	No
Chrysene	28	15	ug/kg	0.7	44.7	5	5	24,000,000	a	No
Dibenzo(a,h)anthracene	28	5	ug/kg	0.6	5.6	5	50	24,000	a	No
Fluoranthene	28	15	ug/kg	0.5	57.3	5	5	70,000,000	a	No
Fluorene	28	7	ug/kg	0.6	32.4	5	5	130,000,000	a	No
Indeno(1,2,3-cd)pyrene	28	16	ug/kg	0.6	24.2	5	5	240,000	a	No
Naphthalene	28	8	ug/kg	0.4	1	5	50	2,300,000	a	No
Phenanthrene	28	10	ug/kg	0.5	21.6	5	50	140,000,000	a	No
Pyrene	28	15	ug/kg	0.5	65	5	5	110,000,000	a	No

## Notes:

<sup>1</sup> These analytes were detected in soil.

<sup>2</sup> An "NR" or "NA" indicates that the detection limit was Not Reported or Not Applicable. For detection limits for individual dioxin/furan congeners, refer to Table 5-6.

<sup>3</sup> An "--" indicates that a screening level was not available from the sources reviewed.

<sup>4</sup> Sources of screening levels are as follows.

- a. Hawaii Department of Health (HDOH). 2005. Screening for Environmental Concerns at Site with Contaminated Soil and Groundwater. Volumes 1 and 2. Table I-2: Direct Action Levels. Screening levels for the Construction Worker scenario are presented.

<sup>5</sup> For purposes of this table, the maximum detected value was compared to the screening level.

<sup>6</sup> An "--" indicates that an exceedance could not be determined because no screening level was available.

<sup>7</sup> Total Dioxin/Furan concentrations are the sum of the the Toxicity Equivalent (TEQs) concentrations of individual congeners. See Table 6-6 for detailed calculations.

<sup>8</sup> Screening value for TPH (gasolines) was used

<sup>9</sup> Screening value for total chromium was used

<sup>10</sup> Screening value for DDE was used

<sup>11</sup> Screening value for DDT was used

<sup>12</sup> Screening value for chlordane was used

<sup>13</sup> Screening value for PCBs was used

**Table 5-8** Detected Chemicals without HDOH Screening Criteria

Screening Assessment Media	Ecological		Human Health
	Soil	Groundwater	Soil
<i>Dioxins/Furans (8290)</i>			
Total Dioxins/Furans <sup>7</sup>	X		
<i>Volatile Organic Compounds (8260B)</i>			
1,2,4-Trimethylbenzene		X	
Acetone	X		
Isopropylbenzene	X		X
p-Isopropyltoluene	X	X	X
<i>Petroleum Hydrocarbons (8015B)</i>			
Motor oil range hydrocarbons	X		
Diesel range hydrocarbons	X		
<i>Metals(60207471)</i>			
Chromium	X		
<i>Herbicides (8151A)</i>			
Dalapon		X	
Dicamba		X	
<i>Pesticides (8081A)</i>			
alpha-Chlordane	X		
gamma-Chlordane	X		
<i>PCBs (8082)</i>			
PCB-1260	X		
<i>PAHs (8270C-sim)</i>			
Acenaphthene	X		
Acenaphthylene	X		
Benzo(b)fluoranthene	X		
Dibenzo(a,h)anthracene	X		
Fluorene	X		
Pyrene	X		

**Notes:**

"X" = Chemical detected in this media, but screening level unavailable from Hawaii Department of Health (HDOH) 2005. Screening for Environmental Concerns at Site with Contaminated Soil and Groundwater. Volumes 1 and 2.

<sup>2</sup> Blank cells indicate that either a) screening criteria is available for that media, or b) a screening level is not needed because the chemical was not detected in the media above detection limits.