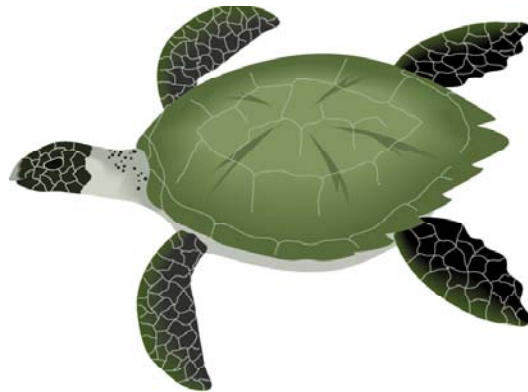




**United States Air Force
15th Air Base Wing
Environmental Restoration Program**

SITE INSPECTION REPORT PIER DUMP SITE

**Bellows Air Force Station
Oahu, Hawaii**



Appendix J

Comparison of MDLs to Screening Data

Appendix J: Comparison of Method Detection Limits to Screening Criteria for Nondetected Analytes

To verify that method detection limits (MDLs) were adequate for the SI evaluation, MDLs for chemicals that were not detected at the Pier Dump Site at Bellows AFS were compared with applicable screening criteria. These criteria include:

- Hawaii Department of Health (HDOH) Tier 1 levels and EPA Region IX preliminary remediation goals (PRGs) where available, for soil; and
- HDOH Tier 1 levels, federal ambient water quality criteria (AWQC), and PRGs for groundwater.

Table J-1 summarizes the analytes in soil samples where the MDLs exceed screening criteria; Table J-2 summarizes the analytes in groundwater samples where the MDLs exceed screening criteria.

Table J-1
Summary of Chemicals Where MDL Exceeds Criteria in Soil

Chemical Group	Analyte	Cas	Units	Method	Location	MDL	Dilution	HDOH Tier 1		PRG Residential	
								Criteria	MDL > Criteria	Criteria	MDL > Criteria
PAH	Benzo (a) anthracene	56-55-3	MG/KG	SW8270B	AC14TP003	0.8	1		0.56	Yes	
	Benzo (b) fluoranthene	205-99-2	MG/KG	SW8270B	AC14TP003	0.9	1		0.56	Yes	
	Dibenz (a,h) anthracene	53-70-3	MG/KG	SW8270B	AC14TP003	0.6	1		0.056	Yes	
	Dibenz (a,h) anthracene	53-70-3	MG/KG	SW8310	AC14TP003	0.084	5		0.056	Yes	
	Indeno (1,2,3-c,d) pyrene	193-39-5	MG/KG	SW8270B	AC14TP003	0.6	1		0.56	Yes	
	Benzo (a) anthracene	56-55-3	MG/KG	SW8270B	AC14TP006	0.8	1		0.56	Yes	
	Benzo (a) anthracene	56-55-3	MG/KG	SW8270B	AC14TP006	0.9	1		0.56	Yes	
	Benzo (b) fluoranthene	205-99-2	MG/KG	SW8270B	AC14TP006	0.9	1		0.56	Yes	
	Benzo (b) fluoranthene	205-99-2	MG/KG	SW8270B	AC14TP006	1	1		0.56	Yes	
	Dibenz (a,h) anthracene	53-70-3	MG/KG	SW8270B	AC14TP006	0.6	1		0.056	Yes	
	Dibenz (a,h) anthracene	53-70-3	MG/KG	SW8270B	AC14TP006	0.7	1		0.056	Yes	
	Dibenz (a,h) anthracene	53-70-3	MG/KG	SW8310	AC14TP006	0.088	5		0.056	Yes	
	Indeno (1,2,3-c,d) pyrene	193-39-5	MG/KG	SW8270B	AC14TP006	0.7	1		0.56	Yes	
	Indeno (1,2,3-c,d) pyrene	193-39-5	MG/KG	SW8270B	AC14TP006	0.8	1		0.56	Yes	
	PEST/PCB	Toxaphene	8001-35-2	MG/KG	SW8081	AC14TP006	0.411	10		0.4	Yes
Toxaphene		8001-35-2	MG/KG	SW8081	AC14TP006	0.412	10		0.4	Yes	
SVOC	2-Nitroaniline	86-74-4	MG/KG	SW8270B	AC14TP003	3.7	1		3.3	Yes	
	3,3'-Dichlorobenzidine	91-94-1	MG/KG	SW8270B	AC14TP003	1.5	1		0.99	Yes	
	Hexachlorobenzene	118-74-1	MG/KG	SW8270B	AC14TP003	0.7	1		0.28	Yes	
	N-Nitrosodi-n-propylamine	821-64-7	MG/KG	SW8270B	AC14TP003	0.8	1		0.063	Yes	
	Pentachlorophenol	87-86-5	MG/KG	SW8270B	AC14TP003	2.7	1		2.5	Yes	
	2-Nitroaniline	86-74-4	MG/KG	SW8270B	AC14TP006	3.8	1		3.3	Yes	
	2-Nitroaniline	86-74-4	MG/KG	SW8270B	AC14TP006	3.9	1		3.3	Yes	
	2-Nitroaniline	86-74-4	MG/KG	SW8270B	AC14TP006	4.4	1		3.3	Yes	
	3,3'-Dichlorobenzidine	91-94-1	MG/KG	SW8270B	AC14TP006	1.6	1		0.99	Yes	
	3,3'-Dichlorobenzidine	91-94-1	MG/KG	SW8270B	AC14TP006	1.7	1		0.99	Yes	
	Hexachlorobenzene	118-74-1	MG/KG	SW8270B	AC14TP006	0.7	1		0.28	Yes	
	Hexachlorobenzene	118-74-1	MG/KG	SW8270B	AC14TP006	0.8	1		0.28	Yes	
	N-Nitrosodi-n-propylamine	821-64-7	MG/KG	SW8270B	AC14TP006	0.9	1		0.063	Yes	
	N-Nitrosodi-n-propylamine	821-64-7	MG/KG	SW8270B	AC14TP006	1	1		0.063	Yes	
	Pentachlorophenol	87-86-5	MG/KG	SW8270B	AC14TP006	2.8	1		2.5	Yes	
	Pentachlorophenol	87-86-5	MG/KG	SW8270B	AC14TP006	2.9	1		2.5	Yes	
	Pentachlorophenol	87-86-5	MG/KG	SW8270B	AC14TP006	3.2	1		2.5	Yes	

Chemical Group Codes

SVOC = Semivolatile organic compound
 PAH = Polynuclear aromatic hydrocarbon
 PEST/PCB = Pesticides/polychlorinated biphenyls

Acronyms

HDOH Tier 1 = Hawaii Department of Health Tier 1 Action Level
 PRG = U.S. Environmental Protection Agency Region IX Preliminary Remediation Goal
 MDL = Method detection limit
 mg/KG = milligrams per kilogram

Table J-2
Summary of Chemicals where MDL Exceeds Criteria in Groundwater

Chemical Group	Analyte	Cas	Units	Location	Method	MDL	Dilution	HDOH Tier 1		AWQC Marine Chronic		AWQC Marine Acute		PRG Tap Water	
								Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria
METALS	Lead	7439-92-1	MG/L	AC14HP001	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP001	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP001	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	Lead	7439-92-1	MG/L	AC14HP002	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP002	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP002	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	Lead	7439-92-1	MG/L	AC14HP003	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP003	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP003	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	Lead	7439-92-1	MG/L	AC14HP004	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP004	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP004	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	Lead	7439-92-1	MG/L	AC14HP005	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP005	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP005	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	Lead	7439-92-1	MG/L	AC14HP006	SW7421	0.008	10	0.0056	Yes	0.0085		0.22	0.004	Yes	
	Mercury	7439-97-6	MG/L	AC14HP006	SW7470A	0.0001	1			0.00003	Yes	0.0021	10.9		
	Silver	7440-22-4	MG/L	AC14HP006	SW8010A	0.002	1			0.00082	Yes	0.0023	0.183		
	PAH	Benzo (a) pyrene	50-32-8	UG/L	AC14HP001	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
		Benzo (a) pyrene	50-32-8	UG/L	AC14HP002	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
		Benzo (a) pyrene	50-32-8	UG/L	AC14HP003	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
		Benzo (a) pyrene	50-32-8	UG/L	AC14HP004	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
		Benzo (a) pyrene	50-32-8	UG/L	AC14HP005	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
		Benzo (a) pyrene	50-32-8	UG/L	AC14HP006	SW8270B	1.03	1	0.2	Yes			300.0	0.00821	Yes
PEST/PCB	4,4'-DDT	50-29-3	UG/L	AC14HP001	SW8081	0.00907	1	0.001	Yes	0.001	Yes	0.13	0.198		
	Dieldrin	60-57-1	UG/L	AC14HP001	SW8081	0.00328	1			0.0019	Yes	0.71	0.0042		
	Endrin	72-20-8	UG/L	AC14HP001	SW8081	0.00407	1			0.0023	Yes	0.037	10.9		
	Heptachlor	76-44-8	UG/L	AC14HP001	SW8081	0.006	1			0.0036	Yes	0.053	0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP001	SW8081	0.0315	1			0.03	Yes		183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP001	SW8081	0.05	1			0.0002	Yes	0.21	0.0611		
	4,4'-DDT	50-29-3	UG/L	AC14HP002	SW8081	0.00907	1	0.001	Yes	0.001	Yes	0.13	0.198		
	Dieldrin	60-57-1	UG/L	AC14HP002	SW8081	0.00328	1			0.0019	Yes	0.71	0.0042		
	Endrin	72-20-8	UG/L	AC14HP002	SW8081	0.00407	1			0.0023	Yes	0.037	10.9		
	Heptachlor	76-44-8	UG/L	AC14HP002	SW8081	0.006	1			0.0036	Yes	0.053	0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP002	SW8081	0.0315	1			0.03	Yes		183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP002	SW8081	0.05	1			0.0002	Yes	0.21	0.0611		
	4,4'-DDT	50-29-3	UG/L	AC14HP003	SW8081	0.00907	1	0.001	Yes	0.001	Yes	0.13	0.198		
	Dieldrin	60-57-1	UG/L	AC14HP003	SW8081	0.00328	1			0.0019	Yes	0.71	0.0042		

Chemical Group	Analyte	Cas	Units	Location	Method	MDL	Dilution	HRQH Tier 1		AWQC Marine Chronic		AWQC Marine Acute		PRG Tap Water		
								Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria	
PEST/PCB	Endrin	72-20-8	UG/L	AC14HP003	SW8061	0.00407	1			0.0023	Yes	0.037		10.9		
	Hepachlor	76-44-8	UG/L	AC14HP003	SW8061	0.006	1			0.0036	Yes	0.053		0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP003	SW8061	0.0315	1			0.03	Yes			183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP003	SW8061	0.05	1			0.0002	Yes	0.21		0.0611		
	4,4'-DDT	50-29-3	UG/L	AC14HP004	SW8061	0.00807	1	0.001	Yes	0.001	Yes	0.13		0.198		
	Dieldrin	60-57-1	UG/L	AC14HP004	SW8061	0.00328	1			0.0019	Yes	0.71		0.0042		
	Endrin	72-20-8	UG/L	AC14HP004	SW8061	0.00407	1			0.0023	Yes	0.037		10.9		
	Hepachlor	76-44-8	UG/L	AC14HP004	SW8061	0.006	1			0.0036	Yes	0.053		0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP004	SW8061	0.0315	1			0.03	Yes			183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP004	SW8061	0.05	1			0.0002	Yes	0.21		0.0611		
	4,4'-DDT	50-29-3	UG/L	AC14HP005	SW8061	0.00807	1	0.001	Yes	0.001	Yes	0.13		0.198		
	Dieldrin	60-57-1	UG/L	AC14HP005	SW8061	0.00328	1			0.0019	Yes	0.71		0.0042		
	Endrin	72-20-8	UG/L	AC14HP005	SW8061	0.00407	1			0.0023	Yes	0.037		10.9		
	Hepachlor	76-44-8	UG/L	AC14HP005	SW8061	0.006	1			0.0036	Yes	0.053		0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP005	SW8061	0.0315	1			0.03	Yes			183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP005	SW8061	0.05	1			0.0002	Yes	0.21		0.0611		
	4,4'-DDT	50-29-3	UG/L	AC14HP006	SW8061	0.00807	1	0.001	Yes	0.001	Yes	0.13		0.198		
	Dieldrin	60-57-1	UG/L	AC14HP006	SW8061	0.00328	1			0.0019	Yes	0.71		0.0042		
	Endrin	72-20-8	UG/L	AC14HP006	SW8061	0.00407	1			0.0023	Yes	0.037		10.9		
	Hepachlor	76-44-8	UG/L	AC14HP006	SW8061	0.006	1			0.0036	Yes	0.053		0.0149		
	Methoxychlor	72-43-5	UG/L	AC14HP006	SW8061	0.0315	1			0.03	Yes			183.0		
	Toxaphene	8001-35-2	UG/L	AC14HP006	SW8061	0.05	1			0.0002	Yes	0.21		0.0611		
	SVOC	2-Nitroaniline	88-74-4	UG/L	AC14HP001	SW8270B	4.28	1							2.19	Yes
		3,3'-Dichlorobenzidine	91-94-1	UG/L	AC14HP001	SW8270B	1.05	1							0.149	Yes
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP001	SW8270B	1.7	1							0.96	Yes	
2-Nitroaniline		88-74-4	UG/L	AC14HP002	SW8270B	4.28	1							2.19	Yes	
3,3'-Dichlorobenzidine		91-94-1	UG/L	AC14HP002	SW8270B	1.05	1							0.149	Yes	
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP002	SW8270B	1.7	1							0.96	Yes	
2-Nitroaniline		88-74-4	UG/L	AC14HP003	SW8270B	4.28	1							2.19	Yes	
3,3'-Dichlorobenzidine		91-94-1	UG/L	AC14HP003	SW8270B	1.05	1							0.149	Yes	
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP003	SW8270B	1.7	1							0.96	Yes	
2-Nitroaniline		88-74-4	UG/L	AC14HP004	SW8270B	4.28	1							2.19	Yes	
3,3'-Dichlorobenzidine		91-94-1	UG/L	AC14HP004	SW8270B	1.05	1							0.149	Yes	
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP004	SW8270B	1.7	1							0.96	Yes	
2-Nitroaniline		88-74-4	UG/L	AC14HP005	SW8270B	4.28	1							2.19	Yes	
3,3'-Dichlorobenzidine		91-94-1	UG/L	AC14HP005	SW8270B	1.05	1							0.149	Yes	
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP005	SW8270B	1.7	1							0.96	Yes	
2-Nitroaniline		88-74-4	UG/L	AC14HP006	SW8270B	4.28	1							2.19	Yes	
3,3'-Dichlorobenzidine		91-94-1	UG/L	AC14HP006	SW8270B	1.05	1							0.149	Yes	
Bis (2-chloroisopropyl) ether		108-80-1	UG/L	AC14HP006	SW8270B	1.7	1							0.96	Yes	
VOC		1,2,3-Trichloropropane	96-18-4	UG/L	AC14HP001	SW8280A	0.15	1							0.0016	Yes

Chemical Group	Analyte	Case	Units	Location	Method	MDL	Dilution	MDL > Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria	Criteria	MDL > Criteria	MDL > Criteria
VOC	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP001	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP001	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP001	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP001	SW8280A	0.14	1						0.061	Yes		
	1,2,3-Trichloropropene	96-18-4	UG/L	AC14HP002	SW8280A	0.15	1						0.0016	Yes		
	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP002	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP002	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP002	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP002	SW8280A	0.14	1						0.061	Yes		
	1,2,3-Trichloropropene	96-18-4	UG/L	AC14HP003	SW8280A	0.15	1						0.0016	Yes		
	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP003	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP003	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP003	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP003	SW8280A	0.14	1						0.061	Yes		
	1,2,3-Trichloropropene	96-18-4	UG/L	AC14HP004	SW8280A	0.15	1						0.0016	Yes		
	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP004	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP004	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP004	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP004	SW8280A	0.14	1						0.061	Yes		
	1,2,3-Trichloropropene	96-18-4	UG/L	AC14HP005	SW8280A	0.15	1						0.0016	Yes		
	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP005	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP005	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP005	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP005	SW8280A	0.14	1						0.061	Yes		
	1,2,3-Trichloropropene	96-18-4	UG/L	AC14HP006	SW8280A	0.15	1						0.0016	Yes		
	1,2-Dibromo-3-chloropropane	06-12-8	UG/L	AC14HP006	SW8280A	0.51	1						0.048	Yes		
	1,2-EDB	106-83-4	UG/L	AC14HP006	SW8280A	0.13	1						0.00076	Yes		
	Cis-1,3-Dichloropropene	10081-01-6	UG/L	AC14HP006	SW8280A	0.1	1						0.061	Yes		
	Trans-1,3-Dichloropropene	10081-02-6	UG/L	AC14HP006	SW8280A	0.14	1						0.061	Yes		

Chemical Group Codes

VOC = Volatile organic compound
 SVOC = Semivolatile organic compound
 PAH = Polynuclear aromatic hydrocarbon
 PEST/PCB = Pesticides/polychlorinated biphenyls

Acronyms

HDCH Tier 1 = Hawaii Department of Health Tier 1 Action Level
 AWQC = Federal Ambient Water Quality Standard
 PRG = U.S. Environmental Protection Agency Region IX Preliminary Remediation Goal
 MDL = Method detection limit

ug/L = micrograms per liter
 mg/L = milligrams per liter