



Appendix J

Toxic Unit Calculations



Toxic Unit Calculations for
Drainage Ways Sediment
Samples

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-001

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-001 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.3	--
f_{oc} (unitless)	--	0.003	--
PAHs - Non-alkylated			
Acenaphthene	491	1.77	0.001
Acenaphthylene	452	1.75 J	0.001
Anthracene	594	6.79 J	0.004
Benzo(a)anthracene	841	21.1 J	0.008
Benzo(a)pyrene	965	16.4 J	0.006
Benzo(b)fluoranthene	979	28.2	0.01
Benzo(e)pyrene	967	14.3 J	0.005
Benzo(g,h,i)perylene	1095	13.3 J	0.004
Benzo(j)+(k)Fluoranthene	981	10.7 J	0.004
Chrysene/Triphenylene	844	23.6 J	0.009
Dibenz(a,h)anthracene	1123	4.73	0.001
Fluoranthene	707	51.0	0.02
Fluorene	538	2.21	0.001
Indeno[1,2,3-cd]pyrene	1115	12.9 J	0.004
Naphthalene	385	2.60	0.002
Perylene	967	4.18 J	0.001
Phenanthrene	596	35.1	0.02
Pyrene	697	41.5	0.02
PAHs- Alkylated			
1-Methylnaphthalene	446	2.24	0.002
2-Methylnaphthalene	447	2.48	0.002
C1-Chrysenes	929	14.4	0.005
C1-Fluoranthenes/Pyrenes	770	16.7	0.007
C1-Fluorenes	611	< 0.4 U	0
C1-Phenanthrenes/Anthracenes	670	21.2	0.01
C2-Chrysenes	1008	7.49	0.002
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	< 0.7 U	0
C2-Phenanthrenes/Anthracenes	746	16.0	0.007
C3-Chrysenes	1112	2.63	0.0008
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	< 0.7 U	0
C3-Phenanthrenes/Anthracenes	829	7.63	0.003
C4-Chrysenes	1214	1.43	0.0004
C4-Naphthalenes	657	< 0.7 U	0
C4-Phenanthrenes/Anthracenes	913	4.92	0.002
Total TU			0.2

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-002

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-002 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.49	--
f _{oc} (unitless)	--	0.0049	--
PAHs - Non-alkylated			
Acenaphthene	491	0.260	0.0001
Acenaphthylene	452	2.36	0.001
Anthracene	594	3.51	0.001
Benzo(a)anthracene	841	2.77	0.0007
Benzo(a)pyrene	965	2.47	0.0005
Benzo(b)fluoranthene	979	14.1	0.003
Benzo(e)pyrene	967	8.26	0.002
Benzo(g,h,i)perylene	1095	7.90	0.001
Benzo(j)+(k)Fluoranthene	981	3.94	0.0008
Chrysene/Triphenylene	844	9.25	0.002
Dibenz(a,h)anthracene	1123	2.30	0.0004
Fluoranthene	707	6.59	0.002
Fluorene	538	3.13	0.001
Indeno[1,2,3-cd]pyrene	1115	6.98	0.001
Naphthalene	385	3.78	0.002
Perylene	967	0.767 J	0.0002
Phenanthrene	596	10.7	0.004
Pyrene	697	5.25	0.002
PAHs- Alkylated			
1-Methylnaphthalene	446	2.16	0.001
2-Methylnaphthalene	447	4.77	0.002
C1-Chrysenes	929	7.41	0.002
C1-Fluoranthenes/Pyrenes	770	7.59	0.002
C1-Fluorenes	611	1.92	0.0006
C1-Phenanthrenes/Anthracenes	670	10.8	0.003
C2-Chrysenes	1008	11.5	0.002
C2-Fluorenes	686	7.24	0.002
C2-Naphthalenes	510	8.04	0.003
C2-Phenanthrenes/Anthracenes	746	13.8	0.004
C3-Chrysenes	1112	9.36	0.002
C3-Fluorenes	769	12.69	0.003
C3-Naphthalenes	581	7.04	0.002
C3-Phenanthrenes/Anthracenes	829	14.6	0.004
C4-Chrysenes	1214	5.26	0.0009
C4-Naphthalenes	657	8.66	0.003
C4-Phenanthrenes/Anthracenes	913	11.8	0.003
Total TU			0.06

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-003**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-003 0-0.5 ft		SED-DA-003 (DUP) 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.49	--	0.53	--
f_{OC} (unitless)	--	0.0049	--	0.0053	--
PAHs - Non-alkylated					
Acenaphthene	491	0.157 J	0.00007	17.3	0.007
Acenaphthylene	452	0.821 J	0.0004	2.12	0.0009
Anthracene	594	1.322 J	0.0005	2.27	0.0007
Benzo(a)anthracene	841	1.64 J	0.0004	5.85	0.001
Benzo(a)pyrene	965	1.21 J	0.0003	4.02	0.0008
Benzo(b)fluoranthene	979	6.59 J	0.001	13.4	0.003
Benzo(e)pyrene	967	4.21 J	0.0009	6.02	0.001
Benzo(g,h,i)perylene	1095	3.50 J	0.0007	4.80	0.0008
Benzo(j)+(k)Fluoranthene	981	1.95 J	0.0004	4.62	0.0009
Chrysene/Triphenylene	844	5.41 J	0.001	11.5	0.003
Dibenz(a,h)anthracene	1123	0.991 J	0.0002	1.94	0.0003
Fluoranthene	707	4.83 J	0.001	15.6	0.004
Fluorene	538	1.88 J	0.0007	23.6	0.008
Indeno[1,2,3-cd]pyrene	1115	2.76 J	0.0005	5.21	0.0009
Naphthalene	385	2.23 J	0.001	6.77	0.003
Perylene	967	0.449 J	0.00009	201	0.04
Phenanthrene	596	6.58 J	0.002	22.8	0.007
Pyrene	697	3.61 J	0.001	9.85	0.003
PAHs- Alkylated					
1-Methylnaphthalene	446	1.10 J	0.0005	3.69	0.002
2-Methylnaphthalene	447	2.16 J	0.001	6.32	0.003
C1-Chrysenes	929	7.74 J	0.002	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	5.90 J	0.002	9.88	0.002
C1-Fluorenes	611	1.55 J	0.0005	4.57	0.001
C1-Phenanthrenes/Anthracenes	670	8.52 J	0.003	11.8	0.003
C2-Chrysenes	1008	9.31 J	0.002	< 0.2 U	0
C2-Fluorenes	686	< 0.4 UJ	0	4.53	0.001
C2-Naphthalenes	510	4.19 J	0.002	16.8	0.006
C2-Phenanthrenes/Anthracenes	746	14.7 J	0.004	12.1	0.003
C3-Chrysenes	1112	6.11 J	0.001	< 0.2 U	0
C3-Fluorenes	769	< 0.4 UJ	0	8.90	0.002
C3-Naphthalenes	581	4.79 J	0.002	13.3	0.004
C3-Phenanthrenes/Anthracenes	829	15.3 J	0.004	6.15	0.001
C4-Chrysenes	1214	3.64 J	0.0006	< 0.2 U	0
C4-Naphthalenes	657	5.41 J	0.002	23.9	0.007
C4-Phenanthrenes/Anthracenes	913	16.2 J	0.004	4.83	0.001
Total TU			0.04	0.1	

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-004

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-004 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.35	--
f _{oc} (unitless)	--	0.0135	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.3 U	0
Acenaphthylene	452	10.3	0.002
Anthracene	594	16.1	0.002
Benzo(a)anthracene	841	29.8	0.003
Benzo(a)pyrene	965	47.9	0.004
Benzo(b)fluoranthene	979	130	0.01
Benzo(e)pyrene	967	91.4	0.007
Benzo(g,h,i)perylene	1095	82.0	0.006
Benzo(j)+(k)Fluoranthene	981	29.5	0.002
Chrysene/Triphenylene	844	150	0.01
Dibenz(a,h)anthracene	1123	19.4	0.001
Fluoranthene	707	59.0	0.006
Fluorene	538	18.8	0.003
Indeno[1,2,3-cd]pyrene	1115	33.0	0.002
Naphthalene	385	25.8	0.005
Perylene	967	38.8	0.003
Phenanthrene	596	44.6	0.006
Pyrene	697	131	0.01
PAHs- Alkylated			
1-Methylnaphthalene	446	25.3	0.004
2-Methylnaphthalene	447	83.9	0.01
C1-Chrysenes	929	380	0.03
C1-Fluoranthenes/Pyrenes	770	417	0.04
C1-Fluorenes	611	147	0.02
C1-Phenanthrenes/Anthracenes	670	311	0.03
C2-Chrysenes	1008	486	0.04
C2-Fluorenes	686	478	0.05
C2-Naphthalenes	510	170	0.02
C2-Phenanthrenes/Anthracenes	746	1069	0.1
C3-Chrysenes	1112	395	0.03
C3-Fluorenes	769	813	0.08
C3-Naphthalenes	581	371	0.05
C3-Phenanthrenes/Anthracenes	829	1708	0.2
C4-Chrysenes	1214	175	0.01
C4-Naphthalenes	657	908	0.1
C4-Phenanthrenes/Anthracenes	913	1335	0.1
Total TU			1

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-005**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-005 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.37	--
f_{oc} (unitless)	--	0.0037	--
PAHs - Non-alkylated			
Acenaphthene	491	0.114	0.00006
Acenaphthylene	452	0.246	0.0001
Anthracene	594	0.480	0.0002
Benzo(a)anthracene	841	0.714	0.0002
Benzo(a)pyrene	965	0.596	0.0002
Benzo(b)fluoranthene	979	2.15	0.0006
Benzo(e)pyrene	967	2.03	0.0006
Benzo(g,h,i)perylene	1095	1.32	0.0003
Benzo(j)+(k)Fluoranthene	981	0.891	0.0002
Chrysene/Triphenylene	844	3.24	0.001
Dibenz(a,h)anthracene	1123	0.349	0.00008
Fluoranthene	707	2.04	0.0008
Fluorene	538	2.17	0.001
Indeno[1,2,3-cd]pyrene	1115	0.646	0.0002
Naphthalene	385	1.58	0.001
Perylene	967	0.242 J	0.00007
Phenanthrene	596	6.43	0.003
Pyrene	697	2.60	0.001
PAHs- Alkylated			
1-Methylnaphthalene	446	1.11	0.0007
2-Methylnaphthalene	447	2.37	0.001
C1-Chrysenes	929	6.54	0.002
C1-Fluoranthenes/Pyrenes	770	7.01	0.002
C1-Fluorenes	611	2.34	0.001
C1-Phenanthrenes/Anthracenes	670	15.0	0.006
C2-Chrysenes	1008	9.11	0.002
C2-Fluorenes	686	12.5	0.005
C2-Naphthalenes	510	5.14	0.003
C2-Phenanthrenes/Anthracenes	746	31.6	0.01
C3-Chrysenes	1112	6.73	0.002
C3-Fluorenes	769	17.4	0.006
C3-Naphthalenes	581	8.78	0.004
C3-Phenanthrenes/Anthracenes	829	37.8	0.01
C4-Chrysenes	1214	3.64	0.0008
C4-Naphthalenes	657	14.8	0.006
C4-Phenanthrenes/Anthracenes	913	29.3	0.009
Total TU			0.09

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-006

Parameter	Final Chronic Value (FCV) ($\mu\text{g/g}_{\text{OC}}$)	SED-DA-006 0-0.5 ft		SED-DA-006 0.5-1 ft	
		C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.14 J	--	0.14 J	--
f_{OC} (unitless)	--	0.0014	--	0.0014	--
PAHs - Non-alkylated					
Acenaphthene	491	< 0.1 U	0	0.649	0.0009
Acenaphthylene	452	< 0 U	0	0.736	0.001
Anthracene	594	< 0.1 U	0	1.55	0.002
Benzo(a)anthracene	841	< 0.2 U	0	2.37	0.002
Benzo(a)pyrene	965	< 0.1 U	0	2.50	0.002
Benzo(b)fluoranthene	979	< 0.2 U	0	7.81	0.006
Benzo(e)pyrene	967	< 0.2 U	0	8.01	0.006
Benzo(g,h,i)perylene	1095	< 0.1 U	0	5.99	0.004
Benzo(j)+(k)Fluoranthene	981	< 0.1 U	0	2.43	0.002
Chrysene/Triphenylene	844	< 0.1 U	0	13.6	0.01
Dibenz(a,h)anthracene	1123	< 0.1 U	0	1.49	0.0009
Fluoranthene	707	0.195 J	0.0002	7.79	0.008
Fluorene	538	0.464	0.0006	6.77	0.009
Indeno[1,2,3-cd]pyrene	1115	< 0.1 U	0	2.37	0.002
Naphthalene	385	< 0.354 UB	0	4.64	0.009
Perylene	967	R	0	0.903 J	0.0007
Phenanthrene	596	1.47	0.002	29.8	0.04
Pyrene	697	0.013 J	0.00001	15.3	0.02
PAHs- Alkylated					
1-Methylnaphthalene	446	0.123 J	0.0002	6.94	0.01
2-Methylnaphthalene	447	0.264 J	0.0004	12.9	0.02
C1-Chrysenes	929	< 0.2 U	0	38.7	0.03
C1-Fluoranthenes/Pyrenes	770	< 0.5 U	0	35.5	0.03
C1-Fluorenes	611	0.143 J	0.0002	27.2	0.03
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0	85.2	0.09
C2-Chrysenes	1008	< 0.2 U	0	49.5	0.04
C2-Fluorenes	686	< 0.4 U	0	84.6	0.09
C2-Naphthalenes	510	0.498 J	0.0007	42.2	0.06
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0	152	0.1
C3-Chrysenes	1112	< 0.2 U	0	34.3	0.02
C3-Fluorenes	769	< 0.4 U	0	95.6	0.09
C3-Naphthalenes	581	< 0.7 U	0	92.7	0.1
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0	173	0.1
C4-Chrysenes	1214	< 0.2 U	0	17.2	0.01
C4-Naphthalenes	657	< 0.7 U	0	113	0.1
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0	116	0.09
Total TU			0.004	1	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-007

Parameter	Final Chronic Value (FCV) ($\mu\text{g/g}_{\text{OC}}$)	SED-DA-007 0-0.5 ft		SED-DA-007 (DUP) 0-0.5 ft	
		C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.26	--	0.56	--
f_{OC} (unitless)	--	0.0026	--	0.0056	--
PAHs - Non-alkylated					
Acenaphthene	491	< 0.1 UJ	0	1.39 J	0.0005
Acenaphthylene	452	0.319 J	0.0003	1.55 J	0.0006
Anthracene	594	0.459 J	0.0003	5.70 J	0.002
Benzo(a)anthracene	841	1.35 J	0.0006	5.32 J	0.001
Benzo(a)pyrene	965	0.678 J	0.0003	7.46 J	0.001
Benzo(b)fluoranthene	979	3.97 J	0.002	20.7 J	0.004
Benzo(e)pyrene	967	2.82 J	0.001	16.7 J	0.003
Benzo(g,h,i)perylene	1095	1.32 J	0.0005	9.93 J	0.002
Benzo(j)+k)Fluoranthene	981	0.786 J	0.0003	6.88 J	0.001
Chrysene/Triphenylene	844	4.60 J	0.002	19.8 J	0.004
Dibenz(a,h)anthracene	1123	0.478 J	0.0002	2.48 J	0.0004
Fluoranthene	707	2.74 J	0.001	16.1 J	0.004
Fluorene	538	1.96 J	0.001	8.40 J	0.003
Indeno[1,2,3-cd]pyrene	1115	0.898 J	0.0003	5.21 J	0.0008
Naphthalene	385	1.41 J	0.001	4.83 J	0.002
Perylene	967	0.151 J	0.00006	2.66 J	0.0005
Phenanthrene	596	8.37 J	0.005	51.9 J	0.02
Pyrene	697	3.39 J	0.002	20.4 J	0.005
PAHs- Alkylated					
1-Methylnaphthalene	446	1.16 J	0.001	7.69 J	0.003
2-Methylnaphthalene	447	2.31 J	0.002	13.6 J	0.005
C1-Chrysenes	929	8.21 J	0.003	60.6 J	0.01
C1-Fluoranthenes/Pyrenes	770	9.57 J	0.005	77.4 J	0.02
C1-Fluorenes	611	5.60 J	0.004	40.3 J	0.01
C1-Phenanthrenes/Anthracenes	670	29.7 J	0.02	168 J	0.04
C2-Chrysenes	1008	12.1 J	0.005	68.5 J	0.01
C2-Fluorenes	686	19.5 J	0.01	110 J	0.03
C2-Naphthalenes	510	6.15 J	0.005	53.1 J	0.02
C2-Phenanthrenes/Anthracenes	746	58.0 J	0.03	318 J	0.08
C3-Chrysenes	1112	7.87 J	0.003	49.9 J	0.008
C3-Fluorenes	769	29.8 J	0.01	151 J	0.04
C3-Naphthalenes	581	16.9 J	0.01	124 J	0.04
C3-Phenanthrenes/Anthracenes	829	66.1 J	0.03	350 J	0.08
C4-Chrysenes	1214	3.76 J	0.001	23.0 J	0.003
C4-Naphthalenes	657	20.9 J	0.01	215 J	0.06
C4-Phenanthrenes/Anthracenes	913	46.9 J	0.02	253 J	0.05
Total TU			0.2	0.5	

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-008**

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-008 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.25	--
f _{oc} (unitless)	--	0.0025	--
PAHs - Non-alkylated			
Acenaphthene	491	0.039 J	0.00003
Acenaphthylene	452	0.105	0.00009
Anthracene	594	0.114 J	0.00008
Benzo(a)anthracene	841	0.378	0.0002
Benzo(a)pyrene	965	0.331 J	0.0001
Benzo(b)fluoranthene	979	1.49	0.0006
Benzo(e)pyrene	967	0.956	0.0004
Benzo(g,h,i)perylene	1095	0.418 J	0.0002
Benzo(j)+(k)Fluoranthene	981	0.589	0.0002
Chrysene/Triphenylene	844	1.08	0.0005
Dibenz(a,h)anthracene	1123	0.171	0.00006
Fluoranthene	707	1.28	0.0007
Fluorene	538	0.461	0.0003
Indeno[1,2,3-cd]pyrene	1115	0.527	0.0002
Naphthalene	385	< 0.439 UB	0
Perylene	967	1.34 J	0.0006
Phenanthrene	596	1.66	0.001
Pyrene	697	0.736	0.0004
PAHs- Alkylated			
1-Methylnaphthalene	446	0.176 J	0.0002
2-Methylnaphthalene	447	0.383 J	0.0003
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.813	0.0004
C1-Fluorenes	611	0.257 J	0.0002
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	0.771	0.0006
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	1.04	0.0007
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	< 0.7 U	0
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.008

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-009

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-009 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.31	--
f _{oc} (unitless)	--	0.0031	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	0.155	0.0001
Anthracene	594	< 0.1 U	0
Benzo(a)anthracene	841	0.326	0.0001
Benzo(a)pyrene	965	0.139	0.00005
Benzo(b)fluoranthene	979	1.29	0.0004
Benzo(e)pyrene	967	0.631	0.0002
Benzo(g,h,i)perylene	1095	0.325	0.0001
Benzo(j)+(k)Fluoranthene	981	0.417	0.0001
Chrysene/Triphenylene	844	1.05	0.0004
Dibenz(a,h)anthracene	1123	0.124	0.00004
Fluoranthene	707	1.06	0.0005
Fluorene	538	0.549	0.0003
Indeno[1,2,3-cd]pyrene	1115	0.366	0.0001
Naphthalene	385	< 0.771 UB	0
Perylene	967	< 1.27 UBJ	0
Phenanthrene	596	2.23	0.001
Pyrene	697	0.745	0.0003
PAHs- Alkylated			
1-Methylnaphthalene	446	0.368 J	0.0003
2-Methylnaphthalene	447	0.772 J	0.0006
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.603	0.0003
C1-Fluorenes	611	< 0.4 U	0
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	1.46	0.0009
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	1.50	0.0008
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	< 0.7 U	0
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.007

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-010

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-010 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.19	--
f_{oc} (unitless)	--	0.0019	--
PAHs - Non-alkylated			
Acenaphthene	491	0.175	0.0002
Acenaphthylene	452	0.403	0.0005
Anthracene	594	0.689	0.0006
Benzo(a)anthracene	841	3.79	0.002
Benzo(a)pyrene	965	5.88	0.003
Benzo(b)fluoranthene	979	13.6	0.007
Benzo(e)pyrene	967	8.02	0.004
Benzo(g,h,i)perylene	1095	5.78	0.003
Benzo(j)+(k)Fluoranthene	981	5.35	0.003
Chrysene/Triphenylene	844	9.65	0.006
Dibenz(a,h)anthracene	1123	1.49	0.0007
Fluoranthene	707	11.5	0.009
Fluorene	538	1.62	0.002
Indeno[1,2,3-cd]pyrene	1115	4.67	0.002
Naphthalene	385	1.55	0.002
Perylene	967	1.65	0.0009
Phenanthrene	596	7.16	0.006
Pyrene	697	9.23	0.007
PAHs- Alkylated			
1-Methylnaphthalene	446	0.882	0.001
2-Methylnaphthalene	447	1.87	0.002
C1-Chrysenes	929	5.99	0.003
C1-Fluoranthenes/Pyrenes	770	7.14	0.005
C1-Fluorenes	611	1.16	0.001
C1-Phenanthrenes/Anthracenes	670	8.38	0.007
C2-Chrysenes	1008	5.98	0.003
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	3.39	0.003
C2-Phenanthrenes/Anthracenes	746	16.8	0.01
C3-Chrysenes	1112	4.24	0.002
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	6.45	0.006
C3-Phenanthrenes/Anthracenes	829	17.1	0.01
C4-Chrysenes	1214	2.86	0.001
C4-Naphthalenes	657	6.27	0.005
C4-Phenanthrenes/Anthracenes	913	13.9	0.008
Total TU			0.1

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-011

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-011 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.17	--
f _{oc} (unitless)	--	0.0017	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	< 0.04 U	0
Anthracene	594	< 0.1 U	0
Benzo(a)anthracene	841	< 0.2 U	0
Benzo(a)pyrene	965	< 0.1 U	0
Benzo(b)fluoranthene	979	< 0.2 U	0
Benzo(e)pyrene	967	< 0.2 U	0
Benzo(g,h,i)perylene	1095	< 0.1 U	0
Benzo(j)+(k)Fluoranthene	981	< 0.1 U	0
Chrysene/Triphenylene	844	< 0.1 U	0
Dibenz(a,h)anthracene	1123	< 0.1 U	0
Fluoranthene	707	0.531	0.0004
Fluorene	538	1.16	0.001
Indeno[1,2,3-cd]pyrene	1115	< 0.1 U	0
Naphthalene	385	< 0.653 UB	0
Perylene	967	0.22 J	0.0001
Phenanthrene	596	3.03	0.003
Pyrene	697	0.236	0.0002
PAHs- Alkylated			
1-Methylnaphthalene	446	0.262 J	0.0003
2-Methylnaphthalene	447	0.496 J	0.0007
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	< 0.5 U	0
C1-Fluorenes	611	0.523	0.0005
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	0.774	0.0009
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	2.67	0.003
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	< 0.7 U	0
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.01

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-012

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-012 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.18	--
f_{oc} (unitless)	--	0.0018	--
PAHs - Non-alkylated			
Acenaphthene	491	0.040 J	0.00005
Acenaphthylene	452	0.053	0.00007
Anthracene	594	< 0.1 UJ	0
Benzo(a)anthracene	841	0.217	0.0001
Benzo(a)pyrene	965	0.079 J	0.00005
Benzo(b)fluoranthene	979	0.745	0.0004
Benzo(e)pyrene	967	0.421	0.0002
Benzo(g,h,i)perylene	1095	0.278 J	0.0001
Benzo(j)+k)Fluoranthene	981	0.298	0.0002
Chrysene/Triphenylene	844	0.550	0.0004
Dibenz(a,h)anthracene	1123	0.084	0.00004
Fluoranthene	707	1.24	0.001
Fluorene	538	1.26	0.001
Indeno[1,2,3-cd]pyrene	1115	0.290	0.0001
Naphthalene	385	0.903	0.001
Perylene	967	< 1.3 UBJ	0
Phenanthrene	596	3.69	0.003
Pyrene	697	0.668	0.0005
PAHs- Alkylated			
1-Methylnaphthalene	446	0.559	0.0007
2-Methylnaphthalene	447	1.12 J	0.001
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.235 J	0.0002
C1-Fluorenes	611	0.512	0.0005
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	1.91	0.002
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	1.68	0.002
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	1.50	0.001
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.02

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-013

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-013 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.21	--
f_{oc} (unitless)	--	0.0021	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	< 0.04 U	0
Anthracene	594	0.048 J	0.00004
Benzo(a)anthracene	841	0.084 J	0.00005
Benzo(a)pyrene	965	0.049 J	0.00002
Benzo(b)fluoranthene	979	0.258	0.0001
Benzo(e)pyrene	967	0.150 J	0.00007
Benzo(g,h,i)perylene	1095	0.097	0.00004
Benzo(j)+(k)Fluoranthene	981	0.081 J	0.00004
Chrysene/Triphenylene	844	0.172	0.0001
Dibenz(a,h)anthracene	1123	0.034 J	0.00001
Fluoranthene	707	0.493	0.0003
Fluorene	538	1.24	0.001
Indeno[1,2,3-cd]pyrene	1115	0.087	0.00004
Naphthalene	385	1.32	0.002
Perylene	967	1.03 J	0.0005
Phenanthrene	596	2.96	0.002
Pyrene	697	0.492	0.0003
PAHs- Alkylated			
1-Methylnaphthalene	446	0.669	0.0007
2-Methylnaphthalene	447	1.20 J	0.001
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.360 J	0.0002
C1-Fluorenes	611	0.531	0.0004
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	2.72	0.003
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	2.60	0.002
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	< 0.7 U	0
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.01



Toxic Unit Calculations for
Dawson Cove Sediment Samples

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-014

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-014 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.17 J	--
f_{oc} (unitless)	--	0.0017	--
PAHs - Non-alkylated			
Acenaphthene	491	0.051 J	0.00006
Acenaphthylene	452	0.040 J	0.00005
Anthracene	594	0.030 J	0.00003
Benzo(a)anthracene	841	0.058 J	0.00004
Benzo(a)pyrene	965	0.043 J	0.00003
Benzo(b)fluoranthene	979	0.117 J	0.00007
Benzo(e)pyrene	967	0.090 J	0.00005
Benzo(g,h,i)perylene	1095	0.080 J	0.00004
Benzo(j)+(k)Fluoranthene	981	0.035 J	0.00002
Chrysene/Triphenylene	844	0.088 J	0.00006
Dibenz(a,h)anthracene	1123	0.016 J	0.000008
Fluoranthene	707	0.409	0.0003
Fluorene	538	1.16	0.001
Indeno[1,2,3-cd]pyrene	1115	0.054	0.00003
Naphthalene	385	< 0.713 UB	0
Perylene	967	1.96	0.001
Phenanthrene	596	3.39	0.003
Pyrene	697	0.292	0.0002
PAHs- Alkylated			
1-Methylnaphthalene	446	0.392 J	0.0005
2-Methylnaphthalene	447	0.641 J	0.0008
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.265 J	0.0002
C1-Fluorenes	611	0.493	0.0005
C1-Phenanthrenes/Anthracenes	670	< 0.1 U	0
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	1.58	0.002
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	2.71	0.003
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	1.51	0.001
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.01

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-015**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-015 0-0.5 ft		SED-DA-015 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	2.15	--	2.15	--
f_{oc} (unitless)	--	0.0215	--	0.0215	--
PAHs - Non-alkylated					
Acenaphthene	491	16.4	0.002	9.53	0.0009
Acenaphthylene	452	11.8	0.001	6.15	0.0006
Anthracene	594	24.1	0.002	17.7	0.001
Benzo(a)anthracene	841	26.8	0.001	26.4	0.001
Benzo(a)pyrene	965	30.3	0.001	28.8	0.001
Benzo(b)fluoranthene	979	55.8	0.003	50.4	0.002
Benzo(e)pyrene	967	54.2	0.003	41.5 J	0.002
Benzo(g,h,i)perylene	1095	32.6	0.001	28.9	0.001
Benzo(j)+(k)fluoranthene	981	14.6	0.0007	15.5	0.0007
Chrysene/Triphenylene	844	117	0.006	74.0	0.004
Dibenz(a,h)anthracene	1123	7.98	0.0003	8.77	0.0004
Fluoranthene	707	62.0	0.004	52.7	0.003
Fluorene	538	79.0	0.007	44.5	0.004
Indeno[1,2,3-cd]pyrene	1115	15.7	0.0007	14.2	0.0006
Naphthalene	385	32.3	0.004	14.4	0.002
Perylene	967	30.8	0.001	31.2	0.002
Phenanthrene	596	331	0.03	203	0.02
Pyrene	697	108	0.007	91.7	0.006
PAHs - Alkylated					
1-Methylnaphthalene	446	177	0.02	70.2	0.007
2-Methylnaphthalene	447	233	0.02	96.3	0.01
C1-Chrysenes	929	340	0.02	217	0.01
C1-Fluoranthenes/Pyrenes	770	328	0.02	245	0.01
C1-Fluorenes	611	317	0.02	178	0.01
C1-Phenanthrenes/Anthracenes	670	926	0.06	604	0.04
C2-Chrysenes	1008	396	0.02	197	0.009
C2-Fluorenes	686	739	0.05	435	0.03
C2-Naphthalenes	510	1029	0.09	435	0.04
C2-Phenanthrenes/Anthracenes	746	1406	0.09	1083	0.07
C3-Chrysenes	1112	262	0.01	157	0.007
C3-Fluorenes	769	714	0.04	483	0.03
C3-Naphthalenes	581	1519	0.1	643	0.05
C3-Phenanthrenes/Anthracenes	829	1743	0.1	1073	0.06
C4-Chrysenes	1214	170	0.007	108	0.004
C4-Naphthalenes	657	1331	0.09	788	0.06
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0	686	0.03
Total TU			0.9	0.5	

Note:

1. *Italicized* Total Organic Carbon and f_{oc} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-016

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-016 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.48	--
f_{OC} (unitless)	--	0.0548	--
PAHs - Non-alkylated			
Acenaphthene	491	72.7	0.003
Acenaphthylene	452	3.79	0.0002
Anthracene	594	9.35	0.0003
Benzo(a)anthracene	841	6.00	0.0001
Benzo(a)pyrene	965	4.90	0.00009
Benzo(b)fluoranthene	979	24.0	0.0004
Benzo(e)pyrene	967	12.5	0.0002
Benzo(g,h,i)perylene	1095	13.4	0.0002
Benzo(j)+(k)Fluoranthene	981	7.71	0.0001
Chrysene/Triphenylene	844	11.4	0.0002
Dibenz(a,h)anthracene	1123	8.38	0.0001
Fluoranthene	707	39.6	0.001
Fluorene	538	97.5	0.003
Indeno[1,2,3-cd]pyrene	1115	5.60	0.00009
Naphthalene	385	12.6	0.0006
Perylene	967	51.8	0.001
Phenanthrene	596	174	0.005
Pyrene	697	31.7	0.0008
PAHs- Alkylated			
1-Methylnaphthalene	446	14.0	0.0006
2-Methylnaphthalene	447	12.6	0.0005
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	18.3	0.0004
C1-Fluorenes	611	12.8	0.0004
C1-Phenanthrenes/Anthracenes	670	27.4	0.0007
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	17.6	0.0005
C2-Naphthalenes	510	52.9	0.002
C2-Phenanthrenes/Anthracenes	746	30.1	0.0007
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	18.9	0.0004
C3-Naphthalenes	581	27.4	0.0009
C3-Phenanthrenes/Anthracenes	829	22.6	0.0005
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	86.6	0.002
C4-Phenanthrenes/Anthracenes	913	18.3	0.0004
Total TU			0.03

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-017**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-017 0-0.5 ft		SED-DA-017 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.88	--	<i>1.88</i>	--
f_{OC} (unitless)	--	0.0188	--	<i>0.0188</i>	--
PAHs - Non-alkylated					
Acenaphthene	491	4.24	0.0005	31.4	0.003
Acenaphthylene	452	4.06	0.0005	19.5	0.002
Anthracene	594	4.05	0.0004	23.7	0.002
Benzo(a)anthracene	841	11.3	0.0007	18.2	0.001
Benzo(a)pyrene	965	24.1	0.001	39.6	0.002
Benzo(b)fluoranthene	979	48.4	0.003	59.5	0.003
Benzo(e)pyrene	967	42.6	0.002	73.0	0.004
Benzo(g,h,i)perylene	1095	27.8	0.001	69.6	0.003
Benzo(j)+k)Fluoranthene	981	13.7	0.0007	18.9	0.001
Chrysene/Triphenylene	844	65.4	0.004	161	0.01
Dibenz(a,h)anthracene	1123	6.77	0.0003	13.5	0.0006
Fluoranthene	707	38.3	0.003	59.2	0.004
Fluorene	538	34.0	0.003	140	0.01
Indeno[1,2,3-cd]pyrene	1115	1.06	0.00005	21.2	0.001
Naphthalene	385	9.19	0.001	44.0	0.006
Perylene	967	17.0	0.0009	37.6	0.002
Phenanthrene	596	141	0.01	416	0.04
Pyrene	697	72.1	0.006	111	0.008
PAHs- Alkylated					
1-Methylnaphthalene	446	42.2	0.005	282	0.03
2-Methylnaphthalene	447	64.0	0.008	395	0.05
C1-Chrysenes	929	188	0.01	455	0.03
C1-Fluoranthenes/Pyrenes	770	187	0.01	484	0.03
C1-Fluorenes	611	121	0.01	< 1.8 U	0
C1-Phenanthrenes/Anthracenes	670	464	0.04	1207	0.1
C2-Chrysenes	1008	220	0.01	628	0.03
C2-Fluorenes	686	316	0.02	< 1.8 U	0
C2-Naphthalenes	510	315	0.03	1647	0.2
C2-Phenanthrenes/Anthracenes	746	842	0.06	1767	0.1
C3-Chrysenes	1112	193	0.009	510	0.02
C3-Fluorenes	769	341	0.02	< 1.8 U	0
C3-Naphthalenes	581	570	0.05	2378	0.2
C3-Phenanthrenes/Anthracenes	829	830	0.05	1921	0.1
C4-Chrysenes	1214	88.9	0.004	255	0.01
C4-Naphthalenes	657	488	0.04	2056	0.2
C4-Phenanthrenes/Anthracenes	913	613	0.04	1290	0.08
Total TU			0.5	1	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-018

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-018 0-0.5 ft		SED-DA-018 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	11.34	--	<i>11.34</i>	--
f_{OC} (unitless)	--	0.1134	--	<i>0.1134</i>	--
PAHs - Non-alkylated					
Acenaphthene	491	4.28	0.00008	2.53	0.00005
Acenaphthylene	452	12.6	0.0002	5.47	0.0001
Anthracene	594	14.4	0.0002	9.05	0.0001
Benzo(a)anthracene	841	12.2	0.0001	10.9	0.0001
Benzo(a)pyrene	965	13.8	0.0001	10.4	0.0001
Benzo(b)fluoranthene	979	77.1	0.0007	54.8	0.0005
Benzo(e)pyrene	967	44.4	0.0004	36.9	0.0003
Benzo(g,h,i)perylene	1095	66.3	0.0005	< 0.1 U	0
Benzo(j)+k)Fluoranthene	981	16.7	0.0002	13.8	0.0001
Chrysene/Triphenylene	844	35.5	0.0004	38.1	0.0004
Dibenz(a,h)anthracene	1123	11.5	0.00009	14.1	0.0001
Fluoranthene	707	43.5 J	0.0005	36.9 J	0.0005
Fluorene	538	17.3 J	0.0003	12.1	0.0002
Indeno[1,2,3-cd]pyrene	1115	40.7	0.0003	16.1	0.0001
Naphthalene	385	19.5	0.0004	13.7	0.0003
Perylene	967	171	0.002	330	0.003
Phenanthrene	596	35.6 J	0.0005	36.1	0.0005
Pyrene	697	30.8	0.0004	21.8	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	20.8	0.0004	7.01	0.0001
2-Methylnaphthalene	447	34.1	0.0007	15.0	0.0003
C1-Chrysenes	929	95.7	0.0009	191	0.002
C1-Fluoranthenes/Pyrenes	770	49.8	0.0006	52.5	0.0006
C1-Fluorenes	611	21.3	0.0003	10.5	0.0002
C1-Phenanthrenes/Anthracenes	670	47.5	0.0006	42.8	0.0006
C2-Chrysenes	1008	86.3	0.0008	118	0.001
C2-Fluorenes	686	65.8	0.0008	49.0	0.0006
C2-Naphthalenes	510	80.8	0.001	29.1	0.0005
C2-Phenanthrenes/Anthracenes	746	84.4	0.001	82.8	0.001
C3-Chrysenes	1112	69.4	0.0006	93.3	0.0007
C3-Fluorenes	769	64.4	0.0007	49.2	0.0006
C3-Naphthalenes	581	71.6	0.001	22.6	0.0003
C3-Phenanthrenes/Anthracenes	829	89.5	0.001	125	0.001
C4-Chrysenes	1214	42.4	0.0003	31.1	0.0002
C4-Naphthalenes	657	169	0.002	39.5	0.0005
C4-Phenanthrenes/Anthracenes	913	50.8 J	0.0005	111	0.001
Total TU			0.02	0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-019

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-019 0-0.5 ft		SED-DA-019 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	10.58	--	10.58	--
f_{OC} (unitless)	--	0.1058	--	0.1058	--
PAHs - Non-alkylated					
Acenaphthene	491	6.31 J	0.0001	2.76	0.00005
Acenaphthylene	452	15.6 J	0.0003	3.43	0.00007
Anthracene	594	23.2 J	0.0004	10.1	0.0002
Benzo(a)anthracene	841	12.9	0.0001	10.2	0.0001
Benzo(a)pyrene	965	24.1 J	0.0002	11.9	0.0001
Benzo(b)fluoranthene	979	98.6 J	0.001	40.8	0.0004
Benzo(e)pyrene	967	57.4	0.0006	23.4	0.0002
Benzo(g,h,i)perylene	1095	99.1	0.0009	< 0.1 U	0
Benzo(j)+(k)Fluoranthene	981	31.9	0.0003	11.9	0.0001
Chrysene/Triphenylene	844	54.8	0.0006	22.9	0.0003
Dibenz(a,h)anthracene	1123	12.6 J	0.0001	< 0.1 U	0
Fluoranthene	707	58.4 J	0.0008	30.9 J	0.0004
Fluorene	538	25.8 J	0.0005	10.5	0.0002
Indeno[1,2,3-cd]pyrene	1115	50.4	0.0004	14.1	0.0001
Naphthalene	385	20.5 J	0.0005	11.0	0.0003
Perylene	967	200	0.002	334	0.003
Phenanthrene	596	70.6	0.001	32.5	0.0005
Pyrene	697	50.1	0.0007	16.3	0.0002
PAHs- Alkylated					
1-Methylnaphthalene	446	22.9 J	0.0005	4.43	0.00009
2-Methylnaphthalene	447	41.2	0.0009	9.51	0.0002
C1-Chrysenes	929	101	0.001	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	86.1	0.001	40.8	0.0005
C1-Fluorenes	611	43.1	0.0007	9.87	0.0002
C1-Phenanthrenes/Anthracenes	670	108	0.002	30.4	0.0004
C2-Chrysenes	1008	94.8	0.0009	< 0.2 U	0
C2-Fluorenes	686	127	0.002	18.9	0.0003
C2-Naphthalenes	510	125	0.002	37.3	0.0007
C2-Phenanthrenes/Anthracenes	746	210	0.003	53.5	0.0007
C3-Chrysenes	1112	104	0.0009	< 0.2 U	0
C3-Fluorenes	769	140	0.002	22.5	0.0003
C3-Naphthalenes	581	178	0.003	24.8	0.0004
C3-Phenanthrenes/Anthracenes	829	261	0.003	59.6	0.0007
C4-Chrysenes	1214	85.1	0.0007	< 0.2 U	0
C4-Naphthalenes	657	180	0.003	114	0.002
C4-Phenanthrenes/Anthracenes	913	167	0.002	58.1	0.0006
Total TU			0.04	0.01	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-020

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-020 0-0.5 ft		SED-DA-020 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	11.6	--	11.6	--
f_{OC} (unitless)	--	0.116	--	0.116	--
PAHs - Non-alkylated					
Acenaphthene	491	6.17	0.0001	6.17	0.0001
Acenaphthylene	452	10.4	0.0002	3.98	0.00008
Anthracene	594	18.8	0.0003	8.77	0.0001
Benzo(a)anthracene	841	23.5	0.0002	8.97	0.00009
Benzo(a)pyrene	965	26.5	0.0002	10.9	0.0001
Benzo(b)fluoranthene	979	104	0.0009	43.8	0.0004
Benzo(e)pyrene	967	59.9	0.0005	38.2	0.0003
Benzo(g,h,i)perylene	1095	66.2	0.0005	33.6	0.0003
Benzo(j)+(k)Fluoranthene	981	36.8	0.0003	11.8	0.0001
Chrysene/Triphenylene	844	57.7	0.0006	56.2	0.0006
Dibenz(a,h)anthracene	1123	8.97	0.00007	7.3	0.00006
Fluoranthene	707	76.3	0.0009	33.2	0.0004
Fluorene	538	26.0	0.0004	15.7	0.0003
Indeno[1,2,3-cd]pyrene	1115	32.9	0.0003	17.0	0.0001
Naphthalene	385	15.3	0.0003	10.9	0.0002
Perylene	967	305	0.003	562 EJ	0.005
Phenanthrene	596	90.6	0.001	46.1	0.0007
Pyrene	697	58.2	0.0007	22.6	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	18.2	0.0004	5.46	0.0001
2-Methylnaphthalene	447	31.7	0.0006	12.8	0.0002
C1-Chrysenes	929	157	0.001	369	0.003
C1-Fluoranthenes/Pyrenes	770	86.7	0.001	73.5	0.0008
C1-Fluorenes	611	34.2	0.0005	11.3	0.0002
C1-Phenanthrenes/Anthracenes	670	97.8	0.001	42.2	0.0005
C2-Chrysenes	1008	149	0.001	219	0.002
C2-Fluorenes	686	91.9	0.001	49.8	0.0006
C2-Naphthalenes	510	84.0	0.001	28.9	0.0005
C2-Phenanthrenes/Anthracenes	746	165	0.002	93.5	0.001
C3-Chrysenes	1112	132	0.001	164	0.001
C3-Fluorenes	769	124	0.001	49.0	0.0005
C3-Naphthalenes	581	122	0.002	29.7	0.0004
C3-Phenanthrenes/Anthracenes	829	171	0.002	129	0.001
C4-Chrysenes	1214	76.8	0.0005	79.5	0.0006
C4-Naphthalenes	657	103	0.001	36.3	0.0005
C4-Phenanthrenes/Anthracenes	913	163	0.002	122	0.001
Total TU			0.03		0.02

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-021

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-021 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	12.63	--
f_{oc} (unitless)	--	0.1263	--
PAHs - Non-alkylated			
Acenaphthene	491	4.66	0.00008
Acenaphthylene	452	9.62	0.0002
Anthracene	594	15.6	0.0002
Benzo(a)anthracene	841	14.5	0.0001
Benzo(a)pyrene	965	16.3	0.0001
Benzo(b)fluoranthene	979	62.1	0.0005
Benzo(e)pyrene	967	29.0	0.0002
Benzo(g,h,i)perylene	1095	37.5	0.0003
Benzo(j)+(k)Fluoranthene	981	12.1	0.0001
Chrysene/Triphenylene	844	31.5	0.0003
Dibenz(a,h)anthracene	1123	9.01	0.00006
Fluoranthene	707	42.3	0.0005
Fluorene	538	22.6	0.0003
Indeno[1,2,3-cd]pyrene	1115	30.4	0.0002
Naphthalene	385	29.6	0.0006
Perylene	967	120	0.001
Phenanthrene	596	54.9	0.0007
Pyrene	697	37.1	0.0004
PAHs- Alkylated			
1-Methylnaphthalene	446	23.3	0.0004
2-Methylnaphthalene	447	39.8	0.0007
C1-Chrysenes	929	74.5	0.0006
C1-Fluoranthenes/Pyrenes	770	34.2	0.0004
C1-Fluorenes	611	17.4	0.0002
C1-Phenanthrenes/Anthracenes	670	35.7	0.0004
C2-Chrysenes	1008	68.7	0.0005
C2-Fluorenes	686	37.6	0.0004
C2-Naphthalenes	510	71.7	0.001
C2-Phenanthrenes/Anthracenes	746	45.3	0.0005
C3-Chrysenes	1112	54.0	0.0004
C3-Fluorenes	769	43.5	0.0004
C3-Naphthalenes	581	71.5	0.001
C3-Phenanthrenes/Anthracenes	829	54.6	0.0005
C4-Chrysenes	1214	35.3	0.0002
C4-Naphthalenes	657	40.5	0.0005
C4-Phenanthrenes/Anthracenes	913	46.7	0.0004
Total TU			0.01

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-022

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-022 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	6.68	--
f_{OC} (unitless)	--	0.0668	--
PAHs - Non-alkylated			
Acenaphthene	491	4.69	0.0001
Acenaphthylene	452	8.89	0.0003
Anthracene	594	13.9	0.0004
Benzo(a)anthracene	841	10.5	0.0002
Benzo(a)pyrene	965	10.5	0.0002
Benzo(b)fluoranthene	979	43.9	0.0007
Benzo(e)pyrene	967	20.2	0.0003
Benzo(g,h,i)perylene	1095	45.7	0.0006
Benzo(j)+(k)fluoranthene	981	13.1	0.0002
Chrysene/Triphenylene	844	27.9	0.0005
Dibenz(a,h)anthracene	1123	11.2	0.0001
Fluoranthene	707	31.3	0.0007
Fluorene	538	23.5	0.0007
Indeno[1,2,3-cd]pyrene	1115	45.4	0.0006
Naphthalene	385	16.0	0.0006
Perylene	967	266	0.004
Phenanthrene	596	49.1	0.001
Pyrene	697	24.4	0.0005
PAHs- Alkylated			
1-Methylnaphthalene	446	10.2	0.0003
2-Methylnaphthalene	447	19.7	0.0007
C1-Chrysenes	929	176	0.003
C1-Fluoranthenes/Pyrenes	770	29.7	0.0006
C1-Fluorenes	611	17.7	0.0004
C1-Phenanthrenes/Anthracenes	670	40.7	0.0009
C2-Chrysenes	1008	55.0	0.0008
C2-Fluorenes	686	52.1	0.001
C2-Naphthalenes	510	47.9	0.001
C2-Phenanthrenes/Anthracenes	746	73.7	0.001
C3-Chrysenes	1112	45.9	0.0006
C3-Fluorenes	769	51.4	0.001
C3-Naphthalenes	581	53.3	0.001
C3-Phenanthrenes/Anthracenes	829	80.9	0.001
C4-Chrysenes	1214	22.7	0.0003
C4-Naphthalenes	657	54.1	0.001
C4-Phenanthrenes/Anthracenes	913	86.9	0.001
Total TU			0.03

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-023

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-023 0-0.5 ft		SED-DA-023 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	13.3	--	13.3	--
f_{OC} (unitless)	--	0.133	--	0.133	--
PAHs - Non-alkylated					
Acenaphthene	491	8.68	0.0001	3.65	0.00006
Acenaphthylene	452	20.0	0.0003	3.42	0.00006
Anthracene	594	34.8	0.0004	5.10	0.00006
Benzo(a)anthracene	841	27.8	0.0002	5.49	0.00005
Benzo(a)pyrene	965	32.3	0.0003	5.00	0.00004
Benzo(b)fluoranthene	979	124	0.001	27.3	0.0002
Benzo(e)pyrene	967	60.8	0.0005	13.3	0.0001
Benzo(g,h,i)perylene	1095	152	0.001	23.2	0.0002
Benzo(j)+(k)Fluoranthene	981	39.8	0.0003	6.06	0.00005
Chrysene/Triphenylene	844	72.4	0.0006	15.4	0.0001
Dibenz(a,h)anthracene	1123	19.0	0.0001	3.62	0.00002
Fluoranthene	707	78.8	0.0008	21.0	0.0002
Fluorene	538	47.9	0.0007	22.1	0.0003
Indeno[1,2,3-cd]pyrene	1115	106	0.0007	15.0	0.0001
Naphthalene	385	38.0	0.0007	12.8	0.0002
Perylene	967	230	0.002	640 EJ	0.005
Phenanthrene	596	116	0.001	55.3	0.0007
Pyrene	697	71.4	0.0008	12.9	0.0001
PAHs- Alkylated					
1-Methylnaphthalene	446	18.6	0.0003	6.30	0.0001
2-Methylnaphthalene	447	37.6	0.0006	13.6	0.0002
C1-Chrysenes	929	128	0.001	45.5	0.0004
C1-Fluoranthenes/Pyrenes	770	100	0.001	18.4	0.0002
C1-Fluorenes	611	40.9	0.0005	11.4	0.0001
C1-Phenanthrenes/Anthracenes	670	841	0.009	26.3	0.0003
C2-Chrysenes	1008	116	0.0009	25.4	0.0002
C2-Fluorenes	686	164	0.002	28.6	0.0003
C2-Naphthalenes	510	104	0.002	33.0	0.0005
C2-Phenanthrenes/Anthracenes	746	277	0.003	33.0	0.0003
C3-Chrysenes	1112	99.3	0.0007	22.8	0.0002
C3-Fluorenes	769	176	0.002	28.9	0.0003
C3-Naphthalenes	581	144	0.002	43.5	0.0006
C3-Phenanthrenes/Anthracenes	829	305	0.003	35.7	0.0003
C4-Chrysenes	1214	< 0.7 U	0	15.6	0.0001
C4-Naphthalenes	657	177	0.002	28.2	0.0003
C4-Phenanthrenes/Anthracenes	913	247	0.002	28.3	0.0002
Total TU			0.04	0.01	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-024

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-024 0-0.5 ft		SED-DA-024 1-1.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.23	--	3.23	--
f_{OC} (unitless)	--	0.0323	--	0.0323	--
PAHs - Non-alkylated					
Acenaphthene	491	1.73	0.0001	3.06	0.0002
Acenaphthylene	452	4.75	0.0003	5.52	0.0004
Anthracene	594	8.09	0.0004	11.4	0.0006
Benzo(a)anthracene	841	10.2	0.0004	11.0	0.0004
Benzo(a)pyrene	965	9.25	0.0003	15.5	0.0005
Benzo(b)fluoranthene	979	41.4	0.001	49.4	0.002
Benzo(e)pyrene	967	21.5	0.0007	32.0	0.001
Benzo(g,h,i)perylene	1095	28.6	0.0008	35.3	0.001
Benzo(j)+k)Fluoranthene	981	11.0	0.0003	20.3	0.0006
Chrysene/Triphenylene	844	21.2	0.0008	40.7	0.001
Dibenz(a,h)anthracene	1123	10.5	0.0003	5.71	0.0002
Fluoranthene	707	33.9	0.001	54.4	0.002
Fluorene	538	8.50	0.0005	22.1	0.001
Indeno[1,2,3-cd]pyrene	1115	23.1	0.0006	22.9	0.0006
Naphthalene	385	5.68	0.0005	11.7	0.0009
Perylene	967	365	0.01	212	0.007
Phenanthrene	596	36.6	0.002	85.6	0.004
Pyrene	697	26.1	0.001	39.1	0.002
PAHs- Alkylated					
1-Methylnaphthalene	446	7.96	0.0006	15.2	0.001
2-Methylnaphthalene	447	13.6	0.0009	27.2	0.002
C1-Chrysenes	929	78.8	0.003	87.3	0.003
C1-Fluoranthenes/Pyrenes	770	40.8	0.002	69.9	0.003
C1-Fluorenes	611	17.9	0.0009	35.9	0.002
C1-Phenanthrenes/Anthracenes	670	56.0	0.003	101	0.005
C2-Chrysenes	1008	43.3	0.001	68.7	0.002
C2-Fluorenes	686	51.3	0.002	105	0.005
C2-Naphthalenes	510	43.0	0.003	74.9	0.005
C2-Phenanthrenes/Anthracenes	746	92.9	0.004	190	0.008
C3-Chrysenes	1112	33.3	0.0009	60.2	0.002
C3-Fluorenes	769	60.1	0.002	124	0.005
C3-Naphthalenes	581	61.1	0.003	111	0.006
C3-Phenanthrenes/Anthracenes	829	113	0.004	184	0.007
C4-Chrysenes	1214	33.0	0.0008	53.4	0.001
C4-Naphthalenes	657	60.3	0.003	116	0.005
C4-Phenanthrenes/Anthracenes	913	92.4	0.003	175	0.006
Total TU			0.06	0.09	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-025**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-025 0-0.5 ft		SED-DA-025 (DUP) 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.11	--	13.4	--
f_{OC} (unitless)	--	0.0811	--	0.134	--
PAHs - Non-alkylated					
Acenaphthene	491	1.54	0.00004	8.73	0.0001
Acenaphthylene	452	5.21	0.0001	13.6	0.0002
Anthracene	594	12.4	0.0003	32.9	0.0004
Benzo(a)anthracene	841	12.2	0.0002	20.6	0.0002
Benzo(a)pyrene	965	16.1	0.0002	28.0	0.0002
Benzo(b)fluoranthene	979	57.7	0.0007	97	0.0007
Benzo(e)pyrene	967	37.9	0.0005	44.8	0.0003
Benzo(g,h,i)perylene	1095	59.9	0.0007	69.3 J	0.0005
Benzo(j)+(k)fluoranthene	981	18.1	0.0002	24.3	0.0002
Chrysene/Triphenylene	844	32.1	0.0005	42.3	0.0004
Dibenz(a,h)anthracene	1123	8.41	0.00009	8.17 J	0.00005
Fluoranthene	707	40.7	0.0007	90.7	0.001
Fluorene	538	15.9	0.0004	28.0	0.0004
Indeno[1,2,3-cd]pyrene	1115	39.5	0.0004	30.3 J	0.0002
Naphthalene	385	10.5	0.0003	15.1	0.0003
Perylene	967	297	0.004	567	0.004
Phenanthrene	596	47.7	0.001	109	0.001
Pyrene	697	35.6	0.0006	49.8	0.0005
PAHs- Alkylated					
1-Methylnaphthalene	446	5.33	0.0001	6.64	0.0001
2-Methylnaphthalene	447	13.1	0.0004	16.6	0.0003
C1-Chrysenes	929	119	0.002	80.6	0.0006
C1-Fluoranthenes/Pyrenes	770	52.8	0.0008	55.5	0.0005
C1-Fluorenes	611	11.0	0.0002	16.2	0.0002
C1-Phenanthrenes/Anthracenes	670	46.6	0.0009	61.8	0.0007
C2-Chrysenes	1008	104	0.001	52.3 J	0.0004
C2-Fluorenes	686	63.9	0.001	54.7	0.0006
C2-Naphthalenes	510	25.5	0.0006	38.9	0.0006
C2-Phenanthrenes/Anthracenes	746	93.8	0.002	79.7	0.0008
C3-Chrysenes	1112	90.9	0.001	34.7 J	0.0002
C3-Fluorenes	769	53.9	0.0009	70.6	0.0007
C3-Naphthalenes	581	31.3	0.0007	46.0	0.0006
C3-Phenanthrenes/Anthracenes	829	90.4	0.001	85.8	0.0008
C4-Chrysenes	1214	72.8	0.0007	< 0.2 UJ	0
C4-Naphthalenes	657	17.6	0.0003	37.3	0.0004
C4-Phenanthrenes/Anthracenes	913	96.1	0.001	61.4	0.0005
Total TU			0.03	0.02	

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-026

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-026 0-0.5 ft		SED-DA-026 0.5-1 ft		SED-DA-026 1-1.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	12.5	--	12.5	--	12.5	--
f_{OC} (unitless)	--	0.125	--	0.125	--	0.125	--
PAHs - Non-alkylated							
Acenaphthene	491	8.16	0.0001	4.01	0.00007	3.78	0.00006
Acenaphthylene	452	11.8	0.0002	2.35	0.00004	2.14	0.00004
Anthracene	594	26.1	0.0004	5.67	0.00008	5.29	0.00007
Benzo(a)anthracene	841	24.9	0.0002	6.98	0.00007	7.60	0.00007
Benzo(a)pyrene	965	30.9	0.0003	7.63	0.00006	6.35	0.00005
Benzo(b)fluoranthene	979	114	0.0009	32.6	0.0003	31.0	0.0003
Benzo(e)pyrene	967	66.3	0.0005	23.5	0.0002	22.7	0.0002
Benzo(g,h,i)perylene	1095	145 J	0.001	18.0	0.0001	16.8	0.0001
Benzo(j)+(k)Fluoranthene	981	33.2	0.0003	6.78	0.00006	8.34	0.00007
Chrysene/Triphenylene	844	42.2	0.0004	24.6	0.0002	25.0	0.0002
Dibenz(a,h)anthracene	1123	14.5 J	0.0001	4.81	0.00003	4.34	0.00003
Fluoranthene	707	79.1	0.0009	23.6	0.0003	24.7	0.0003
Fluorene	538	22.3	0.0003	12.0	0.0002	11.2	0.0002
Indeno[1,2,3-cd]pyrene	1115	60.3 J	0.0004	11.3	0.00008	10.9	0.00008
Naphthalene	385	18.5	0.0004	10.0	0.0002	8.18	0.0002
Perylene	967	790	0.007	375	0.003	314	0.003
Phenanthrene	596	83.2	0.001	39.9	0.0005	36.2	0.0005
Pyrene	697	72.2	0.0008	20.7	0.0002	21.2	0.0002
PAHs- Alkylated							
1-Methylnaphthalene	446	6.62	0.0001	4.75	0.00009	4.87	0.00009
2-Methylnaphthalene	447	18.4	0.0003	12.1	0.0002	12.4	0.0002
C1-Chrysenes	929	130	0.001	99.2	0.0009	88.7	0.0008
C1-Fluoranthenes/Pyrenes	770	58.5	0.0006	39.0	0.0004	43.6	0.0005
C1-Fluorenes	611	15.1	0.0002	8.00	0.0001	8.90	0.0001
C1-Phenanthrenes/Anthracenes	670	56.3	0.0007	31.4	0.0004	34.0	0.0004
C2-Chrysenes	1008	110 J	0.0009	99.1	0.0008	104	0.0008
C2-Fluorenes	686	69.0	0.0008	37.1	0.0004	39.5	0.0005
C2-Naphthalenes	510	36.2	0.0006	27.4	0.0004	32.0	0.0005
C2-Phenanthrenes/Anthracenes	746	81.3	0.0009	59.0	0.0006	70.6	0.0008
C3-Chrysenes	1112	92.5 J	0.0007	80.4	0.0006	87.0	0.0006
C3-Fluorenes	769	71.8	0.0007	30.7	0.0003	34.4	0.0004
C3-Naphthalenes	581	37.0	0.0005	35.6	0.0005	49.3	0.0007
C3-Phenanthrenes/Anthracenes	829	75.2	0.0007	85.9	0.0008	96.1	0.0009
C4-Chrysenes	1214	109 J	0.0007	49.8	0.0003	46.7	0.0003
C4-Naphthalenes	657	26.0	0.0003	28.3	0.0003	30.8	0.0004
C4-Phenanthrenes/Anthracenes	913	80.7	0.0007	71.9	0.0006	87.6	0.0008
		Total TU	0.03			0.01	0.01

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-027

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-027 0-0.5 ft		SED-DA-027 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.35	--	5.35	--
f_{OC} (unitless)	--	0.0535	--	0.0535	--
PAHs - Non-alkylated					
Acenaphthene	491	1.57	0.00006	1.85	0.00007
Acenaphthylene	452	3.48	0.0001	5.02	0.0002
Anthracene	594	6.65 J	0.0002	12.39 J	0.0004
Benzo(a)anthracene	841	12.90	0.0003	19.71	0.0004
Benzo(a)pyrene	965	7.12	0.0001	13.44	0.0003
Benzo(b)fluoranthene	979	25.15	0.0005	66.37	0.001
Benzo(e)pyrene	967	9.31	0.0002	27.90	0.0005
Benzo(g,h,i)perylene	1095	16.86	0.0003	36.40	0.0006
Benzo(j)+k)Fluoranthene	981	6.07	0.0001	18.39	0.0004
Chrysene/Triphenylene	844	14.82	0.0003	28.05	0.0006
Dibenz(a,h)anthracene	1123	28.39	0.0005	48.84	0.0008
Fluoranthene	707	20.72	0.0005	42.44	0.001
Fluorene	538	5.69	0.0002	16.93	0.0006
Indeno[1,2,3-cd]pyrene	1115	10.33	0.0002	13.51	0.0002
Naphthalene	385	4.11	0.0002	8.16	0.0004
Perylene	967	291.88	0.006	373.54	0.007
Phenanthrene	596	20.68	0.0006	47.19	0.001
Pyrene	697	21.69	0.0006	36.81	0.001
PAHs- Alkylated					
1-Methylnaphthalene	446	1.68	0.00007	3.97	0.0002
2-Methylnaphthalene	447	3.89	0.0002	9.21	0.0004
C1-Chrysenes	929	42.17	0.0008	101.16	0.002
C1-Fluoranthenes/Pyrenes	770	15.54	0.0004	39.13	0.0009
C1-Fluorenes	611	5.05	0.0002	10.49	0.0003
C1-Phenanthrenes/Anthracenes	670	20.06	0.0006	46.64	0.001
C2-Chrysenes	1008	24.93	0.0005	77.43	0.001
C2-Fluorenes	686	14.57	0.0004	27.92	0.0008
C2-Naphthalenes	510	9.11	0.0003	20.76	0.0008
C2-Phenanthrenes/Anthracenes	746	24.56	0.0006	70.25	0.002
C3-Chrysenes	1112	15.08	0.0003	53.31	0.0009
C3-Fluorenes	769	14.81	0.0004	40.28	0.001
C3-Naphthalenes	581	16.36	0.0005	25.64	0.0008
C3-Phenanthrenes/Anthracenes	829	31.30	0.0007	92.92	0.002
C4-Chrysenes	1214	12.88	0.0002	28.82	0.0004
C4-Naphthalenes	657	10.79	0.0003	22.78	0.0006
C4-Phenanthrenes/Anthracenes	913	33.85	0.0007	72.06	0.001
Total TU			0.02	0.03	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-028

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-028 0-0.5 ft		SED-DA-028 0.5-1 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)	C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.65 J	--	8.65 J	--
f _{oc} (unitless)	--	0.0865	--	0.0865	--
PAHs - Non-alkylated					
Acenaphthene	491	7.58	0.0002	2.51	0.00006
Acenaphthylene	452	65.22	0.002	9.19	0.0002
Anthracene	594	115.96 J	0.002	12.27 J	0.0002
Benzo(a)anthracene	841	171.95	0.002	44.98	0.0006
Benzo(a)pyrene	965	123.60	0.001	16.71	0.0002
Benzo(b)fluoranthene	979	385.97	0.005	62.78	0.0007
Benzo(e)pyrene	967	151.56	0.002	24.27	0.0003
Benzo(g,h,i)perylene	1095	87.72	0.0009	14.04	0.0001
Benzo(j)+(k)Fluoranthene	981	142.21	0.002	12.35	0.0001
Chrysene/Triphenylene	844	191.05	0.003	41.44	0.0006
Dibenz(a,h)anthracene	1123	29.02	0.0003	6.81	0.00007
Fluoranthene	707	252.66	0.004	50.82	0.0008
Fluorene	538	20.86	0.0004	9.22	0.0002
Indeno[1,2,3-cd]pyrene	1115	93.73	0.001	14.65	0.0002
Naphthalene	385	11.12	0.0003	5.94	0.0002
Perylene	967	439.59	0.005	549.39	0.007
Phenanthrene	596	103.97	0.002	28.98	0.0006
Pyrene	697	199.19	0.003	53.46	0.0009
PAHs- Alkylated					
1-Methylnaphthalene	446	5.93	0.0002	2.34	0.00006
2-Methylnaphthalene	447	12.2	0.0003	5.29	0.0001
C1-Chrysenes	929	164.46	0.002	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	145.56	0.002	37.90	0.0006
C1-Fluorenes	611	10.69	0.0002	4.75	0.00009
C1-Phenanthrenes/Anthracenes	670	80.24	0.001	26.44	0.0005
C2-Chrysenes	1008	88.01	0.001	< 0.2 U	0
C2-Fluorenes	686	48.20	0.0008	11.25	0.0002
C2-Naphthalenes	510	29.42	0.0007	10.79	0.0002
C2-Phenanthrenes/Anthracenes	746	84.71	0.001	28.37	0.0004
C3-Chrysenes	1112	34.67	0.0004	< 0.2 U	0
C3-Fluorenes	769	26.49	0.0004	14.34	0.0002
C3-Naphthalenes	581	< 0.7 U	0	15.63	0.0003
C3-Phenanthrenes/Anthracenes	829	83.36	0.001	18.66	0.0003
C4-Chrysenes	1214	24.21	0.0002	< 0.2 U	0
C4-Naphthalenes	657	< 0.7 U	0	20.46	0.0004
C4-Phenanthrenes/Anthracenes	913	57.33	0.0007	18.24	0.0002
Total TU			0.05	0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{oc} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-029

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-029 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.26	--
f_{oc} (unitless)	--	0.0326	--
PAHs - Non-alkylated			
Acenaphthene	491	2.67	0.0002
Acenaphthylene	452	3.02	0.0002
Anthracene	594	5.33 J	0.0003
Benzo(a)anthracene	841	11.6	0.0004
Benzo(a)pyrene	965	5.87	0.0002
Benzo(b)fluoranthene	979	24.0	0.0008
Benzo(e)pyrene	967	12.3	0.0004
Benzo(g,h,i)perylene	1095	12.2	0.0003
Benzo(j)+(k)Fluoranthene	981	5.43	0.0002
Chrysene/Triphenylene	844	22.2	0.0008
Dibenz(a,h)anthracene	1123	3.53	0.0001
Fluoranthene	707	18.6	0.0008
Fluorene	538	8.67	0.0005
Indeno[1,2,3-cd]pyrene	1115	11.4	0.0003
Naphthalene	385	5.21	0.0004
Perylene	967	1905 EJ	0.06
Phenanthrene	596	24.0	0.001
Pyrene	697	21.1	0.0009
PAHs- Alkylated			
1-Methylnaphthalene	446	4.48	0.0003
2-Methylnaphthalene	447	8.86	0.0006
C1-Chrysenes	929	55.8	0.002
C1-Fluoranthenes/Pyrenes	770	21.8	0.0009
C1-Fluorenes	611	8.59	0.0004
C1-Phenanthrenes/Anthracenes	670	29.5	0.001
C2-Chrysenes	1008	42.3	0.001
C2-Fluorenes	686	22.57	0.001
C2-Naphthalenes	510	21.3	0.001
C2-Phenanthrenes/Anthracenes	746	64.5	0.003
C3-Chrysenes	1112	31.5	0.0009
C3-Fluorenes	769	30.88	0.001
C3-Naphthalenes	581	< 0.7 U	0
C3-Phenanthrenes/Anthracenes	829	56.2	0.002
C4-Chrysenes	1214	17.4	0.0004
C4-Naphthalenes	657	22.8	0.001
C4-Phenanthrenes/Anthracenes	913	46.1	0.002
Total TU			0.09

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-030

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-030 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.99	--
f_{OC} (unitless)	--	0.0899	--
PAHs - Non-alkylated			
Acenaphthene	491	3.47	0.00008
Acenaphthylene	452	8.77	0.0002
Anthracene	594	19.56 J	0.0004
Benzo(a)anthracene	841	24.24	0.0003
Benzo(a)pyrene	965	16.31	0.0002
Benzo(b)fluoranthene	979	64.98	0.0007
Benzo(e)pyrene	967	26.47	0.0003
Benzo(g,h,i)perylene	1095	36.67	0.0004
Benzo(j)+(k)fluoranthene	981	18.28	0.0002
Chrysene/Triphenylene	844	34.37	0.0005
Dibenz(a,h)anthracene	1123	5.48	0.00005
Fluoranthene	707	57.06	0.0009
Fluorene	538	18.65	0.0004
Indeno[1,2,3-cd]pyrene	1115	20.32	0.0002
Naphthalene	385	9.16	0.0003
Perylene	967	818.38 EJ	0.009
Phenanthrene	596	56.02	0.001
Pyrene	697	56.41	0.0009
PAHs- Alkylated			
1-Methylnaphthalene	446	4.10	0.0001
2-Methylnaphthalene	447	10.3	0.0003
C1-Chrysenes	929	145.83	0.002
C1-Fluoranthenes/Pyrenes	770	41.70	0.0006
C1-Fluorenes	611	8.63	0.0002
C1-Phenanthrenes/Anthracenes	670	41.97	0.0007
C2-Chrysenes	1008	56.69	0.0006
C2-Fluorenes	686	36.34	0.0006
C2-Naphthalenes	510	20.73	0.0005
C2-Phenanthrenes/Anthracenes	746	51.22	0.0008
C3-Chrysenes	1112	44.75	0.0004
C3-Fluorenes	769	31.05	0.0004
C3-Naphthalenes	581	27.21	0.0005
C3-Phenanthrenes/Anthracenes	829	75.08	0.001
C4-Chrysenes	1214	35.60	0.0003
C4-Naphthalenes	657	16.06	0.0003
C4-Phenanthrenes/Anthracenes	913	71.93	0.0009
Total TU			0.03

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-031

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-031 0-0.5 ft		SED-DA-031 0.5-1 ft		SED-DA-031 1-1.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.23	--	3.23	--	3.23	--
f_{OC} (unitless)	--	0.0323	--	0.0323	--	0.0323	--
PAHs - Non-alkylated							
Acenaphthene	491	1.67	0.0001	4.67	0.0003	1.79	0.0001
Acenaphthylene	452	4.44	0.0003	4.18	0.0003	1.82	0.0001
Anthracene	594	10.2 J	0.0005	5.71 J	0.0003	2.61 J	0.0001
Benzo(a)anthracene	841	35.6	0.001	12.2	0.0004	5.39	0.0002
Benzo(a)pyrene	965	24.1	0.0008	5.84	0.0002	4.06	0.0001
Benzo(b)fluoranthene	979	49.8	0.002	29.0	0.0009	19.1	0.0006
Benzo(e)pyrene	967	26.8	0.0009	12.6	0.0004	6.25	0.0002
Benzo(g,h,i)perylene	1095	27.0	0.0008	13.8	0.0004	6.25	0.0002
Benzo(j)+(k)Fluoranthene	981	14.3	0.0005	6.55	0.0002	2.14	0.00007
Chrysene/Triphenylene	844	35.2	0.001	22.5	0.0008	15.7	0.0006
Dibenz(a,h)anthracene	1123	5.99	0.0002	4.04	0.0001	2.58	0.00007
Fluoranthene	707	42.4	0.002	22.9	0.001	12.1	0.0005
Fluorene	538	11.2	0.0006	16.9	0.001	8.13	0.0005
Indeno[1,2,3-cd]pyrene	1115	20.1	0.0006	10.3	0.0003	6.40	0.0002
Naphthalene	385	8.38	0.0007	14.1	0.001	7.43	0.0006
Perylene	967	197	0.006	518 EJ	0.02	567 EJ	0.02
Phenanthrene	596	37.9	0.002	43.2	0.002	20.4	0.001
Pyrene	697	48.4	0.002	23.0	0.001	9.73	0.0004
PAHs- Alkylated							
1-Methylnaphthalene	446	7.61	0.0005	8.43	0.0006	2.67	0.0002
2-Methylnaphthalene	447	19.4	0.001	20.2	0.001	5.72	0.0004
C1-Chrysenes	929	85.6	0.003	66.5	0.002	30.7	0.001
C1-Fluoranthenes/Pyrenes	770	36.8	0.001	23.0	0.0009	8.94	0.0004
C1-Fluorenes	611	12.0	0.0006	14.3	0.0007	4.53	0.0002
C1-Phenanthrenes/Anthracenes	670	43.9	0.002	47.6	0.002	14.1	0.0007
C2-Chrysenes	1008	71.6	0.002	34.7	0.001	11.7	0.0004
C2-Fluorenes	686	44.6	0.002	55.9	0.003	10.3	0.0005
C2-Naphthalenes	510	61.9	0.004	84.2	0.005	17.9	0.001
C2-Phenanthrenes/Anthracenes	746	66.9	0.003	80.0	0.003	16.9	0.0007
C3-Chrysenes	1112	52.7	0.001	36.7	0.001	10.4	0.0003
C3-Fluorenes	769	32.6	0.001	39.8	0.002	13.3	0.0005
C3-Naphthalenes	581	87.2	0.005	158	0.008	37.1	0.002
C3-Phenanthrenes/Anthracenes	829	69.7	0.003	87.6	0.003	13.2	0.0005
C4-Chrysenes	1214	25.9	0.0007	17.5	0.0004	4.12	0.0001
C4-Naphthalenes	657	50.8	0.002	96.3	0.005	11.6	0.0005
C4-Phenanthrenes/Anthracenes	913	71.0	0.002	81.7	0.003	12.5	0.0004
Total TU			0.06	0.07		0.03	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-032

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-032 0-0.5 ft		SED-DA-032 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	4.91	--	4.91	--
f_{OC} (unitless)	--	0.0491	--	0.0491	--
PAHs - Non-alkylated					
Acenaphthene	491	3.79	0.0002	1.01	0.00004
Acenaphthylene	452	4.31	0.0002	0.569	0.00003
Anthracene	594	8.58 J	0.0003	0.661 J	0.00002
Benzo(a)anthracene	841	20.0	0.0005	1.31	0.00003
Benzo(a)pyrene	965	11.9	0.0003	< 0.1 U	0
Benzo(b)fluoranthene	979	43.9	0.0009	5.51	0.0001
Benzo(e)pyrene	967	21.2	0.0004	< 0.2 U	0
Benzo(g,h,i)perylene	1095	14.2	0.0003	1.44	0.00003
Benzo(j)+k)Fluoranthene	981	10.7	0.0002	1.01	0.00002
Chrysene/Triphenylene	844	32.3	0.0008	3.90	0.00009
Dibenz(a,h)anthracene	1123	4.74	0.00009	1.84	0.00003
Fluoranthene	707	31.8	0.0009	4.05	0.0001
Fluorene	538	16.0	0.0006	5.63	0.0002
Indeno[1,2,3-cd]pyrene	1115	12.6	0.0002	1.48	0.00003
Naphthalene	385	12.7	0.0007	4.51	0.0002
Perylene	967	303	0.006	892 EJ	0.02
Phenanthrene	596	34.2	0.001	13.7	0.0005
Pyrene	697	35.2	0.001	2.83	0.00008
PAHs- Alkylated					
1-Methylnaphthalene	446	6.70	0.0003	1.63	0.00007
2-Methylnaphthalene	447	16.4	0.0007	3.73	0.0002
C1-Chrysenes	929	71.5	0.002	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	33.4	0.0009	2.52	0.00007
C1-Fluorenes	611	10.9	0.0004	2.25	0.00007
C1-Phenanthrenes/Anthracenes	670	37.6	0.001	7.11	0.0002
C2-Chrysenes	1008	59.7	0.001	< 0.2 U	0
C2-Fluorenes	686	41.8	0.001	3.36	0.0001
C2-Naphthalenes	510	34.2	0.001	9.55	0.0004
C2-Phenanthrenes/Anthracenes	746	69.0	0.002	6.42	0.0002
C3-Chrysenes	1112	41.4	0.0008	< 0.2 U	0
C3-Fluorenes	769	41.3	0.001	< 0.4 U	0
C3-Naphthalenes	581	50.8	0.002	6.48	0.0002
C3-Phenanthrenes/Anthracenes	829	78.9	0.002	1.33	0.00003
C4-Chrysenes	1214	23.4	0.0004	< 0.2 U	0
C4-Naphthalenes	657	30.6	0.0009	28.2	0.0009
C4-Phenanthrenes/Anthracenes	913	70.8	0.002	1.65	0.00004
Total TU			0.03	0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-039

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-039 0-0.5 ft		SED-DA-039 0.5-1 ft		SED-DA-039 1-1.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.93	--	1.93	--	1.93	--
f_{OC} (unitless)	--	0.0193	--	0.0193	--	0.0193	--
PAHs - Non-alkylated							
Acenaphthene	491	5.34	0.0006	18.0	0.002	6.0	0.0006
Acenaphthylene	452	6.37	0.0007	15.3	0.002	5.5	0.0006
Anthracene	594	3.14	0.0003	< 0.1 U	0	< 0.1 U	0
Benzo(a)anthracene	841	18.2 J	0.001	28.4	0.002	11.4	0.0007
Benzo(a)pyrene	965	60.4	0.003	29.8	0.002	21.5	0.001
Benzo(b)fluoranthene	979	110	0.006	48.4	0.003	54.6	0.003
Benzo(e)pyrene	967	149	0.008	56.3	0.003	37.0	0.002
Benzo(g,h,i)perylene	1095	89.2	0.004	38.2	0.002	24.3	0.001
Benzo(j)+(k)Fluoranthene	981	66.2	0.003	28.3	0.001	14.4	0.0008
Chrysene/Triphenylene	844	107	0.007	101	0.006	62.8	0.004
Dibenz(a,h)anthracene	1123	22.5 J	0.001	10.3	0.0005	6.21	0.0003
Fluoranthene	707	65.2	0.005	64.1	0.005	50.2	0.004
Fluorene	538	37.4	0.004	74.0	0.007	30.0	0.003
Indeno[1,2,3-cd]pyrene	1115	36.8	0.002	16.6	0.0008	16.7	0.0008
Naphthalene	385	6.72	0.0009	28.9	0.004	11.0	0.001
Perylene	967	38.4	0.002	37.5	0.002	35.2	0.002
Phenanthrene	596	119	0.01	250	0.02	91.2	0.008
Pyrene	697	127	0.009	82.5	0.006	43.4	0.003
PAHs- Alkylated							
1-Methylnaphthalene	446	30.0	0.003	255	0.03	45.3	0.005
2-Methylnaphthalene	447	52.5	0.006	314	0.04	69.6	0.008
C1-Chrysenes	929	320	0.02	338	0.02	112	0.006
C1-Fluoranthenes/Pyrenes	770	390	0.03	347	0.02	141	0.009
C1-Fluorenes	611	167	0.01	242	0.02	102	0.009
C1-Phenanthrenes/Anthracenes	670	643	0.05	745	0.06	248	0.02
C2-Chrysenes	1008	417	0.02	372	0.02	123	0.006
C2-Fluorenes	686	906	0.07	594	0.04	244	0.02
C2-Naphthalenes	510	330	0.03	1164	0.1	275	0.03
C2-Phenanthrenes/Anthracenes	746	1529	0.1	1288	0.09	378	0.03
C3-Chrysenes	1112	351	0.02	278	0.01	102	0.005
C3-Fluorenes	769	1456	0.1	675	0.05	295	0.02
C3-Naphthalenes	581	784	0.07	1181	0.1	376	0.03
C3-Phenanthrenes/Anthracenes	829	1814	0.1	1457	0.09	472	0.03
C4-Chrysenes	1214	182	0.008	143	0.006	56.2	0.002
C4-Naphthalenes	657	1196	0.09	1053	0.08	362	0.03
C4-Phenanthrenes/Anthracenes	913	1253	0.07	879	0.05	309	0.02
		Total TU	0.9			0.9	0.3

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-040

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-040 0-0.5 ft		SED-DA-040 (DUP) 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.9 J	--	0.4 J	--
f_{OC} (unitless)	--	0.009	--	0.004	--
PAHs - Non-alkylated					
Acenaphthene	491	0.580 J	0.0001	< 0.1 UJ	0
Acenaphthylene	452	0.541	0.0001	0.383	0.0002
Anthracene	594	< 0.1 U	0	< 0.1 U	0
Benzo(a)anthracene	841	1.3	0.0002	1.17	0.0003
Benzo(a)pyrene	965	1.81	0.0002	1.55	0.0004
Benzo(b)fluoranthene	979	4.10	0.0005	3.48	0.0009
Benzo(e)pyrene	967	4.69	0.0005	4.63	0.001
Benzo(g,h,i)perylene	1095	3.37	0.0003	3.29	0.0008
Benzo(j)+(k)Fluoranthene	981	1.77	0.0002	1.41	0.0004
Chrysene/Triphenylene	844	7.4	0.001	6.62	0.002
Dibenz(a,h)anthracene	1123	0.797	0.00008	0.819	0.0002
Fluoranthene	707	4.15	0.0007	4.10	0.001
Fluorene	538	2.75	0.0006	3.92	0.002
Indeno[1,2,3-cd]pyrene	1115	1.15	0.0001	1.20	0.0003
Naphthalene	385	2.69	0.0008	3.75	0.002
Perylene	967	1.09 J	0.0001	1.38 J	0.0004
Phenanthrene	596	11.5	0.002	13.4	0.006
Pyrene	697	6.94	0.001	5.97	0.002
PAHs- Alkylated					
1-Methylnaphthalene	446	4.36	0.001	4.09	0.002
2-Methylnaphthalene	447	6.98	0.002	7.41	0.004
C1-Chrysenes	929	23.5	0.003	19.4	0.005
C1-Fluoranthenes/Pyrenes	770	24.4	0.004	21.0	0.007
C1-Fluorenes	611	10.5	0.002	10.5	0.004
C1-Phenanthrenes/Anthracenes	670	33.2	0.006	30.2	0.01
C2-Chrysenes	1008	33.4	0.004	29.5	0.007
C2-Fluorenes	686	41.8	0.007	35.2	0.01
C2-Naphthalenes	510	29.7	0.006	24.3	0.01
C2-Phenanthrenes/Anthracenes	746	83.8	0.01	72.7	0.02
C3-Chrysenes	1112	27.1	0.003	22.1	0.005
C3-Fluorenes	769	54.8	0.008	48.5	0.02
C3-Naphthalenes	581	45.8	0.009	44.3	0.02
C3-Phenanthrenes/Anthracenes	829	109	0.01	98.7	0.03
C4-Chrysenes	1214	11.3	0.001	12.0	0.002
C4-Naphthalenes	657	59.7	0.01	54.5	0.02
C4-Phenanthrenes/Anthracenes	913	79.7	0.01	69.5	0.02
Total TU			0.1	0.2	

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-041

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-041 0-0.5 ft		SED-DA-041 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.55	--	8.55	--
f_{OC} (unitless)	--	0.0855	--	0.0855	--
PAHs - Non-alkylated					
Acenaphthene	491	3.44	0.00008	2.46	0.00006
Acenaphthylene	452	11.6	0.0003	6.30	0.0002
Anthracene	594	15.6	0.0003	13.6	0.0003
Benzo(a)anthracene	841	16.1	0.0002	10.5	0.0001
Benzo(a)pyrene	965	25.5	0.0003	9.81	0.0001
Benzo(b)fluoranthene	979	72.9	0.0009	41.5	0.0005
Benzo(e)pyrene	967	48.0	0.0006	16.0	0.0002
Benzo(g,h,i)perylene	1095	66.2	0.0007	< 0.1 U	0
Benzo(j)+(k)Fluoranthene	981	35.1	0.0004	11.8	0.0001
Chrysene/Triphenylene	844	36.1	0.0005	22.8	0.0003
Dibenz(a,h)anthracene	1123	11.7	0.0001	6.89	0.00007
Fluoranthene	707	45.9	0.0008	24.0	0.0004
Fluorene	538	18.4	0.0004	12.2	0.0003
Indeno[1,2,3-cd]pyrene	1115	48.9	0.0005	< 0.1 U	0
Naphthalene	385	17.0	0.0005	9.78	0.0003
Perylene	967	197	0.002	397	0.005
Phenanthrene	596	42.6	0.0008	24.4	0.0005
Pyrene	697	44.5	0.0007	19.8	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	20.9	0.0005	3.85	0.0001
2-Methylnaphthalene	447	33.9	0.0009	9.03	0.0002
C1-Chrysenes	929	119	0.001	42.0	0.0005
C1-Fluoranthenes/Pyrenes	770	71.5	0.001	18.8	0.0003
C1-Fluorenes	611	38.1	0.0007	3.50	0.00007
C1-Phenanthrenes/Anthracenes	670	92.3	0.002	26.4	0.0005
C2-Chrysenes	1008	95.9	0.001	36.7	0.0004
C2-Fluorenes	686	111	0.002	13.6	0.0002
C2-Naphthalenes	510	127	0.003	18.9	0.0004
C2-Phenanthrenes/Anthracenes	746	198	0.003	26.0	0.0004
C3-Chrysenes	1112	62.1	0.0007	19.5	0.0002
C3-Fluorenes	769	172	0.003	9.80	0.0001
C3-Naphthalenes	581	196	0.004	18.8	0.0004
C3-Phenanthrenes/Anthracenes	829	258	0.004	26.8	0.0004
C4-Chrysenes	1214	49.4	0.0005	13.8	0.0001
C4-Naphthalenes	657	190	0.003	13.4	0.0002
C4-Phenanthrenes/Anthracenes	913	195	0.002	17.3	0.0002
Total TU			0.04	0.01	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-042

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-042 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	4.27	--
f_{OC} (unitless)	--	0.0427	--
PAHs - Non-alkylated			
Acenaphthene	491	1.55	0.00007
Acenaphthylene	452	1.43	0.00007
Anthracene	594	2.09	0.00008
Benzo(a)anthracene	841	2.62	0.00007
Benzo(a)pyrene	965	3.27	0.00008
Benzo(b)fluoranthene	979	10.9 J	0.0003
Benzo(e)pyrene	967	5.64 J	0.0001
Benzo(g,h,i)perylene	1095	5.96	0.0001
Benzo(j)+(k)fluoranthene	981	2.29	0.00005
Chrysene/Triphenylene	844	9.00	0.0002
Dibenz(a,h)anthracene	1123	2.54	0.00005
Fluoranthene	707	9.81 J	0.0003
Fluorene	538	9.75 J	0.0004
Indeno[1,2,3-cd]pyrene	1115	5.30	0.0001
Naphthalene	385	11.9 J	0.0007
Perylene	967	145	0.004
Phenanthrene	596	23.1 J	0.0009
Pyrene	697	8.05 J	0.0003
PAHs- Alkylated			
1-Methylnaphthalene	446	6.74 J	0.0004
2-Methylnaphthalene	447	13.2 J	0.0007
C1-Chrysenes	929	48.1	0.001
C1-Fluoranthenes/Pyrenes	770	9.47	0.0003
C1-Fluorenes	611	7.35	0.0003
C1-Phenanthrenes/Anthracenes	670	14.4	0.0005
C2-Chrysenes	1008	20.7	0.0005
C2-Fluorenes	686	20.4	0.0007
C2-Naphthalenes	510	23.7	0.001
C2-Phenanthrenes/Anthracenes	746	22.5	0.0007
C3-Chrysenes	1112	18.1	0.0004
C3-Fluorenes	769	16.5	0.0005
C3-Naphthalenes	581	26.1	0.001
C3-Phenanthrenes/Anthracenes	829	21.1	0.0006
C4-Chrysenes	1214	7.08	0.0001
C4-Naphthalenes	657	17.3	0.0006
C4-Phenanthrenes/Anthracenes	913	17.1	0.0004
Total TU			0.02

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-043

Parameter	Final Chronic Value (FCV) ($\mu\text{g/g}_{\text{OC}}$)	SED-DA-043 0-0.5 ft		SED-DA-043 0.5-1 ft	
		C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g/kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.66	--	3.66	--
f_{OC} (unitless)	--	0.0366	--	0.0366	--
PAHs - Non-alkylated					
Acenaphthene	491	7.61	0.0004	1.26	0.00007
Acenaphthylene	452	9.75	0.0006	1.13	0.00007
Anthracene	594	6.31	0.0003	< 0.1 U	0
Benzo(a)anthracene	841	22.0	0.0007	1.31	0.00004
Benzo(a)pyrene	965	21.3	0.0006	2.69	0.00008
Benzo(b)fluoranthene	979	53.9	0.002	9.77	0.0003
Benzo(e)pyrene	967	53.4	0.002	6.82	0.0002
Benzo(g,h,i)perylene	1095	44.9	0.001	4.76	0.0001
Benzo(j)+(k)Fluoranthene	981	15.9	0.0004	2.44	0.00007
Chrysene/Triphenylene	844	153	0.005	15.6	0.0005
Dibenz(a,h)anthracene	1123	9.83	0.0002	1.20	0.00003
Fluoranthene	707	51.4	0.002	11.3	0.0004
Fluorene	538	46.1	0.002	8.59	0.0004
Indeno[1,2,3-cd]pyrene	1115	17.4	0.0004	2.65	0.00006
Naphthalene	385	15.3	0.001	12.2	0.0009
Perylene	967	15.6	0.0004	29.8	0.0008
Phenanthrene	596	225	0.01	39.6	0.002
Pyrene	697	101	0.004	12.5	0.0005
PAHs- Alkylated					
1-Methylnaphthalene	446	58.8	0.004	13.6	0.0008
2-Methylnaphthalene	447	89.3	0.005	22.5	0.001
C1-Chrysenes	929	335	0.01	34.9	0.001
C1-Fluoranthenes/Pyrenes	770	355	0.01	31.4	0.001
C1-Fluorenes	611	215	0.01	20.7	0.0009
C1-Phenanthrenes/Anthracenes	670	831	0.03	77.4	0.003
C2-Chrysenes	1008	484	0.01	38.9	0.001
C2-Fluorenes	686	628	0.03	64.2	0.003
C2-Naphthalenes	510	614	0.03	63.7	0.003
C2-Phenanthrenes/Anthracenes	746	1570	0.06	138	0.005
C3-Chrysenes	1112	407	0.01	28.5	0.0007
C3-Fluorenes	769	920	0.03	71.7	0.003
C3-Naphthalenes	581	1196	0.06	101	0.005
C3-Phenanthrenes/Anthracenes	829	1736	0.06	145	0.005
C4-Chrysenes	1214	164	0.004	16.9	0.0004
C4-Naphthalenes	657	1474	0.06	97.3	0.004
C4-Phenanthrenes/Anthracenes	913	1194	0.04	107	0.003
Total TU			0.5	0.05	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-044

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-044 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	6.03	--
f _{oc} (unitless)	--	0.0603	--
PAHs - Non-alkylated			
Acenaphthene	491	3.47	0.0001
Acenaphthylene	452	6.45	0.0002
Anthracene	594	< 0.6 U	0
Benzo(a)anthracene	841	15.5	0.0003
Benzo(a)pyrene	965	17.7	0.0003
Benzo(b)fluoranthene	979	46.7	0.0008
Benzo(e)pyrene	967	43.8	0.0008
Benzo(g,h,i)perylene	1095	32.8	0.0005
Benzo(j)+(k)Fluoranthene	981	14.8	0.0003
Chrysene/Triphenylene	844	113	0.002
Dibenz(a,h)anthracene	1123	7.25	0.0001
Fluoranthene	707	47.1	0.001
Fluorene	538	16.5	0.0005
Indeno[1,2,3-cd]pyrene	1115	14.0	0.0002
Naphthalene	385	14.6	0.0006
Perylene	967	24.9	0.0004
Phenanthrene	596	161	0.004
Pyrene	697	65.4	0.002
PAHs- Alkylated			
1-Methylnaphthalene	446	29.6	0.001
2-Methylnaphthalene	447	42.8	0.002
C1-Chrysenes	929	236	0.004
C1-Fluoranthenes/Pyrenes	770	201	0.004
C1-Fluorenes	611	89.7	0.002
C1-Phenanthrenes/Anthracenes	670	516	0.01
C2-Chrysenes	1008	324	0.005
C2-Fluorenes	686	314	0.008
C2-Naphthalenes	510	252	0.008
C2-Phenanthrenes/Anthracenes	746	1008	0.02
C3-Chrysenes	1112	254	0.004
C3-Fluorenes	769	501	0.01
C3-Naphthalenes	581	590	0.02
C3-Phenanthrenes/Anthracenes	829	1088	0.02
C4-Chrysenes	1214	125	0.002
C4-Naphthalenes	657	697	0.02
C4-Phenanthrenes/Anthracenes	913	758	0.01
Total TU			0.2

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-045

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-045 0-0.5 ft		SED-DA-045 0.5-1 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)	C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	4.64	--	<i>4.64</i>	--
f _{oc} (unitless)	--	0.0464	--	<i>0.0464</i>	--
PAHs - Non-alkylated					
Acenaphthene	491	26.8	0.001	7.83	0.0003
Acenaphthylene	452	30.7	0.001	5.49	0.0003
Anthracene	594	38.0	0.001	6.97	0.0003
Benzo(a)anthracene	841	60.0	0.002	12.4	0.0003
Benzo(a)pyrene	965	90.9	0.002	16.0	0.0004
Benzo(b)fluoranthene	979	142	0.003	33.5	0.0007
Benzo(e)pyrene	967	171	0.004	34.0	0.0008
Benzo(g,h,i)perylene	1095	189	0.004	35.4	0.0007
Benzo(j)+(k)Fluoranthene	981	41.4	0.0009	10.8	0.0002
Chrysene/Triphenylene	844	275	0.007	57.6	0.001
Dibenz(a,h)anthracene	1123	32.6	0.0006	6.77	0.0001
Fluoranthene	707	126 J	0.004	35.2 J	0.001
Fluorene	538	179	0.007	33.4	0.001
Indeno[1,2,3-cd]pyrene	1115	50.8	0.001	13.4	0.0003
Naphthalene	385	44.6	0.002	10.4	0.0006
Perylene	967	133	0.003	371	0.008
Phenanthrene	596	669	0.02	147	0.005
Pyrene	697	193	0.006	46.0	0.001
PAHs- Alkylated					
1-Methylnaphthalene	446	371	0.02	64.2	0.003
2-Methylnaphthalene	447	492	0.02	87.5	0.004
C1-Chrysenes	929	922	0.02	205	0.005
C1-Fluoranthenes/Pyrenes	770	1032	0.03	211	0.006
C1-Fluorenes	611	714	0.03	127	0.004
C1-Phenanthrenes/Anthracenes	670	2302	0.07	533	0.02
C2-Chrysenes	1008	1336	0.03	245	0.005
C2-Fluorenes	686	2021	0.06	326	0.01
C2-Naphthalenes	510	2538	0.1	426	0.02
C2-Phenanthrenes/Anthracenes	746	4461	0.1	971	0.03
C3-Chrysenes	1112	1095	0.02	209	0.004
C3-Fluorenes	769	2244	0.06	304	0.009
C3-Naphthalenes	581	4265	0.2	704	0.03
C3-Phenanthrenes/Anthracenes	829	4853	0.1	1079	0.03
C4-Chrysenes	1214	753	0.01	146	0.003
C4-Naphthalenes	657	4045	0.1	631	0.02
C4-Phenanthrenes/Anthracenes	913	3212	0.08	841	0.02
Total TU			1	0.2	

Note:

1. *Italicized* Total Organic Carbon and f_{oc} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-046

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-046 0-0.5 ft		SED-DA-046 (DUP) 0-0.5 ft		SED-DA-046 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.36	--	3.3	--	3.36	--
f_{OC} (unitless)	--	0.0336	--	0.033	--	0.0336	--
PAHs - Non-alkylated							
Acenaphthene	491	10.5	0.0006	14.4	0.0009	8.29	0.0005
Acenaphthylene	452	9.09	0.0006	12.0	0.0008	4.18	0.0003
Anthracene	594	11.6	0.0006	16.7	0.0009	< 0.1 U	0
Benzo(a)anthracene	841	14.0 J	0.0005	29.8 J	0.001	9.73	0.0003
Benzo(a)pyrene	965	24.5	0.0008	26.0	0.0008	11.2	0.0003
Benzo(b)fluoranthene	979	42.2	0.001	48.2	0.001	22.6	0.0007
Benzo(e)pyrene	967	45.7	0.001	55.5	0.002	24.5	0.0008
Benzo(g,h,i)perylene	1095	47.0	0.001	44.9	0.001	19.5	0.0005
Benzo(j)+(k)Fluoranthene	981	13.7	0.0004	17.3	0.0005	6.95	0.0002
Chrysene/Triphenylene	844	113	0.004	103	0.004	45.7	0.002
Dibenz(a,h)anthracene	1123	9.13	0.0002	10.1	0.0003	5.04	0.0001
Fluoranthene	707	47.4	0.002	53.3	0.002	24.6	0.001
Fluorene	538	57.1	0.003	82.5	0.005	46.6	0.003
Indeno[1,2,3-cd]pyrene	1115	14.0	0.0004	18.3	0.0005	8.13	0.0002
Naphthalene	385	12.9	0.001	20.4	0.002	17.0	0.001
Perylene	967	37.1	0.001	34.8	0.001	64.8	0.002
Phenanthrene	596	278	0.01	236	0.01	124	0.006
Pyrene	697	76.8	0.003	73.9 J	0.003	42.7	0.002
PAHs- Alkylated							
1-Methylnaphthalene	446	105	0.007	131	0.009	69.1	0.005
2-Methylnaphthalene	447	141	0.009	184	0.01	101	0.007
C1-Chrysenes	929	302	0.01	296	0.01	154	0.005
C1-Fluoranthenes/Pyrenes	770	298	0.01	394	0.02	142	0.005
C1-Fluorenes	611	223	0.01	319	0.02	156	0.008
C1-Phenanthrenes/Anthracenes	670	841	0.04	799	0.04	373	0.02
C2-Chrysenes	1008	451	0.01	375	0.01	185	0.005
C2-Fluorenes	686	587	0.03	632	0.03	398	0.02
C2-Naphthalenes	510	745	0.04	960	0.06	465	0.03
C2-Phenanthrenes/Anthracenes	746	1304	0.05	1282	0.05	640	0.03
C3-Chrysenes	1112	306	0.008	307	0.008	138	0.004
C3-Fluorenes	769	667	0.03	690	0.03	413	0.02
C3-Naphthalenes	581	1124	0.06	1463	0.08	776	0.04
C3-Phenanthrenes/Anthracenes	829	1411	0.05	1432	0.05	640	0.02
C4-Chrysenes	1214	168	0.004	138	0.003	68.3	0.002
C4-Naphthalenes	657	1140	0.05	1530	0.07	672	0.03
C4-Phenanthrenes/Anthracenes	913	1072	0.03	997	0.03	462	0.02
Total TU			0.5	0.6		0.3	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-047

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-047 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.17	--
f_{oc} (unitless)	--	0.0317	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	4.18	0.0003
Anthracene	594	3.72	0.0002
Benzo(a)anthracene	841	23.6	0.0009
Benzo(a)pyrene	965	17.4	0.0006
Benzo(b)fluoranthene	979	42.0	0.001
Benzo(e)pyrene	967	50.9	0.002
Benzo(g,h,i)perylene	1095	36.4	0.001
Benzo(j)+(k)Fluoranthene	981	13.2	0.0004
Chrysene/Triphenylene	844	116	0.004
Dibenz(a,h)anthracene	1123	8.17	0.0002
Fluoranthene	707	50.3	0.002
Fluorene	538	13.4	0.0008
Indeno[1,2,3-cd]pyrene	1115	14.5	0.0004
Naphthalene	385	5.56	0.0005
Perylene	967	59.7	0.002
Phenanthrene	596	152	0.008
Pyrene	697	77.5 J	0.004
PAHs- Alkylated			
1-Methylnaphthalene	446	19.8	0.001
2-Methylnaphthalene	447	26.1	0.002
C1-Chrysenes	929	251	0.009
C1-Fluoranthenes/Pyrenes	770	315	0.01
C1-Fluorenes	611	69.0	0.004
C1-Phenanthrenes/Anthracenes	670	628	0.03
C2-Chrysenes	1008	346	0.01
C2-Fluorenes	686	299	0.01
C2-Naphthalenes	510	226	0.01
C2-Phenanthrenes/Anthracenes	746	1105	0.05
C3-Chrysenes	1112	224	0.006
C3-Fluorenes	769	439	0.02
C3-Naphthalenes	581	504	0.03
C3-Phenanthrenes/Anthracenes	829	1454	0.06
C4-Chrysenes	1214	139	0.004
C4-Naphthalenes	657	671	0.03
C4-Phenanthrenes/Anthracenes	913	853	0.03
Total TU			0.3

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-048

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-048 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	6.41	--
f_{OC} (unitless)	--	0.0641	--
PAHs - Non-alkylated			
Acenaphthene	491	14.9 J	0.0005
Acenaphthylene	452	14.6 J	0.0005
Anthracene	594	11.4	0.0003
Benzo(a)anthracene	841	34.1	0.0006
Benzo(a)pyrene	965	28.9	0.0005
Benzo(b)fluoranthene	979	59.0	0.0009
Benzo(e)pyrene	967	58.5	0.0009
Benzo(g,h,i)perylene	1095	54.9	0.0008
Benzo(j)+(k)Fluoranthene	981	14.6 J	0.0002
Chrysene/Triphenylene	844	108	0.002
Dibenz(a,h)anthracene	1123	10.8	0.0002
Fluoranthene	707	64.1	0.001
Fluorene	538	83.2	0.002
Indeno[1,2,3-cd]pyrene	1115	23.2	0.0003
Naphthalene	385	23.6 J	0.001
Perylene	967	114	0.002
Phenanthrene	596	238	0.006
Pyrene	697	81.3 J	0.002
PAHs- Alkylated			
1-Methylnaphthalene	446	127	0.004
2-Methylnaphthalene	447	171	0.006
C1-Chrysenes	929	294	0.005
C1-Fluoranthenes/Pyrenes	770	343	0.007
C1-Fluorenes	611	312	0.008
C1-Phenanthrenes/Anthracenes	670	800	0.02
C2-Chrysenes	1008	445	0.007
C2-Fluorenes	686	795	0.02
C2-Naphthalenes	510	< 3.4 U	0
C2-Phenanthrenes/Anthracenes	746	1245	0.03
C3-Chrysenes	1112	303	0.004
C3-Fluorenes	769	800	0.02
C3-Naphthalenes	581	1541	0.04
C3-Phenanthrenes/Anthracenes	829	1271	0.02
C4-Chrysenes	1214	176	0.002
C4-Naphthalenes	657	1393	0.03
C4-Phenanthrenes/Anthracenes	913	961	0.02
Total TU			0.3

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-049

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-049 0-0.5 ft		SED-DA-049 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.23	--	8.23	--
f_{OC} (unitless)	--	0.0823	--	0.0823	--
PAHs - Non-alkylated					
Acenaphthene	491	8.96	0.0002	2.04	0.00005
Acenaphthylene	452	12.7	0.0003	2.83	0.00008
Anthracene	594	12.2	0.0002	4.56	0.00009
Benzo(a)anthracene	841	18.0	0.0003	6.52	0.00009
Benzo(a)pyrene	965	29.0	0.0004	4.69	0.00006
Benzo(b)fluoranthene	979	83.2	0.001	32.0	0.0004
Benzo(e)pyrene	967	46.4	0.0006	18.2	0.0002
Benzo(g,h,i)perylene	1095	34.2	0.0004	17.0	0.0002
Benzo(j)+k)Fluoranthene	981	26.7	0.0003	9.09	0.0001
Chrysene/Triphenylene	844	68.0	0.001	26.7	0.0004
Dibenz(a,h)anthracene	1123	8.27	0.00009	3.43	0.00004
Fluoranthene	707	59.2	0.001	19.0	0.0003
Fluorene	538	41.6	0.0009	12.0	0.0003
Indeno[1,2,3-cd]pyrene	1115	25.3	0.0003	13.5	0.0001
Naphthalene	385	28.0	0.0009	19.9	0.0006
Perylene	967	36.5	0.0005	83.0 J	0.001
Phenanthrene	596	114	0.002	31.7	0.0006
Pyrene	697	72.2	0.001	15.7	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	91.2	0.002	16.8	0.0005
2-Methylnaphthalene	447	129	0.004	29.4	0.0008
C1-Chrysenes	929	176	0.002	105	0.001
C1-Fluoranthenes/Pyrenes	770	161	0.003	25.6	0.0004
C1-Fluorenes	611	133	0.003	13.2	0.0003
C1-Phenanthrenes/Anthracenes	670	323	0.006	38.2	0.0007
C2-Chrysenes	1008	215	0.003	63.6	0.0008
C2-Fluorenes	686	381	0.007	48.1	0.0009
C2-Naphthalenes	510	468	0.01	55.0	0.001
C2-Phenanthrenes/Anthracenes	746	556	0.009	65.7	0.001
C3-Chrysenes	1112	161	0.002	56.3	0.0006
C3-Fluorenes	769	444	0.007	32.5	0.0005
C3-Naphthalenes	581	728	0.02	57.0	0.001
C3-Phenanthrenes/Anthracenes	829	737	0.01	74.1	0.001
C4-Chrysenes	1214	121	0.001	31.2	0.0003
C4-Naphthalenes	657	684	0.01	37.5	0.0007
C4-Phenanthrenes/Anthracenes	913	497	0.007	61.8	0.0008
Total TU			0.1	0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-050

Parameter	Final Chronic Value (FCV) (µg/g _{OC})	SED-DA-050 0-0.5 ft		SED-DA-050 (DUP) 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)	C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	4.8	--	5.3	--
f _{OC} (unitless)	--	0.048	--	0.053	--
PAHs - Non-alkylated					
Acenaphthene	491	2.06	0.00009	1.88	0.00007
Acenaphthylene	452	3.16	0.0001	3.15	0.0001
Anthracene	594	3.89	0.0001	3.89	0.0001
Benzo(a)anthracene	841	3.93	0.0001	3.14	0.00007
Benzo(a)pyrene	965	5.05	0.0001	3.91	0.00008
Benzo(b)fluoranthene	979	23.7	0.0005	22.5	0.0004
Benzo(e)pyrene	967	12.9	0.0003	12.0	0.0002
Benzo(g,h,i)perylene	1095	13.1	0.0002	13.4	0.0002
Benzo(j)+(k)Fluoranthene	981	7.04 J	0.0001	4.18 J	0.00008
Chrysene/Triphenylene	844	11.7	0.0003	11.2	0.0003
Dibenz(a,h)anthracene	1123	3.22	0.00006	2.84	0.00005
Fluoranthene	707	12.6	0.0004	12.5	0.0003
Fluorene	538	6.87	0.0003	8.71	0.0003
Indeno[1,2,3-cd]pyrene	1115	12.2	0.0002	11.6	0.0002
Naphthalene	385	5.52	0.0003	8.59	0.0004
Perylene	967	140	0.003	157	0.003
Phenanthrene	596	15.6	0.0005	17.5	0.0006
Pyrene	697	8.87	0.0003	9.74	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	8.51	0.0004	13.3	0.0006
2-Methylnaphthalene	447	13.6	0.0006	20.0	0.0008
C1-Chrysenes	929	32.9	0.0007	28.9	0.0006
C1-Fluoranthenes/Pyrenes	770	11.6	0.0003	13.0	0.0003
C1-Fluorenes	611	13.1	0.0004	13.0	0.0004
C1-Phenanthrenes/Anthracenes	670	22.9	0.0007	22.7	0.0006
C2-Chrysenes	1008	22.8	0.0005	19.2	0.0004
C2-Fluorenes	686	22.4	0.0007	28.7	0.0008
C2-Naphthalenes	510	46.3	0.002	53.8	0.002
C2-Phenanthrenes/Anthracenes	746	32.9	0.0009	33.9	0.0009
C3-Chrysenes	1112	17.8	0.0003	13.9	0.0002
C3-Fluorenes	769	31.2	0.0008	31.8	0.0008
C3-Naphthalenes	581	56.5	0.002	59.3	0.002
C3-Phenanthrenes/Anthracenes	829	27.4	0.0007	29.9	0.0007
C4-Chrysenes	1214	8.56	0.0001	9.39	0.0001
C4-Naphthalenes	657	40.0	0.001	36.2	0.001
C4-Phenanthrenes/Anthracenes	913	17.2	0.0004	21.2	0.0004
Total TU			0.02	0.02	

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-051

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-051 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	13.03	--
f_{OC} (unitless)	--	0.1303	--
PAHs - Non-alkylated			
Acenaphthene	491	11.5 J	0.0002
Acenaphthylene	452	13.8 J	0.0002
Anthracene	594	19.0	0.0002
Benzo(a)anthracene	841	13.8 J	0.0001
Benzo(a)pyrene	965	20.1	0.0002
Benzo(b)fluoranthene	979	64.5	0.0005
Benzo(e)pyrene	967	39.8	0.0003
Benzo(g,h,i)perylene	1095	54.6	0.0004
Benzo(j)+(k)Fluoranthene	981	28.0	0.0002
Chrysene/Triphenylene	844	35.9	0.0003
Dibenz(a,h)anthracene	1123	8.44	0.00006
Fluoranthene	707	47.6	0.0005
Fluorene	538	40.8 J	0.0006
Indeno[1,2,3-cd]pyrene	1115	36.9	0.0003
Naphthalene	385	26.7	0.0005
Perylene	967	103	0.0008
Phenanthrene	596	88.1	0.001
Pyrene	697	41.5	0.0005
PAHs- Alkylated			
1-Methylnaphthalene	446	75.8	0.001
2-Methylnaphthalene	447	102	0.002
C1-Chrysenes	929	111	0.0009
C1-Fluoranthenes/Pyrenes	770	70.7	0.0007
C1-Fluorenes	611	84.0	0.001
C1-Phenanthrenes/Anthracenes	670	141	0.002
C2-Chrysenes	1008	86.2	0.0007
C2-Fluorenes	686	156	0.002
C2-Naphthalenes	510	367	0.006
C2-Phenanthrenes/Anthracenes	746	208	0.002
C3-Chrysenes	1112	55.0	0.0004
C3-Fluorenes	769	199	0.002
C3-Naphthalenes	581	357	0.005
C3-Phenanthrenes/Anthracenes	829	250	0.002
C4-Chrysenes	1214	55.5	0.0004
C4-Naphthalenes	657	284	0.003
C4-Phenanthrenes/Anthracenes	913	170	0.001
Total TU			0.04

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-052

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-052 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	8.54	--
f_{oc} (unitless)	--	0.0854	--
PAHs - Non-alkylated			
Acenaphthene	491	7.31	0.0002
Acenaphthylene	452	14.4	0.0004
Anthracene	594	19.2	0.0004
Benzo(a)anthracene	841	19.2	0.0003
Benzo(a)pyrene	965	24.8	0.0003
Benzo(b)fluoranthene	979	90.3	0.001
Benzo(e)pyrene	967	57.3	0.0007
Benzo(g,h,i)perylene	1095	81.1	0.0009
Benzo(j)+(k)Fluoranthene	981	23.0	0.0003
Chrysene/Triphenylene	844	61.8	0.0009
Dibenz(a,h)anthracene	1123	12.5	0.0001
Fluoranthene	707	57.8 J	0.001
Fluorene	538	31.6	0.0007
Indeno[1,2,3-cd]pyrene	1115	45.3	0.0005
Naphthalene	385	20.6	0.0006
Perylene	967	112	0.001
Phenanthrene	596	79.7	0.002
Pyrene	697	58.2	0.001
PAHs- Alkylated			
1-Methylnaphthalene	446	65.7	0.002
2-Methylnaphthalene	447	90.8	0.002
C1-Chrysenes	929	141	0.002
C1-Fluoranthenes/Pyrenes	770	113	0.002
C1-Fluorenes	611	76.2	0.001
C1-Phenanthrenes/Anthracenes	670	199	0.003
C2-Chrysenes	1008	153	0.002
C2-Fluorenes	686	222	0.004
C2-Naphthalenes	510	290	0.007
C2-Phenanthrenes/Anthracenes	746	376	0.006
C3-Chrysenes	1112	136	0.001
C3-Fluorenes	769	283	0.004
C3-Naphthalenes	581	398	0.008
C3-Phenanthrenes/Anthracenes	829	425	0.006
C4-Chrysenes	1214	99.9	0.001
C4-Naphthalenes	657	345	0.006
C4-Phenanthrenes/Anthracenes	913	352	0.005
Total TU			0.07

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-053

Parameter	Final Chronic Value (FCV) (µg/g _{oc})	SED-DA-053 0-0.5 ft	
		C _{sed} (µg/kg)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.18	--
f _{oc} (unitless)	--	0.0518	--
PAHs - Non-alkylated			
Acenaphthene	491	1.48	0.00006
Acenaphthylene	452	2.35	0.0001
Anthracene	594	3.05	0.0001
Benzo(a)anthracene	841	3.44	0.00008
Benzo(a)pyrene	965	3.97	0.00008
Benzo(b)fluoranthene	979	20.0	0.0004
Benzo(e)pyrene	967	12.3	0.0002
Benzo(g,h,i)perylene	1095	13.4	0.0002
Benzo(j)+(k)Fluoranthene	981	4.04	0.00008
Chrysene/Triphenylene	844	14.3	0.0003
Dibenz(a,h)anthracene	1123	3.32	0.00006
Fluoranthene	707	12.3	0.0003
Fluorene	538	8.54	0.0003
Indeno[1,2,3-cd]pyrene	1115	11.0	0.0002
Naphthalene	385	9.76	0.0005
Perylene	967	378	0.008
Phenanthrene	596	19.2	0.0006
Pyrene	697	9.10	0.0003
PAHs- Alkylated			
1-Methylnaphthalene	446	5.41	0.0002
2-Methylnaphthalene	447	10.4	0.0004
C1-Chrysenes	929	72.1	0.001
C1-Fluoranthenes/Pyrenes	770	17.1	0.0004
C1-Fluorenes	611	7.58	0.0002
C1-Phenanthrenes/Anthracenes	670	19.1	0.0006
C2-Chrysenes	1008	46.2	0.0009
C2-Fluorenes	686	27.1	0.0008
C2-Naphthalenes	510	20.5	0.0008
C2-Phenanthrenes/Anthracenes	746	32.4	0.0008
C3-Chrysenes	1112	37.1	0.0006
C3-Fluorenes	769	17.9	0.0004
C3-Naphthalenes	581	24.3	0.0008
C3-Phenanthrenes/Anthracenes	829	37.8	0.0009
C4-Chrysenes	1214	15.4	0.0002
C4-Naphthalenes	657	16.6	0.0005
C4-Phenanthrenes/Anthracenes	913	34.7	0.0007
Total TU			0.02



Toxic Unit Calculations for Lake
Conway Sediment Samples

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-033**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{oc}}$)	SED-DA-033 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	2.20	--
f_{oc} (unitless)	--	0.022	--
PAHs - Non-alkylated			
Acenaphthene	491	1.71	0.0002
Acenaphthylene	452	3.36	0.0003
Anthracene	594	5.24	0.0004
Benzo(a)anthracene	841	9.56	0.0005
Benzo(a)pyrene	965	7.39	0.0003
Benzo(b)fluoranthene	979	22.6	0.001
Benzo(e)pyrene	967	11.2	0.0005
Benzo(g,h,i)perylene	1095	9.21	0.0004
Benzo(j)+(k)Fluoranthene	981	5.44	0.0003
Chrysene/Triphenylene	844	16.4	0.0009
Dibenz(a,h)anthracene	1123	< 0.1 U	0
Fluoranthene	707	21.5	0.001
Fluorene	538	12.5	0.001
Indeno[1,2,3-cd]pyrene	1115	7.41	0.0003
Naphthalene	385	8.98	0.001
Perylene	967	655 EJ	0.03
Phenanthrene	596	28.6	0.002
Pyrene	697	18.0	0.001
PAHs- Alkylated			
1-Methylnaphthalene	446	6.02	0.0006
2-Methylnaphthalene	447	9.90	0.001
C1-Chrysenes	929	3.92	0.0002
C1-Fluoranthenes/Pyrenes	770	17.5	0.001
C1-Fluorenes	611	6.97	0.0005
C1-Phenanthrenes/Anthracenes	670	15.8	0.001
C2-Chrysenes	1008	7.33	0.0003
C2-Fluorenes	686	20.1	0.001
C2-Naphthalenes	510	22.4	0.002
C2-Phenanthrenes/Anthracenes	746	21.2	0.001
C3-Chrysenes	1112	9.14	0.0004
C3-Fluorenes	769	16.3	0.001
C3-Naphthalenes	581	32.0	0.003
C3-Phenanthrenes/Anthracenes	829	16.2	0.0009
C4-Chrysenes	1214	6.69	0.0003
C4-Naphthalenes	657	18.1	0.001
C4-Phenanthrenes/Anthracenes	913	20.1	0.001
Total TU			0.06

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-034**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-034 0-0.5 ft		SED-DA-034 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.91	--	5.91	--
f_{OC} (unitless)	--	0.0591	--	0.0591	--
PAHs - Non-alkylated					
Acenaphthene	491	1.57	0.00005	0.291	0.00001
Acenaphthylene	452	6.47	0.0002	0.212	0.000008
Anthracene	594	9.73	0.0003	0.366	0.00001
Benzo(a)anthracene	841	17.0	0.0003	0.522	0.00001
Benzo(a)pyrene	965	14.4	0.0003	< 0.1 U	0
Benzo(b)fluoranthene	979	43.9	0.0008	1.55	0.00003
Benzo(e)pyrene	967	24.3	0.0004	< 0.2 U	0
Benzo(g,h,i)perylene	1095	20.4	0.0003	0.758	0.00001
Benzo(j)+k)Fluoranthene	981	14.2	0.0002	0.258	0.000004
Chrysene/Triphenylene	844	28.3	0.0006	1.37	0.00003
Dibenz(a,h)anthracene	1123	9.14	0.0001	0.378	0.000006
Fluoranthene	707	39.6	0.0009	2.77	0.00007
Fluorene	538	10.4	0.0003	3.87	0.0001
Indeno[1,2,3-cd]pyrene	1115	16.5	0.0003	0.621	0.000009
Naphthalene	385	7.38	0.0003	2.87	0.0001
Perylene	967	917 EJ	0.02	746 EJ	0.01
Phenanthrene	596	21.8	0.0006	11.1	0.0003
Pyrene	697	33.6	0.0008	1.78	0.00004
PAHs- Alkylated					
1-Methylnaphthalene	446	3.05	0.0001	0.905	0.00003
2-Methylnaphthalene	447	6.81	0.0003	2.03	0.00008
C1-Chrysenes	929	24.7	0.0004	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	27.7	0.0006	1.96	0.00004
C1-Fluorenes	611	6.05	0.0002	1.62	0.00004
C1-Phenanthrenes/Anthracenes	670	15.2	0.0004	4.46	0.0001
C2-Chrysenes	1008	9.36	0.0002	< 0.2 U	0
C2-Fluorenes	686	23.8	0.0006	< 0.4 U	0
C2-Naphthalenes	510	11.8	0.0004	3.14	0.0001
C2-Phenanthrenes/Anthracenes	746	23.4	0.0005	< 0.3 U	0
C3-Chrysenes	1112	14.5	0.0002	< 0.2 U	0
C3-Fluorenes	769	20.7	0.0005	< 0.4 U	0
C3-Naphthalenes	581	17.1	0.0005	3.17	0.00009
C3-Phenanthrenes/Anthracenes	829	19.4	0.0004	< 0.3 U	0
C4-Chrysenes	1214	9.04	0.0001	< 0.2 U	0
C4-Naphthalenes	657	21.0	0.0005	2.77	0.00007
C4-Phenanthrenes/Anthracenes	913	17.6	0.0003	< 0.3 U	0
Total TU			0.03	0.01	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-035

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-035 0-0.5 ft		SED-DA-035 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	3.03	--	3.03	--
f_{OC} (unitless)	--	0.0303	--	0.0303	--
PAHs - Non-alkylated					
Acenaphthene	491	1.59	0.0001	0.929	0.00006
Acenaphthylene	452	4.29	0.0003	0.798	0.00006
Anthracene	594	7.77	0.0004	1.69	0.00009
Benzo(a)anthracene	841	13.3	0.0005	1.85	0.00007
Benzo(a)pyrene	965	11.7	0.0004	1.92	0.00007
Benzo(b)fluoranthene	979	31.3	0.001	7.60	0.0003
Benzo(e)pyrene	967	27.3	0.0009	3.48	0.0001
Benzo(g,h,i)perylene	1095	13.2	0.0004	2.89	0.00009
Benzo(j)+(k)Fluoranthene	981	8.18	0.0003	1.76	0.00006
Chrysene/Triphenylene	844	25.2	0.001	4.94	0.0002
Dibenz(a,h)anthracene	1123	5.39	0.0002	10.1	0.0003
Fluoranthene	707	25.1	0.001	6.11	0.0003
Fluorene	538	13.7	0.0008	7.67	0.0005
Indeno[1,2,3-cd]pyrene	1115	10.8	0.0003	2.48	0.00007
Naphthalene	385	7.49	0.0006	4.04	0.0003
Perylene	967	935 EJ	0.03	968 EJ	0.03
Phenanthrene	596	38.6	0.002	20.5	0.001
Pyrene	697	25.3	0.001	5.52	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	3.21	0.0002	1.59	0.0001
2-Methylnaphthalene	447	7.55	0.0006	3.59	0.0003
C1-Chrysenes	929	73.5	0.003	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	29.5	0.001	4.98	0.0002
C1-Fluorenes	611	6.64	0.0004	3.03	0.0002
C1-Phenanthrenes/Anthracenes	670	16.6	0.0008	7.16	0.0004
C2-Chrysenes	1008	110	0.004	< 0.2 U	0
C2-Fluorenes	686	22.6	0.001	6.98	0.0003
C2-Naphthalenes	510	13.4	0.0009	6.08	0.0004
C2-Phenanthrenes/Anthracenes	746	40.8	0.002	8.38	0.0004
C3-Chrysenes	1112	86.6	0.003	< 0.2 U	0
C3-Fluorenes	769	25.4	0.001	7.09	0.0003
C3-Naphthalenes	581	29.8	0.002	19.7	0.001
C3-Phenanthrenes/Anthracenes	829	63.9	0.003	5.07	0.0002
C4-Chrysenes	1214	49.2	0.001	< 0.2 U	0
C4-Naphthalenes	657	11.8	0.0006	5.61	0.0003
C4-Phenanthrenes/Anthracenes	913	52.8	0.002	4.50	0.0002
Total TU			0.07	0.04	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: SED-DA-036

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-036 0-0.5 ft		SED-DA-036 (DUP) 0-0.5 ft		SED-DA-036 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.48	--	4.58	--	5.48	--
f_{OC} (unitless)	--	0.0548	--	0.0458	--	0.0548	--
PAHs - Non-alkylated							
Acenaphthene	491	2.63	0.0001	1.85	0.00008	0.600	0.00002
Acenaphthylene	452	8.28	0.0003	5.59	0.0003	0.313	0.00001
Anthracene	594	15.3	0.0005	9.94	0.0004	0.953	0.00003
Benzo(a)anthracene	841	18.7	0.0004	13.8	0.0004	0.832	0.00002
Benzo(a)pyrene	965	16.3	0.0003	13.2	0.0003	< 0.1 U	0
Benzo(b)fluoranthene	979	60.7	0.001	43.7	0.001	3.41	0.00006
Benzo(e)pyrene	967	30.8	0.0006	21.4	0.0005	< 0.2 U	0
Benzo(g,h,i)perylene	1095	24.0	0.0004	18.7	0.0004	< 0.1 U	0
Benzo(j)+(k)fluoranthene	981	20.4	0.0004	15.2	0.0003	0.752	0.00001
Chrysene/Triphenylene	844	31.8	0.0007	23.2	0.0006	3.55	0.00008
Dibenz(a,h)anthracene	1123	10.1 J	0.0002	< 0.1 UJ	0	< 0.1 U	0
Fluoranthene	707	44.1	0.001	30.3	0.0009	4.80	0.0001
Fluorene	538	12.5	0.0004	9.29	0.0004	7.91	0.0003
Indeno[1,2,3-cd]pyrene	1115	21.9	0.0004	15.2	0.0003	< 0.1 U	0
Naphthalene	385	8.65	0.0004	5.87	0.0003	3.57	0.0002
Perylene	967	1018 EJ	0.02	736 EJ	0.02	826 EJ	0.02
Phenanthrene	596	23.1	0.0007	19.2	0.0007	26.4	0.0008
Pyrene	697	43.0	0.001	29.5	0.0009	2.81	0.00007
PAHs- Alkylated							
1-Methylnaphthalene	446	3.30	0.0001	2.52	0.0001	< 0.5 U	0
2-Methylnaphthalene	447	7.53	0.0003	5.88	0.0003	3.21	0.0001
C1-Chrysenes	929	6.56	0.0001	5.58	0.0001	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	37.9	0.0009	28.7	0.0008	2.38	0.00006
C1-Fluorenes	611	7.19	0.0002	5.66	0.0002	3.25	0.0001
C1-Phenanthrenes/Anthracenes	670	17.8	0.0005	14.6	0.0005	7.88	0.0002
C2-Chrysenes	1008	10.2	0.0002	11.2	0.0002	< 0.2 U	0
C2-Fluorenes	686	17.4	0.0005	12.9	0.0004	4.76	0.0001
C2-Naphthalenes	510	14.9	0.0005	11.7	0.0005	7.72	0.0003
C2-Phenanthrenes/Anthracenes	746	25.8	0.0006	19.0	0.0006	5.82	0.0001
C3-Chrysenes	1112	19.4	0.0003	16.6	0.0003	< 0.2 U	0
C3-Fluorenes	769	18.5	0.0004	20.3	0.0006	5.64	0.0001
C3-Naphthalenes	581	14.7	0.0005	11.4	0.0004	29.5	0.0009
C3-Phenanthrenes/Anthracenes	829	30.2	0.0007	20.4	0.0005	1.61	0.00004
C4-Chrysenes	1214	10.3	0.0002	12.2	0.0002	< 0.2 U	0
C4-Naphthalenes	657	18.1	0.0005	12.2	0.0004	17.1	0.0005
C4-Phenanthrenes/Anthracenes	913	22.5	0.0004	17.9	0.0004	1.53	0.00003
Total TU			0.04	0.03		0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-037**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-037 0-0.5 ft		SED-DA-037 0.5-1 ft		SED-DA-037 1-1.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	4.70	--	4.70	--	4.70	--
f_{OC} (unitless)	--	0.047	--	0.047	--	0.047	--
PAHs - Non-alkylated							
Acenaphthene	491	2.62	0.0001	3.63	0.0002	0.462	0.00002
Acenaphthylene	452	16.0	0.0008	6.15	0.0003	0.302	0.00001
Anthracene	594	26.8	0.001	11.4	0.0004	0.626	0.00002
Benzo(a)anthracene	841	38.0	0.001	14.7	0.0004	0.469	0.00001
Benzo(a)pyrene	965	30.6	0.0007	14.3	0.0003	< 0.1 U	0
Benzo(b)fluoranthene	979	103	0.002	51.8	0.001	3.26	0.00007
Benzo(e)pyrene	967	50.3	0.001	28.3	0.0006	< 0.2 U	0
Benzo(g,h,i)perylene	1095	37.2	0.0007	20.6	0.0004	2.60	0.00005
Benzo(j)+(k)Fluoranthene	981	36.2	0.0008	15.4	0.0003	0.774	0.00002
Chrysene/Triphenylene	844	49.4	0.001	30.2	0.0008	2.96	0.00007
Dibenz(a,h)anthracene	1123	13.0	0.0002	7.90	0.0001	0.875	0.00002
Fluoranthene	707	74.9	0.002	33.3	0.001	3.45	0.0001
Fluorene	538	13.8	0.0005	16.2	0.0006	6.04	0.0002
Indeno[1,2,3-cd]pyrene	1115	39.4	0.0008	16.6	0.0003	< 0.1 U	0
Naphthalene	385	10.2	0.0006	10.5	0.0006	3.84	0.0002
Perylene	967	755 EJ	0.02	907 EJ	0.02	787 EJ	0.02
Phenanthrene	596	30.4	0.001	34.8	0.001	17.3	0.0006
Pyrene	697	70.0	0.002	37.7	0.001	2.01	0.00006
PAHs- Alkylated							
1-Methylnaphthalene	446	3.98	0.0002	4.60	0.0002	< 0.5 U	0
2-Methylnaphthalene	447	9.53	0.0005	10.6	0.0005	3.02	0.0001
C1-Chrysenes	929	20.8	0.0005	26.5	0.0006	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	49.9	0.001	37.7	0.001	2.47	0.00007
C1-Fluorenes	611	8.13	0.0003	8.15	0.0003	2.31	0.00008
C1-Phenanthrenes/Anthracenes	670	22.1	0.0007	22.6	0.0007	5.79	0.0002
C2-Chrysenes	1008	17.1	0.0004	31.9	0.0007	< 0.2 U	0
C2-Fluorenes	686	28.4	0.0009	23.2	0.0007	< 0.4 U	0
C2-Naphthalenes	510	15.5	0.0006	17.8	0.0007	4.96	0.0002
C2-Phenanthrenes/Anthracenes	746	29.7	0.0008	31.0	0.0009	< 0.3 U	0
C3-Chrysenes	1112	17.2	0.0003	31.5	0.0006	< 0.2 U	0
C3-Fluorenes	769	21.7	0.0006	29.3	0.0008	< 0.4 U	0
C3-Naphthalenes	581	15.1	0.0006	16.3	0.0006	3.74	0.0001
C3-Phenanthrenes/Anthracenes	829	29.6	0.0008	39.3	0.001	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0	< 0.2 U	0	< 0.2 U	0
C4-Naphthalenes	657	11.8	0.0004	13.1	0.0004	6.33	0.0002
C4-Phenanthrenes/Anthracenes	913	20.2	0.0005	33.7	0.0008	< 0.3 U	0
		Total TU	0.04			0.04	0.02

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Sediment Using One-Carbon Model

Location: **SED-DA-038**

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SED-DA-038 0-0.5 ft		SED-DA-038 0.5-1 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	5.67	--	5.67	--
f_{OC} (unitless)	--	0.0567	--	0.0567	--
PAHs - Non-alkylated					
Acenaphthene	491	2.03	0.00007	1.17	0.00004
Acenaphthylene	452	14.3	0.0006	1.59	0.00006
Anthracene	594	24.7	0.0007	3.06	0.00009
Benzo(a)anthracene	841	30.6	0.0006	5.01	0.0001
Benzo(a)pyrene	965	31.1	0.0006	3.33	0.00006
Benzo(b)fluoranthene	979	104	0.002	17.5	0.0003
Benzo(e)pyrene	967	55.6	0.001	6.64	0.0001
Benzo(g,h,i)perylene	1095	33.4	0.0005	4.70	0.00008
Benzo(j)+(k)Fluoranthene	981	36.8	0.0007	3.12	0.00006
Chrysene/Triphenylene	844	45.3	0.0009	12.6	0.0003
Dibenz(a,h)anthracene	1123	12.2	0.0002	< 0.1 U	0
Fluoranthene	707	66.2	0.002	13.7	0.0003
Fluorene	538	16.2	0.0005	9.53	0.0003
Indeno[1,2,3-cd]pyrene	1115	35.7	0.0006	5.26	0.00008
Naphthalene	385	9.30	0.0004	8.94	0.0004
Perylene	967	835 EJ	0.02	539	0.01
Phenanthrene	596	42.0	0.001	24.6	0.0007
Pyrene	697	67.0	0.002	10.7	0.0003
PAHs- Alkylated					
1-Methylnaphthalene	446	4.18	0.0002	2.99	0.0001
2-Methylnaphthalene	447	9.55	0.0004	6.44	0.0003
C1-Chrysenes	929	41.7	0.0008	17.3	0.0003
C1-Fluoranthenes/Pyrenes	770	48.7	0.001	12.4	0.0003
C1-Fluorenes	611	8.54	0.0002	4.86	0.0001
C1-Phenanthrenes/Anthracenes	670	25.8	0.0007	10.7	0.0003
C2-Chrysenes	1008	20.7	0.0004	4.43	0.00008
C2-Fluorenes	686	31.8	0.0008	9.67	0.0002
C2-Naphthalenes	510	16.2	0.0006	9.59	0.0003
C2-Phenanthrenes/Anthracenes	746	35.3	0.0008	12.6	0.0003
C3-Chrysenes	1112	25.5	0.0004	8.29	0.0001
C3-Fluorenes	769	31.2	0.0007	9.63	0.0002
C3-Naphthalenes	581	16.1	0.0005	7.95	0.0002
C3-Phenanthrenes/Anthracenes	829	31.9	0.0007	7.01	0.0001
C4-Chrysenes	1214	15.0	0.0002	4.25	0.00006
C4-Naphthalenes	657	13.1	0.0004	5.21	0.0001
C4-Phenanthrenes/Anthracenes	913	32.8	0.0006	8.89	0.0002
Total TU			0.04	0.02	

Note:

1. *Italicized* Total Organic Carbon and f_{OC} values indicate that the TU for the subsurface sample is calculated using the results from the surface sample at that location.



Toxic Unit Calculations for
Dawson Cove Soil Samples

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-023

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-023 0-0.5 ft		SO-DA-023 (DUP) 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)	C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.21	--	1.22	--
f_{OC} (unitless)	--	0.0121	--	0.0122	--
PAHs - Non-alkylated					
Acenaphthene	491	0.976 J	0.0002	< 0.1 UJ	0
Acenaphthylene	452	2.01 J	0.0004	< 0.04 UJ	0
Anthracene	594	< 0.1 U	0	< 0.1 U	0
Benzo(a)anthracene	841	6.99	0.0007	5.29	0.0005
Benzo(a)pyrene	965	12.5	0.001	9.09	0.0008
Benzo(b)fluoranthene	979	27.9	0.002	25.7	0.002
Benzo(e)pyrene	967	40.2	0.003	41.1	0.003
Benzo(g,h,i)perylene	1095	22.9	0.002	26.8	0.002
Benzo(j)+(k)fluoranthene	981	12.4 J	0.001	6.9	0.0006
Chrysene/Triphenylene	844	47.2	0.005	50	0.005
Dibenz(a,h)anthracene	1123	5.12	0.0004	5.87	0.0004
Fluoranthene	707	12.8	0.001	10.8	0.001
Fluorene	538	5.40 J	0.0008	2.49 J	0.0004
Indeno[1,2,3-cd]pyrene	1115	9.33	0.0007	10.1	0.0007
Naphthalene	385	3.58	0.0008	4.02	0.0009
Perylene	967	< 1.3 U	0	< 1.3 UJ	0
Phenanthrene	596	18	0.002	13.7	0.002
Pyrene	697	29.4	0.003	30.2	0.004
PAHs- Alkylated					
1-Methylnaphthalene	446	2.75	0.0005	2.75	0.0005
2-Methylnaphthalene	447	7.56	0.001	8.17	0.001
C1-Chrysenes	929	114	0.01	135	0.01
C1-Fluoranthenes/Pyrenes	770	92.3	0.01	91.6	0.01
C1-Fluorenes	611	21.7 J	0.003	< 0.4 UJ	0
C1-Phenanthrenes/Anthracenes	670	30.1	0.004	27.3	0.003
C2-Chrysenes	1008	146	0.01	242	0.02
C2-Fluorenes	686	< 0.4 U	0	< 0.4 U	0
C2-Naphthalenes	510	12.6	0.002	12.6	0.002
C2-Phenanthrenes/Anthracenes	746	174	0.02	146	0.02
C3-Chrysenes	1112	114	0.008	188	0.01
C3-Fluorenes	769	< 0.4 U	0	< 0.4 U	0
C3-Naphthalenes	581	27.4	0.004	26.1	0.004
C3-Phenanthrenes/Anthracenes	829	447	0.04	355	0.04
C4-Chrysenes	1214	79.7	0.005	113	0.008
C4-Naphthalenes	657	93.2 J	0.01	50.5 J	0.006
C4-Phenanthrenes/Anthracenes	913	436	0.04	343	0.03
		Total TU	0.2		0.2

Appendix J
Toxic Unit Calculations

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-025

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-025 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.48	--
f_{OC} (unitless)	--	0.0148	--
PAHs - Non-alkylated			
Acenaphthene	491	0.304	0.00004
Acenaphthylene	452	0.824	0.0001
Anthracene	594	0.86	0.0001
Benzo(a)anthracene	841	2.73	0.0002
Benzo(a)pyrene	965	3.11	0.0002
Benzo(b)fluoranthene	979	11	0.0008
Benzo(e)pyrene	967	8.48	0.0006
Benzo(g,h,i)perylene	1095	4.92	0.0003
Benzo(j)+(k)Fluoranthene	981	3.32	0.0002
Chrysene/Triphenylene	844	18.7	0.001
Dibenz(a,h)anthracene	1123	1.7	0.0001
Fluoranthene	707	8.18	0.0008
Fluorene	538	2.62	0.0003
Indeno[1,2,3-cd]pyrene	1115	2.81	0.0002
Naphthalene	385	3.84	0.0007
Perylene	967	1.16 J	0.00008
Phenanthrene	596	15.5	0.002
Pyrene	697	9.47	0.0009
PAHs- Alkylated			
1-Methylnaphthalene	446	3.39	0.0005
2-Methylnaphthalene	447	5.61	0.0008
C1-Chrysenes	929	29.7	0.002
C1-Fluoranthenes/Pyrenes	770	28	0.002
C1-Fluorenes	611	5.53	0.0006
C1-Phenanthrenes/Anthracenes	670	38.4	0.004
C2-Chrysenes	1008	38.5	0.003
C2-Fluorenes	686	30.4	0.003
C2-Naphthalenes	510	12.6	0.002
C2-Phenanthrenes/Anthracenes	746	103	0.009
C3-Chrysenes	1112	29.2	0.002
C3-Fluorenes	769	71	0.006
C3-Naphthalenes	581	24.7	0.003
C3-Phenanthrenes/Anthracenes	829	153	0.01
C4-Chrysenes	1214	16.6	0.0009
C4-Naphthalenes	657	46.1	0.005
C4-Phenanthrenes/Anthracenes	913	103	0.008
Total TU			0.07

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-026

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-026 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.11 J	--
f_{OC} (unitless)	--	0.0111	--
PAHs - Non-alkylated			
Acenaphthene	491	0.352	0.00006
Acenaphthylene	452	< 0.04 U	0
Anthracene	594	0.303	0.00005
Benzo(a)anthracene	841	0.547	0.00006
Benzo(a)pyrene	965	0.283 J	0.00003
Benzo(b)fluoranthene	979	1.53	0.0001
Benzo(e)pyrene	967	0.73	0.00007
Benzo(g,h,i)perylene	1095	0.478	0.00004
Benzo(j)+(k)Fluoranthene	981	0.272	0.00002
Chrysene/Triphenylene	844	1.02	0.0001
Dibenz(a,h)anthracene	1123	< 0.1 U	0
Fluoranthene	707	2.66	0.0003
Fluorene	538	6.92	0.001
Indeno[1,2,3-cd]pyrene	1115	0.534	0.00004
Naphthalene	385	8.56	0.002
Perylene	967	R	0
Phenanthrene	596	16.6 J	0.003
Pyrene	697	0.921	0.0001
PAHs- Alkylated			
1-Methylnaphthalene	446	3.3	0.0007
2-Methylnaphthalene	447	7.37	0.001
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	1.02	0.0001
C1-Fluorenes	611	2.86	0.0004
C1-Phenanthrenes/Anthracenes	670	5.54	0.0007
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	7.53	0.001
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	3.82	0.0006
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	4.33	0.0006
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.01

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-027

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-027 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.43	--
f_{OC} (unitless)	--	0.0143	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	< 0.04 U	0
Anthracene	594	< 0.1 U	0
Benzo(a)anthracene	841	1.8	0.0001
Benzo(a)pyrene	965	1.5	0.0001
Benzo(b)fluoranthene	979	4.71	0.0003
Benzo(e)pyrene	967	6.7	0.0005
Benzo(g,h,i)perylene	1095	7.04	0.0004
Benzo(j)+(k)Fluoranthene	981	1.63	0.0001
Chrysene/Triphenylene	844	14.1	0.001
Dibenz(a,h)anthracene	1123	1.32	0.00008
Fluoranthene	707	6.53	0.0006
Fluorene	538	3.73	0.0005
Indeno[1,2,3-cd]pyrene	1115	1.91	0.0001
Naphthalene	385	2.37	0.0004
Perylene	967	0.800 J	0.00006
Phenanthrene	596	28.3	0.003
Pyrene	697	11.4	0.001
PAHs- Alkylated			
1-Methylnaphthalene	446	2.86	0.0004
2-Methylnaphthalene	447	3.76	0.0006
C1-Chrysenes	929	50	0.004
C1-Fluoranthenes/Pyrenes	770	< 0.5 U	0
C1-Fluorenes	611	14.4	0.002
C1-Phenanthrenes/Anthracenes	670	81.3	0.008
C2-Chrysenes	1008	65.8	0.005
C2-Fluorenes	686	64.5	0.007
C2-Naphthalenes	510	27.1	0.004
C2-Phenanthrenes/Anthracenes	746	157	0.01
C3-Chrysenes	1112	46.9	0.003
C3-Fluorenes	769	112	0.01
C3-Naphthalenes	581	71	0.009
C3-Phenanthrenes/Anthracenes	829	192	0.02
C4-Chrysenes	1214	31.5	0.002
C4-Naphthalenes	657	83.8	0.009
C4-Phenanthrenes/Anthracenes	913	139	0.01
Total TU			0.1

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-028

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-028 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	1.99	--
f_{OC} (unitless)	--	0.0199	--
PAHs - Non-alkylated			
Acenaphthene	491	< 0.1 U	0
Acenaphthylene	452	< 0.04 U	0
Anthracene	594	0.259	0.00002
Benzo(a)anthracene	841	0.73	0.00004
Benzo(a)pyrene	965	0.467	0.00002
Benzo(b)fluoranthene	979	2.28	0.0001
Benzo(e)pyrene	967	1.163	0.00006
Benzo(g,h,i)perylene	1095	0.815	0.00004
Benzo(j)+(k)Fluoranthene	981	0.904	0.00005
Chrysene/Triphenylene	844	1.72	0.0001
Dibenz(a,h)anthracene	1123	< 0.1 U	0
Fluoranthene	707	2.21	0.0002
Fluorene	538	2.15	0.0002
Indeno[1,2,3-cd]pyrene	1115	0.966	0.00004
Naphthalene	385	6.51	0.0008
Perylene	967	R	0
Phenanthrene	596	5.01	0.0004
Pyrene	697	1.52	0.0001
PAHs- Alkylated			
1-Methylnaphthalene	446	2.12	0.0002
2-Methylnaphthalene	447	4.33	0.0005
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	1.31	0.00009
C1-Fluorenes	611	1.13	0.00009
C1-Phenanthrenes/Anthracenes	670	3.42	0.0003
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	5	0.0005
C2-Phenanthrenes/Anthracenes	746	< 0.3 U	0
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	3.88	0.0003
C3-Phenanthrenes/Anthracenes	829	< 0.3 U	0
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	2.17	0.0002
C4-Phenanthrenes/Anthracenes	913	< 0.3 U	0
Total TU			0.004

**Appendix J
Toxic Unit Calculations**

Calculation: Toxic Unit in Soil Using One-Carbon Model

Location: SO-DA-029

Parameter	Final Chronic Value (FCV) ($\mu\text{g}/\text{g}_{\text{OC}}$)	SO-DA-029 0-0.5 ft	
		C_{sed} ($\mu\text{g}/\text{kg}$)	Toxic Unit (TU)
Total Organic Carbon (%)	--	0.86 J	--
f_{OC} (unitless)	--	0.0086	--
PAHs - Non-alkylated			
Acenaphthene	491	0.187	0.00004
Acenaphthylene	452	0.175	0.00005
Anthracene	594	< 0.1 U	0
Benzo(a)anthracene	841	0.249	0.00003
Benzo(a)pyrene	965	0.055 J	0.000007
Benzo(b)fluoranthene	979	0.865	0.0001
Benzo(e)pyrene	967	0.398	0.00005
Benzo(g,h,i)perylene	1095	0.138	0.00001
Benzo(j)+(k)Fluoranthene	981	0.255	0.00003
Chrysene/Triphenylene	844	0.691	0.0001
Dibenz(a,h)anthracene	1123	0.144	0.00001
Fluoranthene	707	1.53	0.0003
Fluorene	538	4.27	0.0009
Indeno[1,2,3-cd]pyrene	1115	0.354	0.00004
Naphthalene	385	10.3	0.003
Perylene	967	R	0
Phenanthrene	596	10.4	0.002
Pyrene	697	0.456	0.00008
PAHs- Alkylated			
1-Methylnaphthalene	446	4.11	0.001
2-Methylnaphthalene	447	8.92	0.002
C1-Chrysenes	929	< 0.2 U	0
C1-Fluoranthenes/Pyrenes	770	0.451 J	0.00007
C1-Fluorenes	611	1.69	0.0003
C1-Phenanthrenes/Anthracenes	670	4.85	0.0008
C2-Chrysenes	1008	< 0.2 U	0
C2-Fluorenes	686	< 0.4 U	0
C2-Naphthalenes	510	10.1	0.002
C2-Phenanthrenes/Anthracenes	746	4.59	0.0007
C3-Chrysenes	1112	< 0.2 U	0
C3-Fluorenes	769	< 0.4 U	0
C3-Naphthalenes	581	7.32	0.001
C3-Phenanthrenes/Anthracenes	829	1.09	0.0002
C4-Chrysenes	1214	< 0.2 U	0
C4-Naphthalenes	657	19.3	0.003
C4-Phenanthrenes/Anthracenes	913	1.35	0.0002
Total TU			0.02

Appendix J Toxic Unit Calculations

Notes:

1. FCV obtained from USEPA 2003.
2. The sample total toxic unit is the summation of all analyte-specific toxic unit values. A TU equal to 1 or less indicates that risk to benthic receptors is not likely. A TU above 1 indicates that more evaluation is necessary to evaluate potential risk to the benthic receptors.

-- = not available or not applicable

FCV = final chronic value

$\mu\text{g}/\text{g}_{\text{OC}}$ = micrograms per gram of organic carbon

$\mu\text{g}/\text{kg}$ = micrograms per kilogram

PAH = polycyclic aromatic hydrocarbon

TOC = total organic carbon

TU = toxic unit

USEPA = United States Environmental Protection Agency

Reference:

USEPA. 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks for the Protection of Benthic Organisms: PAH Mixtures. Environmental Protection Agency, Office of Research and Development. EPA-600-R-02-013. November 2003.