Guild	Receptor of Potential Concern	Assessment Endpoint for SERA	Ecological Risk Questions	Testable Hypothesis	Measures of Effects	Measures of Exposure	Measures of Ecosystem and Receptor Characteristics	Toxicity Testing
Invertebrates	Earthworm	Protection of soil invertebrate community from adverse effects on their ability to maintain diversity, productivity from COPEC in soil.	Does exposure to COPEC's in soil adversely affect diversity, abundance, productivity, and function?	Concentrations of COPEC's in soil are sufficient to adversely affect invertebrate receptors.	Invertebrate receptor response to identified COPEC's in soil. Dose-soil.	Soil EQT, Arsenic 100% bioavailable, copper and zinc concentrations in soil, Soil pH, Total Organic Carbon, Texture gradient of COPEC concentrations.	Invertebrate receptor feeding, behavior, survival, growth, reproduction.	Earthworm (Eisenia fetida) OECD 207 (lethal, sub-lethal, growth, reproduction)
Benthos and zooplankton	Polychaetes	Protection of benthic and water column invertebrate community from adverse effects on their ability to maintain diversity, productivity from COPEC's in sediment and surface water.	Does exposure to COPEC's in sediment and surface water adversely affect diversity, abundance, productivity, and function?	Concentrations of COPEC's in sediment and/or surface water are sufficient to adversely affect benthic receptors.	Benthic receptor response to identified COPEC's. Dose-sediment. Pore-water. Indirect effects on sediments and surface water. Dissolved oxygen, pH, Ammonia, Sulfide, Chlorine in surface water. Cyanide, Chlorine in surface water. Dissolved oxygen, pH, Ammonia, Sulfide, Chlorine in surface water. Cyanide concentrations.	Arsenic, Pore-water, organic/inorganic, Copper, Zinc, Lead, Nickel, Silver, Cyanide, Total Organic Carbon, Dissolved oxygen, pH, Ammonia, Sulfide, Chlorine in surface water. Cyanide. Texture for sediments. Texture gradient of COPEC concentrations.	Benthic receptor feeding, behavior, survival, growth, reproduction.	Capitella teleta (Marine polychaete) (lethal, chronic, survival, growth, reproduction). Hyalella azteca (freshwater amphipod) (lethal, chronic, survival, growth). Ceriodaphnia dubia (water flea) (lethal, chronic, survival, growth)*
Vertebrate Fish	Fish Community	Protection of fish communities from adverse effects on their ability to maintain diversity, abundance, productivity, and function from COPEC's in sediment and surface water.	Does exposure to COPEC's in surface water adversely affect diversity, abundance, productivity, and function?	Concentrations of COPEC's in surface water are sufficient to adversely affecting fish communities.	Fish Communities response to identified COPEC's in sediment and pore-surface water. Dose-water. Dose-sediment. Dose-tissue (exceeding applicable benchmark). Indirect effects on sediments and surface water.	Arsenic, copper and other concentrations in sediment and pore-surface water. Total Organic Carbon. Texture gradient. Indirect to appropriate effect metric.	Fish community feeding, behavior, survival, growth.	Not Applicable**

1 Note that the earthworm (Eisenia fetida), as a test species was replaced with Hyaellen azteca(amphipod) due to the abundance/presence in the North Hole Study.
2 Note that the Airport Shrimp (Acrocrangon dalmo), as a test species was replaced with Artemia franciscana (brine shrimp) due to the abundance/presence in the Study.
** The Ecorisk Ind concluded that additional fish abundance, diversity, phenology and function of the fish community is not applicable because of the harsh conditions and intermittent presence of the surface water. It is still perma.

Table 2
Field Sampling Parameters - Water

Sample Area/Type	Sample ID	Date	Water Depth (ft)	pH	Conductivity (mS)	Temperature (^{o}C)	Salinity (ppt)	DO (mg/L)	ORP (mV)
ICWW Sediment/ Porewater	EIWSED01	8/18/2010	1.0	7.97	43.94	30.11	25.41	5.11	29.6
			4.0	7.98	43.94	30.11	25.42	5.39	33.7
			6.9	7.99	43.94	30.11	25.42	5.74	41.0
	EIWSED02	8/18/2010	1.0	8.01	43.68	30.15	25.23	4.29	53.6
			3.5	8.06	43.66	30.09	25.24	4.35	74.9
	EIWSED03	8/18/2010	1.0	8.03	43.90	30.16	25.20	4.81	
			1.9	8.09	43.60	30.80	25.19	8.09	
	EIWSED04	8/21/2010	1.4	7.95	44.18	30.47	25.40	4.70	0.7
	EIWSED05	8/18/2010	1.0	7.97	39.96	30.62	25.35	5.15	-7.9
			2.6	7.96	40.02	30.40	25.40	5.90	
	EIWSED06	8/18/2010	1.0	8.01	38.21	31.51	24.10	6.56	-16.3
			3.6	7.97	42.95	31.59	24.08	7.23	-22.4
	EIWSED07	8/18/2010	1.0	8.04	42.69	31.63	23.88	6.86	-21.4
			3.0	8.06	42.77	31.63	23.92	6.94	-21.8
			6.3	8.07	42.84	31.62	23.95	6.95	-14.5
	EIWSED01PW	8/20/2010	1.0	7.76	46.68	28.81	27.94	4.62	-56.1
			3.0	7.76	46.71	28.80	27.94	4.82	-49.4
			6.0	7.76	46.71	28.80	27.99	4.79	-34.5
	EIWSED02PW	8/20/2010	1.0	7.76	46.70	28.87	27.90	5.03	-90.0
			3.6	7.76	46.72	28.89	27.92	5.24	-87.5
	EIWSED03PW	8/20/2010	1.5	7.74	43.29	29.18	27.76	5.50	6.6
	EIWSED04PW	8/21/2010	1.0	7.94	46.57	28.25	28.18	4.19	-2.9
			2.8	7.94	46.52	28.20	28.18	4.05	1.4
	EIWSED05PW	8/21/2010	1.0	7.94	43.81	28.24	28.16	4.74	14.3
			3.0	7.95	43.82	28.27	28.17	5.08	35.4
	EIWSED06PW	8/22/2010	1.0	8.16	43.57	28.11	27.99	4.52	30.4
			3.0	8.15	43.57	28.11	28.00	4.73	33.1
			4.9	8.09	43.57	28.11	27.99	4.87	47.7
			1.0	6.52	59.35	29.74	35.95	8.01	-204.3

	EIWSED07PW	8/30/2010	3.5	6.52	58.49	29.67	36.00	8.06	-199.1
			6.9	6.59	59.36	29.57	36.00	7.71	-196.3
Surface Water	EWSW01	8/30/2010	0.1	5.86	77.38	35.37	43.23	3.78	
	EWSW04	8/30/2010	0.1	7.19	75.53	35.91	41.69	5.00	
	EWSW03	9/14/2010	0.1	7.84	49.10	32.51	27.47	6.24	
Wetland Sediment Porewater	EWSED06PW	8/31/2010	0.1	7.17	51.66	27.84	31.93	3.80	
	EWSED03PW	9/9/2010	0.1	7.75	42.83	28.00	27.46	3.93	
	EWSED09PW	9/10/2010	0.1	7.84	49.88	27.63	32.57	6.27	
	EWSED04PW	9/13/2010	0.1	7.36	37.01	26.66	22.60	3.06	

DO - Dissolved Oxygen

Table 3
Field Sampling Parameters - Sediment

Sample Area/Type	Sample ID	Date	pH	ORP (mV)	Temperature (°C)
ICWW Sediment/ Porewater*	EIWSED01	8/18/2010	6.70	-2.6	31.4
	EIWSED02	8/18/2010	6.80	-4.5	31.3
	EIWSED03	8/18/2010	6.90	-10.8	31.1
	EIWSED04	8/21/2010	6.86	-6.5	31.4
	EIWSED05	8/18/2010	6.89	-8.5	31.5
	EIWSED06	8/18/2010	7.04	-19.3	31.9
	EIWSED07	8/18/2010	6.82	-4.3	31.8
	EIWSED01PW	8/20/2010	7.21	-28.2	30.2
	EIWSED02PW	8/20/2010	7.01	-16.5	30.2
	EIWSED03PW	8/20/2010	7.07	-21.2	30.3
	EIWSED04PW	8/21/2010	6.37	19.4	29.5
	EIWSED05PW	8/21/2010	6.25	28.4	29.8
	EIWSED06PW	8/22/2010	6.77	-1.3	29.5
	EIWSED07PW	8/30/2010	6.37	113.5	30.7
Wetland Sediment/ Porewater*	EWSED01	8/24/2010	6.85	-18.0	30.6
	EWSED02	8/24/2010	6.43	10.2	31.4
	EWSED03	8/23/2010	NA	NA	32.6
	EWSED04	8/23/2010	6.65	263.9	30.8
	EWSED05	8/24/2010	6.23	63.4	37.8
	EWSED06	8/23/2010	7.19	176.1	31.7
	EWSED07	8/23/2010	6.80	216.2	31.3
	EWSED08	8/24/2010	6.95	10.6	31.7
	EWSED09	8/24/2010	6.98	80.5	37.3
	EWSED01PW	8/26/2010	6.59	88.4	29.3
	EWSED02PW	8/26/2010	6.89	-273.8	27.5
	EWSED04PW	8/27/2010	7.05	103.0	27.9
	EWSED06PW	8/31/2010	6.40	30.8	29.1
	EWSED07PW	8/30/2010	6.37	113.5	30.7
	EWSED08PW	8/25/2010	5.41	140.2	32.2
	EWSED03PW	9/9/2010	7.48	14.0	28.0

	EWSED09PW	9/10/2010	7.48	212.9	28.6
	EWSED04PW	9/13/2010	7.19	81.1	28.6

NA - Parameter Not Collected
ORP - Oxygen Reduction Potential
*Parameters from pore water samples were recorded from the overlying water at the sample

Table 4
Summary of Toxicity Testing for Soil and Sediment

North Area Soils	21-day *Neanthes arenaceodentata* : *Mean* Survival and Growth		
Sample ID	Mean Survival (%)	Meand Growth - Biomass (mg)	Mean Growth - Dry Wt (mg)**
Lab Control for North Area Soils	100	2.058	2.058
Site Locations:			
BERA Sample ID: NAS01	76	0.6648	0.9817
BERA Sample ID: NAS02	88	2.123	2.407
BERA Sample ID: NAS03	96	2.603	2.704
BERA Sample ID: NAS04	84	4.52	5.423
BERA Sample ID: NAS05	76	1.998	2.693
BERA Sample ID: NAS06	88	1.648	1.894
North Area Reference Locations:			
BERA Sample ID: NAS07	92	1.533	1.679
BERA Sample ID: NAS08	64	0.688	1.008
BERA Sample ID: NAS09	60	0.5512	0.9815

Wetland Sediments	28-day *Neanthes arenaceodentata* : Mean Survival and Growth			28-day *Leptocheirus plumulosus* : Mean Survival, Growth, and Reproduction			
Sample ID	Mean Survival (%)	Mean Growth - Biomass (mg)	Mean Growth - Dry Wt (mg)**	Mean Survival (%)	Mean Offspring	Mean Growth - Biomass (mg)	Mean Growth - Dry Wt (mg)**
Lab Control *	96	4.073	4.28	81.5	5.3	0.6773	0.8304
Site Locations:							
BERA Sample ID: EWSED01	96	3.073	3.234	35	0	0.2607	0.6566
BERA Sample ID: EWSED02	76	2.285	3.334	58	0.2	0.2313	0.4916
BERA Sample ID: EWSED03	84	2.004	2.421	20	0	0.2015	0.4202
BERA Sample ID: EWSED04	84	2.53	2.988	23.75	0	0.1518	0.529
BERA Sample ID: EWSED05	72	2.248	3.285	38	0	0.1614	0.4109
BERA Sample ID: EWSED06	80	1.78	2.36	13	0	0.05525	0.3764
BERA Sample ID: EWSED07	72	2.451	3.371	30	0.8	0.124	0.3924
Wetland Sediment Reference Locations:							
BERA Sample ID: EWSED08	68	1.586	2.741	33	0.6	0.2238	0.5988
BERA Sample ID: EWSED09	76	2.15	2.95	19	1.8	0.1162	0.5035

Intracoastal Waterway Sediments	28-day *Neanthes arenaceodentata* : Mean Survival and Growth			28-day *Leptocheirus plumulosus* : Mean Survival, Growth, and Reproduction			
Sample ID	Mean Survival (%)	Mean Growth - Biomass (mg)	Mean Growth - Dry Wt (mg)**	Mean Survival (%)	Mean Offspring	Mean Growth - Biomass (mg)	Mean Growth - Dry Wt (mg)**
Lab Control *	96	4.073	4.28	81.5	5.3	0.6773	0.8304
Site Locations:							
BERA Sample ID: EIWSED01	92	4.412	4.857	41	0.6	0.2229	0.5559
BERA Sample ID: EIWSED02	80	4.984	6.614	64	1.8	0.3463	0.5576
BERA Sample ID: EIWSED03	92	4.993	5.491	39	1.2	0.237	0.5504
BERA Sample ID: EIWSED04	100	6.026	6.026	42	0.6	0.2092	0.4841
BERA Sample ID: EIWSED05	100	4.119	4.119	44	0.6	0.2463	0.5446
Intracoastal Sediment Reference Locations:							
BERA Sample ID: EIWSED06	100	4.784	4.784	42	1.2	0.19	0.4034
BERA Sample ID: EIWSED07	92	4.842	5.283	64	0	0.2475	0.3877

Appendix B shows all of the individual replicates for each test chamber. This table presents the mean endpoints for each sample based on five replicates.
* Average of Lab Control 1 and 2
**The primary growth endpoint Dry Wt is the dry weight of surviving organisms divided by the number of surviving organisms. Biomass (the dry weight of surviving organisms divided by initial number of organisms)
is not routinely applied to sediment testing (EPA, 2000).

Table 5
Summary of Results for North Area Soil

North Area Soil

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 BERA Concentration Gradient (mg/kg DW)		Soil Benchmark (mg/kg DW)	Marine Sediment Benchmark (mg/kg DW)	Mean Bioassay Results**
BERA Sample ID: NAS01 North Soil Area RI/FS Sample ID:SB202	Location represents high concentrations of barium, chromium, copper, and zinc. 4,4'-DDT and Aroclor-1254 are below detection limits and not expected to be present.		Location represents high concentrations of chromium, copper, and zinc; and mid concentration of barium.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically signficant difference from reference locations.
4,4'-DDT	0.00282 U	NA	NA	NA	NA	0.00119	
Aroclor-1254	0.013 U	NA	NA	NA	500	0.0227	
Barium	**476**	High	272	Mid	330	NA	
Chromium	**128**	High	**97.3**	High	0.4	81	
Copper	**200**	High	**221**	High	61	34	
Zinc	**5,640**	High	**5,770**	High	120	150	

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS01	**76**	**0.6648**	**0.9817**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 BERA Concentration Gradient (mg/kg DW)		Soil Benchmark (mg/kg DW)	Marine Sediment Benchmark (mg/kg DW)	Mean Bioassay Results**
BERA Sample ID: NAS02 North Soil Area RI/FS Sample ID:SB204	Location represents high concentrations of 4,4'-DDT and Aroclor-1254; mid concentrations of chromium, copper, and zinc; and low concentration of barium. Sample from 0-2 ft bgs.		Location represents mid concentrations of barium, chromium, copper, and zinc; and low concentrations of 4,4'-DDT and Aroclor-				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically significant difference from reference locations.
4,4'-DDT	0.395	High	**0.0075 J / 0.015 J**	Low	NA	0.00119	
Aroclor-1254	6.35	High	**0.093 J / 0.16 J**	Low	500	0.0227	
Barium	67.7	Low	163 / 261	Mid	330	NA	
Chromium	22.8	Mid	**27.2 / 23.1**	Mid	0.4	81	
Copper	**92.3**	Mid	26 / 24.9	Mid	61	34	
Zinc	**134**	Mid	**296 JH / 307 J**	Mid	120	150	

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS02	**88**	**2.123**	**2.407**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 BERA Concentration Gradient (mg/kg DW)		Soil Benchmark (mg/kg DW)	Marine Sediment Benchmark (mg/kg DW)	Mean Bioassay Results**
BERA Sample ID: NAS03 North Soil Area RI/FS Sample ID:SB206	Location represents high concentration of barium; mid concentrations of chromium, copper, and zinc; and low concentration of 4,4'-DDT. Aroclor-1254 is below detection limits and not expected to be present.		Location represents mid concentrations of barium, copper, and zinc; and low concentrations of chromium and 4,4-DDT.				***Polychaete - 21 day, Neanthes arenaceodentata*** **Survival**: No statistically significant difference from reference locations. **Growth**: No statistically signficant difference from reference locations.
4,4'-DDT	0.00445	Low	**0.0078**	Low	NA	0.00119	
Aroclor-1254	0.011 U	NA	NA	NA	500	0.0227	
Barium	**426**	High	190	Mid	330	NA	
Chromium	23.1	Mid	**15.4**	Low	0.4	81	
Copper	30.7	Mid	22.9	Mid	61	34	
Zinc	**398**	Mid	**307 J**	Mid	120	150	

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS03	**96**	**2.603**	**2.704**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

BERA Sample ID: NAS04 North Soil Area RI/FS Sample ID:NE4SB11	Location represents mid concentrations of barium, copper, and zinc; and low concentrations of chromium and Aroclor-1254. 4,4'-DDT is below detection limits and not expected to be present.		Location represents high concentration of barium; mid concentration of zinc; and low concentrations of chromium, copper, and Aroclor-1254.			
4,4'-DDT	0.000148 U	NA	NA	NA	NA	0.00119
Aroclor-1254	0.0122	Low	0.01	Low	500	0.0227
Barium	153	Mid	**502**	High	330	NA
Chromium	11.5	Low	**7.86**	Low	0.4	81
Copper	27.4	Mid	10.8	Low	61	34
Zinc	107	Mid	**321 J**	Mid	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS04	**84**	**4.52**	**5.423**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

BERA Sample ID: NAS05 North Soil Area RI/FS Sample ID:NE3SB09	Location represents mid concentrations of barium, chromium, copper, and zinc; and low concentration of 4,4'-DDT. Aroclor-1254 is below detection limit and not expected to be present.		Location represents mid concentrations of barium, chromium, copper, zinc; and low concentration of 4,4'-DDT.			
4,4'-DDT	0.0108	Low	**0.008**	Low	NA	0.00119
Aroclor-1254	0.00801 U	NA	NA	NA	500	0.0227
Barium	145	Mid	198	Mid	330	NA
Chromium	30	Mid	**30.9**	Mid	0.4	81
Copper	27.8	Mid	27.4	Mid	61	34
Zinc	**288**	Mid	**309 J**	Mid	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS05	**76**	**1.998**	**2.693**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

BERA Sample ID: NAS06 North Soil Area RI/FS Sample ID:ND1SB01	Location represents low concentrations of barium, chromium, copper, and zinc. Aroclor-1254 and 4,4'-DDT are below detection limits and not expected to be present.		Location represents low concentrations of barium, chromium, copper, and zinc.			
4,4'-DDT	0.00016 U	NA	NA	NA	NA	0.00119
Aroclor-1254	0.00415 U	NA	NA	NA	500	0.0227
Barium	46.1	Low	52.2	Low	330	NA
Chromium	11.7	Low	**13.4**	Low	0.4	81
Copper	8.04	Low	10.8	Low	61	34
Zinc	32.6	Low	62.3 J	Low	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS06	**88**	**1.648**	**1.894**
NAS07 (Ref 1)	92	1.533	1.679
NAS08 (Ref 2)	64	0.688	1.008
NAS09 (Ref 3)	60	0.5512	0.9815

BERA Sample ID: NAS07 North area Background Soil Location Background Soil BSS-01	Represents background with low chromium and high zinc concentrations.		Represents background with low chromium and copper concentrations;			
Barium	NA	NA	**340**	High	330	NA
Chromium	17.6	Low	**12.4**	Low	0.4	81
Copper	NA	NA	10.1	Low	61	34
Zinc	**969**	High	**501**	High	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS07 (Ref 1)	**92**	**1.533**	**1.679**

BERA Sample ID: NAS08 North area Background Soil Location Background Soil BSS-02	Represents background with low chromium and zinc concentrations; and mid barium concentrations.		Represents background with low chromium and copper concentrations;			
Barium	**361**	Mid	182	Mid	330	NA
Chromium	17.6	Low	**13.6**	Low	0.4	81
Copper	NA	NA	12.6	Low	61	34
Zinc	81.2	Low	**182**	Mid	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS08 (Ref 2)	**64**	**0.688**	**1.008**

BERA Sample ID: NAS09 North area Background Soil Location Background Soil BSS-03	Represents background with low chromium and zinc concentrations.		Represents background with low chromium, copper, and zinc			
Barium	NA	NA	172	Mid	330	NA
Chromium	20.1	Low	**13.3**	Low	0.4	81
Copper	NA	NA	11	Low	61	34
Zinc	77	Low	63.1	Low	120	150

Polychaete - 21 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) *
NAS09 (Ref 3)	**60**	**0.5512**	**0.9815**

Notes:

bgs - below groundnd surface
DW - dry weight
H - bias in results likely to be high
J - estimated value
NA - not analyzed, available, or applicable

U - not detected

High	= High concentration within the gradient
Mid	= Mid concentration within the gradient
Low	= Low concentration within the gradient

Bolding indicates that the detected concentration

is greater than an ecological screening benchmark (Table 6 Final BERA WP & SAP; URS, 2010a)

Results for duplicate samples are separated by a "/".

* The primary growth endpoint Dry Wt is the dry weight of surviving organisms divided by the number of
surviving organisms. Biomass (the dry weight of surviving organisms divided by initial number of organisms)
is not routinely applied to sediment testing (EPA, 2000).
**Appendix B shows all of the individual replicates for each test chamber.
This table presents the mean bioassay results for each sample based on five replicates.

Table 6
Summary of Results for Wetland Sediment

Wetland Sediment (all samples from 0-0.5 ft bgs)

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 Analytical Results: 2010 BERA Concentration Gradient (mg/kg DW)		Marine Sediment Benchmark (mg/kg DW)	Pore Water (mg/L)	Marine Surface Water Benchmark (mg/L)
BERA Sample ID: EWSED01 Wetland Sediment RI/FS sample ID: 2WSED04-004	Location represents high concentrations of multiple COPECs, including PAHs and pesticides; mid concentrations of nickel and 1 PAH; and low concentrations of copper, endrin aldehyde, lead and zinc. Several COPECs are below detection limit and not expected to be present.		Location represents high concentration of 1 PAH; mid concentrations of multiple PAHs and pesticides; and low concentrations of multiple PAHs, lead, and zinc.				
2-Methylnaphthalene	0.153 U	NA	0.0038 J	Low	0.070	0.000018 U	0.03
4,4'-DDT	0.000939 U	NA	< 0.001 J	NA	0.00119	< 0.000012 J	0.000001
Acenaphthene	0.153 U	NA	0.0046 J	Low	0.016	< 0.0000052	0.0404
Acenaphthylene	**0.545**	High	**0.057**	Low	0.044	0.000024	NA
Anthracene	**0.334**	Mid	0.043	Low	0.0853	0.000067	0.00018
Arsenic	0.35 U	NA	2.97	Low	8.2	0.0037 J	0.078
Benzo(a)anthracene	0.126 U	NA	< 0.066 J	NA	0.261	< 0.0000031	NA
Benzo(a)pyrene	**0.972**	High	0.24	Mid	0.43	< 0.0000051	NA
Benzo(g,h,i)perylene	1.94	High	0.63	High	0.67	0.000012 J	NA
Chrysene	**4.05**	High	**0.39**	Mid	0.384	< 0.000004	NA
Copper	16	Low	20.6	Mid	34	0.000922	0.0036
Dibenz(a,h)anthracene	**2.91**	High	**0.17**	Mid	0.0634	< 0.000003	NA
Endrin Aldehyde	0.00431	Low	0.0007 J	Mid	0.00267	**0.000013**	0.000002
Endrin Ketone	0.013	High	< 0.000093	NA	0.00267	< 0.00000078	0.000002
Fluoranthene	0.189 U	NA	0.038	Low	0.6	< 0.0000052	0.00296
Fluorene	0.12U	NA	0.019	Low	0.019	0.000013 J	0.05
gamma-chlordane	**0.0036**	High	< 0.00009	NA	0.00226	< 0.00000038	0.000004
Indeno(1,2,3-cd)pyrene	1.94	High	0.22	Mid	0.6	0.0000051 J	NA
Lead	18.3	Low	17.2	Low	46.7	0.000115 U	0.0053
Nickel	**21.3**	Mid	18.9	Mid	20.9	0.00944	0.0131
Phenanthrene	0.111 U	NA	0.032	Low	0.24	0.000012 J	0.0046
Pyrene	**1.18**	High	0.091	Mid	0.665	< 0.0000042	0.00024
Zinc	116	Low	115	Low	150	0.0101	0.0842
Total PAHs*	NA	NA	1.9	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	59,400	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.089	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Mean Bioassay Results***

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED01	**96**	**3.073**	**3.234**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED01	**35**	**0**	**0.2607**	**0.6566**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED02 Wetland Sediment RI/FS sample ID: 2WSED03-003	Location represents high concentration of multiple COPECs, including PAHs and pesticides; mid concentrations of two PAHs and nickel; and low concentrations of copper, endrin ketone, lead and zinc. Several COPECs are below detection limit and not expected to be present.		Location represents high concentration of 1 PAH; mid concentrations of five PAHs; and low concentrations of several PAHs, arsenic, copper, lead, nickel, and zinc.				
2-Methylnaphthalene	0.173 U	NA	0.002 J / 0.0026 J	Low	0.070	0.000026 U	0.03
4,4'-DDT	0.00107 U	NA	< 0.00017 / < 0.00017	NA	0.00119	< 0.0000047 J	0.000001
Acenaphthene	0.173 U	NA	0.0018 J/ 0.0013 J	Low	0.016	< 0.0000044	0.0404
Acenaphthylene	**0.346**	Mid	0.041 / 0.03	Low	0.044	< 0.0000034	NA
Anthracene	**0.241**	Mid	0.032 / 0.024	Low	0.0853	< 0.0000036	0.00018
Arsenic	0.4 U	NA	2.4 / 2.51	Low	8.2	0.0041 J	0.078
Benzo(a)anthracene	U	NA	< 0.043 J / < 0.00072	NA	0.261	< 0.0000026	NA
Benzo(a)pyrene	**0.631**	High	0.12 / 0.097	Mid	0.43	< 0.0000043	NA
Benzo(g,h,i)perylene	1.52	High	0.46 / 0.38	Mid	0.67	0.000012 J	NA
Chrysene	**2.73**	High	**0.62 / 0.49**	High	0.384	0.000049	NA
Copper	12.6	Low	13.3 / 14.6	Low	34	0.000342 U	0.0036
Dibenz(a,h)anthracene	**2.83**	High	**0.11 / 0.094**	Mid	0.0634	0.0000034 J	NA
Endrin Aldehyde	0.01	High	< 0.00012 / < 0.001 J	NA	0.00267	**0.0000067 J**	0.000002
Endrin Ketone	0.00619	Low	< 0.000093 / < 0.0011 J	NA	0.00267	< 0.0000013 J	0.000002
Fluoranthene	0.213 U	NA	0.023 / 0.019	Low	0.6	< 0.0000044	0.00296
Fluorene	0.135 U	NA	0.013 / 0.011	Low	0.019	< 0.0000038	0.05
gamma-chlordane	0.000862 U	NA	< 0.00009 / < 0.00009	NA	0.00226	< 0.0000013 J	0.000004
Indeno(1,2,3-cd)pyrene	1.59	High	0.19 / 0.16	Mid	0.6	0.0000062 J	NA
Lead	17.2	Low	12 / 14.7	Low	46.7	0.000113 U	0.0053
Nickel	20.9	Mid	15.6 / 17.3	Low	20.9	0.00486	0.0131
Phenanthrene	0.125 U	NA	0.016 / 0.014	Low	0.24	< 0.000005	0.0046
Pyrene	**0.729**	High	0.14 / 0.11	Mid	0.665	< 0.0000035	0.00024
Zinc	115	Low	70.1 / 86.1	Low	150	0.00135 U	0.0842
Total PAHs*	NA	NA	1.8/1.4	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	24,100 / 30,500	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.014	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED02	**76**	**2.285**	**3.334**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED02	**58**	**0.2**	**0.2313**	**0.4916**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED03 Wetland Sediment RI/FS sample ID: NF4SE13-013	Location represents high concentrations of arsenic, copper, nickel, and zinc; mid concentrations of 4,4'-DDT, 5 PAHs and lead, and pyrene; and low concentrations of 2 PAHs. Several COPECs are below detection limit and not expected to be present.		Location represents high concentrations of arsenic, copper, nickel, and zinc; mid concentrations of 4,4'-DDT, 2 PAHs and lead; and low concentrations of 12 PAHs and endrin aldehyde.				
2-Methylnaphthalene	0.0122	Low	0.0068	Low	0.070	0.000022 U	0.03
4,4'-DDT	**0.00254**	Mid	**0.0028**	Mid	0.00119	< 0.000016 J	0.000001
Acenaphthene	0.0103 U	NA	0.0043 J	Low	0.016	< 0.0000047	0.0404
Acenaphthylene	0.0117 U	NA	0.0032 J	Low	0.044	< 0.0000036	NA
Anthracene	0.0126	Low	0.005	Low	0.0853	0.000013 J	0.00018
Arsenic	**12.8**	High	5.36	High	8.2	0.0019 J	0.078
Benzo(a)anthracene	0.0106 U	NA	0.024	Low	0.261	< 0.0000028	NA
Benzo(a)pyrene	0.0105 U	NA	0.028	Low	0.43	< 0.0000046	NA
Benzo(g,h,i)perylene	0.133	Mid	0.058	Low	0.67	< 0.0000031	NA
Chrysene	0.0904	Mid	0.064	Mid	0.384	< 0.0000036	NA
Copper	**35.7**	High	25	High	34	**0.00456**	0.0036
Dibenz(a,h)anthracene	0.0555	Low	0.0074	Low	0.0634	< 0.0000027	NA
Endrin Aldehyde	0.000403 U	NA	0.00027 J	Low	0.00267	**0.000015 J**	0.000002
Endrin Ketone	0.000505 U	NA	< 0.00011 J	NA	0.00267	**0.000007 J**	0.000002
Fluoranthene	0.0117 U	NA	0.052	Low	0.6	< 0.0000047	0.00296
Fluorene	0.0102 U	NA	0.0048	Low	0.019	< 0.000004	0.05
gamma-chlordane	0.000265 U	NA	< 0.00009	NA	0.00226	< 0.000016 J	0.000004
Indeno(1,2,3-cd)pyrene	0.0951	Mid	0.034	Low	0.6	< 0.0000028	NA
Lead	**64.7**	Mid	**48.4**	Mid	46.7	0.000425 U	0.0053
Nickel	**27.7**	High	**21.7**	High	20.9	0.00749 U	0.0131
Phenanthrene	0.0898	Mid	0.049	Low	0.24	0.0000053 U	0.0046
Pyrene	0.109	Mid	0.069	Mid	0.665	< 0.0000037	0.00024
Zinc	**903**	High	**585**	High	150	0.0413	0.0842
Total PAHs*	NA	NA	0.4	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	18,200	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.002	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED03	**84**	**2.004**	**2.421**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED03	**20**	**0**	**0.2015**	**0.4202**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED04 Wetland Sediment RI/FS sample ID: 2WSD17-17	Location represents high concentrations of 8 PAHs, arsenic, and lead; mid concentrations of 4 PAHs, copper, and zinc; and low concentrations of 1 PAH and nickel. Organochlorine pesticides are below detection limit and not expected to be present.		Location represents high concentration of arsenic; mid concentrations of 4 PAHs, copper, lead, and zinc; and low concentrations of 10 PAHs and nickel.				
2-Methylnaphthalene	0.053	Low	0.0037 J	Low	0.070	0.000046	0.03
4,4'-DDT	0.000829 U	NA	NA	NA	0.00119	NA	0.000001
Acenaphthene	**0.133**	Mid	0.0026 J	Low	0.016	< 0.0000085 J	0.0404
Acenaphthylene	0.013 U	NA	0.0069	Low	0.044	0.000014 J	NA
Anthracene	**0.257**	Mid	0.006	Low	0.0853	0.000047	0.00018
Arsenic	1.4	High	4.35	High	8.2	0.00072 J / 0.00325	0.078
Benzo(a)anthracene	**0.724**	High	0.031	Low	0.261	< 0.0000026	NA
Benzo(a)pyrene	**0.618**	High	0.04	Low	0.43	< 0.0000043	NA
Benzo(g,h,i)perylene	0.527	High	0.076	Mid	0.67	< 0.0000029	NA
Ctrysene	**0.743**	High	0.05	Low	0.384	< 0.0000034	NA
Copper	25.6	Mid	20.3	Mid	34	**0.00426** / 0.00531 U	0.0036
Dibenz(a,h)anthracene	**0.312**	Mid	0.01	Low	0.0634	< 0.0000025	NA
Endrin Aldehyde	0.000706 U	NA	NA	NA	0.00267	NA	0.000002
Endrin Ketone	0.000603 U	NA	NA	NA	0.00267	NA	0.000002
Fluoranthene	**1.43**	High	0.076	Mid	0.6	< 0.0000044	0.00296
Fluorene	**0.139**	Mid	0.0032 J	Low	0.019	0.0000047 J	0.05
gamma-chlordane	0.000669 U	NA	NA	NA	0.00226	NA	0.000004
Indeno(1,2,3-cd)pyrene	0.752	High	0.064	Mid	0.6	< 0.0000026	NA
Lead	**237**	High	37.4	Mid	46.7	0.00015 U / 0.000239 U	0.0053
Nickel	13.7	Low	16.9	Low	20.9	0.0114 / 0.0069	0.0131
Phenanthrene	**1.18**	High	0.041	Low	0.24	< 0.000005	0.0046
Pyrene	**1.34**	High	0.075	Mid	0.665	< 0.0000035	0.00024
Zinc	**404**	Mid	**417**	Mid	150	**0.101** / 0.083	0.0842
Total PAHs*	NA	NA	0.5	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	16,700	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.039	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED04	**84**	**2.53**	**2.988**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED04	**23.75**	**0**	**0.1518**	**0.529**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED05 Wetland Sediment RI/FS sample ID: NB4SE08-008	Location represents high concentrations of 8 PAHs, 4,4'-DDT, copper, and zinc; mid concentrations of 4 PAHs, arsenic, and lead; and low concentrations of 2 PAHs, endrin aldehyde, and nickel. Two organochlorine pesticides are below detection limit and not expected to be present.		Location represents high concentrations of 8 PAHs, copper, endrin aldehyde, lead, and zinc; mid concentrations of 4 PAHs; and low concentrations of 2 PAHs and nickel.				
2-Methylnaphthalene	0.0396	Low	0.02	Low	0.070	NA	NA
4,4'-DDT	**0.00922**	High	< 0.019 J	NA	0.00119	NA	NA
Acenaphthene	**0.113**	Mid	**0.075**	Mid	0.016	NA	NA
Acenaphthylene	0.0291	Low	0.018	Low	0.044	NA	NA
Anthracene	**0.188**	Mid	0.078	Mid	0.0853	NA	NA
Arsenic	3.53	Mid	3.06	Mid	8.2	NA	NA
Benzo(a)anthracene	**0.993**	High	**0.55**	High	0.261	NA	NA
Benzo(a)pyrene	**1.3**	High	**0.79**	High	0.43	NA	NA
Benzo(g,h,i)perylene	0.862	High	**0.68**	High	0.67	NA	NA
Chrysene	**1.27**	High	**0.77**	High	0.384	NA	NA
Copper	**39.6**	High	28.9	High	34	NA	NA
Dibenz(a,h)anthracene	**0.337**	Mid	**0.14**	Mid	0.0634	NA	NA
Endrin Aldehyde	0.00452	Low	0.0014 J	High	0.00267	NA	NA
Endrin Ketone	0.000458 U	NA	< 0.001 J	NA	0.00267	NA	NA
Fluoranthene	**2.17**	High	**1.3**	High	0.6	NA	NA
Fluorene	0.127	Mid	**0.065**	Mid	0.019	NA	NA
gamma-chlordane	0.00024 U	NA	< 0.00009	NA	0.00226	NA	NA
Indeno(1,2,3-cd)pyrene	1.1	High	**0.79**	High	0.6	NA	NA
Lead	**88.1**	Mid	**76.1**	High	46.7	NA	NA
Nickel	10.9	Low	14.4	Low	20.9	NA	NA
Phenanthrene	**1.3**	High	**0.78**	High	0.24	NA	NA
Pyrene	**1.64**	High	**1.1**	High	0.665	NA	NA
Zinc	**601**	High	**595**	High	150	NA	NA
Total PAHs*	NA	NA	**7.2**	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	18,100	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.002	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED05	**72**	**2.248**	**3.285**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED05	**38**	**0**	**0.1614**	**0.4109**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED06 Wetland Sediment RI/FS sample ID: SPSE03 (Location from Pond)	Location represents high concentration of zinc; mid concentrations of arsenic copper, lead, nickel, benzo(g,h,i)perylene; and low concentrations of 4,4'-DDT, chrysene, and pyrene.		Location represents high concentrations of copper, nickel, and zinc; mid concentrations of 4,4'-DDT, arsenic, and lead; and low concentrations of 15 PAHs.				
2-Methylnaphthalene	NA	NA	0.0016 J	Low	0.070	0.000019 U	0.03
4,4'-DDT	**0.00157**	Low	**0.0012**	Mid	0.00119	< 0.00000058	0.000001
Acenaphthene	NA	NA	0.0013 J	Low	0.016	0.0000091 J	0.0404
Acenaphthylene	NA	NA	0.0008 J	Low	0.044	< 0.0000035	NA
Anthracene	NA	NA	0.0011 J	Low	0.0853	< 0.0000037	0.00018
Arsenic	5.01	Mid	3.23	Mid	8.2	0.00177 J	0.078
Benzo(a)anthracene	NA	NA	0.0069	Low	0.261	0.0000095 U	NA
Benzo(a)pyrene	NA	NA	0.01	Low	0.43	0.0000097 U	NA
Benzo(g,h,i)perylene	0.135	Mid	0.019	Low	0.67	0.000023 U	NA
Chrysene	0.0257	Low	0.014	Low	0.384	0.0000096 U	NA
Copper	26.8	Mid	28.1	High	34	**0.00702**	0.0036
Dibenz(a,h)anthracene	NA	NA	0.0026 J	Low	0.0634	0.000015 U	NA
Endrin Aldehyde	NA	NA	< 0.00012	NA	0.00267	< 0.00000046	0.000002
Endrin Ketone	NA	NA	< 0.000093	NA	0.00267	< 0.00000066	0.000002
Fluoranthene	NA	NA	0.02	Low	0.6	< 0.0000045	0.00296
Fluorene	NA	NA	0.001 J	Low	0.019	0.0000091 J	0.05
gamma-chlordane	NA	NA	0.00025 J	Low	0.00226	< 0.00000032	0.000004
Indeno(1,2,3-cd)pyrene	NA	NA	0.019	Low	0.6	0.000014 U	NA
Lead	30.5	Mid	32.9	Mid	46.7	0.000443 U	0.0053
Nickel	20.6	Mid	**22.5**	High	20.9	0.00915	0.0131
Phenanthrene	NA	NA	0.013	Low	0.24	0.0000068 J	0.0046
Pyrene	0.0265	Low	0.021	Low	0.665	< 0.0000036	0.00024
Zinc	**999**	High	**959**	High	150	**0.626**	0.0842
Total PAHs*	NA	NA	0.13	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	21,500	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.084	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED06	**80**	**1.78**	**2.36**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED06	**13**	**0**	**0.05225**	**0.3764**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED07 Wetland Sediment RI/FS sample ID: 4WSED3	Location represents mid concentrations of 8 PAHs, copper, lead, nickel, and zinc; and low concentrations of 3 PAHs. Organochlorine pesticides were not detected in this sample and are assumed not to be present.		Location represents high concentrations of arsenic, copper, and nickel; mid concentrations of 8 PAHs, lead, and zinc; and low concentrations of 6 PAHs.				
2-Methylnaphthalene	0.00936 U	NA	0.0053	Low	0.070	0.000013 U	0.03
4,4'-DDT	0.00498 U	NA	NA	NA	0.00119	NA	0.000001
Acenaphthene	0.016	Low	0.009	Low	0.016	< 0.000012	0.0404
Acenaphthylene	0.00746 U	NA	0.0091	Low	0.044	0.000032 J	NA
Anthracene	0.033	Low	0.027	Low	0.0853	0.000066	0.00018
Arsenic	0.12 U	NA	5.94	High	8.2	0.00063 J	0.078
Benzo(a)anthracene	0.199	Mid	0.09	Mid	0.261	< 0.0000067	NA
Benzo(a)pyrene	0.227	Mid	0.087	Mid	0.43	< 0.000012	NA
Benzo(g,h,i)perylene	0.209	Mid	0.1	Mid	0.67	< 0.0000075	NA
Chrysene	0.094	Mid	0.14	Mid	0.384	< 0.0000088	NA
Copper	27.6	Mid	30.7	High	34	0.00303	0.0036
Dibenz(a,h)anthracene	0.00635 U	NA	0.019	Low	0.0634	< 0.0000065	NA
Endrin Aldehyde	0.00579 U	NA	NA	NA	0.00267	NA	0.000002
Endrin Ketone	0.00527 U	NA	NA	NA	0.00267	NA	0.000002
Fluoranthene	0.176	Mid	0.26	Mid	0.6	< 0.000012	0.00296
Fluorene	0.015	Low	0.016	Low	0.019	< 0.0000098	0.05
gamma-chlordane	0.00423 U	NA	NA	NA	0.00226	NA	0.000004
Indeno(1,2,3-cd)pyrene	0.408	Mid	0.1	Mid	0.6	< 0.0000067	NA
Lead	29.3	Mid	32.7	Mid	46.7	0.000184	0.0053
Nickel	19.6	Mid	20.1	High	20.9	0.00917	0.0131
Phenanthrene	0.135	Mid	0.15	Mid	0.24	< 0.000013	0.0046
Pyrene	0.188	Mid	0.19	Mid	0.665	< 0.000009	0.00024
Zinc	**290**	Mid	**318**	Mid	150	0.0599	0.0842
Total PAHs*	NA	NA	1.2	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	23,900	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.005	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED07	**72**	**2.451**	**3.371**
EWSED08 (Ref 1)	68	1.586	2.741
EWSED09 (Ref 2)	76	2.15	2.95

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED07	**30**	**0.8**	**0.124**	**0.3924**
EWSED08 (Ref 1)	33	0.6	0.2238	0.5988
EWSED09 (Ref 2)	19	1.8	0.1162	0.5035

BERA Sample ID: EWSED08 Wetland Sediment Reference Location near RI Sample Location 3WSED6	Location represents a reference/background location not impacted by site activities, but with similar physical attributes.		Location represents mid concentration of 4,4'-DDT; and low concentrations of PAHs and metals.				
2-Methylnaphthalene	NA	NA	0.001 J	Low	0.070	0.0000083 U	0.03
4,4'-DDT	NA	NA	**0.00140**	Mid	0.00119	**0.000003 J**	0.000001
Acenaphthene	NA	NA	< 0.00088	NA	0.016	< 0.000005	0.0404
Acenaphthylene	NA	NA	< 0.00069	NA	0.044	< 0.0000039	NA
Anthracene	NA	NA	0.001 J	Low	0.0853	< 0.0000041	0.00018
Arsenic	NA	NA	2.92	Low	8.2	0.00576 J	0.078
Benzo(a)anthracene	NA	NA	0.011	Low	0.261	< 0.000003	NA
Benzo(a)pyrene	NA	NA	0.014	Low	0.43	< 0.0000049	NA
Benzo(g,h,i)perylene	NA	NA	0.017	Low	0.67	< 0.0000033	NA
Chrysene	NA	NA	0.017	Low	0.384	< 0.0000039	NA
Copper	NA	NA	15.8	Low	34	0.00137	0.0036
Dibenz(a,h)anthracene	NA	NA	0.003 J	Low	0.0634	< 0.0000029	NA
Endrin Aldehyde	NA	NA	0.00052 J	Low	0.00267	**0.0000026 J**	0.000002
Endrin Ketone	NA	NA	< 0.00012	NA	0.00267	< 0.0000007	0.000002
Fluoranthene	NA	NA	0.031	Low	0.6	< 0.000005	0.00296
Fluorene	NA	NA	0.00092 J	Low	0.019	< 0.0000044	0.05
gamma-chlordane	NA	NA	< 0.00012 J	NA	0.00226	0.0000033 J	0.000004
Indeno(1,2,3-cd)pyrene	NA	NA	0.019	Low	0.6	< 0.000003	NA
Lead	NA	NA	19.8	Low	46.7	0.00128 U	0.0053
Nickel	NA	NA	16.3	Low	20.9	**0.0142**	0.0131
Phenanthrene	NA	NA	0.015	Low	0.24	< 0.0000057	0.0046
Pyrene	NA	NA	0.027	Low	0.665	< 0.000004	0.00024
Zinc	NA	NA	94.3	Low	150	0.039	0.0842
Total PAHs*	NA	NA	0.16	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	46,800	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	6.4	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED08 (Ref 1)	**68**	**1.586**	**2.741**

Amphipod - 28 day, Leptocheirus plumulosus

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED08 (Ref 1)	**33**	**0.6**	**0.2238**	**0.5988**

BERA Sample ID: EWSED09 Wetland Sediment Reference Location near RI Sample Location 2WSED11	Location represents a reference/background location not impacted by site activities, but with similar physical attributes.		Location represents mid concentration of 4,4'-DDT; and low concentrations of PAHs and metals.				
2-Methylnaphthalene	NA	NA	0.00061 J	Low	0.070	0.000018 U	0.03
4,4'-DDT	NA	NA	**0.00160**	Mid	0.00119	< 0.0000014 J	0.000001
Acenaphthene	NA	NA	< 0.00076	NA	0.016	< 0.0000044	0.0404
Acenaphthylene	NA	NA	< 0.00059	NA	0.044	< 0.0000034	NA
Anthracene	NA	NA	< 0.00058	NA	0.0853	< 0.0000036	0.00018
Arsenic	NA	NA	2.58	Low	8.2	0.00171 J	0.078
Benzo(a)anthracene	NA	NA	0.0024 J	Low	0.261	< 0.0000026	NA
Benzo(a)pyrene	NA	NA	0.0027 J	Low	0.43	< 0.0000043	NA
Benzo(g,h,i)perylene	NA	NA	0.0032 J	Low	0.67	< 0.0000029	NA
Chrysene	NA	NA	0.004 J	Low	0.384	< 0.0000034	NA
Copper	NA	NA	11.7	Low	34	0.000761 U	0.0036
Dibenz(a,h)anthracene	NA	NA	< 0.0008	NA	0.0634	< 0.0000025	NA
Endrin Aldehyde	NA	NA	< 0.00012	NA	0.00267	< 0.0000033 J	0.000002
Endrin Ketone	NA	NA	< 0.000093	NA	0.00267	< 0.0000011	0.000002
Fluoranthene	NA	NA	0.0055	Low	0.6	< 0.0000044	0.00296
Fluorene	NA	NA	< 0.00061	NA	0.019	< 0.0000038	0.05
gamma-chlordane	NA	NA	< 0.00023 J	NA	0.00226	< 0.000016 J	0.000004
Indeno(1,2,3-cd)pyrene	NA	NA	0.0032 J	Low	0.6	< 0.0000026	NA
Lead	NA	NA	17.4	Low	46.7	0.000236 U	0.0053
Nickel	NA	NA	16.5	Low	20.9	0.00669	0.0131
Phenanthrene	NA	NA	0.0024 J	Low	0.24	< 0.000005	0.0046
Pyrene	NA	NA	0.0044 J	Low	0.665	< 0.0000035	0.00024
Zinc	NA	NA	68.3	Low	150	0.00124 U	0.0842
Total PAHs*	NA	NA	0.03	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	11,200	NA	NA	NA	NA
Acid Volatile Sulfides/Simultaneously Extracted Metals	NA	NA	0.062	NA	NA	NA	NA
Grain Size	NA	NA	See Table 7	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED09 (Ref 2)	**76**	**2.15**	**2.95**

Amphipod - 28 day, Leptocheirus plumulosus

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EWSED09 (Ref 2)	**19**	**1.8**	**0.1162**	**0.5035**

Notes:
bgs - below ground surface

DW - dry weight

J - estimated value
NA - not analyzed, available, or applicable

U - not detected

High	= High concentration within the gradient
Mid	= Mid concentration within the gradient
Low	= Low concentration within the gradient

Bolding indicates that the detected concentration

is greater than the ecological screening benchmark (Table 6 Final BERA WP & SAP; URS, 2010a)

Results for duplicate samples are separated by a "/".

* Total PAHs represents the summation of the PAH COPECs detected in sediment from the 2010 BERA data.

** The primary growth endpoint Dry Wt is the dry weight of surviving organisms divided by the number of
surviving organisms. Biomass (the dry weight of surviving organisms divided by initial number of organisms)
is not routinely applied to sediment testing (EPA, 2000).

***Appendix B shows all of the individual replicates for each test chamber.
This table presents the mean bioassay results for each sample based on five replicates.

Table 7
Summary of Grain Size Data for Wetland Sediment

Location		EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
Sample Date		8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/13/2010
Sample ID		EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
Description	**Units**									
Gravel, Fine	%	3.49	5.66	7.73	2.19	2.64	0.87	3.68	12.1	2.31
Gravel, Medium	%	2.52	53.7	47.9	0.57	0.34	18.7	0.16	12.7	1.97
Sand, Coarse	%	2.82	1.77	3.01	3.18	4.49	0.41	3.76	3.92	0.54
Sand, Fine	%	2.12	2.29	1.93	7.02	8.91	2.06	7.84	2.62	1.87
Sand, Medium	%	1.8	1.15	1.75	2.98	4.93	0.27	3.47	1.93	0.4
Sand, Very Coarse	%	5.58	2.91	4.83	2.88	2.83	0.67	5.02	8.04	1.35
Sand, Very Fine	%	2.42	1.64	0.93	4.59	6.96	1.24	1.15	2.51	5.24
Silt	%	61.6	13.7	29.2	81.4	38.7	21.6	39.8	44.3	40.4
Clay	%	21.2	10.8	1.7	0.6	27.5	61.7	38.2	14.6	48.5

Table 8
Summary of AVS, SEM and Organic Carbon-Normalized Excess SEM Data for Wetland Sediment

		Location	EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
		Sample Date	8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/13/2010
		Sample ID	EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
Analyte	**CAS No.**	**Units**									
Acid-Volatile Sulfide	18496-25-8	$\mu mol/g_{sed}$	**0.018 J**	< 0.005	< 0.004	**0.05**	< 0.004	**0.33**	< 0.004	**2.04**	< 0.004
Cadmium, SEM	7440-43-9_SEM	$\mu mol/g_{sed}$	< 0.0006	**0.0007**	**0.0011**	**0.0012**	< 0.0005	**0.0019**	**0.0008**	< 0.0008	< 0.0005
Copper, SEM	7440-50-8_SEM	$\mu mol/g_{sed}$	**0.024**	**0.03**	**0.057**	**0.16**	**0.082**	**0.092**	**0.065**	**0.016**	**0.011**
Lead, SEM	7439-92-1_SEM	$\mu mol/g_{sed}$	**0.015**	**0.029**	**0.038**	**0.088**	**0.055**	**0.04**	**0.037**	**0.021**	**0.009**
Nickel, SEM	7440-02-0_SEM	$\mu mol/g_{sed}$	**0.015**	**0.03**	**0.012**	**0.016**	**0.011**	**0.019**	**0.015**	**0.028**	**0.005**
Zinc, SEM	7440-66-6_SEM	$\mu mol/g_{sed}$	**0.148**	**0.259**	**1.55**	**1.02**	**1.74**	**3.79**	**0.617**	**0.255**	**0.039**

		Location	EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
		Sample Date	8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/12/2010	8/12/2010	8/13/2010	8/13/2010	8/13/2010
		Sample ID	EWSED01	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
Analyte	**CAS No.**	**Units**									
Acid-Volatile Sulfide	18496-25-8	uMole/g	**0.018**	*0.005*	*0.004*	**0.05**	*0.004*	**0.33**	*0.004*	**2.04**	*0.004*
Cadmium, SEM	7440-43-9_SEM	uMole/g	*0.0006*	**0.0007**	**0.0011**	**0.0012**	*0.0005*	**0.0019**	**0.0008**	*0.0008*	*0.0005*
Copper, SEM	7440-50-8_SEM	uMole/g	**0.024**	**0.03**	**0.057**	**0.16**	**0.082**	**0.092**	**0.065**	**0.016**	**0.011**
Lead, SEM	7439-92-1_SEM	uMole/g	**0.015**	**0.029**	**0.038**	**0.088**	**0.055**	**0.04**	**0.037**	**0.021**	**0.009**
Nickel, SEM	7440-02-0_SEM	uMole/g	**0.015**	**0.03**	**0.012**	**0.016**	**0.011**	**0.019**	**0.015**	**0.028**	**0.005**
Zinc, SEM	7440-66-6_SEM	uMole/g	**0.148**	**0.259**	**1.55**	**1.02**	**1.74**	**3.79**	**0.617**	**0.255**	**0.039**

AVS - acid volatile sulfides
SEM - simultaneously extracted metals
foc - fraction organic carbon (from total organic carbon values in Table 6)
If detected less than the detection limit, then the detection limit was used in the calculation.

∑SEM	$\mu mol/g_{sed}$	0.2	0.3	1.7	1.3	1.9	3.9	0.7	0.3	0.1
∑SEM/AVS	---	11.3	69.7	415	25.7	472	11.9	184	0.157	16.1

For SEM/AVS ratios above 1.0, the potential exists for metal toxicity since sufficient AVS to completely form insoluble metal sulfides is not present. This excludes consideration of organic carbon (see below).

foc	g_{oc}/g_{sed}	0.0594	0.0273	0.0182	0.0167	0.0181	0.0215	0.0239	0.0468	0.0112
∑SEM-AVS	$\mu mol/g_{sed}$	0.185	0.344	1.654	1.235	1.885	3.613	0.731	---	0.061
(∑SEM-AVS)/foc	$\mu mol/g_{oc}$	3.1	12.6	90.9	74.0	104.1	168.0	30.6	---	5.4

For organic carbon-normalized excess ∑SEM ratios ≤130 $\mu mol/g_{oc}$, the samples are predicted to be non-toxic; values between 130 and 3,000 $\mu mol/g_{oc}$ lie where the prediction of toxicity is uncertain; and values greater than 3,000 $\mu mol/g_{oc}$ are predicted to be toxic (EPA 2005).

Table 9
Summary of Results for Intracoastal Waterway Sediment

Intracoastal Waterway Sediment (all samples from 0-0.5 ft bgs)

Location	RI/FS Concentration Gradient (mg/kg DW)		2010 Analytical Results: 2010 BERA Concentration Gradient (mg/kg DW)		Marine Sediment Benchmark (mg/kg DW)	Pore Water (mg/L)	Marine Surface Water Benchmark (mg/L)
BERA Sample ID: EIWSED01 Intracoastal Waterway Sediment RI/FS Sample ID: IWSE-01	Location represents high concentration of 4,4'-DDT; and low concentrations of four PAHs. Hexachlorobenzene is below detection limit and not expected to be present.		Location represents mid concentrations of 2 PAHs; and low concentrations of 6 PAHs and 4,4'-DDT.				
4,4'-DDT	**0.00332**	High	0.00023 J	Low	0.00119	< 0.0000035 J	0.000001
Acenapthene	0.013 U	NA	0.0071	Low	0.016	0.000052	0.0404
Benzo(a)anthracene	0.0133 U	NA	0.03	Low	0.261	< 0.0000035	NA
Chrysene	0.0145	Low	0.046	Low	0.384	< 0.0000046	NA
Dibenz(a,h)anthracene	0.0126 U	NA	0.0046	Low	0.0634	< 0.0000034	NA
Fluoranthene	0.0309	Low	0.12	Mid	0.6	< 0.0000059	0.00296
Fluorene	0.0129 U	NA	0.019	Low	0.019	0.000043	0.05
Hexachlorobenzene	0.0161 U	NA	NA	NA	0.006	< 0.00000035	0.129
Phenanthrene	0.0373	Low	0.15	Mid	0.24	0.000031	0.0046
Pyrene	0.0244	Low	0.081	Low	0.665	< 0.0000047	0.00024
Total PAHs*	NA	NA	0.46	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	4,130	NA	NA	NA	NA
BERA Sample ID EIWSED02 Intracoastal Waterway Sediment RI/FS sample ID: IWSE03	Location represents high concentrations of 2 PAHs; mid concentrations of 5 PAHs; and low concentrations of 1 PAH and 4,4'-DDT. Hexachlorobenzene is below detection limit and not expected to be present.		Location represents high concentration of 1 PAH; mid concentrations of 5 PAHs; and low concentrations of 2 PAHs and 4,4'-DDT.				
4,4'-DDT	0.000575	Low	**0.00190**	Low	0.00119	< 0.00000098 J	0.000001
Acenapthene	**0.0631**	Mid	**0.023**	Low	0.016	0.000037	0.0404
Benzo(a)anthracene	**0.395**	Mid	0.24	Mid	0.261	< 0.0000028	NA
Chrysene	**0.475**	Mid	0.31	Mid	0.384	< 0.0000037	NA
Dibenz(a,h)anthracene	**0.151**	Mid	0.063	Mid	0.0634	< 0.0000027	NA
Fluoranthene	**0.804**	High	0.52	High	0.6	< 0.0000048	0.00296
Fluorene	**0.0406**	Low	**0.020**	Low	0.019	0.000029	0.05
Hexachlorobenzene	0.0156 U	NA	NA	NA	0.006	< 0.00000031	0.129
Phenanthrene	**0.508**	Mid	0.24	Mid	0.24	0.000022 J	0.0046
Pyrene	**0.862**	High	0.47	Mid	0.665	< 0.0000038	0.00024
Total PAHs*	NA	NA	1.9	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	7,200	NA	NA	NA	NA

Mean Bioassay Results***

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED01	**92**	**4.412**	**4.857**
EIWSED06 (Ref 1)	100	4.784	4.784
EIWSED07 (Ref 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED01	**41**	**0.6**	**0.2229**	**0.5559**
EIWSED06 (Ref 1)	42	1.2	0.19	0.4034
EIWSED07 (Ref 2)	64	0	0.2475	0.3877

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED02	**80**	**4.984**	**6.614**
EIWSED06 (Ref 1)	100	4.784	4.784
EIWSED07 (Ref 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED02	**64**	**1.8**	**0.3463**	**0.5576**
EIWSED06 (Ref 1)	42	1.2	0.19	0.4034
EIWSED07 (Ref 2)	64	0	0.2475	0.3877

BERA Sample ID: EIWSED03

Intracoastal Waterway Sediment RI/FS sample ID: IWSE04

	Location represents mid concentrations of 5 PAHs and low concentration of 4,4'-DDT. Hexachlorobenzene is below detection limit and not expected to be present.		Location represents mid concentrations of 3 PAHs; and low concentrations of 5 PAHs and 4,4'-DDT.				
4,4'-DDT	0.0011	Low	0.00032 J / 0.00089 J	Low	0.00119	< 0.0000013 J	0.000001
Acenapthene	0.0176 U	NA	0.0052 / 0.0022 J	Low	0.016	0.000024	0.0404
Benzo(a)anthracene	0.018 U	NA	0.052 / 0.048	Low	0.261	< 0.0000026	NA
Chrysene	0.164	Mid	0.07 / 0.067	Mid	0.384	< 0.0000034	NA
Dibenz(a,h)anthracene	**0.0694**	Mid	0.015 / 0014	Low	0.0634	< 0.0000025	NA
Fluoranthene	0.231	Mid	0.12 / 0.094	Mid	0.6	< 0.0000044	0.00296
Fluorene	0.0173 U	NA	0.0067 / 0.0032 J	Low	0.019	0.00002 J	0.05
Hexachlorobenzene	0.0217 U	NA	NA	NA	0.006	< 0.00000039	0.129
Phenanthrene	0.125	Mid	0.071 / 0.043	Low	0.24	0.000012 J	0.0046
Pyrene	0.285	Mid	0.1 / 0.11	Mid	0.665	< 0.0000035	0.00024
Total PAHs*	NA	NA	0.44 / 0.38	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	6,320 / 6,680	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED03	**92**	**4.993**	**5.491**
EIWSED06 (Ref 1)	100	4.784	4.784
EIWSED07 (Ref 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED03	**39**	**1.2**	**0.237**	**0.5504**
EIWSED06 (Ref 1)	42	1.2	0.19	0.4034
EIWSED07 (Ref 2)	64	0	0.2475	0.3877

BERA Sample ID: EIWSED04

Intracoastal Waterway Sediment RI/FS sample ID: IWSE07

	Location represents mid concentrations of 6 PAHs; and low concentrations of 2 PAHs and hexachlorobenzene.		Location represents mid concentrations of 2 PAHs; and low concentrations of 6 PAHs.				
4,4'-DDT	0.000216 U	NA	NA	NA	0.00119	< 0.00000076 J	0.000001
Acenapthene	**0.0239**	Low	0.0029 J	Low	0.016	< 0.0000088	0.0404
Benzo(a)anthracene	0.172	Mid	0.032	Low	0.261	< 0.0000052	NA
Chrysene	0.197	Mid	0.054	Low	0.384	< 0.0000068	NA
Dibenz(a,h)anthracene	**0.235**	Mid	0.0087 J	Low	0.0634	< 0.000005	NA
Fluoranthene	0.124	Mid	0.074	Mid	0.6	< 0.0000088	0.00296
Fluorene	**0.0277**	Low	0.0031 J	Low	0.019	< 0.0000076	0.05
Hexachlorobenzene	0.0319	Low	< 0.0012	NA	0.006	< 0.00000037	0.129
Phenanthrene	0.0645	Mid	0.028	Low	0.24	< 0.00001	0.0046
Pyrene	0.134	Mid	0.073	Mid	0.665	< 0.000007	0.00024
Total PAHs*	NA	NA	0.28	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	5,480	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED04	**100**	**6.026**	**6.026**
EIWSED06 (Ref 1)	100	4.784	4.784
EIWSED07 (Ref 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED04	**42**	**0.6**	**0.2092**	**0.4841**
EIWSED06 (Ref 1)	42	1.2	0.19	0.4034
EIWSED07 (Ref 2)	64	0	0.2475	0.3877

BERA Sample ID: EIWSED05 Intracoastal Waterway Sediment RI/FS sample ID: IWSE08	Location represents mid concentrations of 5 PAHs; and low concentration of 4,4'-DDT. Hexachlorobenzene is below detection limit and not expected to be present.		Location represents mid concentrations of 2 PAHs; and low concentrations of 6 PAHs and 4,4'-DDT.				
4,4'-DDT	0.000481	Low	0.00029 J	Low	0.00119	< 0.0000013 J / < 0.0000016 J	0.000001
Acenapthene	0.0155 U	NA	0.0046 J	Low	0.016	0.000027 / 0.000031	0.0404
Benzo(a)anthracene	0.0675	Mid	0.042	Low	0.261	< 0.0000034 / < 0.0000028	NA
Chrysene	0.0717	Mid	0.059	Low	0.384	< 0.0000044 / < 0.0000036	NA
Dibenz(a,h)anthracene	0.0151 U	NA	0.01	Low	0.0634	< 0.0000033 / < 0.0000027	NA
Fluoranthene	0.158	Mid	0.1	Mid	0.6	< 0.0000057 / < 0.0000047	0.00296
Fluorene	0.0153 U	NA	0.0045 J	Low	0.019	0.000023 J / 0.000026	0.05
Hexachlorobenzene	0.0192 U	NA	NA	NA	0.006	< 0.00000037 / < 0.00000044	0.129
Phenanthrene	0.0756	Mid	0.051	Low	0.24	0.000015 J / 0.000015 J	0.0046
Pyrene	0.158	Mid	0.084	Mid	0.665	< 0.0000045 / < 0.0000037	0.00024
Total PAHs*	NA	NA	0.36	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	6,820	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED05	**100**	**4.119**	**4.119**
EIWSED06 (Ref 1)	100	4.784	4.784
EIWSED07 (Ref 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Survival: No statistically significant difference from reference locations.
Growth: No statistically significant difference from reference locations.
Reproduction: Insufficient offspring for statistical analysis.

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED05	**44**	**0.6**	**0.2463**	**0.5446**
EIWSED06 (Ref 1)	42	1.2	0.19	0.4034
EIWSED07 (Ref 2)	64	0	0.2475	0.3877

BERA Sample ID: EIWSED06 Intracoastal Waterway Reference Sediment Sample located in Intracoastal Waterway Background Area near RI Sample location IWSE22	No detections above screening values were indicated in the vicinity of this location during RI sampling.		Location represents low concentrations of 3 PAHs.				
4,4'-DDT	NA	NA	< 0.00017	NA	0.00119	< 0.000001 J	0.000001
Acenapthene	NA	NA	< 0.0014 JL	NA	0.016	< 0.0000088	0.0404
Benzo(a)anthracene	NA	NA	< 0.0017 JL	NA	0.261	< 0.0000052	NA
Chrysene	NA	NA	0.0019 JL	Low	0.384	< 0.0000068	NA
Dibenz(a,h)anthracene	NA	NA	< 0.0015 JL	NA	0.0634	< 0.000005	NA
Fluoranthene	NA	NA	0.0019 JL	Low	0.6	< 0.0000088	0.00296
Fluorene	NA	NA	< 0.0011 JL	NA	0.019	< 0.0000076	0.05
Hexachlorobenzene	NA	NA	< 0.0012 JL	NA	0.006	< 0.00000039	0.129
Phenanthrene	NA	NA	< 0.0014 JL	NA	0.24	< 0.00001	0.0046
Pyrene	NA	NA	0.0025 JL	Low	0.665	< 0.000007	0.00024
Total PAHs*	NA	NA	0.006	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	6,060	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED06 (REF 1)	100	4.784	4.784

Amphipod - 28 day, Leptocheirus plumulosus

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED06 (REF 1)	42	1.2	0.19	0.4034

BERA Sample ID: EIWSED07 Intracoastal Waterway Reference Sediment Sample located in Intracoastal Waterway Background Area near RI Sample location IWSE24	No detections above screening values were indicated in the vicinity of this location during RI sampling.		Location represents low concentrations of 2 PAHs.				
4,4'-DDT	NA	NA	< 0.00017	NA	0.00119	< 0.00000058	0.000001
Acenapthene	NA	NA	< 0.0014 JL	NA	0.016	< 0.000026	0.0404
Benzo(a)anthracene	NA	NA	< 0.0017 JL	NA	0.261	< 0.000018	NA
Chrysene	NA	NA	< 0.0015 JL	NA	0.384	< 0.000028	NA
Dibenz(a,h)anthracene	NA	NA	< 0.0015 JL	NA	0.0634	< 0.000017	NA
Fluoranthene	NA	NA	0.0018 JL	Low	0.6	< 0.00002	0.00296
Fluorene	NA	NA	< 0.0011 JL	NA	0.019	< 0.000027	0.05
Hexachlorobenzene	NA	NA	< 0.0012 JL	NA	0.006	< 0.000022	0.129
Phenanthrene	NA	NA	< 0.0014 JL	NA	0.24	< 0.000022	0.0046
Pyrene	NA	NA	0.0018 JL	Low	0.665	< 0.000019	0.00024
Total PAHs*	NA	NA	0.004	NA	4.022	NA	NA
Total Organic Carbon	NA	NA	5,090	NA	NA	NA	NA

Polychaete - 28 day, Neanthes arenaceodentata

Location	Mean Survival (%)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED07 (REF 2)	92	4.842	5.283

Amphipod - 28 day, Leptocheirus plumulosus

Location	Mean Survival (%)	Offspring (avg)	Mean Biomass (mg)	Mean Dry Wt (mg) **
EIWSED07 (REF 2)	64	0	0.2475	0.3877

Notes:

bgs - below ground surface
DW - dry weight

J - estimated value

NA - not analyzed, available, or applicable

U - not detected
L - bias in results likely to be low

High	= High concentration within the gradient
Mid	= Mid concentration within the gradient
Low	= Low concentration within the gradient

Bolding indicates that the detected concentration

is greater than the ecological screening benchmark (Table 6 Final BERA WP & SAP; URS, 2010a)

Results for duplicate samples are separated by a "/".

* Total PAHs represents the summation of the PAH COPECs detected in sediment from the 2010 data.

** The primary growth endpoint Dry Wt is the dry weight of surviving organisms divided by the number of
surviving organisms. Biomass (the dry weight of surviving organisms divided by initial number of organisms)

is not routinely applied to sediment testing (EPA, 2000).

***Appendix B shows all of the individual replicates for each test chamber.
This table presents the mean bioassay results for each sample based on five replicates.

Table 10
Summary of Results for Wetland Surface Water

Sample IDs, Location and Analytes	Original Selection Rationale	COPEC	2010 BERA Analytical Results (mg/L)	Marine Surface Water Acute Criteria* (mg/L)	Bioassay Results
Surface Water					
EWSW01 Surface water location off-site north of the North Area near RI/FS sample location 2WSW1	Dissolved copper and total acrolein concentrations exceed ecological benchmarks for water	Acrolein Copper	< 0.00096 / < 0.00096 0.00338 J / 0.00331	0.03 0.0135	**Brine shrimp (*Artemia salina*)** **Survival**: Not acutely toxic.
EWSW02 Surface water reference sample location off-site north of the North Area west of RI/FS surface water sample locations	No impacts above screening values were indicated in the vicinity of this location during RI sampling	**Location Dry - could not be sampled for testing**			
EWSW03 Surface water location off-site north of the North Area near RI/FS sample location 2WSW6	Dissolved copper concentration exceeds ecological benchmark for water	Copper	0.00854	0.0135	**Brine shrimp (*Artemia salina*)** **Survival**: Not acutely toxic .
EWSW04 Surface water from the pond area with silver concentrations greater than the benchmark	Dissolved silver concentration exceeds ecological benchmark for water	Silver	0.000011 J	0.002	**Brine shrimp (*Artemia salina*)** **Survival**: Not acutely toxic.

Notes:
COPEC - contaminant of potential ecological concern
J - estimated value
Results for duplicate samples are separated by a "/".

*TCEQ, 2005. Aquatic Life Surface Water Risk Based Exposure Limits. Update: October 2005.