BAYMARK
3.6
11615

APPENDIX A
ANALYTICAL CHEMISTRY RESULTS

APPENDIX A-1
RESULTS OF SEDIMENT CHEMICAL ANALYSES: ORGANICS, INORGANICS, SEM/AVS, TOC, GRAIN SIZE

Appendix A-1. Sediment Chemical Analysis Results for the Raymark Phase III Ecological Risk Assessment Investigation.

	C-1-SED-SMP	DQ	C-2-SED-SMP	DQ	C-3-SED-SMP	DQ	D-1-SED-SMP	DQ	D-2-SED-SMP	DQ	D-3-SED-SMP	DQ	D-4-SED-SMP	DQ	D-5-SED-SMP	DQ	D-6-SED-SMP	DQ
%TOC	1.30		3.10		4.10		1.70		3.40		2.00		3.40		1.40		1.50	
Metals (mg/kg)																		
Arsenic	2.40		9.40		9.10		3.30		6.50		2.90		5.90		1.60		3.80	
Cadmium	0.22		0.31		0.42		0.16	J	0.32		2.10		0.63		0.34		0.60	
Chromium	25.50		77.20		48.30		14.30		25.80		36.10		172		9.70		51.80	
Copper	105		284		504		22.60		73.50		210		155		55.60		266	
Lead	37.50		76.60		134		7.30		29.10		87.60		56.30		37.70		41.90	
Mercury	0.21		0.59		0.80		0.04		0.69		0.08		0.26		0.12		0.46	
Nickel	6.80		17.60		20.20		9.30		18.10		20.70		22.00		5.50		11.20	
Silver	0.22		0.57		0.47		0.04	U	0.16	J	0.85		0.41		0.52		0.28	
Zinc	68.40		169		243		41.50		118		178		158		56.70		162	
Polyaromatic Hydrocarbons (PAHs) (μg/kg)																		
1,6,7-Trimethylnaphthalene	3.00		8.00		5.00		1.00	U	1.50	U	88.00		6.00		14.00		15.00	
1-Methylnaphthalene	4.00		10.00		6.00		1.00	U	1.50	U	77.00		12.00		13.00		8.00	
1-Methylphenanthrene	20.00		58.00		22.00		1.00	U	14.00		410		56.00		40.00		16.00	
2,6-Dimethylnaphthalene	4.00		12.00		7.00		1.00	U	1.50	U	95.00		11.00		11.00		13.00	
2-Methylnaphthalene	9.00		18.00		14.00		1.00	U	4.00		140		20.00		20.00		16.00	
Acenaphthene	4.00		22.00		6.00		1.00	U	3.00		360		76.00		12.00		9.00	
Acenaphthylene	23.00		74.00		30.00		1.00	U	18.00		530		45.00		120		48.00	
Anthracene	35.00		120		62.00		3.00		39.00		2200		200		180		87.00	
Benzo(a)anthracene	130		390		220		9.00		130		5600		490		660		310	
Benzo(a)pyrene	120		380		190		7.00		99.00		4400		480		570		300	
Benzo(b)fluoranthene	110		510		160		8.00		93.00		6200		650		730		350	
Benzo(e)pyrene	98.00		310		160		7.00		74.00		3200		360		380		200	
Benzo(g,h,i)perylene	91.00		260		140		6.00		65.00		3000		330		330		180	
Benzo(k)fluoranthene	110		120		150		6.00		77.00		1300		160		210		140	
Biphenyl	3.00		6.00		6.00		1.00	U	1.50	U	210		6.00		13.00		5.00	
Chrysene	120		380		180		8.00		110		4600		470		580		270	
Dibenz(a,h)anthracene	18.00		58.00		28.00		1.00	U	14.00		690		74.00		100.00		44.00	
Fluoranthene	190		650		310		17.00		200		12000		910		1100		400	
Fluorene	5.00		30.00		10.00		1.00	U	4.00		480		54.00		18.00		8.00	
Sum PAHs (6 High Molecular Weight)[1]	639		1910		991		56.00		973		28490		2534		3130		1411	
Indeno(1,2,3-cd)pyrene	97.00		290		150		6.00		71.00		3700		380		400		210	
Sum PAHs (7 Low Molecular Weight)[2]	184		58.00		279		22.00		161		14920		1198		576		340	
Naphthalene	12.00		260		27.00		3.00		10.00		210		33.00		26.00		22.00	
Perylene	61.00		52.00		63.00		14.00		420		1200		110		120		87.00	
Phenanthrene	96.00	B	59.00	B	130	B	12.00	B	83.00	B	11000	B	770	B	200	B	150	B
Pyrene	200		59.00		370		18.00		180		12000		910		1100		490	
Sum PAHs	1563		50.00		2446		134		1714		73690		6613		6947		3378	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.

One-half the MDL taken where DQ = "U".

1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene; Perylene not available for Reference

2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.

3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

4 - Dioxin = 2,3,7,8 TCDD Equivalent; see Appendix D-3.

5 - Reference Station - GM08 (SAIC, 1998). Total PCBs = 16 Congeners x 2.

Appendix A-1. Sediment Chemical Analysis Results for the Raymark Phase III Ecological Risk Assessment Investigation.

	D-6-SED-FD	DQ	E-1-SED-SMP	DQ	E-2-SED-SMP	DQ	E-3-SED-SMP	DQ	E-4-SED-SMP	DQ	F-1-SED-SMP	DQ	F-2-SED-SMP	DQ	F-3-SED-SMP	DQ	Reference[5]	DQ
%TOC	2.80		9.30		28.30		7.00		22.00		4.10		14.30		13.90		5.86	
Metals (mg/kg)																		
Arsenic	8.90		13.60		7.70		6.50		8.30		2.60		9.40		4.30		17.90	
Cadmium	2.60		0.04	U	0.03	U	0.12	J	0.05	U	0.80		0.16	J	0.04	U	1.50	B
Chromium	270		139		53.00		20.80		47.70		36.40		390		47.70		231	
Copper	1560		278		130		36.60		99.40		106		761		174		661	
Lead	165		290		173		89.80		153		189		571		313		158	
Mercury	2.50		0.88		0.27		0.15		0.31		0.19		0.55		0.39		1.20	
Nickel	34.20		26.40		17.10		17.50		19.80		11.50		65.90		23.80		37.40	E
Silver	1.10		4.50		2.00		0.24		1.10		0.30		1.10		0.50		3.00	
Zinc	780		191		85.50		115		86.60		191		982		378		292	
Polyaromatic Hydrocarbons (PAHs) (µ																		
1,6,7-Trimethylnaphthalene	54.00		17.00		10.00	U	27.00		7.50	U	23.00		26.00		100.00			
1-Methylnaphthalene	21.00		32.00		34.00		24.00		17.00		21.00		54.00		220			
1-Methylphenanthrene	69.00		87.00		130		250		83.00		240		260		350			
2,6-Dimethylnaphthalene	42.00		23.00		10.00	U	23.00		7.50	U	33.00		78.00		170			
2-Methylnaphthalene	58.00		50.00		46.00		36.00		25.00		40.00		99.00		130		330	U
Acenaphthene	32.00		21.00		10.00	U	79.00		7.50	U	35.00		59.00		1100		330	U
Acenaphthylene	190		260		210		520		130		360		680		940		330	U
Anthracene	270		270		230		950		150		620		660		3200		330	U
Benzo(a)anthracene	870		730		660		3300		460		1800		2400		11000		190	J
Benzo(a)pyrene	840		950		800		2900		540		2000		3300		9700		230	J
Benzo(b)fluoranthene	990		1400		1100		4400		770		2600		4500		8800		400	XJ
Benzo(e)pyrene	540		820		980		2300		730		1500		3000		7600			
Benzo(g,h,i)perylene	490		760		890		1900		620		1400		3200		7200		74.00	J
Benzo(k)fluoranthene	330		410		930		970		690		710		2600		8500		390	XJ
Biphenyl	16.00		14.00		10.00	U	89.00		7.50	U	30.00		35.00		340			
Chrysene	770		970		1100		3300		750		1800		2800		8700		220	J
Dibenz(a,h)anthracene	120		170		170		480		120		320		640		1500		330	U
Fluoranthene	1200		1600		1700		6200		1200		3200		5700		21000		330	J
Fluorene	24.00		28.00		10.00	U	140		7.50	U	78.00		64.00		920		330	U
Sum PAHs (6 High Molecular Weight)[1]	3980		4590		4590		16790		3180		9540		15520		54300		1300	
Indeno(1,2,3-cd)pyrene	570		860		1000		2400		710		1600		3600		8500		110	J
Sum PAHs (7 Low Molecular Weight)[2]	1024		1693		1443		4266		908		2695		3862		14240		2100	
Naphthalene	60.00		84.00		67.00		41.00		36.00		62.00		200		150		330	U
Perylene	180		170		180		630		110		420		680		2400			
Phenanthrene	390	B	980	B	870	B	2500	B	550	B	1500	B	2100	B	7800	B	120	J
Pyrene	1200		1700		1600		6200		1100		3300		5600		17000		410	J
Sum PAHs	9326		12406		12727		39639		8831		23692		42335		127320		7094	

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Organochlorine Pesticides (µg/kg)																		
Aldrin	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Alpha-BHC	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Alpha-Chlordane	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Beta-BHC	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Delta-BHC	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Dieldrin	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Endosulfan I	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Endosulfan II	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	1.90		0.55	U	0.42	U	0.40	U
Endosulfan Sulfate	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Endrin	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Endrin Aldehyde	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Gamma-BHC(Lindane)	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Gamma-Chlordane	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Heptachlor	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Heptachlor Epoxide	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Hexachlorobenzene	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Methoxychlor	1.90	U	2.85	U	2.90	U	2.00	U	3.25	U	1.65	U	2.85	U	2.05	U	2.00	U
Mirex	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
o,p'-DDD	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
o,p'-DDE	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
o,p'-DDT	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
p,p'-DDD	0.39	U	3.80		0.60	U	0.40	U	0.65	U	0.33	U	3.70		20.00		1.80	
p,p'-DDE	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
p,p'-DDT	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	0.42	U	0.40	U
Toxaphene	4.80	U	7.00	U	7.00	U	5.00	U	8.00	U	4.10	U	7.00	U	5.00	U	5.00	U
Polychlorinated Biphenyls (PCBs) (µg/kg)																		
PCB008	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	320		0.40	U
PCB018	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB028	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	2.50		41.00		1.30	
PCB029	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB044	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	4.50		230		0.40	U
PCB050	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB052	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	3.60		1000		2.30	
PCB066	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	2.90		8.20		20.50	U	0.40	U
PCB077	0.39	U	3.50		0.60	U	0.40	U	0.65	U	4.70		0.55	U	20.50	U	0.40	U
PCB087	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB101	4.70		9.70		0.60	U	0.40	U	0.65	U	0.33	U	17.00		160		0.40	U
PCB104	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB105	0.95		4.60		2.20		0.40	U	0.65	U	1.20		2.60		20.50	U	1.70	
PCB118	0.97		1.80		0.60	U	0.40	U	0.65	U	5.10		3.50		120		0.40	U
PCB126	0.39	U	2.40		3.20		0.40	U	0.65	U	0.33	U	1.30		20.50	U	0.40	U
PCB128	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB138	0.94		2.20		0.60	U	0.40	U	0.65	U	1.70		4.10		150		1.40	
PCB153	1.10		4.70		0.60	U	0.40	U	0.65	U	1.10		5.00		150		2.20	
PCB154	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	2.00		0.55	U	20.50	U	0.40	U
PCB170	0.39	U	12.00		0.60	U	0.40	U	0.65	U	2.90		0.55	U	20.50	U	0.40	U
PCB180	2.40		7.40		8.00		0.40	U	0.65	U	0.33	U	9.00		49.00		3.90	
PCB187	1.50		6.40		4.90		0.40	U	0.65	U	0.33	U	5.10		20.50	U	3.20	
PCB188	0.39	U	1.60		0.60	U	0.40	U	0.65	U	1.40		1.90		20.50	U	1.20	
PCB195	0.39	U	4.20		0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	1.10	
PCB200	0.39	U	0.55	U	0.60	U	0.40	U	0.65	U	0.33	U	0.55	U	20.50	U	0.40	U
PCB206	0.39	U	10.00		0.60	U	0.40	U	0.65	U	0.33	U	20.00		20.50	U	4.00	
PCB209	0.39	U	6.50		0.60	U	0.40	U	3.00		0.33	U	0.55	U	20.50	U	0.40	U
Total PCBs (Sum of Congeners x 2)[2]	38.21		159		60.60		19.20		35.90		43.65		188		5055		55.80	
Dioxins[4] (ng/kg)																		
Dioxin-Mammal	4.61		13.36		10.04		2.34		2.83		25.62		13.36		227		5.07	
Dioxin-Fish	4.30		11.82		9.17		2.23		2.56		23.38		12.12		223		4.64	
Dioxin-Bird	6.34		22.76		19.57		2.53		3.71		37.49		25.36		324		8.24	

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Organochlorine Pesticides (µg/kg)																		
Aldrin	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Alpha-BHC	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Alpha-Chlordane	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Beta-BHC	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Delta-BHC	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Dieldrin	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Endosulfan I	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Endosulfan II	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Endosulfan Sulfate	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Endrin	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Endrin Aldehyde		NA		NA		NA		NA		NA		NA		NA		NA		
Gamma-BHC(Lindane)	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Gamma-Chlordane	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Heptachlor	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Heptachlor Epoxide	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Hexachlorobenzene	0.55	U	11.00		4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Methoxychlor	2.70	U	6.00	U	20.50	U	4.65	U	15.00	U	4.45	U	13.50	U	18.00	U		
Mirex	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
o,p'-DDD	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
o,p'-DDE	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	7.30		2.70	U	3.60	U		
o,p'-DDT	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
p,p'-DDD	0.55	U	1.25	U	23.00		0.90	U	24.00		36.00		70.00		120			
p,p'-DDE	0.55	U	1.25	U	4.10	U	4.00		3.05	U	0.90	U	30.00		99.00			
p,p'-DDT	0.55	U	1.25	U	4.10	U	0.90	U	3.05	U	4.20		24.00		3.60	U		
Toxaphene	7.00	U	15.50	U	50.00	U	11.50	U	38.00	U	11.00	U	33.50	U	45.00	U		
Polychlorinated Biphenyls (PCBs) (µg																		
PCB006	0.55	U	170		4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB018	0.55	U	3000		4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB028	0.55	U	1700		28.00		0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB029	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB044	0.55	U	820		19.00		0.90	U	15.00		0.90	U	2.70	U	25.00			
PCB050	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB052	0.55	U	2000		23.00		0.90	U	9.80		0.90	U	2.70	U	3.60	U		
PCB066	1.90		2100		54.00		0.90	U	32.00		0.90	U	5.40		3.60	U		
PCB077	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB087	0.55	U	680		20.00		0.90	U	3.05	U	0.90	U	2.70	U	9.40			
PCB101	0.55	U	2700		53.00		0.90	U	18.00		0.90	U	170		16.00			
PCB104	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB105	0.55	U	560		36.00		0.90	U	16.00		13.00		28.00		98.00			
PCB118	0.55	U	1600		36.00		0.90	U	14.00		0.90	U	24.00		33.00			
PCB126	0.55	U	140		4.10	U	0.90	U	3.05	U	0.90	U	9.30		18.00			
PCB128	0.55	U	520		4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB138	0.55	U	1900		42.00		5.80		15.00		9.20		21.00		20.00			
PCB153	0.55	U	1500		37.00		8.40		12.00		5.70		23.00		45.00			
PCB154	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB170	0.55	U	400		4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB180	7.70		330		21.00		0.90	U	12.00		17.00		59.00		3.60	U		
PCB187	3.50		150		13.00		13.00		9.70		16.00		40.00		29.00			
PCB188	1.50		210		4.10	U	0.90	U	3.05	U	5.80		11.00		20.00			
PCB195	2.00		60.00	U	4.10	U	0.90	U	3.05	U	4.50		5.40		3.60	U		
PCB200	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
PCB206	5.10		60.00	U	16.00		0.90	U	3.05	U	30.00		31.00		15.00			
PCB209	0.55	U	60.00	U	4.10	U	0.90	U	3.05	U	0.90	U	2.70	U	3.60	U		
Total PCBs (Sum of Congeners x 2)[3]	63.20		41680		686		92.20		392		231		919		750		75.17	
Dioxins[4] (ng/kg)																		
Dioxin-Mammal	13.50		231		32.70		14.46		36.44		13.54		43.38		18.63		9.07	
Dioxin-Fish	13.23		203		29.48		14.11		32.37		12.09		35.08		15.29		7.57	
Dioxin-Bird	22.14		440		59.09		23.75		47.03		26.33		66.96		35.14		16.75	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.

One-half the MDL taken where DQ = "U".

1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene; Perylene not available for Reference

2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.

3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

4 - Dioxin - 2,3,7,8-TCDD TEQ equivalent, see Appendix D-3

5 - Reference Station - GM08 (SAIC, 1998). Total PCBs = 16 Congeners x 2

Appendix A-1. Sediment Chemical Analysis Results for the Raymark Phase III Ecological Risk Assessment Investigation.

	C-1-SED-SMP	DQ	C-2-SED-SMP	DQ	C-3-SED-SMP	DQ	D-1-SED-SMP	DQ	D-2-SED-SMP	DQ	D-3-SED-SMP	DQ	D-4-SED-SMP	DQ	D-5-SED-SMP	DQ	D-6-SED-SMP	DQ
AVS/SEM (μmol/g dry wt)																		
Acid Volatile Sulfide	11.81		16.22		0.30		<0.1		4.29		1.79		13.95		2.62		5.68	
Cadmium	1.00E-03	J	1.00E-03	J	2.00E-03		1.00E-03	J	2.00E-03	J	9.00E-03		4.00E-03		2.00E-03		3.00E-03	
Copper	0.05	J	0.12	J	0.39	J	0.06	J	0.06	J	0.76	J	0.57	J	0.10	J	0.07	J
Lead	0.07	J	0.15	J	0.26	J	0.02	J	0.05	J	0.29	J	0.17	J	0.13	J	0.09	J
Nickel	0.05	J	0.09	J	0.08	J	0.05	J	0.08	J	0.28	J	0.63	J	0.37	J	0.35	J
SEM-AVS	-9.49		-10.99		4.64		n/a		-1.36		5.23		-12.48		-0.32		-1.57	
SEM/AVS	0.20		0.32		16.45		n/a		0.68		3.92		0.11		0.88		0.72	
Zinc	2.14	J	4.87	J	4.21	J	0.55	J	2.75	J	5.68	J	0.10	J	1.70	J	3.60	J
Grain Size (%)																		
Clay	0.30		1.20		1.00		0.20		0.70		0		1.10		0		0.20	
Sand	78.60		43.70		26.90		59.40		31.20		98.30		40.70		93.20		79.00	
Silt	21.10		55.10		72.10		40.40		68.10		1.70		58.10		6.70		20.80	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.

One-half the MDL taken where DQ = "U".

1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene; Perylene not available for Reference

2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.

3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

4 - Dioxin = 2,3,7,8 TCDD Equivalent; see Appendix D-3.

5 - Reference Station - GM08 (SAIC, 1998). Total PCBs = 16 Congeners x 2.

Appendix A-1. Sediment Chemical Analysis Results for the Raymark Phase III Ecological Risk Assessment Investigation.

	D-6-SED-FD	DQ	E-1-SED-SMP	DQ	E-2-SED-SMP	DQ	E-3-SED-SMP	DQ	E-4-SED-SMP	DQ	F-1-SED-SMP	DQ	F-2-SED-SMP	DQ	F-3-SED-SMP	DQ	Reference[5]	DQ
AVS/SEM (µmol/g dry wt)																		
Acid Volatile Sulfide	12.52		22.22		16.77		<0.1		13.38		124		83.45		27.01		9.40	
Cadmium	7.00E-03		#######		#######		#######		4.00E-03		0.02		0.05		0.02		0.01	
Copper	0.17	J	1.80	J	2.33	J	1.05	J	2.62	J	0.30	J	0.11	J	0.78	J	0.32	
Lead	0.27	J	1.19	J	0.48	J	0.31	J	0.55	J	0.68	J	1.64	J	1.31	J	0.41	
Nickel	0.54	J	1.63	J	0.31	J	0.29	J	0.45	J	0.34	J	0.79	J	1.12	J	0.15	
SEM-AVS	-2.68		-2.38		0.35		n/a		-6.25		-112.11		-63.73		-5.78		-4.87	
SEM/AVS	0.79		0.89		1.02		n/a		0.53		0.10		0.24		0.79		0.48	
Zinc	8.86	J	15.21	J	14.00	J	4.91	J	3.50	J	10.97	J	17.13	J	18.01	J	3.63	
Grain Size (%)																		
Clay	0.50		1.10		1.70		0.80		2.10		0.40		2.00		1.10		0	
Sand	41.30		7.30		5.90		40.50		4.60		80.90		18.40		56.70		78.33	
Silt	58.20		91.60		92.50		58.70		93.30		18.70		79.60		42.20		21.67	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.

One-half the MDL taken where DQ = "U".

1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene; Perylene not available for Reference

2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.

3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

4 - Dioxin = 2,3,7,8 TCDD Equivalent; see Appendix D-3.

5 - Reference Station - GM08 (SAIC, 1996). Total PCBs = 16 Congeners x 2.

APPENDIX A-2
RESULTS OF POREWATER CHEMICAL ANALYSES: METALS

Appendix A-2. Sediment Porewater Analysis Results for the Raymark Phase III Ecological Risk Assessment Investigation.

	C-1-PW	DQ	C-2-PW	DQ	C-3-PW	DQ	D-1-PW	DQ	D-2-PW	DQ	D-3-PW	DQ	D-4-PW	DQ	D-5-PW	DQ	D-6-PW	DQ	D-6-FD	DQ	E-1-PW	DQ	E-2-PW	DQ	E-3-PW	DQ	E-4-PW	DQ	F-1-PW	DQ	F-2-PW	DQ	F-3-PW	DQ	Reference[1]	DQ
Metals (mg/kg)																																				
Arsenic	42.9		12.4		5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	5.0	U,B	10.5		29.1		10.3		5.0	U,UJ	5.0	U,UJ	5.0	U,UJ	10.5		20.10	
Cadmium	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.4		0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.1	U,B	0.17	
Chromium	3.8		9.3		2.0		0.4	U,B	1.5		0.4	U,B	2.5		1.4		1.0		5.1		2.9		13.7		1.0		3.4		1.5		3.5		0.6		1.69	
Copper	1.3	U	1.3	U	1.3	U	1.3	U	2.9		11.2		1.3	U	1.3	U	1.3	U	1.3	U	20.8		15.4		5.1		2.9		1.3	U	5.9		1.3	U	55.00	
Lead	1.45	U,UJ	1.45	U,UJ	3.3	J	3.2	J	1.45	U,J	3.7	J	1.45	U,UJ	1.45	U,UJ	1.45	U,UJ	1.45	U,UJ	1.45	U,UJ	34.6		1.45	U,UJ	3.7	J	1.45	U,UJ	1.45	U,UJ	1.45	U,UJ	1.56	
Mercury	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nickel	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	4	U,B	8.3		9.9		4	U,B	4	U,B	4	U,B	32.00	
Silver	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	0.3	U,UJ	1.00E-03	
Zinc	1.5	U,B	5.5	J	12.7	J	17.9	J	1.5	U,B	32.7	J	9.2	J	6.8	J	4.1	J	16.1	J	1.5	U,B	1.5	U,B	7.9	J	11.6	J	9.4	J	28.8	J	4.5	J	420	

U = Concentrations in µg/L below the Limit of Quantitative Detection (LQD); value reported = 1/2 LQD.

B = Below the Contract Required Detection Limit.

UJ = Uncertainty associated with the reported detection limits.

J = Estimated.

1 - Reference Station - GM08 (SAIC, 1998).

APPENDIX A-3
RESULTS OF TISSUE CHEMICAL ANALYSES: ORGANICS, METALS, AND LIPIDS

Appendix A-3. Concentrations of CoCs in Ribbed Mussels collected for the Raymark Phase III Ecological Risk Assessment Investigation.

	C-1-TISS-SMP	DQ	C-2-TISS-SMP	DQ	C-3-TISS-SMP	DQ	D-1-TISS-SMP	DQ	D-2-TISS-SMP	DQ	D-3-TISS-SMP	DQ	D-4-TISS-SMP	DQ	D-6-TISS-SMP	DQ	HB-9-TISS-SMP	DQ
Lipid Content	2.00		1.40		2.80		3.90		4.00		2.00		3.10		2.60		2.20	
Metals (mg/kg dw)																		
Arsenic	2.00	J	2.20	J	2.10	J	1.60	J	2.60	J	3.60	J	3.20	J	2.70	J	2.30	J
Cadmium	0.44	J	0.67	J	0.51	J	0.74	J	0.49	J	0.99	J	0.57	J	1.10	J	0.56	J
Chromium	1.20		1.70		2.30		1.00		0.85		1.00		1.80		2.80		1.20	
Copper	24.20		42.60		37.10		16.70		19.90		18.10		20.50		29.80		26.30	
Lead	1.10		1.60		2.20		0.95		0.69		0.93		1.00		1.60		1.00	
Mercury	0.10		0.11		0.10		0.09		0.09		0.10		0.10		0.14		0.10	
Nickel	0.84		0.73		0.62		0.50		0.52		0.57		0.69		0.75		0.51	
Silver	1.20		1.90		1.10		0.65		1.00		0.91		1.10		0.84		1.10	
Zinc	68.20		60.50		58.20		59.10		58.40		68.80		66.50		70.00		62.90	
Polyaromatic Hydrocarbons (PAHs) (μg/kg dw)																		
1,6,7-Trimethylnaphthalene	5.50	U	5.50	U	5.50	U	5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
1-Methylnaphthalene	90.00		97.00		110		97.00		140		94.00		160		93.00		70.00	
1-Methylphenanthrene	5.50	U	5.50	U	5.50	U	5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
2,6-Dimethylnaphthalene	5.50	U	5.50	U	5.50	U	5.00	U	20.00		5.50	U	6.50	U	6.00	U	5.50	U
2-Methylnaphthalene	91.00		85.00		110		130		160		100.00		140		110		80.00	
Acenaphthene	23.00		15.00		17.00		25.00		24.00		19.00		29.00		18.00		12.00	
Acenaphthylene	5.50	U	5.50	U	12.00		14.00		15.00		5.50	U	14.00		6.00	U	5.50	U
Anthracene	5.50	U	5.50	U	5.50	U	12.00		12.00		5.50	U	6.50	U	6.00	U	5.50	U
Benzo(a)anthracene	15.00		13.00		25.00		26.00		32.00		14.00		22.00		22.00		17.00	
Benzo(a)pyrene	5.50	U	5.50	U	13.00		5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
Benzo(b)fluoranthene	5.50	U	5.50	U	17.00		14.00		21.00		5.50	U	6.50	U	6.00	U	5.50	U
Benzo(e)pyrene	5.50	U	5.50	U	15.00		24.00		27.00		5.50	U	20.00		18.00		17.00	
Benzo(g,h,i)perylene	5.50	U	5.50	U	19.00		5.00	U	15.00		5.50	U	6.50	U	6.00	U	5.50	U
Benzo(k)fluoranthene	5.50	U	5.50	U	17.00		11.00		18.00		5.50	U	6.50	U	6.00	U	5.50	U
Biphenyl	5.50	U	5.50	U	5.50	U	5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
Chrysene	12.00		5.50	U	22.00		20.00		28.00		5.50	U	15.00		15.00		18.00	
Dibenz(a,h)anthracene	5.50	U	5.50	U	12.00		5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
Fluoranthene	33.00		25.00		44.00		74.00		71.00		32.00		54.00		41.00		37.00	
Fluorene	5.50	U	5.50	U	13.00		16.00		18.00		11.00		17.00		6.00	U	5.50	U
Sum PAHs (6 High Molecular Weight)[1]	76.50		60.00		122		135		152		68.00		111		96.00		86.50	
Indeno(1,2,3-cd)pyrene	5.50	U	5.50	U	16.00		5.00	U	5.00	U	5.50	U	6.50	U	6.00	U	5.50	U
Sum PAHs (7 Low Molecular Weight)[2]	405		383		472		482		572		406		577		388		308	
Naphthalene	210		210		230		200		250		190		260		180		140	
Perylene	5.50	U	5.50	U	5.50	U	5.00	U	11.00		5.50	U	6.50	U	6.00	U	5.50	U
Phenanthrene	64.00		56.00		84.00		85.00		93.00		75.00		110		64.00		59.00	
Pyrene	63.00		57.00		83.00		150		140		73.00		100.00		100.00		68.00	
Sum PAHs	684		646		892		943		1125		691		1019		743		593	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.
Tissue sample analyzed = ribbed mussels.
One-half the MDL taken where DQ = "U".
1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene.
2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.
3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

Appendix A-3. Concentrations of CoCs in Ribbed Mussels collected for the Raymark Phase III Ecological Risk Assessment Investigation.

	C-1-TISS-SMP	DQ	C-2-TISS-SMP	DQ	C-3-TISS-SMP	DQ	D-1-TISS-SMP	DQ	D-2-TISS-SMP	DQ	D-3-TISS-SMP	DQ	D-4-TISS-SMP	DQ	D-6-TISS-SMP	DQ	HB-9-TISS-SMP	DQ
Organochlorine Pesticides (µg/kg dw)																		
Aldrin	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Alpha-BHC	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Alpha-Chlordane	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Beta-BHC	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Delta-BHC	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Dieldrin	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Endosulfan I	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Endosulfan II	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Endosulfan Sulfate	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Endrin	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Endrin Aldehyde		NA		NA		NA		NA		NA		NA		NA		NA		NA
Gamma-BHC(Lindane)	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Gamma-Chlordane	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Heptachlor	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Heptachlor Epoxide	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Hexachlorobenzene	2.30	UJ	2.20	UJ	2.15	UJ	1.95	UJ	2.00	UJ	2.15	UJ	2.60	UJ	2.50	UJ	2.10	UJ
Methoxychlor	5.50	U	5.50	U	5.50	U	4.90	U	5.00	U	5.50	U	6.50	U	6.00	U	5.00	U
Mirex	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
o,p'-DDD	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
o,p'-DDE	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
o,p'-DDT	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
p,p'-DDD	2.30	U	2.20	U	6.80		16.00		8.40		2.15	U	2.60	U	2.50	U	2.10	U
p,p'-DDE	2.30	U	2.20	U	2.15	U	8.40		7.10		2.15	U	2.60	U	2.50	U	2.10	U
p,p'-DDT	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Toxaphene	14.50	U	13.50	U	13.50	U	12.00	U	12.50	U	13.50	U	16.00	U	15.50	U	13.00	U
Polychlorinated Biphenyls (PCBs) (µg/kg dw)																		
PCB008	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB018	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	UJ	2.10	UJ
PCB028	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB029	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB044	2.30	U	2.20	U	2.15	U	16.00		6.30		2.15	U	8.90		2.50	U	2.10	U
PCB050	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB052	2.30	U	2.20	U	2.15	U	6.80		5.00		2.15	U	7.70		2.50	U	2.10	U
PCB066	2.30	U	2.20	U	2.15	U	6.80		9.20		2.15	U	2.60	U	2.50	U	2.10	U
PCB077	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB087	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB101	2.30	U	2.20	U	10.00		15.00		16.00		6.00		11.00		9.50		4.50	
PCB104	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB105	2.30	U	2.20	U	2.15	U	4.50		5.90		2.15	U	2.60	U	2.50	U	2.10	U
PCB118	2.30	U	2.20	U	2.15	U	1.95	U	4.90		2.15	U	6.70		6.00		2.10	U
PCB126	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB128	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB138	2.30	U	2.20	U	2.15	U	12.00		10.00		2.15	U	8.80		7.20		6.00	
PCB153	2.30	U	2.20	U	7.80		13.00		21.00		9.00		15.00		14.00		7.40	
PCB154	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB170	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB180	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB187	2.30	U	2.20	U	9.40		16.00		11.00		4.50		11.00		8.00		6.10	
PCB188	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	4.40	
PCB195	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB200	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB206	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
PCB209	2.30	U	2.20	U	2.15	U	1.95	U	2.00	U	2.15	U	2.60	U	2.50	U	2.10	U
Sum of Congeners x 2[3]	110		106		145		243		239		129		227		184		137	

DQ = Data Qualifier: "U"=Undetected; "J"=Estimated; "B"=Below CRDL; and "NA"=Not Analyzed.

Tissue sample analyzed = ribbed mussels.

One-half the MDL taken where DQ = "U".

1 - Sum of High Molecular Weight PAHs = Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, and Perylene.

2 - Sum of Low Molecular Weight PAHs = 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and Phenanthrene.

3 - Sum of Congeners x 2 does not include PCB077,104, and 154.

APPENDIX B
EFFECTS DATA

APPENDIX B-1
TOXICOLOGICAL EVALUATION OF SEVENTEEN SEDIMENTS: RAYMARK 1999

TOXICOLOGICAL EVALUATION

OF SEVENTEEN SEDIMENTS:

Raymark 1999

Prepared For:

Science Applications International Corporation
221 Third Street
Admiral's Gate
Newport, Rhode Island 02840

Prepared By:

EnviroSystems, Incorporated
1 Lafayette Road
Hampton, New Hampshire 03842

May 5, 1999
Reference SAIC7814-99-04

TOXICOLOGICAL EVALUATION

OF SEVENTEEN SEDIMENTS:

Raymark 1999

1.0 SAMPLE RECEIPT AND STORAGE

Seventeen (17) sediments were collected by Science Applications International Corporation (SAIC), Newport, Rhode Island on April 16, 1999. Each sample was placed in a one gallon polyethylene jug and shipped on ice to EnviroSystems, Incorporated (ESI), Hampton, New Hampshire. Samples were received at ESI on April 20, 1999. Control sediment for the amphipod assay was provided by the organism supplier.

At ESI, samples were given identification numbers and refrigerated at 2-4 °C until test initiation.

2.0 TEST ORGANISMS

The 10 day acute solid phase assay was conducted using *Ampelisca abdita,* obtained from Eastern Aquatic Biosupply of Kingstown, Rhode Island. Prior to use, test organisms were held for two days under conditions of temperature, salinity, and photoperiod similar to those to be used in the assay. *A. abdita* used in the assay were adults between 2 and 3 mm in length.

3.0 TEST METHODOLOGY

3.1 April 21, 1999 (Day -2)

Test and control sediments were all sieved (1 mm) to remove macroinvertebrates, large shell hash, and rocks prior to use in the assays. Each test sediments consisted on five replicates. Each replicate contained approximately 175 mL of sediment and 725 mL of natural sea water in a 1 liter beaker. The overlying water in each test vessel was gently aerated and test chambers were allowed to stabilize overnight.

3.2 April 22, 1999 (Day -1)

A pore water ammonia sample was taken and measured for one replicate of each test sediment. As the level of un-ionized ammonia in the pore water was ≤0.2 mg/L (half of the acute LC-50 value of 0.40 mg/L for the amphipod, *Ampelisca abdita*) the sediments did not need to be "washed" to reduce total ammonia levels. The concentration of un-ionized ammonia was determined based on ammonia concentrations, temperature, and pH using tables provided by the U.S. EPA (1979). (Salinity was not factored into the determination of percent un-ionized ammonia. Information provided in the U.S. EPA document indicated that the effect of salinity on percent un-ionized ammonia in the sample was small.)

3.3 April 23, 1999 (Day 0)

Pore water ammonia samples were taken and measured. Dissolved oxygen, temperature, pH, and salinity in aliquots of overlying water from each test vessel were recorded. It was noted that the pH of the overlying water for sediment "E-4-SED-SMP," ranged from 3.71 SU to 4.41 SU. To minimize the impact low pH could have on organism survival, the overlying water in these test replicates was decanted, replenished, and allowed to settle for a minimum of four hours.

A total of 20 amphipods were indiscriminately selected from the pool of organisms and randomly added to each test and control sediment replicate. Five true replicates were used for each treatment. Water temperature was 20±2°C, and the salinity regime was established at 28 ±2‰. The photoperiod was set at 24 hours light and 0 hours dark.

3.4 April 24, 199 - May 2, 1999 (Days 1-9)

Temperature, salinity, pH, and dissolved oxygen in each test replicate were recorded daily. In cases where salinity exceed 30 ppt overnight, salinity was corrected to 28±2 ppt using spring water. Overlying water lost to evaporation was replenished as needed. Samples were not renewed during the ten day exposure period.

On Day 2, the pH values of overlying water for the E-4-SED-SMP sediment ranged from 5.04 to 6.84 SU. In this case, the overlying water was decanted and replaced taking care not to disturb the test organisms.

3.5 May 3, 1999 (Day 10)

Temperature, salinity, pH, and dissolved oxygen in each test replicate were recorded. The test sediment from each replicate was sifted using a 750 μ sieve, organisms were recovered, and survival was recorded.

4.0 REFERENCE TOXICANT EVALUATION

As part of the laboratory quality control program, reference toxicant evaluations are conducted on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. A reference toxicant assay was conducted on April 27, 1999 using cadmium chloride. The assay resulted in a 96 hour LC-50 value of 0.1 mg/L Cadmium (Probit Analysis). This value was within one standard deviation of the historic mean for the species.

5.0 LITERATURE CITED

U.S. EPA 1979. Aqueous Ammonia Equilibrium - Tabulation of Percent Un-ionized Ammonia. EPA-600/3-79/091. 437 pages

CLIENT: SAIC
STUDY: 7814
PROJECT: RAYMARK 1999
PARAMETER: Ampelisa abdita 10 Day Chronic Assay Survival

	SURVIVAL Replicate					
SITE	A	B	C	D	E	MEAN
LAB CONTROL	90%	100%	90%	80%	100%	92%
C-1-SED-SMP	65%	65%	45%	25%	45%	49%
C-2-SED-SMP	70%	60%	75%	15%	25%	49%
C-3-SED-SMP	5%	15%	10%	0%	0%	6%
D-1-SED-SMP	85%	90%	85%	45%	60%	73%
D-2-SED-SMP	75%	80%	70%	25%	25%	55%
D-3-SED-SMP	50%	60%	50%	35%	35%	46%
D-4-SED-SMP	70%	80%	60%	55%	20%	57%
D-5-SED-SMP	60%	85%	50%	60%	60%	63%
D-6-SED-SMP	0%	15%	0%	0%	0%	3%
D-6-SED-FD	0%	0%	0%	0%	0%	0%
E-1-SED-SMP	55%	70%	75%	45%	70%	63%
E-2-SED-SMP	60%	80%	55%	55%	40%	58%
E-3-SED-SMP	80%	95%	55%	70%	40%	68%
E-4-SED-SMP	40%	50%	65%	45%	25%	45%
F-1-SED-SMP	45%	50%	65%	70%	45%	55%
F-2-SED-SMP	85%	60%	75%	80%	80%	76%
F-3-SED-SMP	70%	60%	80%	65%	50%	65%

COMMMENTS:

Survival in Replicate "E" from the laboratory control sediment is based on recovery of 10 organisms from an original 10 added to the test vessel.

CLIENT: SAIC
STUDY: 7814
PROJECT: RAYMARK 1999
PARAMETER: Ammonia Data

Ammonia Concentration, mg/L

SITE	Exposure (Day) -1	0	5	10
LAB CONTROL	0.40	0.81	0.70	<0.05
C-1-SED-SMP	2.92	2.87	4.30	2.58
C-2-SED-SMP	1.93	2.42	3.52	0.44
C-3-SED-SMP	0.72	1.02	1.40	<0.05
D-1-SED-SMP	0.08	0.06	0.59	0.45
D-2-SED-SMP	1.70	0.94	2.51	0.11
D-3-SED-SMP	1.61	3.28	1.74	<0.05
D-4-SED-SMP	1.35	1.12	5.88	2.00
D-5-SED-SMP	4.01	<0.05	2.32	<0.05
D-6-SED-SMP	1.50	1.82	3.03	<0.05
D-6-SED-FD	1.71	1.89	4.36	1.43
E-1-SED-SMP	2.68	1.41	<0.05	2.66
E-2-SED-SMP	4.91	3.90	<0.05	2.80
E-3-SED-SMP	4.67	2.78	<0.05	3.28
E-4-SED-SMP	2.57	2.52	2.04	2.00
F-1-SED-SMP	3.45	4.71	3.81	3.82
F-2-SED-SMP	5.24	3.07	4.08	5.80
F-3-SED-SMP	4.22	4.28	4.87	5.32

COMMMENTS:

Ammonia on Days -1 and 0 were measured on aliquots of pore water.
Ammonia on Days 5 and 10 were measured on aliquots of the overlying water.

CLIENT: SAIC
STUDY NUMBER: 7814
PROJECT: RAYMARK 1999
PARAMETER: Water Quality Data

CONTROL:

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	7.93	30	22	6.8	7.94	30	22	6.9	7.96	30	22	6.9	7.95	30	22	6.9	7.95	30
1	22	6.4	7.77	32	22	6.7	7.92	32	22	6.8	7.86	32	22	6.8	7.86	32	22	6.8	7.77	32
2	22	7.2	7.92	29	22	7.2	7.94	30	22	7.1	7.98	30	22	7.0	7.98	30	22	6.9	7.95	30
3	22	7.5	7.98	29	22	7.5	7.98	28	22	7.6	7.97	29	22	7.5	7.94	28	22	7.6	7.95	29
4	22	7.0	7.87	31	22	6.8	7.89	31	22	6.8	7.90	30	22	6.8	7.83	31	22	6.7	7.88	31
5	22	7.0	8.07	30	22	6.9	8.00	30	22	6.8	7.99	30	22	6.7	8.03	30	22	6.8	8.09	30
6	22	7.1	7.98	30	22	7.1	7.97	30	22	7.1	7.96	30	22	7.1	7.95	30	22	7.1	7.96	30
7	22	7.1	7.87	30	22	7.1	7.86	30	22	7.1	7.86	30	22	7.1	7.86	30	22	7.1	7.91	30
8	21	7.2	7.90	29	21	7.2	6.92	29	21	7.2	6.87	28	21	7.2	7.08	29	21	7.1	7.96	31
9	21	5.9	8.03	30	21	5.9	8.06	30	21	6.1	8.06	29	21	6.1	8.07	28	21	6.3	8.07	29
10	21	6.3	8.18	30	21	6.4	8.19	30	21	6.4	8.17	30	21	6.4	8.17	30	21	6.3	8.17	30

C-1-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.8	8.01	29	22	6.8	8.01	29	22	6.8	7.99	29	22	6.7	8.00	29	22	6.7	8.02	29
1	22	6.6	7.99	31	22	6.4	8.01	31	22	6.4	8.01	31	22	6.4	8.00	31	22	6.3	8.01	31
2	22	6.8	8.00	30	22	7.0	8.10	29	22	6.9	8.10	29	22	6.9	8.10	28	22	6.9	8.09	28
3	22	7.4	8.12	29	22	7.4	8.12	27	22	7.4	8.12	29	22	7.3	8.11	27	22	7.4	8.10	29
4	22	6.8	8.12	31	22	6.9	8.16	31	22	6.6	8.15	30	22	6.8	8.14	31	22	6.7	8.15	30
5	22	6.8	8.37	30	22	6.8	8.37	30	22	6.7	8.30	30	22	6.7	8.35	30	22	6.7	8.33	30
6	22	6.9	8.31	30	22	7.1	8.32	30	22	7.1	8.31	30	22	6.5	8.18	30	22	6.9	8.28	30
7	22	7.0	8.18	30	22	7.1	8.29	30	22	7.1	8.28	30	22	6.9	8.25	29	22	6.9	8.25	30
8	21	7.1	8.06	28	21	7.0	7.32	28	21	7.3	8.30	29	21	7.2	8.32	30	21	7.1	8.34	30
9	21	6.3	8.41	28	21	6.2	8.42	30	21	6.3	8.42	29	21	6.1	8.44	29	21	6.3	8.42	30
10	21	6.3	8.48	29	21	6.1	8.46	29	21	6.0	8.48	29	21	6.2	8.47	29	21	6.1	8.47	30

CLIENT: SAIC
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C-2-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.7	8.02	28	22	6.8	8.04	28	22	6.8	7.98	28	22	6.7	7.99	28	22	6.7	8.03	28
1	22	6.6	8.00	31	22	6.6	8.01	31	22	6.4	7.98	31	22	6.5	7.99	31	22	6.5	7.97	31
2	22	6.4	8.09	29	22	6.8	8.09	28	22	7.0	8.09	28	22	7.1	8.10	28	22	7.1	8.11	28
3	22	7.3	8.17	29	22	7.3	8.11	29	22	7.3	8.12	28	22	7.3	8.14	28	22	7.2	8.14	28
4	22	6.9	8.14	29	22	6.8	8.13	30	22	6.7	8.14	30	22	6.8	8.13	29	22	6.9	8.14	29
5	22	6.6	8.35	30	22	5.6	8.08	30	22	6.5	8.30	30	22	6.6	8.32	30	22	6.6	8.24	30
6	22	6.9	8.29	30	22	7.0	8.28	29	22	7.0	8.27	29	22	7.0	8.27	29	22	7.0	8.26	29
7	22	7.0	8.27	29	22	7.0	8.24	29	22	7.0	8.23	29	22	7.0	8.26	29	22	7.0	8.26	30
8	21	7.2	8.07	28	21	7.2	8.22	28	21	7.2	8.23	29	21	7.2	8.30	29	21	7.3	8.21	29
9	21	5.9	8.31	29	21	6.0	8.33	30	21	6.1	8.32	29	21	6.0	8.33	29	21	6.1	8.34	28
10	21	6.0	8.39	30	21	6.1	8.39	30	21	6.1	8.35	30	21	6.1	8.36	29	21	6.3	8.34	29

C-3-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.7	8.00	28.3	22	6.8	8.01	28	22	6.8	7.97	28	22	6.8	7.98	28	22	6.9	7.66	28
1	22	6.5	7.95	29	22	6.6	7.96	31	22	6.6	7.97	31	22	6.7	7.95	31	22	6.4	7.95	31
2	22	7.0	8.10	28	22	7.1	8.03	29	22	7.1	7.97	28	22	7.1	7.97	29	22	7.0	7.99	29
3	22	7.2	8.09	29	22	7.2	8.02	28	22	7.3	8.01	28	22	7.3	7.99	28	22	7.1	7.99	28
4	22	6.7	8.07	30	22	6.6	8.05	29	22	6.4	8.15	29	22	6.5	8.19	29	22	6.6	8.16	30
5	22	6.7	8.07	29	22	6.7	7.92	30	22	6.7	7.98	30	22	6.7	8.02	30	22	6.8	8.01	30
6	22	6.9	8.10	29	22	6.9	7.97	29	22	6.9	7.87	29	22	7.0	7.93	29	22	7.1	7.93	30
7	22	6.8	7.94	29	22	6.9	7.80	28	22	6.9	7.79	28	22	7.0	7.79	28	22	7.0	7.82	28
8	21	7.2	7.16	29	21	7.7	7.68	28	21	7.1	7.71	29	21	7.2	7.84	29	21	7.1	7.85	29
9	21	5.9	8.15	29	21	5.9	8.01	29	21	5.7	7.91	30	21	6.0	7.90	30	21	5.8	7.95	30
10	21	5.8	8.16	29	21	6.1	8.03	29	21	5.5	8.01	30	21	5.6	8.01	30	21	5.9	8.03	29

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D-1-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.1	7.66	30	22	6.1	7.90	30	22	6.6	7.92	30	22	6.8	7.86	30	22	6.8	7.83	30
1	22	5.9	7.92	33	22	6.0	7.90	33	22	6.2	7.95	33	22	6.6	7.94	33	22	6.5	7.91	33
2	22	6.9	7.98	29	22	7.0	7.97	28	22	7.0	7.94	30	22	7.0	7.93	30	22	7.0	7.88	29
3	22	7.1	7.97	29	22	7.2	7.87	29	22	7.3	7.86	29	22	7.1	7.87	28	22	7.2	7.83	29
4	22	6.7	8.06	29	22	7.0	7.93	29	22	6.9	7.91	30	22	6.6	7.96	29	22	6.8	7.97	29
5	22	6.7	7.95	30	22	6.8	7.91	30	22	6.8	7.90	30	22	6.8	7.81	30	22	6.8	7.80	30
6	22	6.9	7.89	29	22	7.0	7.80	28	22	7.1	7.79	29	22	7.1	7.80	29	22	7.1	7.77	28
7	22	7.0	7.70	29	22	7.0	7.70	28	22	7.1	7.71	29	22	7.0	7.70	29	22	7.0	7.59	29
8	21	7.3	7.54	29	21	7.3	7.71	29	21	7.3	7.70	29	21	7.3	7.61	30	21	7.3	7.75	31
9	21	6.2	7.88	28	21	6.3	7.86	29	21	6.4	7.82	29	21	6.2	7.79	29	21	6.2	7.82	30
10	21	6.0	7.87	29	21	6.0	7.89	29	21	6.3	7.88	29	21	6.3	7.81	29	21	6.2	7.83	30

D-2-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	8.00	28	22	6.6	8.03	28	22	6.6	7.78	28	22	6.5	8.03	28	22	6.6	8.02	28
1	22	6.4	7.91	30	22	6.4	7.97	30	22	6.5	8.00	30	22	6.2	8.01	30	22	6.1	8.00	30
2	22	6.8	8.12	30	22	7.0	8.12	29	22	7.1	8.13	30	22	7.0	8.11	29	22	7.0	8.09	29
3	22	7.4	8.06	28	22	7.4	8.12	28	22	7.3	8.14	28	22	7.3	8.12	28	22	7.1	8.09	28
4	22	6.9	7.91	30	22	6.8	7.90	29	22	6.8	7.88	30	22	6.9	7.86	30	22	6.9	7.81	30
5	22	6.8	8.31	30	22	6.8	8.26	30	22	6.8	8.25	30	22	6.8	8.20	30	22	6.3	7.96	30
6	22	6.9	8.18	28	22	7.0	8.23	28	22	7.1	8.23	29	22	7.1	8.19	28	22	7.1	8.09	30
7	22	6.9	8.20	28	22	7.0	8.21	28	22	7.0	8.19	29	22	7.0	8.19	28	22	6.9	8.05	30
8	21	7.4	8.13	28	21	7.3	8.17	30	21	7.2	8.15	30	21	7.1	8.13	30	21	7.1	8.08	32
9	21	6.8	8.23	30	21	6.5	8.26	30	21	6.6	8.25	29	21	6.5	8.17	29	21	6.4	8.16	30
10	21	6.1	8.29	30	21	6.2	8.28	30	21	6.3	8.26	30	21	6.4	8.23	29	21	6.2	8.18	30

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D-3-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.7	8.03	29	22	6.7	8.06	29	22	6.8	8.02	29	22	6.8	7.96	29	22	6.7	8.00	29
1	22	6.5	7.97	30	22	6.5	7.99	30	22	6.4	7.99	30	22	6.3	8.01	30	22	6.2	7.96	30
2	22	6.6	8.08	30	22	6.8	8.05	29	22	6.9	8.03	30	22	6.9	8.06	29	22	6.9	8.05	30
3	22	7.3	8.05	28	22	7.4	8.08	28	22	7.4	8.07	28	22	7.4	8.07	28	22	7.5	8.01	29
4	22	7.0	8.15	29	22	7.0	8.17	29	22	6.9	8.15	29	22	6.9	8.14	28	22	6.8	8.06	29
5	22	6.6	8.08	30	22	6.7	8.11	30	22	6.8	8.17	30	22	6.8	8.01	30	22	6.7	8.05	30
6	22	7.0	8.09	29	22	7.0	8.09	30	22	7.1	8.14	29	22	7.0	8.01	29	22	7.0	7.98	30
7	22	6.8	8.08	30	22	6.9	8.03	29	22	6.9	8.08	30	22	6.9	7.93	30	22	6.9	7.87	29
8	21	7.4	8.04	30	21	7.3	7.93	30	21	7.2	8.12	30	21	7.2	7.99	30	21	7.3	7.96	31
9	21	6.0	8.23	29	21	5.9	8.06	30	21	6.0	8.24	29	21	5.8	8.16	30	21	5.7	8.10	29
10	21	6.2	8.22	29	21	6.1	8.11	30	21	6.0	8.26	29	21	6.0	8.15	30	21	5.9	8.13	29

D-4-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	8.04	29	22	6.6	8.01	29	22	6.6	7.98	29	22	6.6	7.97	29	22	6.5	7.97	29
1	22	6.1	8.05	30	22	6.5	8.07	30	22	5.9	8.07	30	22	6.3	8.05	30	22	6.1	8.08	30
2	22	6.5	8.25	30	22	6.7	8.25	29	22	6.8	8.24	29	22	6.8	8.23	29	22	6.9	8.23	30
3	22	7.3	8.30	28	22	7.3	8.31	28	22	7.4	8.31	28	22	7.5	8.31	27	22	7.4	8.31	29
4	22	6.9	8.33	30	22	6.4	8.34	31	22	6.6	8.34	30	22	6.8	8.35	30	22	6.8	8.37	30
5	22	6.7	8.44	30	22	6.7	8.43	30	22	6.6	8.40	30	22	6.6	8.43	30	22	6.6	8.48	30
6	22	6.8	8.42	30	22	6.8	8.41	29	22	6.9	8.40	30	22	7.0	8.40	28	22	7.0	8.43	30
7	22	6.7	8.36	29	22	6.8	8.37	28	22	6.8	8.35	29	22	6.8	8.40	28	22	6.8	8.41	30
8	21	7.3	8.33	30	21	7.3	8.35	30	21	7.3	8.34	30	21	7.3	8.43	30	21	7.2	8.45	31
9	21	6.0	8.42	29	21	6.2	8.48	29	21	6.1	8.48	30	21	6.2	8.53	30	21	6.0	8.54	30
10	21	5.6	8.44	29	21	5.8	8.50	29	21	6.0	8.47	29	21	6.0	8.54	30	21	6.1	8.54	30

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D-5-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.5	7.85	29	22	6.5	7.96	29	22	6.6	7.87	29	22	6.6	7.88	29	22	6.5	7.97	29
1	22	6.2	8.02	30	22	6.1	7.98	30	22	6.4	7.99	30	22	6.3	8.00	30	22	6.3	7.98	30
2	22	6.6	8.17	29	22	6.7	8.16	29	22	6.8	8.09	27	22	6.8	8.09	30	22	6.8	8.08	30
3	22	7.3	8.18	28	22	7.4	8.17	29	22	7.4	8.18	28	22	7.3	8.15	28	22	7.3	8.09	29
4	22	6.8	8.31	29	22	6.8	8.27	29	22	6.8	8.25	29	22	6.6	8.21	28	22	6.4	8.15	29
5	22	6.5	8.36	30	22	6.5	8.29	30	22	6.6	8.31	30	22	6.6	8.29	30	22	6.6	8.36	30
6	22	6.7	8.31	29	22	6.9	8.23	30	22	7.0	8.24	29	22	7.0	8.25	29	22	6.9	8.23	30
7	22	6.8	8.22	29	22	6.8	8.15	29	22	6.9	8.15	29	22	6.8	8.17	28	22	6.8	8.15	30
8	21	7.4	8.09	29	21	7.3	8.11	31	21	7.4	8.12	30	21	7.3	8.11	33	21	7.2	8.14	31
9	21	6.0	8.39	28	21	6.0	8.25	29	21	5.8	8.24	29	21	6.0	8.21	30	21	6.2	8.20	31
10	21	5.8	8.30	28	21	5.9	8.27	28	21	6.0	8.26	28	21	6.0	8.22	29	21	6.1	8.21	29

D-6-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	8.04	29	22	6.5	8.01	29	22	6.8	8.02	29	22	6.8	8.00	29	22	6.8	7.96	29
1	22	6.1	7.93	31	22	6.1	8.00	31	22	6.4	7.95	31	22	6.3	8.02	31	22	6.2	8.03	31
2	22	6.4	8.07	30	22	6.6	8.08	30	22	6.9	8.11	30	22	6.9	8.11	30	22	7.1	8.13	30
3	22	7.3	8.04	28	22	7.4	8.11	28	22	7.4	8.12	29	22	7.4	8.13	28	22	7.4	8.08	30
4	22	6.4	8.08	30	22	6.5	8.12	29	22	6.4	8.15	29	22	6.6	8.17	29	22	6.8	8.15	29
5	22	6.1	8.13	30	22	6.5	8.18	30	22	6.6	8.20	30	22	6.6	8.21	30	22	6.6	8.25	30
6	22	6.5	8.10	29	22	6.8	8.10	30	22	6.9	8.19	30	22	6.9	8.19	30	22	7.0	8.18	30
7	22	6.6	7.99	27	22	6.7	7.99	28	22	6.9	8.15	28	22	6.8	8.16	28	22	6.8	8.13	30
8	21	7.3	8.06	29	21	7.4	8.00	31	21	7.2	8.25	30	21	7.4	8.30	31	21	7.3	8.27	31
9	21	6.3	8.15	30	21	6.5	8.16	31	21	6.2	8.46	32	21	6.3	8.26	31	21	6.4	8.56	30
10	21	5.7	8.20	30	21	5.9	8.26	30	21	6.0	8.47	30	21	6.0	8.60	30	21	6.2	8.63	30

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D-6-SED-FD

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.7	8.04	28	22	6.7	8.00	28	22	6.8	8.03	28	22	6.8	7.99	28	22	6.8	7.96	28
1	22	6.4	7.98	29	22	6.3	7.98	29	22	6.4	8.02	29	22	6.4	8.04	29	22	6.4	8.04	29
2	22	6.5	7.97	29	22	6.7	7.98	29	22	7.0	8.02	30	22	6.9	8.05	30	22	7.1	8.05	30
3	22	7.2	8.06	26	22	7.4	8.04	28	22	7.4	8.03	28	22	7.4	8.03	28	22	7.5	8.02	29
4	22	7.0	7.94	30	22	7.2	7.99	29	22	6.8	7.98	30	22	6.8	7.99	30	22	6.5	7.92	29
5	22	6.4	7.89	30	22	6.8	8.00	30	22	6.9	8.02	30	22	6.8	8.02	30	22	6.9	8.01	30
6	22	6.8	7.93	28	22	6.8	8.00	28	22	6.9	8.00	29	22	7.0	8.00	28	22	7.0	7.95	29
7	22	6.7	7.96	28	22	6.8	7.86	28	22	6.9	7.86	29	22	7.0	7.92	30	22	6.9	7.92	30
8	21	7.1	7.73	30	21	7.3	7.90	28	21	7.3	7.92	30	21	7.4	7.92	30	21	7.4	7.88	31
9	21	5.8	8.13	29	21	6.0	8.08	29	21	6.1	8.06	30	21	6.0	8.05	29	21	6.2	8.04	30
10	21	6.1	8.11	29	21	5.8	8.04	29	21	6.0	8.06	30	21	6.1	8.05	29	21	6.2	8.06	29

E-1-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.7	7.42	27	22	6.8	7.09	27	22	6.8	7.90	27	22	6.7	7.26	27	22	6.8	7.51	27
1	22	6.3	7.87	29	22	6.4	7.65	29	22	6.4	7.62	29	22	6.5	7.58	29	22	6.6	7.58	29
2	22	7.0	8.02	30	22	7.1	7.53	26	22	7.2	7.51	27	22	7.1	7.52	27	22	7.1	7.54	28
3	22	7.3	7.96	26	22	7.4	7.46	26	22	7.5	7.44	26	22	7.5	7.46	26	22	7.5	7.44	26
4	22	6.4	7.74	26	22	6.2	7.54	27	22	6.3	7.49	26	22	6.4	7.48	26	22	6.5	7.44	26
5	22	6.5	7.42	30	22	6.8	7.25	30	22	6.9	7.37	30	22	6.8	6.93	30	22	6.8	7.40	30
6	22	6.2	7.23	27	22	6.7	7.23	27	22	6.9	7.33	27	22	6.7	7.34	27	22	6.8	7.32	27
7	22	6.7	7.53	27	22	6.8	7.47	26	22	6.9	7.36	27	22	6.7	7.34	27	22	6.9	7.32	27
8	21	7.0	6.29	26	21	7.2	6.54	27	21	7.4	6.85	27	21	7.3	6.76	28	21	7.3	6.88	28
9	21	6.0	7.68	27	21	6.0	7.49	27	21	6.0	7.43	27	21	6.3	7.38	27	21	6.2	7.36	28
10	21	5.7	7.42	28	21	6.1	7.33	28	21	6.2	7.21	27	21	5.9	7.17	27	21	5.9	7.23	28

CLIENT: SAIC
STUDY NUMBER: 7814
PROJECT: RAYMARK 1999
PARAMETER: Water Quality Data

E-2-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	2.3	6.52	28	22	3.1	6.52	28	22	3.4	6.50	28	22	3.7	6.51	28	22	3.6	6.50	28
1	22	7.0	7.58	30	22	7.3	7.54	30	22	7.6	7.64	30	22	7.5	7.65	30	22	7.2	7.56	30
2	22	6.7	7.56	27	22	7.0	7.54	26	22	7.1	7.49	26	22	7.0	7.45	26	22	7.0	7.43	26
3	22	7.4	7.44	26	22	7.5	7.31	26	22	7.5	7.29	26	22	7.5	7.27	26	22	7.5	7.24	26
4	22	6.8	7.40	26	22	6.7	7.37	25	22	6.8	7.32	26	22	6.6	7.32	25	22	6.5	7.28	25
5	22	6.9	7.07	30	22	6.9	6.95	30	22	6.9	6.96	30	22	6.9	7.01	30	22	6.9	7.07	30
6	22	6.7	7.39	27	22	6.9	7.42	27	22	7.0	7.43	27	22	6.8	7.44	26	22	6.9	7.43	26
7	22	6.9	7.35	27	22	6.9	7.34	27	22	6.9	7.31	27	22	6.9	7.29	26	22	6.8	7.28	27
8	21	7.6	6.88	27	21	7.3	6.93	29	21	7.4	6.93	27	21	7.5	6.69	27	21	7.4	6.63	28
9	21	6.7	7.41	27	21	6.6	7.41	28	21	6.3	7.40	27	21	6.4	7.41	27	21	6.2	7.39	27
10	21	6.4	7.33	27	21	6.3	7.36	27	21	6.4	7.37	28	21	6.4	7.41	28	21	6.4	7.40	28

E-3-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.4	7.47	27	22	6.5	7.53	27	22	6.7	7.40	27	22	6.8	7.41	27	22	6.7	7.37	27
1	22	6.4	7.55	29	22	6.3	7.57	29	22	6.5	7.57	29	22	7.0	7.56	29	22	6.8	7.51	29
2	22	6.9	7.44	27	22	7.1	7.47	27	22	7.1	7.50	28	22	7.1	7.51	28	22	7.1	7.50	28
3	22	7.6	7.21	26	22	7.5	7.46	26	22	7.5	7.47	26	22	7.3	7.47	26	22	7.4	7.45	26
4	22	6.6	7.28	25	22	6.4	7.30	26	22	6.5	7.31	26	22	6.5	7.24	26	22	6.5	7.22	25
5	22	6.9	7.26	30	22	6.9	7.25	30	22	6.9	7.29	30	22	6.9	6.96	30	22	6.7	6.99	30
6	22	7.0	7.56	28	22	7.0	7.56	28	22	7.1	7.57	27	22	6.9	7.56	27	22	6.9	7.48	28
7	22	6.7	7.27	30	22	6.9	7.46	28	22	7.0	7.46	27	22	6.9	7.27	26	22	6.8	7.56	27
8	21	7.5	7.25	28	21	7.4	7.23	29	21	7.4	7.19	28	21	7.4	6.94	28	21	7.3	7.15	30
9	21	5.8	7.35	29	21	5.9	7.34	28	21	5.7	7.35	29	21	5.8	7.35	28	21	5.9	7.28	29
10	21	5.9	7.33	29	21	6.1	7.31	29	21	6.1	7.38	29	21	6.1	7.37	28	21	6.0	7.29	29

CLIENT: SAIC
STUDY NUMBER: 7814
PROJECT: RAYMARK 1999
PARAMETER: Water Quality Data

E-4-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.8	4.29	27	22	6.9	3.71	27	22	6.9	3.90	27	22	6.9	4.41	27	22	6.9	4.38	27
1	22	6.4	7.37	29	22	6.8	7.16	29	22	6.7	6.74	29	22	6.6	6.75	29	22	6.7	6.75	29
2	22	6.8	6.84	28	22	7.0	5.51	27	22	7.1	5.04	27	22	7.0	5.51	29	22	7.1	5.38	28
3	22	7.5	7.25	27	22	7.5	7.23	26	22	7.5	7.20	27	22	7.5	7.16	28	22	7.4	7.17	28
4	22	6.6	7.17	27	22	6.5	7.14	26	22	6.8	7.11	27	22	6.6	7.12	28	22	6.7	7.14	27
5	22	6.8	6.75	30	22	6.9	5.89	30	22	7.0	6.53	30	22	7.0	6.99	30	22	6.9	6.85	30
6	22	6.9	7.47	27	22	7.1	6.86	27	22	7.1	7.10	28	22	7.1	7.26	28	22	7.0	7.27	28
7	22	6.9	7.26	27	22	7.0	6.48	26	22	7.0	6.48	28	22	6.9	6.89	27	22	6.9	6.90	27
8	21	7.6	6.36	27	21	7.5	6.06	27	21	7.5	6.44	28	21	7.5	6.93	28	21	7.5	6.60	29
9	21	5.8	7.22	27	21	5.7	6.99	26	21	5.9	6.97	27	21	5.9	7.02	26	21	5.8	7.05	29
10	21	6.1	7.28	27	21	6.1	7.17	27	21	5.9	7.16	27	21	5.8	7.25	27	21	5.7	7.28	28

F-1-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.9	7.99	29	22	6.9	8.00	29	22	6.9	7.95	29	22	6.9	8.00	29	22	6.8	7.90	29
1	22	7.1	7.74	31	22	6.9	7.91	31	22	6.8	7.98	31	22	7.0	8.04	31	22	6.9	8.04	31
2	22	6.8	7.78	30	22	7.0	8.03	30	22	7.0	8.05	30	22	7.0	8.06	29	22	7.1	8.07	29
3	22	7.3	8.14	28	22	7.4	8.16	29	22	7.5	8.17	29	22	7.4	8.17	29	22	7.4	8.16	29
4	22	6.8	8.14	28	22	6.7	8.29	28	22	6.7	8.32	28	22	6.8	8.27	28	22	6.6	8.26	28
5	22	6.8	8.43	30	22	6.8	8.58	30	22	6.7	8.51	30	22	6.8	8.44	30	22	6.8	8.42	30
6	22	6.9	8.43	29	22	7.0	8.58	29	22	7.0	8.58	29	22	7.0	8.47	30	22	6.9	8.46	29
7	22	6.8	8.46	29	22	6.9	8.49	29	22	6.9	8.48	29	22	6.9	8.47	30	22	6.9	8.46	29
8	21	7.5	8.40	29	21	7.5	8.33	30	21	7.5	8.36	30	21	7.5	8.38	31	21	7.5	8.48	30
9	21	5.9	8.45	29	21	6.1	8.44	30	21	6.3	8.44	29	21	5.9	8.45	30	21	6.0	8.52	30
10	21	6.1	8.33	29	21	6.1	8.33	29	21	6.1	8.38	29	21	6.3	8.38	29	21	6.2	8.45	30

CLIENT: SAIC
STUDY NUMBER: 7814
PROJECT: RAYMARK 1999
PARAMETER: Water Quality Data

F-2-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	8.01	29	22	6.6	7.99	29	22	6.7	7.98	29	22	6.7	7.98	29	22	6.8	7.96	29
1	22	6.4	8.03	31	22	6.6	8.04	31	22	6.6	8.06	31	22	6.4	8.07	31	22	6.9	8.04	31
2	22	6.7	8.10	29	22	6.9	8.10	30	22	7.0	8.11	30	22	7.0	8.10	30	22	6.9	8.08	30
3	22	7.4	8.13	29	22	7.5	8.11	28	22	7.4	8.10	29	22	7.4	8.08	29	22	7.5	8.08	29
4	22	6.8	8.10	27	22	6.9	8.08	27	22	6.6	8.07	28	22	6.9	8.06	28	22	6.7	8.06	27
5	22	6.8	8.14	30	22	6.8	8.12	30	22	6.8	8.09	30	22	6.8	8.12	30	22	6.8	8.10	30
6	22	7.1	8.16	29	22	7.1	8.11	29	22	7.1	8.10	29	22	7.2	8.08	29	22	7.0	8.06	30
7	22	6.9	8.09	28	22	7.0	8.00	28	22	6.7	7.86	28	22	6.8	7.92	29	22	6.8	7.92	28
8	21	7.5	7.65	28	21	7.5	7.96	30	21	7.4	7.86	29	21	7.4	7.97	31	21	7.5	7.92	30
9	21	6.2	8.27	28	21	6.3	8.18	30	21	6.1	8.02	28	21	6.3	8.06	30	21	6.3	8.08	29
10	21	5.9	8.18	28	21	6.1	8.08	29	21	6.3	7.97	29	21	6.2	8.04	29	21	6.4	8.04	28

F-3-SED-SMP

Day	Replicate A				Replicate B				Replicate C				Replicate D				Replicate E			
	Temp	D.O.	pH	Sal	Temp	D.O	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal	Temp	D.O.	pH	Sal
0	22	6.6	8.04	28	22	6.5	8.00	28	22	6.5	8.08	28	22	6.5	8.03	28	22	6.5	8.08	28
1	22	6.5	8.06	30	22	6.6	8.07	30	22	6.3	8.10	30	22	6.2	8.08	30	22	6.3	8.10	30
2	22	6.6	8.11	29	22	6.8	8.16	30	22	7.0	8.18	30	22	7.0	8.17	30	22	7.0	8.15	29
3	22	7.3	8.08	28	22	7.4	8.12	28	22	7.5	8.14	28	22	7.4	8.15	28	22	7.4	8.15	28
4	22	6.6	8.11	29	22	6.8	8.12	30	22	6.6	8.12	29	22	6.6	8.12	28	22	6.8	8.13	28
5	22	6.8	8.18	30	22	6.7	8.18	30	22	6.8	8.18	30	22	6.9	8.17	30	22	6.8	8.17	30
6	22	7.1	8.18	29	22	7.1	8.18	29	22	7.1	8.17	29	22	7.1	8.16	28	22	7.1	8.16	28
7	22	6.8	8.15	27	22	7.0	8.14	28	22	7.0	8.13	28	22	6.9	8.12	28	22	6.9	8.09	28
8	21	7.4	7.99	29	21	7.4	8.19	29	21	7.4	8.18	29	21	7.5	8.09	29	21	7.5	8.09	29
9	21	6.1	8.34	28	21	6.3	8.42	28	21	6.2	8.41	29	21	6.3	8.26	29	21	6.1	8.21	29
10	21	5.9	8.33	28	21	6.1	8.29	28	21	6.3	8.31	29	21	6.3	8.31	29	21	6.3	8.16	28

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7314	SAMPLE ID: Control	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.6	7.93	30	22	6.8	7.94	30	22	6.9	7.96	30	[illegible]
1	22	6.4	7.77	32	22	6.7	7.92	32	22	6.8	7.86	32	[illegible]
2	22	7.2	7.92	29	22	7.2	7.94	30	22	7.1	7.98	30	—
3	22	7.5	7.98	29	22	7.5	7.98	28	22	7.6	7.97	29	—
4	22	7.0	7.87	31	22	6.8	7.89	31	22	6.8	7.90	30	[illegible]
5	22	7.0	8.07	30	22	6.9	8.00	30	22	6.8	7.99	30	KRB
6	22	7.1	7.98	30	22	7.1	7.97	30	22	7.1	7.96	30	—
7	22	7.1 / 5.9	7.87	30	22	7.1 / 6.0	7.86	30	22	7.1 / 5.9	7.86	30	—
8	~~22~~ 21	7.2	7.90	27	21	7.2	6.92	29	21	7.2	6.87	28	CW
9	21	5.9	8.03	30	21	5.9	8.14	30	21	6.1	8.06	29	[illegible]
10	21	6.3	8.10	30	21	6.4	8.19	30	21	6.4	8.17	30	CE
# ALIVE	18				20				~~18~~ 18				~~AH~~

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.9	7.95	30	22	6.9	7.95	30	[illegible]				
1	22	6.8	7.86	32	22	6.8	7.77	32					
2	22	7.0	7.98	30	22	6.9	7.95	30					
3	22	7.5	7.94	28	22	7.6	7.95	29					
4	22	6.8	7.83	31	22	6.7	7.88	31					
5	22	6.7	8.03	30	22	6.8	8.09	30	KRB				
6	22	7.1	7.95	30	22	7.1	7.96	30					
7	22	7.1 / 6.0	7.86	30	22	7.1 / 5.9	7.91	30					
8	21	7.2	7.08	29	21	7.1	7.96	31					
9	21	6.1	8.07	28	21	6.3	8.07	29					
10	21	6.4	8.17	30	21	6.3	8.14	30	CE				
# ALIVE	16				10								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-1	SAMPLE ID: C-1-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.8	8.01	29	22	6.8	8.01	29	22	6.8	7.99	29	[illegible]
1	22	6.6	7.99	31	22	6.4	8.01	31	22	6.4	8.01	31	[illegible]
2	22	6.8	8.00	30	22	7.0	8.10	29	22	6.9	8.10	29	—
3	22	7.4	8.12	29	22	7.4	8.12	27	22	7.4	8.12	29	—
4	22	6.8	8.12	31	22	6.9	8.16	31	22	6.6	8.15	30	[illegible]
5	22	6.8	8.37	30	22	6.8	8.37	30	22	6.7	8.30	30	XRB
6	22	6.9	8.31	30	22	7.1	8.32	30	22	7.1	8.31	30	—
7	22	7.0 / 5.9	8.18	30	22	7.1 / 5.7	8.29	30	22	7.1 / 5.9	8.28	30	—
8	21	7.1	8.06	28	21	7.0	8.32	28	21	7.3	8.30	27	[illegible]
9	21	6.3	8.41	28	21	6.2	8.42	30	21	6.3	8.42	29	[illegible]
10	21	6.3	8.48	29	21	6.1	8.46	29	21	6.0	8.48	29	[illegible]
# ALIVE	13				13				9				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.7	8.00	29	22	6.7	8.02	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	22	6.4	8.11	31	22	6.3	8.01	31					
2	22	6.9	8.10	28	22	6.9	8.09	28					
3	22	7.3	8.11	27	22	7.4	8.10	29					
4	22	6.8	8.14	31	22	6.7	8.15	30					
5	22	6.7	8.35	30	22	6.7	8.35	30	XRB				
6	22	6.5	8.18	30	22	6.9	8.28	30					
7	22	6.9 / 5.8	8.25	29	22	6.9 / 5.8	8.25	30					
8	21	7.2	8.32	30	21	7.1	8.34	30					
9	21	6.1	8.44	29	21	6.3	8.42	30					
10	21	6.2	8.47	29	21	6.1	8.47	30	[illegible]				
# ALIVE	5				9								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-2	SAMPLE ID: C-2-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.7	8.02	28	22	6.8	8.04	28	22	6.8	7.98	28	[illegible]
1	22	1.6	8.00	31	22	1.6	8.01	31	22	1.4	7.98	31	[illegible]
2	22	6.4	8.09	29	22	6.8	8.09	28	22	7.0	8.09	28	—
3	22	7.3	8.17	29	22	7.3	8.11	29	22	7.3	8.12	28	—
4	22	.9	8.14	29	22	1.8	8.13	30	22	6.7	8.14	30	[illegible]
5	22	6.6	8.35	30	22	5.6	8.08	30	22	6.5	8.30	30	XTB
6	22	6.9	8.29	30	22	7.0	8.28	29	22	7.0	8.27	29	—
7	22	7.0	8.27	29	22	7.0	8.24	29	22	7.0	8.23	29	—
8	21	7.2	8.07	28	21	7.2	8.22	28	21	7.2	8.23	29	
9	21	5.9	8.31	29	21	6.0	8.33	30	21	6.1	8.32	29	[illegible]
10	21	6.0	8.39	30	21	6.1	8.39	30	21	6.1	8.35	30	CC
# ALIVE	14				12				15				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.7	7.99	28	22	6.7	8.03	28	8				
1	22	1.5	7.99	31	22	1.5	7.97	31					
2	22	7.1	8.10	28	22	7.1	8.11	28					
3	22	7.3	8.14	28	22	7.2	8.14	28					
4	22	6.8	8.13	29	22	6.9	8.14	29					
5	22	6.6	8.32	30	22	6.6	8.24	30	XTB				
6	22	7.0	8.27	29	22	7.0	8.26	29					
7	22	7.0	8.26	29	22	7.0	8.26	30					
8	21	7.2	8.30	27	21	7.3	8.21	27					
9	21	6.0	8.33	29	21	6.1	8.34	28					
10	21	6.1	8.36	29	21	6.3	8.34	29	CC				
# ALIVE	9				5								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-3	SAMPLE ID: C-3-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.7	8.00	28	22	6.8	8.01	28	22	6.8	7.97	28	[illegible]
1	22	1.5	7.95	31	22	6.6	7.96	31	22	6.6	7.97	31	
2	22	7.0	8.10	29	22	7.1	8.03	29	22	7.1	7.97	28	—
3	22	7.2	8.09	28	22	7.2	8.02	28	22	7.3	8.01	28	~
4	22	6.7	8.07	29	22	6.6	8.05	29	22	6.4	8.15	29	[illegible]
5	22	6.7	8.07	30	22	6.7	7.92	30	22	6.7	7.98	30	[illegible]
6	22	6.9	8.10	29	22	6.9	7.87	29	22	6.9	7.87	29	~
7	22	6.8	7.94	29	22	6.9	7.80	28	22	6.9	7.79	28	—
8	21	7.2	7.16	29	21	7.4	7.68	28	21	7.1	7.71	29	[illegible]
9	21	5.9	8.15	29	21	5.9	8.01	29	21	5.7	7.91	30	[illegible]
10	21	5.8	8.16	29	21	6.1	8.03	29	21	5.5	8.01	30	[illegible]
# ALIVE	1				3				2				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.8	7.98	28	22	6.9	7.66	28	[illegible]	///	///	///	///
1	22	6.7	7.95	31	22	6.4	7.95	31					
2	22	7.1	7.97	29	22	7.0	7.99	29					
3	22	7.3	7.99	28	22	7.1	7.99	28					
4	22	6.5	8.19	29	22	6.6	8.16	30					
5	22	6.7	8.02	30	22	6.8	8.01	30	[illegible]				
6	22	7.0	7.93	29	22	7.1	7.93	30					
7	22	7.0	7.79	28	22	7.0	7.82	28					
8	21	7.2	7.84	29	21	7.1	7.85	29					
9	21	6.0	7.90	30	21	5.8	7.95	30					
10	21	5.6	8.01	30	21	5.9	8.03	29	[illegible]				
# ALIVE	Ø				Ø								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-4	SAMPLE ID: D-1-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.1	7.66	30	22	6.1	7.90	30	22	6.6	7.92	30	[illegible]
1	22	5.9	7.92	33	22	6.0	7.90	33	22	6.2	7.95	33	[illegible]
2	22	6.9	7.98	29	22	7.0	7.97	28	22	7.0	7.94	30	—
3	22	7.1	7.97	29	22	7.2	7.87	29	22	7.3	7.86	29	~
4	22	6.7	8.06	29	22	7.0	7.93	29	22	6.9	7.91	30	[illegible]
5	22	6.7	7.95	30	22	6.8	7.91	30	22	6.8	7.90	30	[illegible]
6	22	6.9	7.89	29	22	7.0	7.80	28	22	7.1	7.79	29	—
7	22	7.0	7.70	29	22	7.0	7.70	28	22	7.1	7.71	29	—
8	21	7.3	7.59	29	21	7.3	7.71	29	21	7.3	7.70	29	CW
9	21	6.2	7.88	28	21	6.3	7.86	29	21	6.4	7.82	29	[illegible]
10	21	6.0	7.81	29	21	6.0	7.89	29	21	6.3	7.88	29	CL
# ALIVE	17				19				17				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.8	7.86	30	22	6.5	7.83	30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	22	6.6	7.94	33	22	6.5	7.91	33					
2	22	7.0	7.93	30	22	7.0	7.88	29					
3	22	7.1	7.87	28	22	7.2	7.83	29					
4	22	6.6	7.96	29	22	6.8	7.97	29					
5	22	6.8	7.81	30	22	6.8	7.80	30	[illegible]				
6	22	7.1	7.80	29	22	7.1	7.77	28					
7	22	7.0	7.70	29	22	7.0	7.59	29					
8	21	7.3	7.61	30	21	7.3	7.74	31					
9	21	6.2	7.79	29	21	6.2	7.82	30					
10	21	6.3	7.84	29	21	6.2	7.89	30	CL				
# ALIVE	9				12								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-5	SAMPLE ID: D-2-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.6	8.00	28	22	6.6	8.03	28	22	6.6	7.78	28	[illegible]
1	22	6.4	7.91	30	22	6.4	7.97	30	22	6.5	8.00	30	[illegible]
2	22	6.8	8.12	30	22	7.0	8.12	29	22	7.1	8.13	30	—
3	22	7.4	8.06	28	22	7.4	8.12	28	22	7.3	8.14	28	—
4	22	6.9	7.91	30	22	6.8	7.90	29	22	6.8	7.88	30	[illegible]
5	22	6.8	8.31	30	22	6.8	8.26	30	22	6.8	8.25	30	[illegible]
6	22	6.9	8.18	28	22	7.0	8.23	28	22	7.1	8.23	29	—
7	22	6.9	8.20	28	22	7.0	8.21	28	22	7.0	8.19	29	—
8	21	7.4	8.13	28	21	7.3	8.17	30	21	7.2	8.15	30	[illegible]
9	21	6.8	8.23	30	21	6.5	8.26	30	21	6.6	8.25	29	[illegible]
10	21	6.1	8.29	30	21	6.8	8.28	30	21	6.3	8.26	30	[illegible]
# ALIVE	15				16				14				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.5	8.03	28	22	6.6	8.02	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	22	6.2	8.01	30	22	6.1	8.00	30					
2	22	7.0	8.11	29	22	7.0	8.09	29					
3	22	7.3	8.12	28	22	7.1	8.09	28					
4	22	6.9	7.80	30	22	6.9	7.81	30					
5	22	6.8	8.20	30	22	6.3	7.96	30	[illegible]				
6	22	7.1	8.19	28	22	7.1	8.09	30					
7	22	7.0	8.19	28	22	6.9	8.05	30					
8	21	7.1	8.13	30	21	7.1	8.08	32					
9	21	6.5	8.17	29	21	6.4	8.16	30					
10	21	6.4	8.23	29	21	6.2	8.18	30	[illegible]				
# ALIVE	5				5								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814 - 6	SAMPLE ID: D3-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.7	8.03	29	22	6.7	8.06	29	22	6.8	8.02	29	[illegible]
1	22	1.5	7.77	30	22	1.5	7.79	30	22	6.4	7.79	30	UL
2	22	6.6	8.08	30	22	6.8	8.05	29	22	6.9	8.03	30	—
3	22	7.3	8.05	28	22	7.4	8.08	28	22	7.4	8.07	28	—
4	22	7.0	8.15	29	22	7.0	8.17	29	22	6.9	8.15	29	UL
5	22	6.6	8.08	30	22	6.7	8.11	30	22	6.8	8.17	30	XEB
6	22	7.0	8.09	29	22	7.0	8.09	30	22	7.1	8.14	29	—
7	22	6.8	8.08	30	22	6.9	8.03	29	22	6.9	8.08	30	—
8	21	7.4	8.07	30	21	7.3	7.93	30	21	7.2	8.12	30	CW
9	21	6.0	8.23	29	21	5.9	8.06	30	21	6.0	8.24	29	UL
10	21	6.2	8.22	29	21	6.1	8.11	30	21	6.0	8.26	29	CL
# ALIVE	10				12				10				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.8	7.96	29	22	6.7	8.00	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	22	6.3	8.01	30	22	6.2	7.16	30					
2	22	6.9	8.06	29	22	6.9	8.05	30					
3	22	7.4	8.07	28	22	7.5	8.01	29					
4	22	6.9	8.14	28	22	6.8	8.06	29					
5	22	6.8	8.01	30	22	6.7	8.05	30	XEB				
6	22	7.0	8.01	29	22	7.0	7.98	30					
7	22	6.9	7.93	30	22	6.9	7.87	29					
8	21	7.2	7.97	30	21	7.3	7.96	31					
9	21	5.8	8.16	30	21	5.1	8.10	29					
10	21	6.0	8.15	30	21	5.9	8.13	29	CL				
# ALIVE	7				7								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814 -7	SAMPLE ID: D4-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.6	8.04	29	22	6.6	8.01	29	22	6.6	7.98	29	[illegible]
1	22	6.1	8.05	30	22	6.5	8.07	30	22	5.9	8.07	30	[illegible]
2	22	6.5	8.25	30	22	6.7	8.25	29	22	6.8	8.24	29	—
3	22	7.3	8.30	28	22	7.3	8.31	28	22	7.4	8.31	28	—
4	22	6.9	8.33	30	22	6.4	8.34	31	22	6.6	8.34	30	[illegible]
5	22	6.7	8.44	30	22	6.7	8.43	30	22	6.6	8.40	30	XRB
6	22	6.8	8.42	30	22	6.8	8.41	29	22	6.9	8.40	30	—
7	22	6.7	8.36	29	22	6.8	8.37	28	22	6.8	8.35	29	—
8	21	7.3	8.33	30	21	7.3	8.35	30	21	7.3	8.34	30	[illegible]
9	21	6.0	8.42	29	21	6.2	8.48	29	21	6.1	8.48	30	[illegible]
10	21	5.6	8.44	29	21	5.8	8.50	29	21	6.0	8.47	29	[illegible]
# ALIVE	14				16				12				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.6	7.97	29	22	6.5	7.97	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	22	6.3	8.05	31	22	6.1	8.08	30					
2	22	6.8	8.23	29	22	6.9	8.23	30					
3	22	7.5	8.31	27	22	7.4	8.31	29					
4	22	6.8	8.35	30	22	6.8	8.37	30					
5	22	6.6	8.43	30	22	6.6	8.48	30	XRB				
6	22	7.0	8.40	28	22	7.0	8.43	30					
7	22	6.8	8.40	28	22	6.8	8.41	30					
8	21	7.3	8.48	30	21	7.2	8.45	31					
9	21	6.2	8.53	30	21	6.0	8.54	30					
10	21	6.0	8.54	30	21	6.1	8.54	30	[illegible]				
# ALIVE	11				4								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-8	SAMPLE ID: D-5-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	22	6.5	7.85	29	22	6.5	7.96	29	22	6.6	7.87	29	JC
1	22	6.2	8.22	30	22	6.1	7.98	31	22	6.4	7.99	30	[illegible]
2	22	6.6	8.17	29	22	6.7	8.16	29	22	6.8	8.09	27	—
3	22	7.3	8.18	28	22	7.4	8.17	29	22	7.4	8.18	28	—
4	22	6.8	8.31	29	22	6.8	8.27	29	22	6.8	8.25	29	[illegible]
5	22	6.5	8.36	30	22	6.5	8.29	30	22	6.6	8.31	30	XRB
6	22	6.7	8.31	29	22	6.9	8.23	30	22	7.0	8.24	29	—
7	22	6.8	8.22	29	22	6.8	8.15	29	22	6.9	8.15	29	—
8	21	7.4	8.09	29	21	7.3	8.11	31	21	7.4	8.12	30	[illegible]
9	21	6.0	8.29	28	21	6.0	8.25	29	21	5.8	8.24	29	[illegible]
10	21	5.8	8.30	28	21	5.9	8.27	28	21	6.0	8.26	28	CA
# ALIVE	12				17				10				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.6	7.88	29	22	6.5	7.97	29	X	///	///	///	///
1	22	6.3	8.11	30	22	6.3	7.98	30					
2	22	6.8	8.09	30	22	6.8	8.08	30					
3	22	7.3	8.15	28	22	7.3	8.09	29					
4	22	6.6	8.21	28	22	6.4	8.15	29					
5	22	6.6	8.29	30	22	6.6	8.36	30	XRB				
6	22	7.0	8.25	29	22	6.9	8.23	30					
7	22	6.8	8.17	28	22	6.8	8.15	30					
8	21	7.3	8.11	33	21	7.2	8.14	31					
9	21	6.0	8.21	30	21	6.2	8.20	31					
10	21	6.0	8.22	29	21	6.1	8.21	29	CA				
# ALIVE	12				12								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-9	SAMPLE ID: D-6-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	21	6.6	8.04	29	21	6.5	8.01	29	21	6.8	8.02	29	x
1	22	6.1	7.93	31	22	6.1	8.10	31	22	6.4	7.95	31	UL
2	22	6.4	8.07	30	22	6.6	8.08	30	22	6.9	8.11	30	—
3	22	7.3	8.04	28	22	7.4	8.11	28	22	7.4	8.12	29	—
4	22	6.4	8.08	30	22	6.5	8.12	29	22	6.4	8.15	29	UL
5	22	6.1	8.13	30	22	6.5	8.18	30	22	6.6	8.20	30	XFB
6	22	6.5	8.10	29	22	6.8	8.10	30	22	6.9	8.19	30	—
7	22	6.6	7.99	27	22	6.7	7.99	28	22	6.9	8.15	28	—
8	21	7.3	8.06	29	21	7.4	8.00	31	21	7.2	8.25	30	CW
9	21	6.3	8.15	30	21	6.5	8.11	31	21	6.2	8.16	30	UL
10	21	5.7	8.20	30	21	5.9	8.26	30	21	6.0	8.47	30	CW
# ALIVE	Ø				3				Ø				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	22	6.8	8.00	29	21	6.8	7.96	29	x				
1	22	6.3	8.02	31	22	6.2	8.03	31					
2	22	6.9	8.11	30	22	7.1	8.13	30					
3	22	7.4	8.13	28	22	7.4	8.08	30					
4	22	6.6	8.17	29	22	6.8	8.15	29					
5	22	6.6	8.21	30	22	6.6	8.25	30	XFB				
6	22	6.9	8.19	30	22	7.0	8.18	30					
7	22	6.8	8.16	28	22	6.8	8.13	30					
8	21	7.4	8.30	31	21	7.3	8.27	31					
9	21	6.3	8.57	31	21	6.4	8.56	30					
10	21	6.0	8.60	30	21	6.8	8.63	30	CW				
# ALIVE	Ø				Ø								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814-10	SAMPLE ID: D6-SED-FD	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	21	6.7	8.04	28	21	6.7	8.00	28	21	6.8	8.03	28	[illegible]
1	22	6.4	7.98	29	22	6.2	7.98	29	22	6.4	8.02	29	[illegible]
2	22	6.5	7.97	29	22	6.7	7.98	29	22	7.0	8.02	30	—
3	22	7.2	8.06	26	22	7.4	8.04	28	22	7.4	8.03	28	~
4	22	7.0	7.94	30	22	7.2	7.99	29	22	6.8	7.98	30	[illegible]
5	22	6.4	7.89	30	22	6.8	8.00	30	22	6.9	8.02	30	XFB
6	22	6.8	7.93	28	22	6.8	8.00	28	22	6.9	8.00	29	—
7	22	6.7	7.96	28	22	6.8	7.86	28	22	6.9	7.86	29	—
8	21	7.1	7.73	30	21	7.3	7.90	28	21	7.3	7.92	30	
9	21	5.8	8.13	29	21	6.0	8.15	29	21	6.1	8.06	30	[illegible]
10	21	6.1	8.11	29	21	5.8	8.04	29	21	6.0	8.06	30	CA
# ALIVE	0				0				0				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	21	6.8	7.99	28	22	6.8	7.96	28	[illegible]	//	//	//	//
1	22	6.4	8.04	29	22	6.4	8.04	29					
2	22	6.9	8.05	30	22	7.1	8.05	30					
3	22	7.4	8.03	28	22	7.5	8.02	29					
4	22	6.8	7.99	30	22	6.5	7.92	29					
5	22	6.8	8.02	30	22	6.9	8.01	30	XFB	//	//	//	//
6	22	7.0	8.00	28	22	7.0	7.95	29					
7	22	7.0	7.92	30	22	6.9	7.92	30					
8	21	7.4	7.92	30	21	7.4	7.88	31					
9	21	6.0	8.15	29	21	6.2	8.04	30					
10	21	6.1	8.05	29	21	6.2	8.06	29	CA				
# ALIVE	0				0								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814 - 11	SAMPLE ID: E-1-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	21	6.7	7.42	27	21	6.8	7.09	27	21	6.8	7.29	27	[illegible]
1	22	6.3	7.87	29	22	6.4	7.65	29	22	6.4	7.62	29	[illegible]
2	22	7.0	8.02	30	22	7.1	7.53	26	22	7.2	7.51	27	—
3	22	7.3	7.96	26	22	7.4	7.46	26	22	7.5	7.44	26	—
4	22	6.4	7.74	26	22	6.2	7.57	27	22	6.3	7.49	26	[illegible]
5	22	6.5	7.42	30	22	6.8	7.25	30	22	6.9	7.37	30	XFB
6	22	6.2	7.23	27	22	6.7	7.23	27	22	6.9	7.33	27	—
7	22	6.7	7.53	27	22	6.8	7.47	26	22	6.9	7.36	27	—
8	21	7.0	6.29	26	21	7.2	6.54	27	21	7.4	6.85	27	
9	21	6.0	7.68	27	21	6.0	7.49	27	21	6.0	7.43	27	[illegible]
10	21	5.7	7.42	28	21	6.1	7.33	28	21	6.2	7.21	27	[illegible]
# ALIVE	11				14				15				

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	21	6.7	7.26	27	21	6.8	7.51	27	[illegible]	//	//	//	//
1	22	6.5	7.58	29	22	6.6	7.58	29					
2	22	7.1	7.52	27	22	7.1	7.54	28					
3	22	7.5	7.46	26	22	7.5	7.44	26					
4	22	6.4	7.48	26	22	6.5	7.44	26					
5	22	6.8	7.6.93	30	22	6.8	7.40	30	XFB	//	//	//	//
6	22	6.7	7.34	27	22	6.8	7.32	27					
7	22	6.7	7.34	27	22	6.9	7.32	27					
8	21	7.3	6.76	28	21	7.3	6.88	28					
9	21	6.3	7.38	27	21	6.2	7.36	28					
10	21	5.9	7.17	27	21	5.9	7.23	28	[illegible]				
# ALIVE	9				14								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

~~** See Ms. Doc. 1/28~~

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814 -12	SAMPLE ID: E-2-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	21	2.3	6.52	28	21	3.1	6.52	28	21	3.4	6.50	28	[illegible]
1	22	7.0	7.58	30	22	7.3	7.54	30	22	7.6	7.54	30	
2	22	6.7	7.56	27	22	7.0	7.54	26	22	7.1	7.49	26	—
3	22	7.4	7.44	26	22	7.5	7.31	26	22	7.5	7.29	26	—
4	22	6.8	7.40	26	22	6.7	7.37	25	22	6.8	7.32	26	[illegible]
5	22	6.9	7.07	30	22	6.9	6.95	30	22	6.9	6.96	30	KFB
6	22	6.7	7.39	27	22	6.9	7.42	27	22	7.0	7.43	27	—
7	22	6.9	7.35	27	22	6.9	7.34	27	22	6.9	7.31	27	—
8	21	7.6	6.88	27	21	7.3	6.93	27	21	7.4	6.93	27	[illegible]
9	21	6.4	7.41	27	21	6.6	7.41	28	21	6.3	7.40	27	[illegible]
10	21	6.4	7.33	27	21	6.3	7.36	27	21	6.4	7.37	28	[illegible]
# ALIVE	12				16				11				LH

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	21	3.7	6.51	28	21	3.6	6.50	28	[illegible]	/ /	/ /	/ /	/ /
1	22	7.5	7.65	30	22	7.2	7.56	30					
2	22	7.0	7.45	26	22	7.0	7.43	26					
3	22	7.5	7.27	26	22	7.5	7.24	26					
4	22	6.6	7.32	25	22	6.5	7.28	25					
5	22	6.9	7.01	30	22	6.9	7.07	30	KFB				
6	22	6.8	7.44	26	22	6.9	7.43	26					
7	22	6.9	7.29	26	22	6.8	7.22	27					
8	21	7.5	6.69	27	21	7.4	6.63	28					
9	21	6.4	7.41	27	21	6.2	7.39	27					
10	21	6.4	7.41	28	21	6.4	7.40	28	[illegible]				
# ALIVE	11				8								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

~~** see min. cor. 4/28~~

Ampelisca abdita CHRONIC EXPOSURE SEDIMENT ASSAY

STUDY # 7814 -13	SAMPLE ID: E-3-SED-SMP	DILUENT: Hampton Estuary	START DATE:

DAY	REP A				REP B				REP C				INITIALS
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	
0	21	6.4	7.47	27	21	6.5	7.53	27	21	6.7	7.40	27	[illegible]
1	22	6.4	7.55	29	22	6.3	7.57	29	22	6.5	7.57	29	[illegible]
2	22	6.9	7.44	27	22	7.1	7.47	27	22	7.1	7.50	28	—
3	22	7.6	7.21	26	22	7.5	7.46	26	22	7.5	7.47	26	—
4	22	6.6	7.28	25	22	6.4	7.30	26	22	6.5	7.31	26	[illegible]
5	22	6.9	7.26	30	22	6.9	7.25	30	22	6.9	7.29	30	XFB
6	22	7.0	7.56	28	22	7.0	7.56	28	22	7.1	7.57	27	—
7	22	6.7	7.27	30	22	6.9	7.46	28	22	7.0	7.46	27	—
8	21	7.5	7.25	28	21	7.4	7.23	29	21	7.4	7.19	28	[illegible]
9	21	5.8	7.35	29	21	5.9	7.34	28	21	5.7	7.35	29	[illegible]
10	21	5.9	7.33	29	21	6.1	7.31	29	21	6.1	7.38	29	[illegible]
# ALIVE	16				19				11				[illegible]

DAY	REP D				REP E				AMMONIA*				
	TEMP	D.O.	pH	SAL.	TEMP	D.O.	pH	SAL.	A	B	C	D	E
0	21	6.8	7.41	27	21	6.7	7.37	27	[illegible]				
1	22	7.0	7.56	29	22	6.8	7.51	29					
2	22	7.1	7.57	28	22	7.1	7.50	28					
3	22	7.3	7.47	26	22	7.4	7.45	26					
4	22	6.5	7.24	26	22	6.5	7.22	25					
5	22	6.9	6.96	30	22	6.7	6.99	30	XFB				
6	22	6.9	7.56	27	22	6.9	7.48	28					
7	22	6.9	7.27	26	22	6.8	7.26	27					
8	21	7.4	6.94	28	21	7.3	7.15	30					
9	21	5.8	7.35	28	21	5.9	7.28	29					
10	21	6.1	7.37	28	21	6.0	7.29	29	[illegible]				
# ALIVE	14				8								

* - Ammonia values on Day 0 were measured on the porewater. Ammonia on Days 5 and 10 were measured on the overlying water.

~~** see mis. Doc. 4/28~~

Appendices B-1, C,
C-1, C-2, C-3, and C-4
(pages 45-100)
are available
in a separate file (size: 4.3 MB)

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Appendices D and E-1
(pages 101-157)
are available
in a separate file (size: 4.3 MB)

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Appendix E-1 Tables and Figures,
and Appendix E-2
(pages 158-220)
are available
in a separate file (size: 5.0 MB)

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