BASELINE ECOLOGICAL RISK ASSESSMENT
DAY 60 DELIVERABLE

FOR THE
GULFCO MARINE MAINTENANCE
SUPERFUND SITE
FREEPORT, TEXAS

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1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) named the former site of Gulfco Marine Maintenance, Inc. in Freeport, Brazoria County, Texas (the Site) to the National Priorities List (NPL) in May 2003. The EPA issued a modified Unilateral Administrative Order (UAO), effective July 29, 2005, which was subsequently amended effective January 31, 2008. The UAO required Respondents to conduct a Remedial Investigation and Feasibility Study (RI/FS) for the Site. Pursuant to Paragraph 37(d)(x) of the Statement of Work (SOW) for the RI/FS, included as an Attachment to the UAO, a May 3, 2010 Final Screening Level Ecological Risk Assessment (SLERA) was prepared for the Site. The Scientific/Management Decision Point (SMDP) provided in the Final SLERA concluded that the information presented therein indicated a potential for adverse ecological effects, and a more thorough assessment was warranted. The Final Baseline Ecological Risk Assessment (BERA) Work Plan & Sampling and Analysis Plan (WP &SAP) was submitted to the EPA on June 22, 2010 and approved by the EPA on August 4, 2010. Following acceptance of the BERA WP & SAP, a sixty (60) calendar day schedule for sample collection, laboratory analysis, and data validation was required. This report is the BERA 60 day deliverable, which contains the following summaries:

- Field Activities;
- Toxicity Testing;
- Chemical Analysis; and
- Data Validation.

A complete set of all data obtained during the BERA will be provided in the Preliminary Site Characterization Report (PSCR), a draft of which will be submitted to EPA within 30 days (i.e., by November 3, 2010). A detailed discussion and evaluation of these data will be provided in the BERA report, which will be submitted to EPA within 60 days of EPA approval of the Final PSCR.

2.0 SUMMARY OF FIELD ACTIVITIES

Field activities began on August 18, 2010 and were completed on August 31, 2010. The pore water sample EWSED04, which was collected on August 27, 2010, was not analyzed for polycyclic aromatic hydrocarbons (PAHs) due to a laboratory error. Field activities were therefore re-initiated on September 9, 2010 to collect that pore water sample. While the sampling team was present on site, they evaluated whether sufficient pore water was currently present at EWSED03, EWSED05, and EWSED09 (as well as sufficient surface water from EWSW02 and EWSW03), which had previously been dry. All of these samples, except for EWSED05PW and EWSW02, were collected in September 2010.

Tables 2-1 through 2-7 summarize sample collection and shipment by location and environmental media. Tables 2-8 and 2-9 present the field sampling parameters for sediment and soil, respectively. Appendix A contains the field sampling notes and field data sheets.

3.0 SUMMARY OF TOXICITY TESTING

Toxicity testing of sediment was conducted using the 28-day *Neanthes arenaceodentata* and *Leptocheirus plumulosus* tests for the Intracoastal Waterway sediments and the wetland sediments as described in the BERA WP & SAP. The full laboratory report for these tests is provided in Appendix B-1. Survival and growth (dry-biomass and dry-weight) of amphipods and polychaetes exposed to the control sediment exceeded the test acceptability criteria, indicating that the organisms were suitable for the intended use. While statistical differences were observed in survival and growth metrics for comparisons between Site and laboratory control sediments, there were no differences observed when the Site samples were compared to the reference/background locations (EIWSED06, EIWSED07, EWSED08, and EWSED09).

Conducting the 28-day earthworm (*Eisenia fetida*) chronic bioassays for North Area soils was problematic given significantly elevated salinity levels in the six (6) site and three (3) reference/background sample locations. When the earthworms were introduced to the soil/sediments, there was an immediate avoidance reaction followed by acute mortality in all of the site and reference/background samples. The elevated salinity levels are believed due to frequent inundation with estuarine water during high water related to storm events. Also, much of the soil/sediment was originally dredge spoils used as fill material.

As an alternative to the earthworm bioassays, the nine (9) soil samples from this transitional area were treated as sediment by adding synthetic seawater, and exposing the previously identified polychaete *Neanthes arenaceodentata* over a 21-day test duration (growth and survival endpoints). This alternative procedure was proposed to and approved by EPA on September 3, 2010. According to the National Oceanic and Atmospheric Administration (NOAA; 2003), survival and growth endpoints "are about equal sensitivity" for *Neanthes arenaceodentata* (page 8-8). For the synthetic seawater, PBS&J (the toxicity testing laboratory) used hw-Marinemix®. Polychaetes are more taxonomically similar to earthworms than amphipods such as *Leptocheirus plumulosus*

and are members of the "sediment-ingesting invertebrate" feeding guild that the earthworm was chosen to represent. The 21-day test duration is conservative given the ephemeral nature of the inundation events at the Site. PBS&J began the process of preparing the soil samples for *Neanthes* testing on September 3, 2010. The test organisms were ordered from the supplier and were delivered to PBS&J on September 9, 2010. The test concluded on October 1, 2010, and therefore only a preliminary statistical summary of the testing is reported in this BERA Day 60 deliverable (Appendix B-2). Table 4-1 includes a summary of the test results. No statistical differences were observed in survival for comparisons between Site and laboratory control sediments. Statistical differences in growth were observed between two Site locations (NAS01 and NAS04) and laboratory control sediments. For the survival endpoint, there were no differences observed when the Site samples were compared to one or more of the reference/background locations (NAS07, NAS08, and NAS09). For the growth endpoint, statistically significant differences were observed for NAS-03 and NAS-04 relative to all three reference/background locations.

Similar to the North Area soils, elevated salinity levels were also a concern for surface water samples EWSW01 and EWSW04 (40‰ and 38‰, respectively), which would likely result in significant stress to the test organisms proposed in the BERA WP & SAP (mysid shrimp [*Mysidopsis bahia*]). The elevated salinity levels are indicative of a salt panne, a shallow depression that retains seawater for very short periods of time such that salt accumulates to high levels over multiple tidal cycles. Therefore, the bioassays for the surface water were conducted on the brine shrimp (*Artemia nauplii*), which are better suited for high salinities. There are no standard methods for testing chronic exposures to brine shrimp. Therefore, PBS&J developed a standard operating procedure (SOP) for conducting 96-hour acute tests (survival endpoint) by referencing standard procedures for determining toxicity from produced (oilfield) waters. This shortened test protocol (from 7 days to 96 hours) more closely matches the ephemeral nature of the Site ponds. Use of the alternative species and test protocol was proposed to and approved by EPA on September 3, 2010. The test concluded on October 3, 2010, and therefore only a

preliminary statistical summary of the testing is reported in this BERA Day 60 deliverable (Appendix B-3). Table 4-4 includes a summary of the test results.

The surface water toxicity tests were conducted three times. Per PBS&J, the initial run was potentially affected by a laboratory technician using the wrong food for the test organisms. The second test was deemed invalid due to control failure at 48 hours. The third test was completed with control failure at 96 hours. Results for the samples EWSW01 and EWSW04 were determined to be non-toxic with 96-hour survivals of 80% and 96%, respectively. Results for the sample EWSW03 was found to be non-toxic at 96 hours in the initial test (94% survival). Toxicity was noted for EWSW03 in the third test. The non-standard testing of brine shrimp may have confounded the interpretation of the test results.

4.0 SUMMARY OF CHEMICAL ANALYSIS

Tables 4-1 through 4-4 summarize the chemical data as well as the corresponding toxicity data for each sample. Tables 4-1 through 4-3 also present the original concentration gradient from the BERA WP & SAP and the revised gradient from the 2010 BERA sampling event. Tables 4-5 and 4-6 provide a summary of the sediment grain size analysis and acid volatile sulfides/ simultaneously extracted metals (AVS/SEM) results, respectively.

5.0 SUMMARY OF DATA VALIDATION

Appendix C contains the following items:

- Data usability summary;
- Data summary tables; and
- Data review checklist.

6.0 REFERENCES

MacDonald, D.A., M.B. Matta, L.J. Field, C. Cairncross and M.D. Munn. 2003. The Coastal Resource Coordinator's Bioassessment Manual. Report No. HAZMAT 93-1 (revised). Seattle , WA . National Oceanic and Atmospheric Administration. 160 pp + appendices.

Tables

Table 2-1
Sampling Summary for Wetland Sediment

Sample Type	Sample ID	Metals 6010/6020	TOC	Organochlorine Pesticides 8081	PAH 8270	Grain Size	Amphipod/Polychaete (3 gallon bucket)	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Date Shipped to PBS&J	Date Arrrived at PBS&J	Comments
		8 oz jar[1]		8 oz jar[2]		8 oz jar								
Wetlands Sediment	EWSED01	x	x	x	x	x	x	8/12/2010	1325	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED02	x	x	x	x	x	x	8/12/2010	1416	8/13/2010	8/14/2010	8/13/2010	8/13/2010	MS/MSD
	EWSED02FD	x	x	x	x			8/12/2010	1416	8/13/2010	8/14/2010	8/13/2010	NA	Field Duplicate
	EWSED02EB	x		x	x			8/12/2010	1400	8/13/2010	8/14/2010	8/13/2010	NA	Equipment Blank[3]
	EWSED03	x	x	x	x	x	x	8/13/2010	1023	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED04	x	x		x	x	x	8/13/2010	1051	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED05	x	x	x	x	x	x	8/12/2010	1124	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED06	x	x	x	x	x	x	8/12/2010	1217	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED07	x	x		x	x	x	8/13/2010	1125	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED08	x	x	x	x	x	x	8/13/2010	952	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	EWSED09	x	x	x	x	x	x	8/13/2010	853	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
Total 8 ounce jars		13		12		9								
Total 1 x 1L Plastic		1												
Total 3 gallon buckets							9							

NA - Not Applicable

[1]A single 8 ounce jar is sufficient for Metals 6010/6020, TOC, and AVS/SEM

[2]A single 8 ounce jar is sufficient for Organochlorine Pesticides 8081 and PAH 8270

[3] Water Jars for Equipment Blanks and Field Blanks, Metals (1 Liter w HNO_3), Organochlorine Pesticides (2 x 1L amber), PAH (2 x 1 L amber)

The MS/MSD and Equipment Blank are not analyzed for TOC or Grain Size

Collected 5x8 ounce jars for the sample and MS/MSD

Table 2-2
Sampling Summary of AVS/SEM Wetland Sediment

Sample Type	Sample ID	AVS/SEM 6 inch core	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Comments
Wetlands Sediment	EWSED01	x	8/24/2010	1023	8/24/2010	8/25/2010	Field Duplicate
	EWSED02	x	8/24/2010	1005	8/24/2010	8/25/2010	
	EWSED03	x	8/24/2010	944	8/24/2010	8/25/2010	
	EWSED04	x	8/24/2010	855	8/24/2010	8/25/2010	
	EWSED05	x	8/24/2010	1054	8/24/2010	8/25/2010	MS/MSD
	EWSED06	x	8/24/2010	957	8/24/2010	8/25/2010	
	EWSED07	x	8/24/2010	930	8/24/2010	8/25/2010	
	EWSED08	x	8/24/2020	1042	8/24/2010	8/25/2010	
	EWSED09	x	8/24/2010	1032	8/24/2010	8/25/2010	
Total 8 ounce jars		8					
Total 6 Inch Cores		8					

Table 2-3
Sampling Summary of North Area Soils

Sample Type	Sample ID	Metals 6010/6020	TOC	Organochlorine Pesticides 8081	PCB 8082	Earthworm (2 gallon bucket)	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Date Shipped to PBS&J	Date Arrrived at PBS&J	Comments
		8 oz jar[1]		8 oz jar[2]									
Soil	NAS01	x	x			x	8/13/2010	1232	8/13/2010	8/14/2010	8/13/2010	8/13/2010	
	NAS01EB	x					8/13/2010	1155	8/13/2010	8/14/2010	8/13/2010	NA	Equipment Blank[3]
	NAS02	x	x	x	x	x	8/16/2010	1528	8/17/2010	8/18/2010	8/17/2010	8/17/2010	MS/MSD
	NAS02FD	x	x	x	x		8/16/2010	1528	8/17/2010	8/18/2010	8/17/2010	8/17/2010	Field Duplicate
	NAS02EB	x		x	x		8/16/2010	1515	8/17/2010	8/18/2010	8/17/2010	8/17/2010	Equipment Blank[3]
	NAS03	x	x	x		x	8/16/2010	1528	8/17/2010	8/18/2010	8/17/2010	8/17/2010	
	NAS04	x	x			x	8/16/2010	1636	8/17/2010	8/18/2010	8/17/2010	8/17/2010	
	NAS05	x	x	x		x	8/16/2010	1618	8/17/2010	8/18/2010	8/17/2010	8/17/2010	
	NAS06	x	x			x	8/16/2010	1700	8/17/2010	8/18/2010	8/17/2010	8/17/2010	
	NAS07EB	x		x	x		8/17/2010	830	8/17/2010	8/18/2010	8/17/2010	NA	Equipment Blank[3]
	NAS07	x	x	x	x	x	8/23/2010	908	8/24/2010	8/24/2010	8/17/2010	8/17/2010	
	NAS08	x	x	x	x	x	8/23/2010	917	8/24/2010	8/24/2010	8/17/2010	8/17/2010	
	NAS09	x	x	x	x	x	8/23/2010	923	8/17/2010	8/18/2010	8/17/2010	8/17/2010	
Total8 ounce jars		16		12									
Total 1x1L Plastic		2											
Total 1x1 L Amber jars				4									
Total 2 gallon buckets						9							

NA - Not Applicable

[1]A single 8 ounce jar is sufficient for Metals 6010/6020 and TOC

[2]A single 8 ounce jar is sufficient for Organochlorine Pesticides 8081 and PAH 8270

[3] Water Jars for Equipment Blanks and Field Blanks, Metals (1 Liter w HNO_3), Organochlorine Pesticides (2 x 1L amber), PCB (2 x 1 L amber)

The MS/MSD and Equipment Blank are not analyzed for TOC

Collect 6 x 8 ounce jars for the sample and MS/MSD

Table 2-4
Sampling Summary of Intracoastal Waterway Sediment

Sample Type	Sample ID	TOC	Organochlorine Pesticides 8081	PAH/ +Hexachlorobenzene	PAH 8270	Amphipod/ Polychaete (3 gallon bucket)	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Date Shipped to PBS&J	Date Arrrived at PBS&J	Comments
		8 oz jar	8 oz jar[2]										
ICWW Sediment	EIWSED01	x	x		x	x	8/18/2010	1030	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
	EIWSED02	x	x		x	x	8/18/2010	910	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
	EIWSED03	x	x		x	x	8/18/2010	815	8/19/2010	8/20/2010	8/19/2010	8/19/2010	MS/MSD
	EIWSED03FD	x	x		x		8/18/2010	815	8/19/2010	8/20/2010	8/19/2010	8/19/2010	Field Duplicate
	EIWSED03EB		x		x		8/18/2010	730	8/19/2010	8/20/2010	8/19/2010	8/19/2010	Equipment Blank[2]
	EIWSED04	x		x	x	x	8/18/2010	1156	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
	EIWSED05	x	x		x	x	8/18/2010	1223	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
	EIWSED06	x	x	x	x	x	8/18/2010	1437	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
	EIWSED07	x	x	x	x	x	8/18/2010	1600	8/19/2010	8/20/2010	8/19/2010	8/19/2010	
Total 8 ounce jars		8	11										
Total 1 x 1 L Amber jars			4										
Total 3 gallon buckets						7							

[1]A single 8 ounce jar is sufficient for Organochlorine Pesticides 8081 and PAH 8270

[2] Water Jars for Equipment Blanks and Field Blanks, Organochlorine Pesticides (2 x 1L amber), PAH (2 x 1 L amber)

The MS/MSD and Equipment Blank are not analyzed for TOC

Collect 4 x 8 ounce jars for the sample and MS/MSD

Table 2-5
Sampling Summary of Surface Water

Sample Type	Sample ID	Metals 6010/6020 1 Liter Plastic (HNO_3)	VOC 8260 3 x 40 ml vials	*Artemia* 96 Hour Test 3x5 gallon cubitainer	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Date Shipped to PBS&J	Date Arrrived at PBS&J	Comments
Surface Water	EWSW01	x	x	x	8/30/2010	1209	8/31/2010	9/1/2010	8/30/2010	8/30/2010	MS/MSD
	EWSW01FD	x	x		8/30/2010	1209	8/31/2010	9/1/2010	NA	NA	Field Duplicate
	EWSW01EB	x	x		8/30/2010	1145	8/31/2010	9/1/2010	NA	NA	Equipment Blank
	EWSW01FB		x		8/30/2010	1150	8/31/2010	9/1/2010	NA	NA	Field Blank
	EWSW02	x		x	--	--	--	--	--	--	Dry
	EWSW03	x		x	9/14/2010	1200	9/14/2010	9/15/2010	9/14/2010	9/14/2010	
	EWSW04	x		x	8/30/2010	1335	8/31/2010	9/1/2010	8/30/2010	8/30/2010	

NA - Not Applicable
Sample location EWSW02 was dry.

Table 2-6
Sampling Summary of Wetlands Sediment Pore Water

Sample Type	Sample ID	PAH 8270 Desired Volume 2 L Min Volume 500 mls	Metals 6010/6020 Desired Volume 1 L Min Volume 100 mls	Organochlorine Pesticides 8081 Desired Volume 2 L Min Volume 500 mls	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Comments
Wetland Sediment Pore Water	EWSED01	x	x	x	8/26/2010	1158	8/27/2010	8/28/2010	
	EWSED02	x	x	x	8/26/2010	813	8/27/2010	8/28/2010	MS/MSD - None
	EWSED02FD	x	x	x	8/26/2010	813	8/27/2010	8/28/2010	Field Duplicate
	EWSED02EB	x		x	8/26/2010	800	8/27/2010	8/28/2010	Equipment Blank
	EWSED03	x	x	x	9/9/2010	910	9/10/2010	9/11/2010	Equipment Blank
	EWSED04	x	x		8/27/2010	803	8/27/2010	8/28/2010	Equipment Blank
	EWSED04*	x			9/13/2010	950	9/14/2010	9/15/2010	
	EWSED05	x	x	x	--	--	--	--	Dry
	EWSED06	x	x	x	8/31/2010	837	8/31/2010	9/1/2010	Equipment Blank
	EWSED07	x	x		8/28/2010	808	8/30/2010	8/31/2020	Equipment Blank
	EWSED08	x	x	x	8/25/2010	1317	8/25/2010	8/27/2010	Equipment Blank
	EWSED09	x	x	x	9/10/2010	905	9/10/2010	9/11/2010	Equipment Blank

*Sample location EWSED04 was sampled twice due to an error in analysis. Only pore water for analysis of PAHs was collected on 9/13/2010.

Sample location EWSED05 was too dry for extraction of pore water.

Table 2-7
Sampling Summary of Intracoastal Waterway Sediment Pore Water

Sample Type	Sample ID	PAH 8270 Desired Volume 2 L Min Volume 500 mls	Hexachlorobenzene 8270 Desired Volume 2 L Min Volume 500 mls	Organochlorine Pesticides 8081 Desired Volume 2 L Min Volume 500 mls	Sample Date	Sample Time	Date Shipped to Columbia	Date Arrived at Columbia	Comments
Intracoastal Waterway Sediment Pore Water	EIWSED01	x		x	8/20/2010	820	8/23/2010	8/24/2010	Equipment Blank
	EIWSED02	x		x	8/20/2010	925	8/23/2010	8/24/2010	
	EIWSED03	x		x	8/20/2010	1010	8/23/2010	8/24/2010	MS/MSD
	EIWSED04	x	x		8/21/2010	920	8/23/2010	8/24/2010	
	EIWSED05	x		x	8/21/2010	840	8/23/2010	8/24/2010	Equipment Blank
	EIWSED05FD	x		x	8/21/2010	840	8/23/2010	8/24/2010	Field Duplicate
	EIWSED06	x	x	x	8/22/2010	825	8/23/2010	8/24/2010	Equipment Blank
	EIWSED07	x	x	x	8/30/2010	1006	8/31/2010	9/1/2010	

Table 2-8
Summary of 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

Table 2-9
Summay of Field Sampling Parameters - Water

Sample Area/Type	Sample ID	Date	Water Depth (ft)	pH	Conductivity (mS)	Temperature (^oC)	Salinity (ppt)	DO (mg/L)
ICWW Sediment/ Pore Water	EIWSED01	8/18/2010	1.0	7.97	43.94	30.11	25.41	5.11
			4.0	7.98	43.94	30.11	25.42	5.39
			6.9	7.99	43.94	30.11	25.42	5.74
	EIWSED02	8/18/2010	1.0	8.01	43.68	30.15	25.23	4.29
			3.5	8.06	43.66	30.09	25.24	4.35
	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
	EIWSED05	8/18/2010	1.0	7.97	39.96	30.62	25.35	5.15
			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
			3.6	7.97	42.95	31.59	24.08	7.23
	EIWSED07	8/18/2010	1.0	8.04	42.69	31.63	23.88	6.86
			3.0	8.06	42.77	31.63	23.92	6.94
			6.3	8.07	42.84	31.62	23.95	6.95
	EIWSED01PW	8/20/2010	1.0	7.76	46.68	28.81	27.94	4.62
			3.0	7.76	46.71	28.80	27.94	4.82
			6.0	7.76	46.71	28.80	27.99	4.79
	EIWSED02PW	8/20/2010	1.0	7.76	46.70	28.87	27.90	5.03
			3.6	7.76	46.72	28.89	27.92	5.24
	EIWSED03PW	8/20/2010	1.5	7.74	43.29	29.18	27.76	5.50
	EIWSED04PW	8/21/2010	1.0	7.94	46.57	28.25	28.18	4.19
			2.8	7.94	46.52	28.20	28.18	4.05
	EIWSED05PW	8/21/2010	1.0	7.94	43.81	28.24	28.16	4.74
			3.0	7.95	43.82	28.27	28.17	5.08
	EIWSED06PW	8/22/2010	1.0	8.16	43.57	28.11	27.99	4.52
			3.0	8.15	43.57	28.11	28.00	4.73
			4.9	8.09	43.57	28.11	27.99	4.87
	EIWSED07PW	8/30/2010	1.0	6.52	59.35	29.74	35.95	8.01
			3.5	6.52	58.49	29.67	36.00	8.06
			6.9	6.59	59.36	29.57	36.00	7.71
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
Wetlands Sediment Pore Water	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

Table 4-1
Summary of Results from North Area Sediment/Soil

North Area Soils					
Original Concentration Gradient (mg/kg DW)			**2010 Analytical Results (mg/kg DW)**		**Notes and Bioassay Results**
BERA Sample ID: NAS01 North Soil Area RI/FS Sample ID:SB202	Location represents the high concentrations of the metals. Note that 4,4-DDT and Aroclor-1254 are below detection limits and not expected to be present. Sample from 0-0.5 feet below ground surface (ft bgs).				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from reference locations. - growth: no statistically significant difference from 2 of 3 reference locations.
4,4-DDT	0.00282 U		NA		
Aroclor-1254	0.013 U		NA		
Barium	476	H	272	H	
Chromium	128	H	97.3	H	
Copper	200	H	221	H	
Zinc	5640	H	5770	H	
BERA Sample ID: NAS02 North Soil Area RI/FS Sample ID:SB204	Location represents the high concentration of 4,4'-DDT and Aroclor-1254, mid concentrations of chromium, copper, and zinc and a low concentration of barium. Sample from 0-2 ft bgs.				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from reference locations. - growth: no statistically significant difference from 1 of 3 reference locations.
4,4-DDT	0.395	H	0.0075 J / 0.015 J	L	
Aroclor-1254	6.35	H	0.093 J / 0.16 J	L	
Barium	67.7	L	163 / 261	M	
Chromium	22.8	M	27.2 / 23.1	M	
Copper	92.3	M	26 / 24.9	M	
Zinc	134	M	296 JH / 307 J	M	
BERA Sample ID: NAS03 North Soil Area RI/FS Sample ID:SB206	Location represents the high concentration of barium, mid concentrations of chromium, copper, and zinc and the low concentration of 4,4'-DDT. Note that Aroclor-1254 is below detection limits and not expected to be present. Sample from 0-0.5 ft bgs.				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from 2 of 3 reference locations. - growth: statistically significant difference from all 3 reference locations.
4,4-DDT	0.00445	L	0.0078	L	
Aroclor-1254	0.011 U		NA		
Barium	426	H	190	M	
Chromium	23.1	M	15.4	L	
Copper	30.7	M	22.9	M	
Zinc	398	M	307 J	M	
BERA Sample ID: NAS04 North Soil Area RI/FS Sample ID:NE4SB11	Location represents the mid concentration of barium, copper,B1 and zinc and the low concentrations of chromium and Aroclor-1254. Note that 4,4'-DDT is below detection limits and not expected to be present. Sample from 0-0.5 ft bgs.		Soil 0-0.5 ft bgs		***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from reference locations. - growth: statistically significant difference from all 3 reference locations.
4,4-DDT	0.000148 U		NA		
Aroclor-1254	0.0122	L	0.01	L	
Barium	153	M	502	H	
Chromium	11.5	L	7.86	L	
Copper	27.4	M	10.8	L	
Zinc	107	M	321 J	M	

Table 4-1
Summary of Results from North Area Sediment/Soil

North Area Soils					
Original Concentration Gradient (mg/kg DW)			**2010 Analytical Results (mg/kg DW)**		**Notes and Bioassay Results**
BERA Sample ID: NAS05 North Soil Area RI/FS Sample ID:NE3SB09	Location represents the mid concentrations of the four metals and the low concentration of 4,4'-DDT. Note that Aroclor-1254 is below detection limit and not expected to be present. Sample from 0-0.5 ft bgs.		Soil 0-0.5 ft bgs		***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from reference locations. - growth: no statistically significant difference from 1 of 3 reference locations.
4,4-DDT	0.0108	L	0.008	L	
Aroclor-1254	0.00801 U		NA		
Barium	145	M	198	M	
Chromium	30	M	30.9	M	
Copper	27.8	M	27.4	M	
Zinc	288	M	309 J	M	
BERA Sample ID: NAS06 North Soil Area RI/FS Sample ID:ND1SB01	Location represents low concentrations of the four metals. Note that Aroclor-1254 and 4,4-DDT are below detection limits and not expected to be present. Sample from 0-0.5 ft bgs.		Soil 0-0.5 ft bgs		***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from reference locations. - growth: no statistically significant difference from 1 of 3 reference locations.
4,4-DDT	0.00016 U		NA		
Aroclor-1254	0.00415 U		NA		
Barium	46.1	L	52.2	L	
Chromium	11.7	L	13.4	L	
Copper	8.04	L	10.8	L	
Zinc	32.6	L	62.3 J	L	
BERA Sample ID: NAS07 North area Background Soil Location Background Soil BSS-01	Represents background location with high zinc concentration. Sample from 0-0.5 ft bgs.				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: no statistically significant difference from laboratory control. - growth: no statistically significant difference from laboratory control.
Barium	Not Available (NA)		340	H	
Chromium	17.6		12.4	L	
Copper	NA		10.1	L	
Zinc	969		501	H	
BERA Sample ID: NAS08 North area Background Soil Location Background Soil BSS-02	Represents background location with low zinc concentration. Sample from 0-0.5 ft bgs.				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: statistically significant difference from laboratory control. - growth: statistically significant difference from laboratory control.
Barium	361		182	M	
Chromium	17.6		13.6	L	
Copper	NA		12.6	L	
Zinc	81.2		182	M	
BERA Sample ID: NAS09 North area Background Soil Location Background Soil BSS-03	Represents background location with low zinc concentration. Sample from 0-0.5 ft bgs.				***Bioassay:*** Test Conducted: Polychaete - 21d, *Neanthes arenaceodentata* Result - survival: statistically significant difference from laboratory control. - growth: statistically significant difference from laboratory control.
Barium	NA		172	M	
Chromium	20.1		13.3	L	
Copper	NA		11	L	
Zinc	77		63.1	L	

DW - dry weight
NA - not analyzed

TABLE 4-2
Summary of Results from Wetland Sediment

Wetland Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient			**2010 Results**			**Bioassay Results**
BERA Sample ID: EWSED01 Wetland Sediment RI/FS sample ID: 2WSED04-004	Location represents the high concentration of multiple COPECs including PAHs and pesticides and the low concentrations of copper, endrin aldehyde, lead and zinc. A mid concentration of nickel is also listed. Note that several COPECs are below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.153 U		0.0038 J	L	0.000018 U	
4,4-DDT	0.000939 U		< 0.001 J		< 0.000012 J	
Acenaphthene	0.153 U		0.0046 J	L	< 0.0000052	
Acenaphthylene	0.545	H	0.057	H	0.000024	
Anthracene	0.334	H	0.043	H	0.000067	
Arsenic	0.35 U		2.97	L	0.0037 J	
Benzo(a)anthracene	0.126 U		< 0.066 J		< 0.0000031	
Benzo(a)pyrene	0.972	H	0.24	M	< 0.0000051	
Benzo(g,h,i)perylene	1.94	H	0.63	H	0.000012 J	
Chrysene	4.05	H	0.39		< 0.000004	
Copper	16	L	20.6	M	0.000922	
Dibenz(a,h)anthracene	2.91	H	0.17	H	< 0.000003	
Endrin Aldehyde	0.00431	L	0.0007 J	M	0.000013	
Endrin Ketone	0.013	H	< 0.000093		< 0.00000078	
Fluoranthene	0.189 U		0.038	L	< 0.0000052	
Fluorene	0.12U		0.019	M	0.000013 J	
gamma-chlordane	0.0036	H	< 0.00009		< 0.00000038	
Indeno(1,2,3-cd)pyrene	1.94	H	0.22	M	0.0000051 J	
Lead	18.3	L	17.2	L	0.000115 U	
Nickel	21.3	M	18.9	M	0.00944	
Phenanthrene	0.111 U		0.032	M	0.000012 J	
Pyrene	1.18	H	0.091	L	< 0.0000042	
Zinc	116	L	115		0.0101	
Total Organic Carbon	Not Available (NA)		59400			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0.089			
Grain Size	NA		See Table 4-5			
BERA Sample ID: EWSED02 Wetland Sediment RI/FS sample ID: 2WSED03-003	Location represents the high concentration of multiple COPECs including PAHs and pesticides and the low concentrations of copper, endrin ketone, lead and zinc. A mid concentration of several PAHs and nickel is also listed. Note that several COPECs are below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.173 U		0.002 J / 0.0026 J	L	0.000026 U	
4,4-DDT	0.00107 U		< 0.00017 / < 0.00017		< 0.0000047 J	
Acenaphthene	0.173 U		0.0018 J/ 0.0013 J	L	< 0.0000044	
Acenaphthylene	0.346	M	0.041 / 0.03	H	< 0.0000034	
Anthracene	0.241	M	0.032 / 0.024	M	< 0.0000036	
Arsenic	0.4 U		2.4 / 2.51	L	0.0041 J	
Benzo(a)anthracene	U		< 0.043 J / < 0.00072		< 0.0000026	
Benzo(a)pyrene	0.631	M	0.12 / 0.097	M	< 0.0000043	
Benzo(g,h,i)perylene	1.52	H	0.46 / 0.38	H	0.000012 J	
Chrysene	2.73	M	0.62 / 0.49	L	0.000049	
Copper	12.6	L	13.3 / 14.6	L	0.000342 U	
Dibenz(a,h)anthracene	2.83	H	0.11 / 0.094	H	0.0000034 J	
Endrin Aldehyde	0.01	H	< 0.00012 / < 0.001 J		0.0000067 J	
Endrin Ketone	0.00619	L	< 0.000093 / < 0.0011 J		< 0.0000013 J	
Fluoranthene	0.213 U		0.023 / 0.019	L	< 0.0000044	
Fluorene	0.135 U		0.013 / 0.011	M	< 0.0000038	
gamma-chlordane	0.000862 U		< 0.00009 / < 0.00009		< 0.0000013 J	
Indeno(1,2,3-cd)pyrene	1.59	H	0.19 / 0.16	M	0.0000062 J	
Lead	17.2	L	12 / 14.7	L	0.000113 U	
Nickel	20.9	M	15.6 / 17.3	L	0.00486	
Phenanthrene	0.125 U		0.016 / 0.014	L	< 0.000005	
Pyrene	0.729	M	0.14 / 0.11	M	< 0.0000035	
Zinc	115	L	70.1 / 86.1	L	0.00135 U	
Total Organic Carbon	NA		24100 / 30500			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0			
Grain Size	NA		See Table 4-5			

TABLE 4-2
Summary of Results from Wetland Sediment

Wetland Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient			**2010 Results**			**Bioassay Results**
BERA Sample ID: EWSED03 Wetland Sediment RI/FS sample ID: NF4SE13-013	Location represents the high concentration of arsenic, copper, nickel, and zinc, and low concentrations of PAHs; also, a mid concentration of 4,4-DDT, lead, and pyrene. Note that several COPECs are below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.0122	L	0.0068	L	0.000022 U	
4,4-DDT	0.00254	M	0.0028	M	< 0.000016 J	
Acenaphthene	0.0103 U		0.0043 J	L	< 0.0000047	
Acenaphthylene	0.0117 U		0.0032 J	L	< 0.0000036	
Anthracene	0.0126	L	0.005	L	0.000013 J	
Arsenic	12.8	H	5.36	H	0.0019 J	
Benzo(a)anthracene	0.0106 U		0.024	M	< 0.0000028	
Benzo(a)pyrene	0.0105 U		0.028	L	< 0.0000046	
Benzo(g,h,i)perylene	0.133	L	0.058	M	< 0.0000031	
Chrysene	0.0904	L	0.064	L	< 0.0000036	
Copper	35.7	H	25	H	0.00456	
Dibenz(a,h)anthracene	0.0555	L	0.0074	L	< 0.0000027	
Endrin Aldehyde	0.000403 U		0.00027 J	L	0.000015 J	
Endrin Ketone	0.000505 U		< 0.00011 J		0.000007 J	
Fluoranthene	0.0117 U		0.052	L	< 0.0000047	
Fluorene	0.0102 U		0.0048	L	< 0.000004	
gamma-chlordane	0.000265 U		< 0.00009		< 0.000016 J	
Indeno(1,2,3-cd)pyrene	0.0951	L	0.034	L	< 0.0000028	
Lead	64.7	M	48.4	M	0.000425 U	
Nickel	27.7	H	21.7	H	0.00749 U	
Phenanthrene	0.0898	L	0.049	M	0.0000053 U	
Pyrene	0.109	M	0.069	L	< 0.0000037	
Zinc	903	H	585	H	0.0413	
Total Organic Carbon	NA		18200			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0			
Grain Size	NA		See Table 4-5			
BERA Sample ID: EWSED04 Wetland Sediment RI/FS sample ID: 2WSD17-17	Location represents the high concentration of several PAHs, arsenic, and lead, low concentrations of nickel. A mid concentration of several PAHs, copper, and zinc. Note that the organochlorine pesticides are below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.053	H	0.0037 J	L	Pending	
4,4-DDT	0.000829 U		NA		Pending	
Acenaphthene	0.133	H	0.0026 J	L	Pending	
Acenaphthylene	0.013 U		0.0069	L	Pending	
Anthracene	0.257	M	0.006	L	Pending	
Arsenic	1.4	H	4.35	H	0.00072 J	
Benzo(a)anthracene	0.724	M	0.031	M	Pending	
Benzo(a)pyrene	0.618	M	0.04	L	Pending	
Benzo(g,h,i)perylene	0.527	M	0.076	M	Pending	
Chrysene	0.743	M	0.05	L	Pending	
Copper	25.6	M	20.3	M	0.00426	
Dibenz(a,h)anthracene	0.312	M	0.01	M	Pending	
Endrin Aldehyde	0.000706 U		NA		Pending	
Endrin Ketone	0.000603 U		NA		Pending	
Fluoranthene	1.43	M	0.076	L	Pending	
Fluorene	0.139	H	0.0032 J	L	Pending	
gamma-chlordane	0.000669 U		NA		Pending	
Indeno(1,2,3-cd)pyrene	0.752	M	0.064	L	Pending	
Lead	237	H	37.4	M	0.00015 U	
Nickel	13.7	L	16.9	L	0.0114	
Phenanthrene	1.18	H	0.041	M	Pending	
Pyrene	1.34	H	0.075	L	Pending	
Zinc	404	M	417	M	0.101	
Total Organic Carbon	NA		16700			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0.039			
Grain Size	NA		See Table 4-5			

TABLE 4-2
Summary of Results from Wetland Sediment

Wetland Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient			**2010 Results**			**Bioassay Results**
BERA Sample ID: EWSED05 Wetland Sediment RI/FS sample ID: NB4SE08-008	Location represents the high concentration of several PAHs, 4,4-DDT, copper, and zinc, low concentrations of acenaphthylene, endrin aldehyde, and nickel. A mid concentration of several PAHs, arsenic, and lead. Note that two organochlorine pesticides are below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.0396	M	0.02	H	--	
4,4-DDT	0.00922	H	< 0.019 J		--	
Acenaphthene	0.113	M	0.075	H	--	
Acenaphthylene	0.0291	L	0.018	M	--	Pore water not available from this location.
Anthracene	0.188	M	0.078	H	--	
Arsenic	3.53	M	3.06	M	--	
Benzo(a)anthracene	0.993	H	0.55	H	--	
Benzo(a)pyrene	1.3	H	0.79	H	--	
Benzo(g,h,i)perylene	0.862	M	0.68	H	--	
Chrysene	1.27	M	0.77	H	--	
Copper	39.6	H	28.9	H	--	
Dibenz(a,h)anthracene	0.337	M	0.14	H	--	
Endrin Aldehyde	0.00452	L	0.0014 J	H	--	
Endrin Ketone	0.000458 U		< 0.001 J		--	
Fluoranthene	2.17	H	1.3	H	--	
Fluorene	0.127	H	0.065	H	--	
gamma-chlordane	0.00024 U		< 0.00009		--	
Indeno(1,2,3-cd)pyrene	1.1	H	0.79	H	--	
Lead	88.1	M	76.1	H	--	
Nickel	10.9	L	14.4	L	--	
Phenanthrene	1.3	H	0.78	H	--	
Pyrene	1.64	H	1.1	H	--	
Zinc	601	H	595	H	--	
Total Organic Carbon	NA		18100		--	
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0		--	
Grain Size	NA		See Table 4-5		--	
BERA Sample ID: EWSED06 Wetland Sediment RI/FS sample ID: SPSE03 (Location from Pond)	Location represents the high concentration of zinc, low concentrations of 4,4-DDT, chrysene, and pyrene. Mid concentration of arsenic copper, lead, nickel, and a PAH.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	NA		0.0016 J	L	0.000019 U	
4,4-DDT	0.00157	L	0.0012	M	< 0.00000058	
Acenaphthene	NA		0.0013 J	L	0.0000091 J	
Acenaphthylene	NA		0.0008 J	L	< 0.0000035	
Anthracene	NA		0.0011 J	L	< 0.0000037	
Arsenic	5.01	M	3.23	M	0.00177 J	
Benzo(a)anthracene	NA		0.0069	L	0.0000095 U	
Benzo(a)pyrene	NA		0.01	L	0.0000097 U	
Benzo(g,h,i)perylene	0.135	M	0.019	L	0.000023 U	
Chrysene	0.0257	L	0.014	L	0.0000096 U	
Copper	26.8	M	28.1	H	0.00702	
Dibenz(a,h)anthracene	NA		0.0026 J	L	0.000015 U	
Endrin Aldehyde	NA		< 0.00012		< 0.00000046	
Endrin Ketone	NA		< 0.000093		< 0.00000066	
Fluoranthene	NA		0.02	L	< 0.0000045	
Fluorene	NA		0.001 J	L	0.0000091 J	
gamma-chlordane	NA		0.00025 J	H	< 0.00000032	
Indeno(1,2,3-cd)pyrene	NA		0.019	L	0.000014 U	
Lead	30.5	M	32.9	M	0.000443 U	
Nickel	20.6	M	22.5	H	0.00915	
Phenanthrene	NA		0.013	L	0.0000068 J	
Pyrene	0.0265	L	0.021	L	< 0.0000036	
Zinc	999	H	959	H	0.626	
Total Organic Carbon	NA		21500			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0.084			
Grain Size	NA		See Table 4-5			

TABLE 4-2
Summary of Results from Wetland Sediment

Wetland Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient			**2010 Results**			**Bioassay Results**
BERA Sample ID: EWSED07 Wetland Sediment RI/FS sample ID: 4WSED3	Location represents low to mid concentrations for the PAHs and metals. Organochlorine pesticides were not detected in this sample and are assumed not to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene	0.00936 U		0.0053	L	0.000013 U	
4,4-DDT	0.00498 U		NA			
Acenaphthene	0.016	L	0.009	M	< 0.000012	
Acenaphthylene	0.00746 U		0.0091	L	0.000032 J	
Anthracene	0.033	L	0.027	M	0.000066	
Arsenic	0.12 U		5.94	H	0.00063 J	
Benzo(a)anthracene	0.199	L	0.09	M	< 0.0000067	
Benzo(a)pyrene	0.227	L	0.087	L	< 0.000012	
Benzo(g,h,i)perylene	0.209	M	0.1	M	< 0.0000075	
Chrysene	0.094	L	0.14	M	< 0.0000088	
Copper	27.6	M	30.7	H	0.00303	
Dibenz(a,h)anthracene	0.00635 U		0.019	M	< 0.0000065	
Endrin Aldehyde	0.00579 U		NA			
Endrin Ketone	0.00527 U		NA			
Fluoranthene	0.176	L	0.26	M	< 0.000012	
Fluorene	0.015	L	0.016	M	< 0.0000098	
gamma-chlordane	0.00423 U		NA			
Indeno(1,2,3-cd)pyrene	0.408	M	0.1	M	< 0.0000067	
Lead	29.3	M	32.7	M	0.000184	
Nickel	19.6	M	20.1	H	0.00917	
Phenanthrene	0.135	M	0.15	H	< 0.000013	
Pyrene	0.188	M	0.19	M	< 0.000009	
Zinc	290	M	318	M	0.0599	
Total Organic Carbon	NA		23900			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		0			
Grain Size	NA		See Table 4-5			
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 has similar physical attributes (e.g., grain size).		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene			0.001 J	L	0.0000083 U	
4,4-DDT			0.0014	M	0.000003 J	
Acenaphthene			< 0.00088		< 0.000005	
Acenaphthylene			< 0.00069		< 0.0000039	
Anthracene			0.001 J	L	< 0.0000041	
Arsenic			2.92	L	0.00576 J	
Benzo(a)anthracene			0.011	M	< 0.000003	
Benzo(a)pyrene			0.014	L	< 0.0000049	
Benzo(g,h,i)perylene			0.017	L	< 0.0000033	
Chrysene			0.017	L	< 0.0000039	
Copper			15.8	L	0.00137	
Dibenz(a,h)anthracene			0.003 J	L	< 0.0000029	
Endrin Aldehyde			0.00052 J	L	0.0000026 J	
Endrin Ketone			< 0.00012		< 0.0000007	
Fluoranthene			0.031	L	< 0.000005	
Fluorene			0.00092 J	L	< 0.0000044	
gamma-chlordane			< 0.00012 J		0.0000033 J	
Indeno(1,2,3-cd)pyrene			0.019	L	< 0.000003	
Lead			19.8	L	0.00128 U	
Nickel			16.3	L	0.0142	
Phenanthrene			0.015	L	< 0.0000057	
Pyrene			0.027	L	< 0.000004	
Zinc			94.3	L	0.039	
Total Organic Carbon	NA		46800			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA		6.375			
Grain Size	NA		See Table 4-5			

TABLE 4-2
Summary of Results from Wetland Sediment

Wetland Sediment (All Locations 0-0.5 ft bgs)					
Original Concentration Gradient		**2010 Results**			**Bioassay Results**
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 has similar physical attributes (e.g., grain size).	**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
2-Methylnaphthalene		0.00061 J	L	0.000018 U	
4,4-DDT		0.0016	M	< 0.0000014 J	
Acenaphthene		< 0.00076		< 0.0000044	
Acenaphthylene		< 0.00059		< 0.0000034	
Anthracene		< 0.00058		< 0.0000036	
Arsenic		2.58	L	0.00171 J	
Benzo(a)anthracene		0.0024 J	L	< 0.0000026	
Benzo(a)pyrene		0.0027 J	L	< 0.0000043	
Benzo(g,h,i)perylene		0.0032 J	L	< 0.0000029	
Chrysene		0.004 J	L	< 0.0000034	
Copper		11.7	L	0.000761 U	
Dibenz(a,h)anthracene		< 0.0008		< 0.0000025	
Endrin Aldehyde		< 0.00012		< 0.0000033 J	
Endrin Ketone		< 0.000093		< 0.0000011	
Fluoranthene		0.0055	L	< 0.0000044	
Fluorene		< 0.00061		< 0.0000038	
gamma-chlordane		< 0.00023 J		< 0.000016 J	
Indeno(1,2,3-cd)pyrene		0.0032 J	L	< 0.0000026	
Lead		17.4	L	0.000236 U	
Nickel		16.5	L	0.00669	
Phenanthrene		0.0024 J	L	< 0.000005	
Pyrene		0.0044 J	L	< 0.0000035	
Zinc		68.3	L	0.00124 U	
Total Organic Carbon	NA	11200			
Acid Volatile Sulfide/Simultaneously Extracted Metals	NA	0			
Grain Size	NA	See Table 4-5			

DW - dry weight
NA - not analyzed

TABLE 4-3
Summary of Results from Intracoastal Waterway Sediment

Intracoastal Waterway Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient (mg/kg DW)			**2010 Results**			**Bioassay Results**
BERA Sample ID: EIWSED01 Intracoastal Waterway Sediment RI/FS Sample ID: IWSE-01	Location represents the high concentration of 4,4-DDT and low concentrations of four PAHs. Note that hexachlorobenzene is below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations.
4,4-DDT	0.00332	H	0.00023 J	L	< 0.0000035 J	Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
Acenapthene	0.013 U		0.0071	M	0.000052	
Benzo(a)anthracene	0.0133 U		0.03	L	< 0.0000035	
Chrysene	0.0145	L	0.046	L	< 0.0000046	
Dibenz(a,h)anthracene	0.0126 U		0.0046	L	< 0.0000034	
Fluoranthene	0.0309	L	0.12	M	< 0.0000059	
Fluorene	0.0129 U		0.019		0.000043	
Hexachlorobenzene	0.0161 U		NA		< 0.00000035	
Phenanthrene	0.0373	L	0.15	H	0.000031	
Pyrene	0.0244	L	0.081	L	< 0.0000047	
Total Organic Carbon	Not Available (NA)		4130			
BERA Sample ID EIWSED02 Intracoastal Waterway Sediment RI/FS sample ID: IWSE03	Location represents the high concentration of 6 PAHs, the mid concentration of two other PAHs and the low concentration of 4,4-DDT. Note that hexachlorobenzene is below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT	0.000575	L	0.0019	M	< 0.00000098 J	
Acenapthene	0.0631	H	0.023	H	0.000037	
Benzo(a)anthracene	0.395	H	0.24	H	< 0.0000028	
Chrysene	0.475	H	0.31	H	< 0.0000037	
Dibenz(a,h)anthracene	0.151	M	0.063	H	< 0.0000027	
Fluoranthene	0.804	H	0.52	H	< 0.0000048	
Fluorene	0.0406	H	0.02	H	0.000029	
Hexachlorobenzene	0.0156 U		NA		< 0.00000031	
Phenanthrene	0.508	M	0.24	H	0.000022 J	
Pyrene	0.862	H	0.47	H	< 0.0000038	
Total Organic Carbon	NA		7200			
BERA Sample ID: EIWSED03 Intracoastal Waterway Sediment RI/FS sample ID: IWSE04	Location represents the high concentration of 1 PAH, the mid concentration of chrysene, pyrene, fluoranthene, and 4,4'-DDT and the low concentration of dibenz(a,h)anthracene. Note that hexachlorobenzene is below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT	0.0011	M	0.00032 J / 0.00089 J	L	< 0.0000013 J	
Acenapthene	0.0176 U		0.0052 / 0.0022 J	L	0.000024	
Benzo(a)anthracene	0.018 U		0.052 / 0.048	M	< 0.0000026	
Chrysene	0.164	M	0.07 / 0.067	M	< 0.0000034	
Dibenz(a,h)anthracene	0.0694	L	0.015 / 0014	M	< 0.0000025	
Fluoranthene	0.231	M	0.12 / 0.094	M	< 0.0000044	
Fluorene	0.0173 U		0.0067 / 0.0032 J	L	0.00002 J	
Hexachlorobenzene	0.0217 U		NA		< 0.00000039	
Phenanthrene	0.125	H	0.071 / 0.043	M	0.000012 J	
Pyrene	0.285	M	0.1 / 0.11	M	< 0.0000035	
Total Organic Carbon	NA		6320 / 6680			
BERA Sample ID: EIWSED04 Intracoastal Waterway Sediment RI/FS sample ID: IWSE07	Location represents the high concentration of 1 PAH and hexachlorobenzene, the mid concentration of four PAHs and the low concentration of acenaphthene and phenanthrene.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT	0.000216 U		NA		< 0.00000076 J	
Acenapthene	0.0239	L	0.0029 J	L	< 0.0000088	
Benzo(a)anthracene	0.172	M	0.032	L	< 0.0000052	
Chrysene	0.197	M	0.054	L	< 0.0000068	
Dibenz(a,h)anthracene	0.235	H	0.0087 J	L	< 0.000005	
Fluoranthene	0.124	M	0.074	L	< 0.0000088	
Fluorene	0.0277	M	0.0031 J	L	< 0.000076	
Hexachlorobenzene	0.0319	H	< 0.0012		< 0.00000037	
Phenanthrene	0.0645	L	0.028	L	< 0.00001	
Pyrene	0.134	M	0.073	L	< 0.000007	
Total Organic Carbon	NA		5480			

TABLE 4-3
Summary of Results from Intracoastal Waterway Sediment

Intracoastal Waterway Sediment (All Locations 0-0.5 ft bgs)						
Original Concentration Gradient (mg/kg DW)			**2010 Results**			**Bioassay Results**
BERA Sample ID: EIWSED05 Intracoastal Waterway Sediment RI/FS sample ID: IWSE08	Location represents the mid concentration of pyrene and fluoranthene and the low concentrations of three PAHs and 4,4-DDT. Note that hexachlorobenzene is below detection limit and not expected to be present.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT	0.000481	L	0.00029 J	L	< 0.0000013 J / < 0.0000016 J	
Acenapthene	0.0155 U		0.0046 J	L	0.000027 / 0.000031	
Benzo(a)anthracene	0.0675	L	0.042	L	< 0.0000034 / < 0.0000028	
Chrysene	0.0717	L	0.059	L	< 0.0000044 / < 0.0000036	
Dibenz(a,h)anthracene	0.0151 U		0.01	M	< 0.0000033 / < 0.0000027	
Fluoranthene	0.158	M	0.1	M	< 0.0000057 / < 0.0000047	
Fluorene	0.0153 U		0.0045 J		0.000023 J / 0.000026	
Hexachlorobenzene	0.0192 U		NA		< 0.00000037 / < 0.00000044	
Phenanthrene	0.0756	L	0.051	L	0.000015 J / 0.000015 J	
Pyrene	0.158	M	0.084	L	< 0.0000045 / < 0.0000037	
Total Organic Carbon	NA		6820			
BERA Sample ID: EIWSED06 Intracoastal Waterway Reference Sediment Sample located in Intracoastal Waterway Background Area near RI Sample location IWSE22	No impacts above screening values were indicated in the vicinity of this location during RI sampling.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT			< 0.00017		< 0.000001 J	
Acenapthene			< 0.0014 JL		< 0.0000088	
Benzo(a)anthracene			< 0.0017 JL		< 0.0000052	
Chrysene			0.0019 JL	L	< 0.0000068	
Dibenz(a,h)anthracene			< 0.0015 JL		< 0.000005	
Fluoranthene			0.0019 JL	L	< 0.0000088	
Fluorene			< 0.0011 JL		< 0.0000076	
Hexachlorobenzene			< 0.0012 JL		< 0.00000039	
Phenanthrene			< 0.0014 JL		< 0.00001	
Pyrene			0.0025 JL	L	< 0.000007	
Total Organic Carbon	NA		6060			
BERA Sample ID: EIWSED07 Intracoastal Waterway Reference Sediment Sample located in Intracoastal Waterway Background Area near RI Sample location IWSE24	No impacts above screening values were indicated in the vicinity of this location during RI sampling.		**Sediment (mg/kg DW)**		**Pore Water (mg/L)**	***Bioassay:*** Test Conducted: Amphipod - 28d Chronic, *Leptocheirus plumulosus* Result: No statistically significant difference from reference locations. Test Conducted: Polychaete - 28d Chronic, *Neanthes arenaceodentata* Result: No statistically significant difference from reference locations.
4,4-DDT			< 0.00017		< 0.00000058	
Acenapthene			< 0.0014 JL		< 0.000026	
Benzo(a)anthracene			< 0.0017 JL		< 0.000018	
Chrysene			< 0.0015 JL		< 0.000028	
Dibenz(a,h)anthracene			< 0.0015 JL		< 0.000017	
Fluoranthene			0.0018 JL	L	< 0.00002	
Fluorene			< 0.0011 JL		< 0.000027	
Hexachlorobenzene			< 0.0012 JL		< 0.000022	
Phenanthrene			< 0.0014 JL		< 0.000022	
Pyrene			0.0018 JL	L	< 0.000019	
Total Organic Carbon	NA		5090			

DW - dry weight
NA - not analyzed

TABLE 4-4
Summary of Results from Surface Water

Sample IDs, Location and Analytes	Original Selection Rationale	Target COCs	Benchmarks (mg/L)	2010 Results (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	0.005 0.0036	< 0.00096 / < 0.00096 0.00338 J / 0.00331	Test Conducted: 96 hour (survival), Brine Shrimp (*Artemia nauplii*) Result: Not toxic at 96 hr (80% survival).
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			
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	0.0036	Pending	Test Conducted: 96 hour (survival), Brine Shrimp (*Artemia nauplii*) Result: Not toxic at 96 hr in 1st test (94% survival). Toxic at 96 hr in 3rd test.
EWSW04 Surface water from the pond area with silver concentrations greater than the benchmark	Dissolved silver concentration exceeds ecological benchmark for water	Silver	0.00019	0.000011 J	Test Conducted: 96 hour (survival), Brine Shrimp (*Artemia nauplii*) Result: Not toxic at 96 hr (96% survival).

Table 4-5
Summary of Sediment Grain Size Data

	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 4-6
Summary of Sediment AVS/SEM Data

		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 J**	< 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**

∑SEM	0.202	0.3487	1.6581	1.2852	1.888	3.9429	0.7348	0.32	0.064
AVS/∑SEM	0.089	0	0	0.039	0	0.084	0	6.375	0

AVS - acid volatile sulfides
SEM - simultaneously extracted metals

Appendix A

Field Notes and Field Data Sheets

"Rite in the Rain"
ALL-WEATHER WRITING PAPER

ALL-WEATHER
ENVIRONMENTAL FIELD BOOK

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Project Gulfco BERA

This book is printed on "Rite in the Rain" All-Weather Writing Paper, a unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all weather pen.

Specifications for this book

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Location Gulfco Date 8-12-10

Project / Client Gulfco BERA

Personnel Brett Sauter, Ryan Zak, Neil Heather

0530 - Arrived at Brookshire office
NH, BS, RZ
Mobilized equipment

0700 - BS - went to Pine Environmental to pick up VSI & Generator
NH & RZ headed to WalMart to pick up supplies

1030 NH RZ BS arrive at study area

Conducted Health and Safety meeting and filled out STAC cards

Set up processing area

1115 to 1500 Collected and ~~pro~~ NH WE 8-12-10 processed Marsh Sediment Samples

1500 - 1545 Reviewed Marsh Stations Not sampled on 8/12/10

Location Gulfco Date 8-12-10

Project / Client Gulfco BERA

R2, BS, NH

Station	Time
EWSED05	1124
EWSED06	1217
EWSED01	1325
EWSED02	1416
Equipment Blank	
EWSED02 EB	1400
Field Duplicate	
EWSED02FD	1416

Collected Samples using stainless steel to collect sediment and placed it into 3½ gallon buckets. The buckets were provided by PBSJ for toxicity tests.

A stainless steel mixer powered by a drill was used to homogenize sediment in the bucket

A pre-cleaned stainless steel spoon was used to remove sediment from the bucket and place it it sample jars for analysis

Location Gulfco Date 8-12-10

Project / Client Gulfco BERA

R2, BS, NH

The sample jars were placed in ~~#~~ 2 ziplock bags & placed in coolers with ice.

The bucket lid was sealed and the buckets were placed in coolers with ice.

Wetland Station Notes

EWSED01 - Soil was saturated on the surface - (1)
fine clay & silt overclay

EWSED02 - Soil was saturated on the surface (1)
fine clay & silt overclay

EWSED03 - Soil is dry
sandy clay (3)
photo

Location Gulfco Date 8-12-10
Project / Client Gulfco BERA
NH R2 BS

EWSED04 - soil was moist at the surface but not saturated silt over clay (2)
photo 940-942

EWSED05 soil was dry sandy clay (3)
~~photo 943-945~~ 8-12-10

EWSED06 - Soil was moist at the surface but not saturated (2)

EWSED07 - Soil was moist at the surface, but not saturated (2)
photo 943-945

EWSED08 - Area uneven, small depressions around station. If the station is placed in a depression the soil was saturated (1)
organic material + silt over clay
photo 949-951

Location Gulfco Date 8-12
Project / Client Gulfco BERA
NH R2 BS

EWSED09 - Dry on the Surface clay on the surface (3)
photo 946-948

Classified Stations as followed:

1- Sediment saturated at the surface Likely to process pore water

2. Sediment moist at the surface but not saturated - Might be possible to process a pore water sample

3- Sediment is dry unlikely to process a pore water sample

1615 NH R2 BS leave site
Spend rest of afternoon mobilizing for tomorrow's sampling

Location Gulfco Date 8-13-10

Project / Client Gulfco BERA

NH, BS, RZ

0630- NH, RZ, BS met at Hotel
Mobilized equipment & left
for the site

0800 Arrived at site - conducted
H&S meeting and filled out
STAC cards

0830 Started sediment Sampling

8-13-10 ~~0830~~ 0815 Duane Thomas with EA
arrived at site

1110 Michael Changr with EA
arrived at site

8-13-10 ~~1110~~ 1205 Margaret Roy & David Lingle
with URS arrive at site

1250 Completed Sampling & processing
for the day
EA personnel left site

Location Gulfco Date 8-13-10

Project / Client Gulfco BERA

NH, BS, RZ

Station	Time
EWSED09	0853
EWSED08	0952
EWSED03	1023
Split sample with EA	
EWSED04	1051
Split sample with EA	
EWSED07	1125
Split sample with EA	
NASO1EB - ~~EA~~ 8-13-10	1155
Equipment blank	
NA SO1	1232
Metal pieces on the surface Metal was removed prior to collecting sample Split sample with EA	

Location Gulfco Date 8-13-10

Project / Client Gulfco BERA

NH R2 BS

1245 to 1315 Towed Margaret & David around Marsh stations

1315 NH R2 BS MR & DL left site

1330 to 1400 NH BS R2 ate lunch

1400 BS & R2 leave Lake Jackson to deliver toxicity samples to PBSOJ

NH packs & ships analytical samples

1715 Samples are dropped off at FedEx - NH leaves Lake Jackson for Bookshire office

Location NH Office Date 8-14-10

Project / Client Gulfco BERA

NH

Brenda Basille confirmed samples arrived at Columbia Analytical Services in Kelso Washington

Location: Gulfco Date: 8-16-10
Project / Client: Gulfco BERA
Neil Hathorne, Scott Beauchamp, Brett Sarka

0615 NH, BS, SB arrived at Brookshire office. Loaded trucks, boat, and ATV
Health & Safety Meeting Conducted at 0730
0755 BS & SB headed toward Freeport
Stopped by Walmart to pick up supplies
Launched boat
Checked into rental house
Marked 3 of the 7 ECWW Stations
1200 NH left Brookshire to stop by Houston Columbia Analytical Services office for COCs
1410 NH arrived at rental house

1500 Arrived at Gulfco site
Met up with EA Representative Michael Chanov

Location: Gulfco Date: 8-16-10
Project / Client: Gulfco BERA
NH SB BS

1510 to 1715 collected & processed soil samples

Sample	Time
NAS02EB	1515
NAS02 (MS/MSD)	1528
NAS02FD	1528
NAS03	1600
NAS05	1618
NAS04	1636
NAS06	1700

1730 NH BS SB leave site

Weather 8-16-10
1500 to 1730
Cloudy
Occassional rainshower
Temp. ~ 88F to 94F
Scattered thunderstorms
Winds from the N 0-10mph

14

Location Gulfco Date 8-17-10

Project / Client Gulfco BERA

NH, BS, SB

0630 NH BS SB
Fill out STAC cards
Conduct H+S meeting
Mobilize for soil
sampling

0800 Arrived at study area
Met with Michael Chanov
with EA

0830 Collected Equipment blank
to be associated with
Sample NAS07
NAS07EB - Time 0830
2gallon bucket, mixer, spoon, travel

0845-1030 Sampled soil stations

Station	Time
NAS07	0830
NAS08	0931
NAS09	1002

15

Location Gulfco Date 8-17-10

Project / Client Gulfco BERA

NH BS SB

1030 - demobilized soil
sampling equipment
Packed samples for shipping

1110 - BS left rental house
to deliver toxicity
soil samples to PBSJ

1230 - BS dropped off samples
at PBSJ

NH - SB delivered analytical
samples to FedEx

1300 to ~~1600~~ 1700 Mobilized equipment
for ICWW stations
NH stopped by rental house
manager to sign paperwork

1700 - NH left for Brookshire
office to pick up Redox
meter & filters

Location Gulfco Date 8-18-10

Project / Client Gulfco BERA

NH BS SB

0700 – NH SB BS
met at house
Filled out STAC cards
Conducted H+S meeting
Mobilized for ICWW Sampling
Calibrated Meters NH
0730 Processed Equipment Blank
associated ~~to~~ with
EIWSED03 EB
Time: 0730
3.5 gallon bucket, mixer, spoon
0800 Michael Chanou arrived at house
0800 to 1240 Collected + processed
ICWW sediment samples
Used a Van Veen sampler
to collect samples

Slack tide early on in
sampling event - ~~as the~~ 8-18-10
~~morning~~ Tide started to
go out mid morning

Location Gulfco Date 8-18-10

Project / Client Gulfco BERA

NH, BS, SB

Station	Time
- EIWSED03	0815
\ MS/MSD + Field Duplicate	
EIWSED03FD	- 0815
EIWSED02	0910
Split sample with EA	
EIWSED01	1030
See Notes Below	
EIWSED04	1156
EIWSED05	1223

Notes on Sample Station NH 8-18-10
EIWSED03, ~~EIWSED01~~, EIWSED02
Soft sediment - Van Veen
was able to collect samples
76 inches
EIWSED04, EIWSED05

Location Gulfco Date 8-18-10

Project / Client Gulfco BERA

NH, SB, BS

EIWSED01 - located adjacent to ICWW -
Area South of station is a high flow area and we were able to collect 2-3 inches of sediment in the Van Veen
Area North of Station, the sediment was similar to stations EIWSED02 & EIWSED03
We collected sediment N & S of station - combined into 1 sample

1300 to 1400 Ate lunch

1400 to 1645 collected & processed sediment samples in ICWW

Location Gulfco Date 8-18-10

Project / Client Gulfco BERA

NH, SB, BS

Station	Time
EIWSED06	1437

Station located on the edge of the ICWW
Oyster clusters in the sample area - Sediment similar to stations EIWSED02, 03 04 & 05

EIWSED07	1600

Station located on edge of ICWW
sediment consisted of sandy silt & sandy clay

1645 - 1715 demobilized for the day

Location: Gulfco Date: 8-19-10

Project / Client: Gulfco BERA

NH, SB, BS, BQ

0700 NH BS SB
Conducted H+S Meeting
Picked up Ice
Packed samples for shipping

0840 - BS left for PBSJ to drop off toxicity sample & pick up jars from Columbia in Atlanta

0900 SB - left for Wal Mart to purchase supplies

0945 - William Quast left Brookshire with centrifuges & supplies

1000 BS dropped off Toxicity sample at PBSJ

1030 SB + NH Left house to deliver analytical samples to FedEx COC signed at 1050 over to Fed Ex

Location: Gulfco Date: ~~8-19-20~~ 8-19-10 NW 8-19-10

Project / Client: Gulfco BERA

NH BS, SB, BQ

1215 - NH BS SB & Bill Quast
to arrive at rental house
~~1400~~ Unload centrifuges & supplies
1700 Set up processing area
NW and ran some test
WO centrifuge runs on
8-19-10 sediment collected
from the channel
behind the rental house
Determined that running
the centrifuges at 3500
RPM for 15 minutes
was sufficient to separate
~150 mls of water from
750 mls of sediment
Set up 3 centrifuges
equipped with 4 buckets
(750ml) capable of processing
3 Liters of sediment at
a time. Calculated we
need to collect at least
6 gallons of sediment
to process the required
amount of pore water

Location Gulfco Date 8-~~20~~ 19-10

Project / Client Gulfco BERA

NH, BS, SB, BQ

1245 Michael Chanov arrived at Rebel Hous

~ 1430 - NH + Michael Chanov tour Marsh sediment stations. Michael wanted to evaluate the wetland sediment stations concerning possible pore water extraction.

NHWE 8-19-10 ~~The wetland~~ It rained throughout the day and the soil in the wetland was different than it was when I evaluated the stations on 8-12-10.

NHWE 8-19-10 ~~Overall~~ Stations that were originally classified as saturated were still saturated. Stations that were classified as moist or dry were either saturated or moist.

1700 NH BS SB + BQ left rental house to eat dinner

Location Gulfco Date 8-20-10

Project / Client Gulfco BERA

NH BS SB

0630 - NH BS SB

08-20-10 NHW ~~Conduct A~~ fill out STAC cards

Calibrated YSI + Hanna meters.

Mobilized equipment and boat for sediment samples. required for Pore water extraction

0730 Michael Chanov arrived at rental house

0745 - Collected equipment

blank

syringe

mixer

filter

spoon

centrifuge jar

EIWSED01PWEB

0805 left rental house and went to study area

NH BS SB + Michael Chanov

Location Gulfco Date 8-20-10

Project / Client Gulfco BERA

NH BS SB

0810 to 1030 - collected sediment for pore water processing

Station	Time
EIWSED01PW	0820
EIWSED02PW	0925
EIWSED03PW MS/MSD	1010

1030 to 1120 - prepped for processing pore water samples

1131 - time of first run of the centrifuge for sample EIWSED01PW

1337 - time of completion of 6th & final run for sample EIWSED01PW

Processed approximately 3 Liters of water for sample

Location Gulfco Date 8-20-10

Project / Client Gulfco BERA

NH SB BS

1415 to 1515 - Lunch NH BS SB
Michael Chase

1515 Prepped for pore water processing
ordered 0.45 μm filters to arrive on 8-23-10
ordered centrifuge jars to arrive on 8-24-10

1557 - time of first run for sample EIWSED02PW

1735 time of completion of 6th ~~run~~ & final run for sample EIWSED02PW

Processed ~4 Liters of water on 6 Runs

Location Gulfco Date 8-20-10

Project / Client Gulfco BERA

NH BS SD

1737 - time of first run for sample EIWSED03PW

1952 time of 8th + final run of the centrifuge for sample EIWSED03PW

Processed 6 liters of pore water for analysis - designated sample as MS/MSD

2000 to 2040 Cleaned up processing area
Michael Chanou leaves Rental House

Location Gulfco Date 8-21-10

Project / Client Gulfco BERA

NH BS SB

0630 NHSBBS
Fill out STAC card
Mobilize for sediment sampling
Calibrated YSI + Hanna meter

~0720 Michael Chanou arrived at house
Processed Equipment blank associated with sample EIWSED05PWEB (Sample time 0805)

0820 to 0945 Collected sediment for pore water extraction

Station	Time
EIWSED05PW	0840
EIWSED04PW	0920

Location Gulfco Date 8-21-10

Project - Client Gulfco BERA

NH BS SB

1039 first run of centrifuge associated with sample EIWSED05PW

~~1245~~ 1300 End time of 9th & final run of centrifuge associated with EIWSED05PW

Processed ~6 Liters of pore water for analysis
Used water for sample & Field duplicate
EIWSED05PWFD

3 Liters - Sample
3 liters - Field Duplicate

1315 to 1415 Lunch NH BS SB Michael Chanov

Location Gulfco Date 8-21-10

Project - Client Gulfco BERA

NH BS SB

1415 ~~to~~ prepped for sampling
porewater for sample
EIWSED04PW

1453 - first run associated with EIWSED04PW

1626 End time of 6th & final run of centrifuge associated with sample EIWSED04PW

~1700 finished for the day

1930 - 2000 - SB BS NH trip to walmart & Home depot to pick up supplies

Location Gulfco Date 8-22-10

Project / Client Gulfco BERA

NH, BS, SB

0630 BS, SB, NH
Filled out STAC cards
Mobilized for Sediment
samplins in ECWW at
Station EIWSED06

0720 Michael Chanov arrived at
house

Collected Equipment blank
mixer
centrifuge jar
filter
Syringe
stainless steel spoon

Calibrated Meters
Left house in boat to collect
sediment sample from Station
EIWSED06PW
Sample Time

0959- first run of centrifuge
1141 - 7th + final centrifuge run

Location Gulfco Date 8-22-10

Project / Client Gulfco BERA

NH, BS, SB

processed 4.3 liters of water
for pore water analysis

Cleaned up processing area
until 1300

~1230 Michael Chanov leaves Rental House

1300 NH + SB - leave Rental
house

1500 NH arrived at Brookhaven
office - picked up amber
jars + alconox

BS - remained at rental house

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

BS, SB, NH

0710 NH arrives at rental house - BS already at house
Filled out STAC cards
Mobilized equipment to collect 3 soil samples and 1 marsh porewater sample

0800 SB - picked up amber jars from Houston Columbia Lab (84 jars)
Collected Equipment Blanks

0825 NAS07EB
Trowel
bucket

0945 EWSED01PW EB
Not Analyzed!
mixer
centrifuge bottle
filter
syringe
spoon, bucket

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

Collected 3 soil samples. The following samples were originally sampled on 8-17-10.
The original samples were shipped on 8-17-10 & arrived at the analytical laboratory on 8-18-10 with a temperature of 12.5°C. Analysis was cancelled on these samples and resampled today

Station	Time
NAS07	0908
	~~0917~~ MK WS 8-23-10
NAS08	0917
NAS09	0923

Collected sediment from station ~~EB~~ EWSED01PW - We were unable to process this sample because filters that were supposed to arrive via FedEx did not get shipped properly

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

Marsh Pore Water Recon

EWSED03PW Time 1140
Collected 2 centrifuge bottles to determine the volume of pore water
Soil is dry
~~Tim~~
8-23-10
WENA

EWSED06PW Time 1143,
soil is slightly moist more than EWSED03PW
Collected 2 centrifuge jars to determine volume of pore water

EWSED07PW Time 1152
soil moist but not saturated
filled 2 centrifuge jars to determine volume of pore water, bucket

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

EWSED04PW - Time 1159
soil is moist but not saturated
filled 2 centrifuge jars to determine volume of pore water

EWSED09PW Time 1210
Soil is slightly moist
filled 2 centrifuge jars to determine volume of pore water

EWSED05PW Time 1217
Soil is dry
filled 2 centrifuge jars to determine volume of pore water

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

1225 - left Marsh and went to house to process Porewater test samples

1225 to

Processed Marsh Porewater samples.

Ran centrifuge for 30 minutes

EWSED05PW, EWSED09PW

EWSED03PW, EWSED06PW

No water was extracted from these samples.

EWSED07PW

We were able to extract 25 to 30 mls per jar, but the water was cloudy and only 5 mls were pushed through the .45 micron filter.

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

EWSED04PW -

We were able to extract 15 to 20 mls per jar. Water was cloudy like sample EWSED02PW

We ran the two samples listed above for 30 more minutes and the water cleared up.

In order to collect the minimum volume of 1100 mls it would take

EWSED07PW - 11 centrifuge runs (1 hour each)

EWSED04PW - 18 centrifuge runs (1 hour each)

Photographs of centrifuge jars 1055 to 1060

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

1430 Started to Pack n Ship all samples collected 8-20-10, 8-21-10, 8-22-10 and 8-23-10

9 coolers were dropped off at FedEx in Richwood at 1600

1605 Spoke with Fisher concerning filters that were to arrive on 8-24-10. I was notified that the filters were not shipped out on time and would arrive on 8-25-10

5 boxes of Filters due to arrive on 8-25-10

10 boxes of Filters due to arrive on 8-26-10

~1630 Kaitlyn McCormick left rental house

Location Gulfco Date 8-23-10

Project / Client Gulfco BERA

NH BS SB

NH updated Field Notes to 1845

1915 - BS SB NH went to WalMart to pick up Supplies

2000 to 2200 NH updates & paper work

Location: Gulfco Date: 8-24-10
Project / Client: Gulfco BERA
SB, BS NH

0630 - NH, BS, SB
Paperwork
STAC Cards
Mobilize for Sediment sampling
Calibrated Meters
Cut 3 inch OD polycarbonate tubes into 6" sections
0800 - Kaitlyn arrived at Rebel Marine
Deconned 6" tubes and core caps
- Conducted H&S Meeting
- Collected Equipment blank
- Using a core tube + distilled H_2O

0840 NH BS & Kaitlyn Head to Marsh to collect AVS/SEM sediment samples

Location: Gulfco Date: 8-24-10
Project / Client: Gulfco BERA
NH BS SB

Collected 6" cores of sediment at all 9 marsh stations. To collect cores we placed a cap over the top of the 6" tube and punched a small hole. We manually pushed the core tube into the sediment until we hit resistance. Placed a piece of wood over the cap and used a mallet to pound the core into the sediment. Once the core tube was equal to the surface of the sediment we used a trowel to dig around the core tube and pull it out. The core tube was put in a ziploc bag and placed on ice.

9543544

Location Gulfco Date 8-24-10
Project / Client Gulfco BERA
BS SB NA

Once all the cores were collected the cores were processed at the rental house. To process the cores we used an extruder to push the sediment up the core tube until there was no headspace. We then cut the bottom of the core tube and put a cap over the bottom of core. We duct taped the caps to the core and placed a lable on the core. The core was then double bagged in ziplocs and placed on ice

Location Gulfco Date 8-24-10
Project / Client Gulfco BERA
NA SB BS

Station	Time
EWSED04	~~850~~ 0855
EWSED07	0930
EWSED03	0944
EWSED06	0957
EWSED02	1005
EWSED01	1023
EWSED09	1032
* EWSED08	1042
* EWSED05	1054

* We did not need to use the extruder or cut the core tube because there wasn't any head space after sample collection

~1500 Kaitlyn left house

1549 I spoke with Linda Huckstein with Columbia to inquire about the equipment blank for AVS/SEM. Linda

Location Gulfco Date 8-24-10
Project / Client Gulfco BERA
NH BS SB

Informed me that Equipment blanks are not run for AVS/SEM analysis. We did not send the equipment blank with the sample

Cores were packed into a cooler with ice and delivered the cooler to Fed Ex at 1640

1702 - called Fisher about Filters that were supposed to be delivered today and tomorrow. They confirmed the filters were shipped, but could not provide a tracking number

~1430 - BQ delivered centrifuge bottles & cubitainers

Location Gulfco Date 8-25-10
Project / Client Gulfco BERA

0620 - NH called Fisher Scientific to track filter shipment

0630 - NH BS SB
Mobilize for Sampling
picked up ice
Filled out STAC Card
Conducted Health and Safety meeting
Calibrated meters
0745 Kaitly on arrival
0800 Equipment blank for
1 CWW Sample
mixer
centrifuge bottle
syringe
filter
bucket
spoon

EIWSE080806EB

Location Gulfco Date 8-25-10

Project / Client Gulfco BERA

NH SB BS

0810 Left house to go to ECWW porewater station EIWSED07PW

~830 Kirby Tyndall arrived at Rental House

0837 - sample time for Sample EIWSED07PW Collected sediment using a Van Veen - filled 2x 5gallon buckets with sediment

~0940 NH BS SB / Kaitlyn arrived back at house
BS + SB prepped for processing porewater sample
NH left house to go to Richwood Fedex to pick up filter

Location Gulfco Date 8-25-10

Project / Client Gulfco BERA

NH BS SB

1215 - Kirby went to town to pick up lunch
1230 - processed Mesh Equipment blank
1245 Ate lunch

1300 NH BS / Kaitlyn Left Rental House to sample station EWSED08PW

1317 - Sample time EWSED08PW
Sediment was saturated at the surface

NH + BS went back to house to process pore water sample

1350 - First run of centrifuge

1742 - End time for final centrifuge run (Run 11)

Location: Gulfco Date: 8-25-10
Project / Client: Gulfco BERA
NH BS SB

Run time of centrifuge runs for the marsh pore water samples is 30 minutes

Attempted to use syringe to extract water from the centrifuge jar and push it through the 0.45 micron filter. We were only able to push about 15 to 30 mls of water through the filter. - We ended up pouring the extracted water into a clean centrifuge jar. We repeated this procedure until 4x750ml centrifuge jars were filled with water. The sandy jars were placed in the centrifuge and spun at 3500 RPMs for 15 minutes

Location: Gulfco Date: 8-25-10
Project / Client: Gulfco BERA
NH BS SB

The jars were removed from the centrifuge. A syringe was used to pull out the water and pushed through 0.45 micron filters into a 5 gallon container.

We processed ~ 3 Liters of pore water. The pore water was poured into the sample jars

~1715 - Kirby left rental house
~1800 Kaitlyn left rental house
~ 1815 finished processing for the day

NH - talked to Katy to arrange for her to drop off Nitrile gloves, earmuffs, & hearing protection

Location 8-25-10 ~~8-25-10~~ Gulfco Date 8-25-10

Project / Client Gulfco BERA

NH BS SB

Kirby left two new locks to place on the 2 Gulfco gates

Location Gulfco Date 8-26-10

Project / Client Gulfco BERA

NH BS SB

0620 - NH BS SB
Fill out STAC card
Pick up Ice
Mobilize for sampling
Calibrated orp / pH meter
Conducted H&S meeting

Processed Equipment blank
using distilled water
mixer
Time 0800 syringe EWSED02AWEB
filter
centrifuge bottle
spoon
bucket
Stainless steel shovel

0745 Kaitlyn McCormick
arrived at rental house

0805 NH BS + Kaitlyn left
for sample EWSED02AW

Location Gulfco Date 8-26-10

Project / Client Gulfco BERA

NH BS SB

0813- collected sediment to process porewater from ~~stat~~ sample EWSED02PW

0835- arrived back at the house - started to process pore water samples

0849- First run of centrifuge

1052- End of 6th and final run of centrifuge

Processed > 3 Liters of porewater

Filled 1 Liter PAH
1 Liter organochlorine pesticides
1 Liter Metals

Location Gulfco Date 8-26-10

Project / Client Gulf co BERA

NH BS SB

0910- NH left rental house to go to FedEx + pick up filters in Richwood, LA. The filters were not shipped to this location and were held at FedEx in Houston. NH drove to Houston to pick up the filter
8X boxes of 50 filters

~1300 - NH arrived back at rental house

1158 - BS, SB, Kaitlyn collect sediment from sample EWSED01 PW

1243 - Start time of Run 1 of centrifuge
Centrifuge runs were 30 minutes at 3500 RPM

Location Gulfco Date 8-26-10

Project / Client Gulfco BERA

NH BS SB

1734 - End time of 13th Run of centrifuge (last run of sediment)

Extracted 73 liters of unfiltered water into 4 x 750 mls centrifuge jars

1743 to 1758 - centrifuged the 4 jars filled with unfiltered water.

the water was extracted from jars with a 60 ml syringe and pushed through 0.45 micron filters
We were able to push ~ 30 mls through each filter.

Location Gulfco Date 8-26-10

Project / Client GulfcoBERA

NH SB BJ

Processed 3 liters of pure water

1L - PAH
1L - organo chlorine pesticide
1L - Metals

1710 NH & SB went to samples EWSED04PW & EWSED07PW
Filled 2 centrifuge jars with sediment from each of the stations

1737 to 1807 ran centrifuge with the four jars

We were able to extract 70-40 mls of unfiltered water per jar.

Location: Gultco Date: 8-27-10

Project / Client: Gultco BERA

NW BS SB

0620 NW BS SB
Filled out STAC cards
Mobilized for sampling
decon equipment
calibrate meter
Health & Safety meeting

0745 Kaitlyn arrived at Hous
0800 - Equipment Blank

EWSED04PWEB
bucket
spoon
syringe
filter
spoon
centrifuge jar
mixer

Location: Gultco Date: 8-27-10

Project / Client: Gultco BERA

NW BS SB

0800 - NW BS-Kaitlyn
walked to marsh station
EWSED04PW

0803 - Sample time for EWSED04PW

Filled 4 x 5gallon
buckets with sediment

Soil was moist but not
saturated

0834 - time of 1st Run of
centrifuge (30minute runs)

1222 - End time of 15th
final run

Water extracted from
each centrifuge jar was
poured into a clean centrifuge
jar. The unfiltered
jar of water was

Location Gulfco Date 8-27-10

Project / Client Gulfco BERA

NH BS SB

centrifuged for 15 minutes and allowed to settle.

Syringes were used to extract the water from the jars and filtered using a 0.45 micron Filter

Processed > 1200 mls of water pore water.

We used 60 centrifuge jars to process the sample compared to 12 jars from stations with saturated coils.
We conducted 15 centrifuge runs compared to 6 runs conducted for station EWSE002PW

EWSE004PW - 16 runs - 1200mls
EWS E002PW - 6 runs > 3000mls

Location Gulfco Date 8-27-10

Project / Client Gulfco BERA

NH BS SB

Pentalt shipped samples collected on 8-26-10

1600 dropped off samples at Fedex to be delivered on 8-28-10

1630 NH Picked up filters from UPS in Angleton

1500 SB & BS Leave Rental House for the weekend

Kaitlyn left house

Location Gulfco Date 8-28-10

Project / Client Gulfco BERA

NH

0615 - NH
STAC Card
Calibrate Meters
Decon equipment
H & S form

0740 - Equipment Blank
EWSEP07PWEB
spoon
Syringe
filter
bucket
shovel
centrifuge jar

0750 Kaitlyn arrived at hour

Location Gulfco Date 08-28-10

Project / Client Gulfco BERA

NH BQ

0805 NH & Kaitlyn go to Marsh
0808 → EWSEP07PW
Sample time
orp 257.7
pH 6.96
temp 20.9 °C

Filled 4 buckets x 5 gallons with sediment

0820 NH & Kaitlyn arrive back at the hours

Deconned equipment &
0827-10 ~~propane~~ filled centrifuge
NH WOS ~~jar~~ jars with sediment
0845 BQ arrived at the house

Run of centrifuge
ran centrifuge for 30 minutes

End time of 15th and final run of centrifuge

Location Gulfco Date 8-28-10

Project / Client Gulfco BERA

NH BQ

Extracted ~2500 mls of unfiltered water

Ran unfiltered water in centrifuge for 30 minutes

Processed pore water using a syringe and 0.45 micron filters.

Cleaned up processing area

Left rental house
NH BQ

Location Gulfco Date 8-30-10

Project / Client Gulfco BERA

NH BS SB

0845 NH BS SB
Arrive at Rental House
Brett had picked up 10 bags of ice on the way into town

Filled out STAC cards
Mobilized for sampling pore water in the ICWW
station EIWSEDPW & water samples from stations EWSW01 + EWSW04
Calibrated meters
Conducted H&S Meeting
0900 Kaitlyn McCormick arrived at house
0912 - Equipment blank
EIWSED07PW
mixer
spoon
bucket
centrifuge bottle
syringe
filter
filled 6 X 1 Liter Amber jars

Location Gulfco Date 8-30-10
Project / Client Gulfco BERA
NH BS SB

0915 NH + Kaitlyn go to Marsh
0924 Setup tubing at
sample EWSW01

0939 Setup tubing at
sample EWSW04
Notes on Page 68-

Waded into sample stations
EWSW01 + EWSW04 ~~cable~~ fastened
~~Fied~~ sample tubing to a stake
with a cable tie. placed
the end of the tubing 1 to 2
inches below the surface of
the water.

Left the area to let the sample
area settle out.

Location Gulfco Date 8-30-10
Project / Client Gulfco BERA
NH BS SB

0950 - NH BS SB Kaitlyn
leave house in boat
to resample ICWW
Pore water station
EIWSED07PW

The pore water sample for
this station was originally
sampled on 8-25-10.
The sample was shipped
on 8-26-10 + arrived
at the lab on 8-27-10
- two of the four amber
jars broke during shipping
1006 - sample time for EWSED07PW
Used a Van Veen to collect
sediment - Placed sediment
into 2 * 5gallon buckets

Brought buckets back to house
SB - mixed sediment and
filled 28 * 750 ml centrifuge
jars

Location: Gulfco Date: 8-30-10
Project / Client: Gulfco BERA
NH BS SB

	Time	
EW SW01	1209	3x 1000ml/[illegible]
EW SW01 FD	1209	1x 1000ml/3x40ml
NH, BS, Kaitlyn		
EWSW01 EB	1145	1x 1000ml/3x40ml
EWSW01 FB	1150	3x40ml

Starting pumping water into cubitainer at 1209.

Rate of ~ 3minutes/gallon

Used a peristaltic pump + tubing to collect sample.
Filled 3X 5gallon cubitainers for tox tests, 3X1 Liter plastic jars for Metals, 9X 40ml vials for VOC analysis.
MS/MSD-

Location: Gulfco Date: 8-30-10
Project / Client: Gulfco BERA
NH, BS, SB

EWSW01 - Parameters
temp. 35.37°C
pH 5.86
DO 3.78
Conductivity 77.38 mS/cm
Salinity 43.23 ppt
orp -262.5

1305 - BS NH - headed to rental house
Placed all samples on Ice
Drop off samples & pick up VOC jar
1 of the VOC jars broke while sampling EWSW01.
BS + NH went back to sample EWSW01 to collect last VOC

Location Gulfco Date 8-30-10

Project/Client Gulfco BERA

NH BS SB

(0915 NH & Kaitlyn visith the surface water stations.
Over the weekend a high tide event(s) filled the depressions associated with sample EWSW01 & EWSW04.

Stations ~~associed~~ associated with samples EWSW02 & EWSW03 were dry and above the recent high tide line.

WE NW 8-30-10

Location Gulfco Date 8-30-10

Project/Client Gulfco BERA

NH SB BS

1330- NH BS Kaitlyn - go to sample EWSW04

Sample Time 1335

Water Parameter

	pH	7.19
8-30-10 WEM	temp	35.91
~~1411~~	DO	5.00
	pH	7.19
	conductivit	75.53
	sal	41.69
	orp	-280.6

1410 NH BS & Kaitly went back to house
placed all samples on ice

~1445- BS left house to drop off toxicity samples at PBS & J

Location: Gulfco Date: 8-30-10
Project / Client: Gulfco BERA
NH SB

1410 - SB - Started first Centrifuge run associated with pore water sample EWSED07PW.

Ran centrifuge 15 minutes per Run

1570 End time of 7th and final centrifuge run.

Extracted ~ 4.1 Liters of pore water. The pore water was poured off of each jar into a clean centrifuge jar. A syringe was used to remove the pore from the jars and pushed through 0.45 micron filters

Location: Gulfco Date: 8-30-10
Project / Client: Gulfco BERA
NH SB

1430 - NH left home to get lunch + ice.

1530 NH arrive back at house
1540 NH SB filter the extracted pore water

1630 Finished pore water processing

NH + SB Pack n ship pore water samples collected on 8-27-10 + 8-28-10 (EWSED04PW + EWSED07PW)

1700
~~1700~~ NH + SB pick up supplies at Lowes

Location Gulfco Date 8-31-10

Project / Client Gulfco BERA

NH SB

NH SB
WE 8-31-10

~~0600~~ 0630 - NH SB
STAC cards
mobilize for sampling
pick up ice
Calibrate meters NA
Health + Safety meeting

0750 - Kaitlyn McCormick arrives at the house

Location Gulfco Date 8-31-10

Project / Client Gulfco BERA

NH SB

0800 - Equipment blank
EWSE006PW EB
spoon
centrifuge jar
syringe
filter
bucket, shovel
2 * 1 Liter Amber, PAH
2 * 1 Liter Amber organochlorine pesticides
1 * 1 Liter Plastic Metals

0837 Sample time
EWSE006PW

Sample station was inundated with ~6 inches of water

Location Gulfco Date 8-31-10
Project / Client Gulfco BERA
NH SB

Water parameters (EWSE006PW)

pH	7.17	
temp	27.84	°C
conductivity	51.66	mS
Salinity	31.93	ppt
orp	-54.2	mV
DO	3.80	mg/L

Sediment parameters (EWSE006PW)

temp	29.1
pH	6.40
orp	30.8

0924 - time of start of first centrifuge run

1116 End time of 7th & final run of sediment

NHB-31-10
~~1145~~

Water extracted in Runs 1 through Run 7 was poured

Location Gulfco Date 8-31-10
Project / Client Gulfco BERA
NH SB

into 4 empty clean centrifuge bottles. ~ 3000 mls

There was ~ 435 mls of extracted water that would not fit in the four jars listed above. This water was extracted from the centrifuge jars and filtered through 0.45 micron filters

The four jars filled with ~ 3000 mls of water were placed in a centrifuge at 1145 for 15 minutes at 8-31-10 ~~3000~~ 3500 RPMs

A syringe was used to pull the water out of (4) centrifuge jars and filtered through a 0.45 micron filter. The filtered water was placed in a 5 gallon cubitainer

Location Gulfco Date 8-31-10
Project / Client Gulfco BERA
NH SB

and when all ~3000 ml were filtered the water was poured into 3 x 1 Liter sample jars

1 X 1 L plastic (HNO3)
Metals

1 X 1 L amber glass
organo chlorine pesticides

1 X 1 L amber glass
PAH

NH & SB Packed & shipped all samples collected on 8-30-10 & 8-31-10.

NH SB packed supplies and took a load to Brookshire.

Location Gulfco NH 09-01-10 ~~8-31-10~~
Project / Client Gulfco BERA
NH SB (R2)

1000
~~0630~~ NH SB R2
NH 8-31-10
STAC cards
Health & safety meeting

We arrived at house and placed sediment in centrifuge jars into buckets by sample station.

All sediment that was leftover after the pore water extraction was placed in 5 gallon buckets & taken back to the location it was sampled.

pulled Boat & loaded ATV Packed up supplies and left house to go to Brookshire

Location Galtco Date 9-3-10

Project / Client Galtco BERA

R2 SB

1000 arrival at rental house loaded all remaining equipment and cleaned the processing area.

1400 R2 + SB - left house to go to Brookline.

Location Galtco Date 9-4-10

Project / Client Galtco BERA

SB NH

0530 - SB NH met at Brookline office
Calibrated meter
STAC cards
Mobilized for sampling

0600 - Equipment Blank EWSE003 PWEB
centrifuge jar, filter, bucket, shovel, spoon
syringe

0615 NH SB Left Brookline / to go to Site

(1)
EWSE007 - Standing water ~1ft to factory
photo 1158, 1159

EWSE004 Standing water ~ 0.5ft
photo 1160 1161

EWSE003 - Standing water
photo ~~1160~~ 1162, 1163

EWSE006 Standing water ~ 0.3 ft
1164, 1165

Location Gulfco Date 9-9-10

Project / Client Gulfco BERA

NHSB

(1) EWSED05 - Moist soil on surface
photo 1166 1167

0910 - Sample Time
EWSED03PW

Water Parameters
Temp. 26.28 °C
conductivity 42.83 mS
DO 3.93
pH 7.75
ORP 163.4
salinity 27.46

Sediment Parameters
ORP 14.0 mV
Temp 28.0 °C
pH 7.48

0922 finish collecting 2 X 5 gallon buckets

Location Gulfco BERA Date 9-9-10

Project / Client Gulfco BERA

NH SB

(1) NHSB - visited sample stations EWSED07, EWSED04, EWSED03 EWSED09, EWSED05, EWSW02 EWSW03 - see notes on pgs 79 & 80

(1) EWSW02 - Standing water at site 3-4 inches. It appears as though site is tidally influenced

EWSW03 - Standing water 6 to 8 inches water is trapped in this area from recent high tide.

Based on the observations we should be able to collect & process porewater samples EWSED03PW, EWSED09PW, and EWSED04PW. Sample EWSED05PW may be wet enough to sample.

Location Gulfco Date 9-10-10

Project / Client GulfcoBERA

TO NH

0940 - Sample EWSW03 - collected a preliminary ~~EWSW03~~ salinity reading
Salinity 24.36 ppt -

1005 TO NH left Gulfco to head to Brookshire office
2x 5gallon buckets of sediment were placed on ice during transport from Freeport to Brookshire

1150 NH TO arrive back at Brookshire office
Placed sediment into centrifuge bottles using a pre cleaned stainless steel spoon

Location Gulfco Date 9-10-10

Project / Client Gulfco BERA

TO NH

1222 - Start time of 1st run of centrifuge

1426 End time of 6th + final run of sediment in a centrifuge.

Centrifuge Runs 1 through 6 were run at ~3500 RPM for 30 minutes each run

Extracted ~ 5450 mls of water. The unfiltered water was poured into clean centrifuge jars. The water was spun in a centrifuge for 15 minutes at ~3500 RPMs

Location Gulfco Date 9-10-10

Project / Client Gulfco BERA

NH TO

The water was then removed from the centrifuge jars ~~at~~ with a syringe and pushed through 0.45μ filters

The filtered water was placed in a five gallon cubitainer. When all the water was filtered we poured the filtered water into the sample jars

1X 1L plastic for Metals
2X 1L Amber glass PAH
2X 1L Amber glass organochlorine pesticide

NHTO Packed and shipped all samples collected on 9-9-10 & 9-10-10

1700 samples dropped off at FedEx (BS) for overnight delivery
[illegible] 9-10-10

Location Gulfco Date 9-13-10

Project / Client Gulfco BERA

NH SB

0640 - NHSB arrive at Brookshire office -
Mobilized for field sampling
Calibrated meters NH

0700 collected Equipment Blank
EWSE004PWEB
centrifuge jars, syringe, filter, shovel/bucket spoon

0730 - NH SB left Brookshire to go to Gulfco

0940 arrive at study area
Tide level is lower than previous week.

Location Gulfco Date 9-13-10
Project / Client Gulfco BERA
NH SB

EW SE004PW – Sample time 0550
Water Parameters
pH 7.36
DO 3.06 mg/L
conductivity 37.01 mS
Temp 26.66 °C
Salinity 22.60 ppt

Sediment parameters

pH 7.19
orp 81.1
temp 28.6
filled 2x 5gallon buckets with sediment

940 Move by water next to EWSED09 - area no longer has standing water

It does not appear as though we will be able to collect a water sample for EWSW02

Location Gulfco Date 9-13-10
Project / Client Gulfco BERA
NH SB

1000 9-13-10 WEM ~~EWSED01PW~~ EWSED05PW
collected two centrifuge bottles of sediment to test to see if we can extract pore water
Soil is moist but not saturated

1025 - NH SB Left Study area to go to Brookshire office.
Iced down 2x5 gallon buckets of sediment in transport to Brookshire office

1230 NH SB arrived at Brookshire office -
Prepped sediment for processing

Location Gulfco Date 9-13-10

Project / Client Gulfco BERA

Nit SB

1255 Placed two centrifuge jars filled with sediment associated with ~~EWSE005PW~~ EWSE005PW
MO 9-13-10

into centrifuge and ran them for 30 minutes at ~3500 RPMs

1325 Removed EWSE005PW sediment from centrifuge

Extracted < 10 mls of water from each of the two centrifuge bottles

Determined we would not be able to collect a pore water sample from this sight

Location Gulfco Date 9-13-10

Project / Client Gulfco BERA

Nit SB

1313 - Start time of centrifuge Run 1 for pore water sample EWSE004PW

1443 - End time of 6th & final run for pore water sample EWSE004PW

Extracted ~ 4325 mls of unfiltered pore water

1500 -> Start time for
1506 centrifuge runs of unfiltered pore water.

Water samples were run at ~ 3500 RPM for 15 minutes
Pore water was extracted from the centrifuge jars & filtered through 0.45μ filters

Location: Gulfco Date: 9-14-10

Project/Client: Gulfco BERA
NH SB

0800 SB NH Meet at Brookshire office
Load equipment

0845 SB NH - left Brookshire to go to Pine Environmental to rent peristaltic pump

1100 - Arrived at Gulfco Site

Collected equipment blank

1120 Set up tubing at station ~~ESW0~~ EWSW03.
placed stake, ground at station and attached end of tubing to base of stake

Location: Gulfco Date: 9-14-10

Project/Client: Gulfco BERA
NH SB

1130 Collected Field Blank

1135 to 1255 disposed of excess sediment for sample
EWSED03PW
EWSED04PW
EWSED09PW

1155 - calibrated meter NH

Drove to sample station ~~EWSW0~~ 3
Connected peristaltic pump to tubing set earlier (1120)

Location Gulfco Date 9-14-10
Project / Client Gulfco BERA
SB NH

1200 collected water sample
filled a 5 gallon cubitainer

Metals Jar
3 VOC vials

Water paramoters

pH	7.84
temp	32.51 °C
conductivity	49.10
salinity	27.47
DO	6.24

Water Depth ~6 inches

Collected Waypoint EWSW03

1235 completed water sample

Location Gulfco Date 9-14-10
Project / Client Gulfco BERA
SB NH

1250 left site
Iced down water samples

Drove to PBSJ to deliver toxicity sample

1510- dropped sample offat PBSJ

1600 NH SB arrived back at Brookshire office
Unloaded equipment & samples

Packed & Shipped all samples associated with EWSED04PW & EWSW03

1700 NH dropped samples offat Fedex for overnight delivery

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

Gulfco BERA Field Sampling Data Sheet
Soil Chemistry and Toxicity Samples

Personnel: NHBS BZ

Observers: Duane Thomas (EA)
Michael Charov (EA)

Date: 8-13-10

Area: ~~Marsh Sediment~~ Soil Sample

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Sediment Depth (in)
NA	NASOIEB	1155	NA	E: N: NA	NA	NA

Soil Characteristics:
Equipment blank
Used Distilled water, bucket, stainless steel trowel
stainless steel spoon, stainless steel mixer
Equipment blank for chemical analysis only

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Sediment Depth (in)
NASOI	NASOI	1232	NASOI	E: 276967.832 N: 3206697.696	968 - 970	6 in

Sediment Characteristics:
0-6 inches Red Clay with chunks of metal + debris
There was metal debris on the surface of the soil - the debris was moved aside before the sample was collected

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Sediment Depth (in)
				E: N:		

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Sediment Depth (in)
				E: N:		

Sediment Characteristics:

Comments Soil sample collected for chemical analysis + toxicity tests.

Gulfco BERA Field Sampling Data Sheet
Soil Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-16-10

Observers: Michael Chanov Area: Soil Samples

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NA	NAS02EB	1515	NA	E: N: NA	NA	NA

Soil Characteristics:

Equipment blank
2 gallon bucket, stainless stell trowel, stainless steel spoon, stainless mixer, distilled water

2 X 1 Liter Amber (organochlorine pesticides), 2 X 1 Liter amber (PCB) 1 X 1 L Plastic HNO3 (Metals)

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS02	NAS02	1528	NAS02	E: 276923.280 N: 3206646.910	971-974	6in

Sediment Characteristics:

0-1 inch light brown sandy silt
1-6 inch red brown sandy clay

Soil is dry ☆ (MS/MSD)

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS02	NAS02FD	1528	NAS02	E: 276923.280 N: 3206646.910		6in

Sediment Characteristics:

Field duplicate of NAS02

E: 276931.215
N: 3206637.662 9-22-10 WDS ~~8-16-10~~ MW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS03	NAS03	1600	NAS03	E: ~~276923.517~~ N: ~~3206646.538~~	975-979	6in

Sediment Characteristics:

0-1 inch light brown sandy silt
1-4 inch brown red sandy clay
4-6 inch light brown sandy clay with oxidized root channels
dry soil

Comments

Gulfco BERA Field Sampling Data Sheet
Soil Chemistry and Toxicity Samples

Personnel: NH BS SB

Observers: Michael Chanov

Date: ~~8-16~~ 8-16-10 MW WE

Area: Soil Samples

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS05	NAS05	1618	NAS05	E: 276930.090 N: 3206643.350	980-985	6in

Soil Characteristics:

0- 1/8inch light brown sand
1/8 to 6inch red clay with oyster shell

station located adjacent to well Dry Soil

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS04	NAS04	1636		E: 276940.300 N: 3206583.000	986-990	3in

Sediment Characteristics:

Removed dry algae layer from surface
0-1/8 inch light gray sandy clay
1/8-3in Yellow sandy clay with lots of limestone
Unable to collect 6in - consolidated layer of rock at 3 inches

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS06	NAS06	1700	NAS06	E: 276771.678 N: 3206674.534	991 - 995	6in

Sediment Characteristics:

0-1inch light brown sandy silt
1-6 inch dark brown sandy silt

Dry Soil

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
				E: N:		

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Soil Chemistry and Toxicity Samples

Personnel: NH, BS, SB
Observers: Michael Chanov

Date: 8-17-10
Area: Soil Samples

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NA	NAS07EB	0830	NA	E: NA N:	NA	NA

Soil Characteristics:
Equipment Blank
Distilled Water, 2 gallon bucket, stainless steel trowel
stainless steel spoon, stainless steel mixer
2X 1Liter Amber (organochlorine pesticides), 2 x 1Liter Amber (PCB), 1x 1Lite Plastic (Metal)

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS07	NAS07	0900	NAS07	E: 277475.602 N: 3207116.992	996-998	6in

Sediment Characteristics:
0-1.5 inch light brown sandy clay
1.5-6 inch Brown clay

Dry soil Lots of vegetation

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS08	NAS08	0931	NAS08	E: 277497.557 N: 3207139.23	999-1001	6in

Sediment Characteristics:
0-2 inch dark brown clay
2-6 inch red brown clay

Dry Soil Lots of vegetation

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS09	NAS09	1002	NAS09	E: 277520.299 N: 3207161.324	1002-1004	6in

Sediment Characteristics:
0-4inch dark brown clay
4-6inch red brown clay

Lots of vegetation on site

Comments
Samples NAS07, NAS08 & NAS09 were shipped on 8-17-10 & arrived at Columbia on 8-18-10 - The sample cooler arrived at 12.5°C. These samples were not analyzed & were resampled on 8-23-10. The Toxicity samples arrived at PBSJ on 8-17-10 at the proper temperature and were used to run the tox samples.

8-23-10 NA

Gulfco BERA Field Sampling Data Sheet
Soil Chemistry and Toxicity Samples

Personnel: NH BS

Observers: Kaitlin McCormick
Michael Chanov

Date: 8-23-10

Area: Soil Samples

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
~~NA~~ NH WE 8-23-10 NA	NAS07EB	0825	NA	E: N: NA	NA	NA

Soil Characteristics:

Equipment Blank
Distilled water, trowel, ~~2~~ 5 gallon bucket
8-23-10 NH WE

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS07	NAS07	0908	NAS07	E: 277475.602 N: 3207116.992	1052	6in

Sediment Characteristics:

Soil description on page 4 of 5

NH WE 8-23-10

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS08	NAS08	~~0923~~ 0917	NAS08	E: 277497.552 N: 3207139.23	NA	6in

Sediment Characteristics:

Soil description on page 4 of 5

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Soil Depth (in)
NAS09	NAS09	0923	NAS09	E: 277520.299 N: 3207161.334	NA	6in

Sediment Characteristics:

Soil description on page 4 of 5

Comments Resampled stations - see notes on pg 4 of 5

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS RZ Date: 8-12-10

Observers: None Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSE005	EWSE005	1124	EWSE005	E: 276835.886 N: 3206475.042	NA	911-919	6in

Sediment Characteristics:
0-1 inch light brown sand
1-6 inch dark brown sandy clay

Dry Sediment / No overlying water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSE006	EWSE006	1217	EWSE006	E: 277043.253 N: 3206689.585	NA	920-925	6in

Sediment Characteristics:
0-0.5 inch light gray clay
0.5 to 6 inch light brown clay with red mottles

No overlying water / Sediment is moist / but not saturated

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSE001	EWSE001	1325	EWSE001	E: 276853.163 N: 3206777.024	NA	926-929	6in

Sediment Characteristics:
Organic layer on the surface Vegetation on the surface
0-0.5 ~~black~~ fine clay + silt
0.5 to 6 inch gray fine clay + silt
Sediment saturated on the surface

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSE002EB	~~1946~~ 1400	NA	E: N: NA	NA	NA	NA

Sediment Characteristics:
Equipment Blank
3 gallon bucket, stainless steel trowel, stainless steel spoon, stainless steel mixer, Distilled water

Comments
Samples processed for chemical analysis + toxicity testing

8-12-10 WEMW

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH, BS, RZ
Observers: None

Date: 8-12-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED02	EWSED02FD	1416	EWSED02	E: 276841.305 N: 3206803.626	NA	NA	6in

Sediment Characteristics:
Duplicate of EWSED02

↓ (Duplicate of chemical analysis only)

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED02	EWSED02	1416	EWSED02	E: 276841.303 N: 3206803.626	NA	930-939	6in

Sediment Characteristics:
0 – 0.25 inch light brown cohesive layer on the surface
0.25 – 2.5 inch black clayey silt
2.5 to 6 inch light gray silty clay H_2S odor 0.25 to 6 inch
saturated sediment at the surface / No overlying water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH R2 BS Date: 8-13-10

Observers: Duane Thomas Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED09	EWSED09	0853	EWSED09	E: 276730.847 N: 3206723.734	N/A	952-954	6in

Sediment Characteristics:

0-1 inch - light brown sandy silt
1-6 inch light gray sandy clay

No overlying water / Soil is dry

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED08	EWSED08	0952	EWSED08	E: 276637.295 N: 7206632.019	N/A	955-957	6in

Sediment Characteristics:

0-1/4 inch algal mat on the surface
1/4 to 1/2 inch dark black silt
1/2 to 6 inch light gray silty clay

No overlying water

Sediment saturated to surface /In the 6 inch hole there was standing water (3 inches)

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED03	EWSED03	1023	EWSED03	E: 277000.861 N: 3206600.949	N/A	958-960	6in

Sediment Characteristics:

0-6 inch Brown sandy clay

sediment was dry

station located near parking lot - heavy traffic area

Split sample with EA

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED04	EWSED04	1051	EWSED04	E: 276918.613 N: 3206628.316	NA	961-964	6in

Sediment Characteristics:

0-2 inch black organic /silty clay
2-6 inch red /gray /brown clay

sediment is moist /but not saturated

Split sample with EA

Comments

Samples collected for chemical analysis & toxicity tests. Soil was sampled using a stainless steel trowel and placed in 3 gallon buckets. The sediment was mixed using a stainless steel mixer. Sediment was subsampled from the bucket using a stainless steel spoon and placed into sample jars.

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH, BS, RZ

Observers: Duane Thomas, Michael Charov

Date: 8-13-10

Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED07	EWSED07	1125	EWSED07	E: 276919.489 N: 3206641.001	NA	965-967	6in

Sediment Characteristics:

0-2in Black organic/silty clay

2-6in Red brown clay

Oyster shell & limestone rocks in sample area

Sediment saturated at the surface

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
	~~NASO~~ no sample taken			E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments Sample collected for chemical analysis + toxicity tests

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS
Observers: Mishael Charov
Kaitlyn McCormick

Date: 8-23-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSED01PROEB	0830	NA	E: N: NA	NA	NA	NA

Sediment Characteristics:
Equipment Blank
syringe, filter, bucket, mixer, stainless steel spoon
distilled water, centrifuge jar

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED01	EWSED01PW	0933	EWSED01	E: 276853.167 N: 7206773.072	NA	1053-1054	6 in

Sediment Characteristics:
Sediment description on pg 1 of 16
Sediment was moist to saturated

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments Samples not processed or analyzed

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB
Observers: Kaitlyn McCormick

Date: 8-24-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED04	EWSED04	0855	EWSED04	E: 276918.613 N: 3206628.316	NA	NA	6in

Sediment Characteristics:
Sediment description on page 3 of 16
Sediment readings
orp - 263.9mV Temp 30.8 °C
pH 6.65
AVS / SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED07	EWSED07	0930	EWSED07	E: 276914.489 N: 3206641.001	~~1061~~ ~~1077~~ NA	1061 1077	6in

Sediment Characteristics:
Sediment description on page 4 of 16 8-24-10 WE
Sediment Readings
orp - 216.2mV Temp. 31.3°C
pH 6.80
AVS / SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED03	EWSED03	0944	EWSED03	E: 277000.461 N: 3206660.449	NA	1098 to 1101 & 1132	6in

Sediment Characteristics:
Sediment description on page 3 of 16
Sediment Readings
orp NA temp 32.6°C
pH NA soil is to dry to collect these readings AVS/SEM

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED06	EWSED06	0957	EWSED06	E: 277043.233 N: 3206689.585	NA	1102-1104	6in

Sediment Characteristics:
Sediment description on page 1 of 16
Sediment Readings
orp 176.1mV temp. 31.7°C
pH 7.19

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB
Observers: Kaitlyn McCormick

Date: 8-24-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED002	EWSED002	1005	EWSED002	E: 276841.305 N: 3206803.626	NA	1105-1111	6in

Sediment Characteristics:
Sediment description on Page 2 of 16
Sediment Readings
pH 6.43 orp 10.2mV
Temp 31.4°C
No surface water
AVS/SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED001	EWSED001	1023	EWSED001	E: 276853.163 N: 3206773.072	NA	1112-1114	6in

Sediment Characteristics:
Sediment description on page 1 of 16
Sediment Readings
pH 6.85 orp -18.0 mV
Temp. 30.6°C
AVS/SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED009	EWSED009	1032	EWSED009	E: 276730.847 N: 3206723.734	NA	1115-1120	6in

Sediment Characteristics:
Sediment description on page 3 of 16
Sediment Readings
Temp. 37.3°C orp 80.5mV
pH 6.98
AVS/SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED008	EWSED008	1042	EWSED008	E: 276637.295 N: 3206632.019	NA	1121-1122	6in

Sediment Characteristics:
Sediment description on page 3 of 16
Sediment Readings
orp 10.6 mV pH 6.95
temp 31.7°C
AVS/SEM Analysis

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB
Observers: Kaitlynn McCormick

Date: 8-24-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED05	EWSED05	1054	EWSED05	E: 276835.886 N: 3206475.042	NA	1123-1130	6in

Sediment Characteristics:
Sediment description ~~of~~ 8-24-10 NH on page 1 of 16
Sediment Readings
pH 6.23 orp 634 mV
Temp 37.8°C

AVS /SEM Analysis

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments AVS/SEM samples were collected using 3inch diameter polycarbonate core tubes cut to 6inches in length. The six inch core tubes were pushed and pounded into the sediment, dug out and packaged at the central house.

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS RZ / Kirby Tyndall Date: 8-25-10

Observers: Kaitlyn McCormick Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED08PW	EWSED08 PW	1317	EWSED08	E: 276637.295 N: 3206632.019	NA	NA	6in

Sediment Characteristics:
Sediment description on page 3 of 16
Sediment Readings
orp 140.2
Temp 32.2°C
pH 5.41

Filled 3X 5gallon buckets, with sediment and processed the pore water samples at the house

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
8-25-10 WE MS EWSED08PW	EWSED08PWEB	1230	NA	E: N: NA	NA	NA	NA

Sediment Characteristics:
Equipment blank
Stainless steel mixer, bucket, centrifuge jar, syringe, filter
stainless steel spoon, distilled water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-26-10

Observers: Kaitlynn McCormick Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED02	EWSED02PWEB	0800	NA	E: N: NA	NA	NA	NA

Sediment Characteristics:
Equipment Blank - distilled water, stainless steel mixer, syringe, centrifuge bottle, stainless steel spoon, filter, bucket

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED02	EWSED02PW	0813	EWSED02	E: 276 841.305 N: 3206803.626	NA	NA	6in

Sediment Characteristics:
Sediment description on page 2 of 16
Sediment Reading
orp - 273.8 mV temp. 27.5
pH 6.89

Filled 3X 5gallon buckets of sediment and processed pore water at the rental house.

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED01	EWSED01PW	1158	EWSED01	E: 276 853.163 N: 3206773.072	NA	NA	6in

Sediment Characteristics:
Sediment description on page 1 of 16
Sediment Reading
orp 88.4 mV pH 6.59
temp 29.3 °C

"
"

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-27-10

Observers: Kaitlynn McCormick Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSED04PWEB	0800	NA	E: N: NA	NA	NA	NA

Sediment Characteristics:

Equipment Blank
bucket, stainless steel spoon, syringe, filter, centrifuge jar
stainless steel mixer

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED04 8-27-10	EWSED04 PW	0803	EWSED04	E: 276918.613 N: 3206628.316	NA	NA	6 in

Sediment Characteristics:

Sediment description on page 3 of 16

Sediment Readings
orp 103.0 mV Temp 27.9 °C
pH 7.05

Pore Water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH BQ
Observers: Kaitlyn McCormick

Date: 8-28-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSED07AWEB	0740	NA	E: NA N:	NA	NA	NA

Sediment Characteristics:
Equipment blank
Stainless steel spoon, syringe, filter, bucket, stainless steel shovel centrifuge jar, distilled water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED07	EWSED07AW	0808	EWSED07	E: 276914.489 N: 3206641.001	NA	NA	6 in

Sediment Characteristics: Sediment description listed on page 4 of 16 dated 8-13-10
Sediment Readings
orp 257.7 mV temp. 20.9°C
pH 6.96
Filled 4X 5gallon buckets of sediment for processing

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: 8-31-10 Date: 8-31-10

Observers: NH SB Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED06	EWSED06PWEB	0800	NA	E: N: NA	~~6in~~ NA 8-31-10 WE NH	NA	~~6in~~ NA 8-31-10 NH LMO

Sediment Characteristics:

Equipment Blank
stainless steel spoon, centrifuge jar, syringe, filter, bucket
distilled water, stainless steel shovel

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED06	EWSED06PW	0837	EWSED06	E: 277043.253 N: 3206689.585	6in	NA	6in

Sediment Characteristics:
Sediment description on page 1 of 16 dated 8-12-10
Sediment readings
temp. 29.1°C
pH 6.40
ORP 30.8mV

Water parameters
pH 7.17 orp -54.2mV
temp 27.84°C DO 3.80mg/L
conductivity 51.66mS
salinity 31.93ppt

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: SB NH

Observers: None

Date: 9-9-10

Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSED03PW03 ~~EWSED~~	0600	NA	E: NA N:	NA	NA	NA

Sediment Characteristics:

Equipment blank
centrifuge jar, filter, bucket, / stainless steel shovel, syringe
stainless steel spoon, distilled water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSE 003	EWSE 003PW	0910	EWSE003	E: 277000.461 N: 3206660.449	3-4in	1162 1163	6 in

Sediment Characteristics: Sediment description listed on page 3 of 16 dated 8-13-10

Sediment Readings
orp 14.0mV
Temp 280 °C
pH 7.48

Water Parameters
Temp 26.28 °C DO 3.93 mg/L orp 163.4mV
conductivity 42.83mS pH 7.75 Salinity 27.46ppt

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NH, TO

Date: 9-10-10

Observers: None

Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSED09PWEB	0600	EWSED09	E: 276730.847 N: 3206723.734	NA ~~3-4in~~	NA ~~NA~~	NA ~~6in~~

9-10-10 WE NN

Sediment Characteristics:

Equipment Blank
syringe, filter, centrifuge, spoon, bucket, shovel, distilled water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
EWSED09	EWSED09PW	0905	EWSED09	E: 276730.847 N: 3206723.734	2-4in	NA	6in

Sediment Characteristics:

Sediment description listed on page 3 of 16

Sediment Readings / water parameters
pH 7.48 / pH 7.84 conductivity 49.88 DO 6.27 mg/L
orp 212.9 / temp. 27.63 °C salinity 32.57 ppt orp 136.8
temp. 28.6

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments

Gulfco BERA Field Sampling Data Sheet
Marsh Sediment Chemistry and Toxicity Samples

Personnel: NHSB
Observers: None

Date: 9-13-10
Area: Marsh Sediment

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
NA	EWSEQ01PWEB	0700	NA	E: NA N:	NA	NA	NA

Sediment Characteristics:
Equipment Blank
centrifuge jar, syringe, filter, shovel, bucket, spoon, distilled water

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
9-8-10 EWSEDO4PW	EWSEDO4PW	0950	EWSEDO4	E: 276918.613 N: 2206628.316	6 in	NA	6 in

Sediment Characteristics:
Sediment description listed on page 3 of 16
Sediment Reading
pH 7.19
orp 81.1 mV
Temp 28.6 °C
Water Parameters
pH 7.36
DO 3.06 mg/L
conductivity 37.01 mS
Temp 26.66 °C
salinity 22.60 ppt

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID	Sediment Depth (in)
				E: N:			

Sediment Characteristics:

Comments
Pore water for this station was originally processed on 8-27-10 The lab analyzed for the wrong parameters and we resampled the sample on 9-13-10

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-20-10

Observers: Michael Chanov Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED01	EIWSED01PW	0820	EWSED01	E: 276970.812 N: 3206292.550	NA	7.0	3in/6in

Sediment Characteristics:
Sediment description listed on data sheet 3 of 7 dated 8-18-10

Collected 2 Van Veen grabs south of stake (grabdepth 3in) + 2 Van Veen grabs North of stake (grabdepth >6in). Filled 2 X 5gallon buckets 3/4 full for pore water processing

Sediment pH 7.21 Sed Temp 30.2 °C

Sediment Eh -28.2 mV

Water Parameter	Surface (1.0)	Mid Depth (3.0')	Bottom (6.0')
pH NH WE 8-20-10	7.76	7.76	7.76
Conductivity (mS)	46.68	MV 46.71	46.71
Temperature (°C)	28.81	28.80	28.80
Salinity (ppt)	27.94	27.94	27.99
DO (mg/L)	4.62	4.82	4.79
orp mv	-56.1	-49.4	-34.5

Comments

Equipment Blank
EIWSEDOPWEB - (0745)
stainless steel mixer, syringe, filter, centrifuse jar
stainless steel spoon

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-20-10

Observers: Michael Chanov Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED02	EIWSED02PW	0925	EIWSED02	E: 276937.178 N: 3206356.271	NA	4.6	6 in

Sediment Characteristics:

Sediment description listed on data sheet of 7 dated 8-18-10.

Collected 3 Van Veen grab samples + filled 2 x 5gallon buckets 3/4 full.

Sediment pH 7.01 Sediment Temp. 30.2 °C

Sediment Eh -16.5

Water Parameter	Surface 1.0	Mid Depth	Bottom 3.6
pH	7.76		7.76
Conductivity (µS) 8-20-10 WENU MS	46.70		46.72
Temperature (°C)	28.87		28.89
Salinity (ppt)	27.90		27.92
DO (mg/L)	5.03		5.24
orp MV	-90.0		-87.5

Comments

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH BS ~~SB~~ SB 8-20-10 WE MK

Date: 8-20-10

Observers: Michael Chanov

Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED03PW		1010	EIWSED03	E: 276961.397 N: ~~32066~~ 8-20-10 WE MK 3206365.506	NA	3.0	6 in

Sediment Characteristics:

Collected 4 grabs ~~to mak~~ 8-20-10 WE MK for sample

The first two grabs were 4-6 inches

The 3rd & 4th grab were >6 inch

Filled 2 x 5 gallon buckets 3/4 full for processing

Sediment description is listed on page ~~1 of 7~~ 8-20-10 WE MK 1 of 7 dated 8-18-10

Sediment pH 7.07 temperature 30.3 °C

Sediment Eh -21.2 mV

Water Parameter	Surface	Mid Depth (1.5)	Bottom
pH WE MK 8-20-10		7.74	
Conductivity (µS) M		43.29	
Temperature (°C)		29.18	
Salinity (ppt)		27.76	
DO (mg/L)		5.50	
orp mV		6.6	

Comments

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NHBS SB
Observers: Michael Chanov

Date: 8-21-10
Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED05	PW	0840	EIWSED05	E: 277007.383 N: 3206402.542	NA	4.0	6 in

Sediment Characteristics:
Sediment description listed on page 5 of 7 dated 8-18-10

Collected 4 grabs to fill two five gallon buckets for processing

Sediment pH 6.25 Sed temp °C 29.8 °C

Sediment Eh 28.4

Water Parameter	Surface 1.0	Mid Depth	Bottom 3.0
pH	7.94		7.95
Conductivity (µS) 8-21-10 mS	43.81		43.82
Temperature (°C)	28.24		28.27
Salinity (ppt)	28.16		28.17
DO (mg/L)	4.74		5.08
orp mV	14.3		35.4

Comments
Equipment Blank
EIWSED05PWEB (0805)
stainless steel mixer, stainless steel spoon bucket, centrifuge jar, syrinse, filter distilled water
Field duplicate. EIWSED05PWFD - 0840

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH, BS, SB
Observers: Michael Chaney

Date: 8-21-10
Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSE004	PW	0920	EIWSE004	E: 277 809.394 N: 3206390.491	NA	3.8	6in

Sediment Characteristics:
Sediment description listed on data sheet 4 of 7 dated 8-18-10.

Collected grabs to fill 2 five gallon buckets for Porewater processing.

Sediment pH 6.37 ~~6.25~~ WEMG 8-21-10 temp ~~29.8~~ 8-21-10 29.5 °C

Sediment Eh WE NH ~~28.4~~ 19.4 8-21-10 1.0 NH WE 2.8

Water Parameter	Surface	Mid Depth	Bottom
pH WEM 8-21-10	7.94		7.94
Conductivity (mS)	46.57		46.52
Temperature (°C)	28.25		28.20
Salinity (ppt)	28.18		28.18
DO (mg/L)	4.19		4.05
orpmV	-2.9		1.4

Comments

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NA, BS, SB Date: 8-22-10

Observers: Michael Chanov Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED06PW		0825	EIWSED06	E: 277710.222 N: 3206705.641	NA	5.9	

Sediment Characteristics:

Sediment description is listed on data sheet of 7 dated 8-18-10

Collected 6 grabs & filled 2 x 5 gallon buckets for processing

Sediment pH 6.77 Sed temp. 29.5°C

Sediment Eh -1.3

Water Parameter	Surface 1.0	Mid Depth 3.0	Bottom 4.9
pH	8.16	8.15	~~28.11~~ 8-22-10 8.09
Conductivity (µS) 8-22-10	43.57	43.57	43.57
Temperature (°C)	28.11	28.11	28.11
Salinity (ppt)	27.99	28.00	27.99
DO (mg/L)	4.52	4.73	4.87
Orp mV	30.4	33.1	47.7

Comments

Equipment Blank Time: 0745
EIWSED06PWEB
centrifuge jar, spoon, knife, bucket, mixer filter & syringe

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH BS SB Date: 8-25-10

Observers: Kaitlyn McCormick Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
EIWSED07PW		0837	EWSED07	E: 277774.484 N: 3206872.163	NA	7.7	6 in

Sediment Characteristics:

Sediment description listed on data sheet 7 of 7 dated 8-18-10

Collected 6 grabs to fill 2 buckets for pore water processing

HH 1

Sediment pH	6.70	temp: 29.1	
Sediment Eh	-27.3		
Water Parameter	Surface 1.0	Mid Depth	Bottom 7.7
pH	7.85	7.81	7.90
Conductivity (µS) 8-25-10 NHWS mS	59.00	59.00	58.97
Temperature (°C)	27.77	27.78	27.76
Salinity (ppt)	37.14	37.14	37.13
DO (mg/L)	4.04	4.07	4.14
	-198.7	-220.2	-182.7

Tug & Barge weather - the station at 0855 waited until 0905 to complete sampling

Comments

Collected Equipment blank 8-25-10

EIWSED07~~PW~~EB Time 0800

syringe
mixer
bucket
spoon

Sample Not Analyzed
Bottles broken in Transport
See Page 8 of Dated 8-30-10

Pore Water

Gulfco BERA Field Sampling Data Sheet
ICWW Sediment Chemistry and Toxicity Samples

Personnel: NH SBBS
Observers: Kaitlyn McCormick

Date: 8-30-10
Area: ICWW

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Photo ID	Water Depth (ft.)	Sediment Depth (in)
~~EIWSE007PW~~	→	1006		E: 277774.484 N: 3206872.163	NA	7.9 ft	6 in

Sediment Characteristics:
EIWSE007PW
8-30-10
NHWS

Sediment description listed on data sheet 7 of 7 dated 8-18-10

Collected 7 Van Veen grabs to fill 2x 5 gallon buckets with sediment

Equipment blank NHWS 8-30-10 EIWSE007PW EB ~~EIWSE007PW EB~~ (Time 0912)

Sediment pH 6.37 temp 30.7 °C

Sediment Eh 113.5

Water Parameter	Surface 1.0	Mid Depth 3.5	Bottom 6.9	8-30-10 NHWS
pH	6.52	6.52	~~7.42~~	6.59
Conductivity (µS)	59.35	58.49	59.36	
Temperature (°C)	29.74	29.67	29.57	
Salinity (ppt)	35.95	36.00	36.00	
DO (mg/L)	8.01	8.06	7.71	
ORP	-204.3	-199.1	-196.3	

Comments
2 bottles broke on transport to laboratory on 8-27-10.
Resampled station on 8-30-10

Gulfco BERA Field Sampling Data Sheet
Surface Water Chemistry and Toxicity Samples

Personnel: NH BS SB
Observers: Kaitlyn McCormick

Date: 8-30-10
Area: Marsh

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID
EWSW01	EWSW01	1209	EWSW01	E: 276862.958 N: 3206813.728	4 in	NA

Notes:
0924 ~~0915~~ - NH set tubing up at sample station - waded into sample area
8-30-10 WE NH and placed a 4ft wooden stake. The tubing was attached to the stake using a cable tie. The end of the tubing was placed ~ 2 inches from the surface. We left sample area to allow sediment to settle.

Water Parameters

ph	5.86
Conductivity (mS)	77.38
Temperature (°C)	35.37
Salinity (ppt)	43.23
DO (mg/L)	3.78

Comments

Collected sufficient water to analyze MS/MSD
3X 1L plastic jars + 9X 40mls vials

Collected duplicate sample EWSW01FD - time 1209

Equipment blank → tubing + distilled water
Time: 1145 EWSED01EB

Collected Field blank EWSW01FB Time 1150
distilled water + 3X40ml vials

Sample collected Using a Peristaltic Pump

Gulfco BERA Field Sampling Data Sheet
Surface Water Chemistry and Toxicity Samples

Personnel: NH BS SB
Observers: Kaitlyn McCormick

Date: 8-30-10
Area: Marsh

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID
EWSW04	EWSW04	1330	EWSW04	E: 277024.848 N: 3206714.181	4in	NA

Notes:
0939 - NH set tubing up at sample station. Waded into sample area and placed a 4ft wooden stake. The tubing was attached to the stake using a cable tie. The end of the tubing was placed ~2 inches below the water surface. We left area to allow area to settle out

Water Parameters

ph 7.19

Conductivity (mS) 8-30-10 R 75.53

Temperature (°C) 35.91

Salinity (ppt) 41.69

DO (mg/L) 5.00

Comments

Sample Collected Using a peristaltic Pump

Gulfco BERA Field Sampling Data Sheet
Surface Water Chemistry and Toxicity Samples

Personnel: NH SB

Date: 9-14-10

Observers: None

Area: Marsh

Sample Station ID	Sample ID	Sample Time	WPT	Coordinates UTM Zone 15	Water Depth (in)	Photo ID
EWSW03	EWSW03	1200	EWSW03	E: 276914.950 N: 3206644.950	6 inch	NA

Notes:

1120 NH+SB - set 4ft stake at sample station and tied tubing to stake using cable tie. The end of the tube was placed ~2inches below the water surface

Water Parameters

ph	7.84
Conductivity (mS)	49.10
Temperature (°C)	32.51
Salinity (ppt)	27.47
DO (mg/L)	6.24

Comments

Equipment blank EWSW03EB - 1115
tubing + distilled water

Field Blank (1130) filled 3x40 ml vials with distilled water at the sample site.

Collected Samples using a peristaltic Pump

Appendix B

Laboratory Toxicity Testing

Appendix B-1

Whole-Sediment 28 Day Toxicity Tests for *Leptocheirus plumulosus* and *Neanthes arenaceodentata* for the Wetlands Sediment and Intracoastal Waterway Sediment

PBS&J

An employee-owned company

September 30, 2010

David Lingle
URS Corporation
10550 Richmond Ave, Suite 155
Houston, TX 77042

PBS&J Job No. 100016848
Gulfco Marine Maintenance BERA
28-day Sediment Toxicity Tests
URS Subcontract No. 236208.UB
Work Order No. 237933.US

Dear Mr. Lingle:

Enclosed please find our report conveying the results of 28-day whole sediment toxicity tests conducted during 25 August - 22 September, 2010 of samples collected at the Gulfco Marine Maintenance NPL site near Freeport, Texas. The tests were performed using the marine/estuarine sediment dwellers, *Leptocheirus plumulosus* (Amphipoda) and *Neanthes arenaceodentata* (Annelida).

Although statistical differences were observed in survival and growth metrics for comparisons between the test and negative control sediments, there were no differences observed for comparisons among the test and reference sediments.

The whole sediment toxicity tests reported herein were conducted according to the appropriate EPA or ASTM protocols and are in compliance with the National Environmental Laboratory Accreditation Conference (NELAC) Standards.

If you have any questions or comments, please do not hesitate to call.

Sincerely,

James D. Horne
Associate Vice President
Technical Director

Enclosure

Pages: Ltr + 354

Environmental Toxicology Laboratory
888 West Sam Houston Pkwy South • Houston, Texas 77042-1917 • Telephone: 713.977.1500 • Fax: 713.977.9233 • www.pbsj.com

An employee-owned company

GULFCO MARINE MAINTENANCE
BASELINE ECOLOGICAL RISK ASSESSMENT

WHOLE-SEDIMENT TOXICITY TESTS

Leptocheirus plumulosus
Neanthes arenaceodentata

URS Subcontract Number 236208.UB
Work Order Number 237933.US

PBS&J Log No. 10-1081

Prepared for:

URS Corporation
9801 Westheimer, Suite 500
Houston, Texas 77042

Prepared by:

PBS&J Environmental Toxicology Laboratory
888 West Sam Houston Parkway, South - Ste. 110
Houston, TX 77042-1917

TCEQ Certificate No. T104704202-10-1

September 30, 2010

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1. Introduction

PBS&J was subcontracted by URS Corporation (URS), in support of URS' prime contract with the Dow Chemical Company, to conduct whole-sediment bioassays of samples collected from the Gulfco Marine Maintenance NPL site, located in Brazoria County near Freeport, Texas. Data acquired through tests conducted by PBS&J will be used to support decisions required for a Baseline Ecological Risk Assessment.

2. Methods and Materials

The toxicity tests reported herein were conducted in accordance with protocols and internal standard operating procedures (SOP) as identified below.

Test Title	Protocol	PBS&J SOP
28-day *Leptocheirus plumulosus* Survival, Growth and Reproduction Test	EPA 600/R-01/020	4050
28-day *Neanthes arenaceodentata* Survival and Growth Test	ASTM 1611	4049

2.1 Laboratory Facilities

The toxicity tests were conducted at the PBS&J Environmental Toxicology Laboratory in Houston, Texas in temperature-controlled rooms maintained at 20±1°C (polycheate) or 25±1°C (amphipod). Cool-white fluorescent light fixtures positioned over benches in the testing areas provided a light intensity of 100-1000 lux (~10-100 ft-c); the photoperiod for both tests was 16L:8D hours.

2.2 Test Organisms

Leptocheirus plumulosus, a burrowing amphiod, were obtained from cultures maintained by Chesapeake Cultures, Hayes, Virginia. Specimens represented the size group retained between 0.25-mm and 0.6-mm mesh screens. *Neanthes arenaceodentata*, a polychaetous annelid, were obtained from cultures maintained at the California State University at Long Beach. Specimens were 2-3 weeks old at the beginning of the test.

2.3 Overlying Water

Reconstituted saltwater was prepared from a commercial aquarium sea-salt mix (HW Marinemix). Make-up water was provided by a high-capacity, water purification system (activated carbon, cation exchange, anion exchange, mixed-bed resin polishing); the City of Houston municipal water supply was the ultimate water source.

2.4 Sediment and Water Samples

Sediments were collected over several days during August 12- September 14, 2010, by Benchmark Ecological Services, Inc. personnel. The samples were placed into 2-gal plastic buckets (sediments), packed (in wet ice) in insulated coolers, and transported on the same or following day to the PBS&J laboratory following standard chain-of custody procedures. The samples were in good condition upon arrival at the lab and showed no evidence of tampering during transit. The samples were stored until used in a darkened, walk-in cooler maintained at 1-6 °C.

2.5 Control Media

Subtidal sediment from the York River, Virginia (supplied by Chesapeake Cultures) was used as a control medium for the *Leptocheirus* and *Neanthes* tests. The control sediment was press-sieved through a 500 µM stainless steel screen to remove vegetative matter and macrofauna, then frozen to kill microfauna that could prey upon the test organisms.

2.6 Sediment Sample Preparation

Sediments were transferred from the sample buckets into a stainless steel mixing bowl and homogenized thoroughly with a polyethylene spoon or spatula. Large debris (stones, twigs, leaves, shells, etc.) was removed with forceps and discarded and the sediment was press-sieved through a 500 µM stainless steel screen to remove vegetative matter and small organisms. Homogenized and/or sieved material was placed immediately into the test containers. Unused sediment was returned to the original bucket(s) and stored, in the dark, at 1-6 °C.

2.7 Exposure Systems

Sediment tests were conducted in 1 qt, glass canning jars. Sediment was placed into each jar to a depth of about 2 cm (~175 cc volume) and each jar was filled with ~775 mL reconstituted seawater. The test containers were allowed to stand overnight to facilitate settling of fine particles disturbed during filling.

2.8 Experimental Design

The tests were static renewal exposures; overlying water was renewed daily for the polychaete tests and every-other day for the amphipod tests. Five replicate treatments were established for each sediment; each test container received 20 amphipods or 5 polychaetes. One milliliter of a 20 mg/ml suspension of finely-ground TetraMin® flake food was added to each test jar following overlying-water renewal during the first half of the amphipod test (days 0-13); the concentration of the feeding suspension was increased to 40 mg/ml for the second half of the test (days 14-28), but the volume administered to the test jars was held constant. Five milliliters of TetraMin/alfalfa suspension[1] was added to 3.3 L test water prior to daily renewal for each set of the polychaete test jats.

The tests containers were aerated gently (~60 bubbles·min^{-1}) throughout the test and covered to minimize evaporative losses and concomitant increases in salinity. Temperature, dissolved oxygen, pH, salinity, and total ammonia nitrogen were measured in a small sample composited across the replicates for each test treatment.

The tests were terminated after 28 days. The sediment was wet-sieved (0.5-mm screen) to remove surviving adult organisms. For the amphipod tests, a second-stage sieve (0.1-mm screen) was positioned below the upper sieve to retain neonates produced by the adult organisms. Surviving adult and neonate amphipods and polychaetes were counted; the adult organisms were dried overnight in a 60-degree oven to obtain dry-weight measurements.

2.9 Reference Toxicant Tests

PBS&J conducts reference toxicant tests with vendor-supplied organisms on a per-lot basis or, if more than one lot of test organisms is received within in a one-month period, a least once during that month. Reference toxicant tests with the amphipod and polychaete consisted of 96-hr (water-only) exposures to cadmium. The median lethal concentration (LC50) was determined by the Trimmed Spearman-Karber method.

2.10 Statistical Analyses

Statistical analysis was performed on survival, growth (dry-biomass and dry-weight), and reproduction[2] data to determine if results for the Gulfco sites were significantly different from the results of the control and/or reference sediment group(s). Statistical analyses were conducted at a 95% confidence level (α= 0.05), using CETIS™v1.8.0.4 (Tidepool Scientific Software, McKinleyville, CA).

---

[1] Two grams each, finely-ground TetraMin® flake food and alfalfa flower, per liter synthetic test water (4 mg/ml)/

[2] The fecundity assessment for the amphipod test could not be completed due to the very small numbers of young present (including may replicates with no young recorded).

Following distribution tests,[3] mean survival, mean biomass,[4] and mean dry-weight[5] were examined using the Student-Newman-Kuels test, Tukey-Kramer test, Steel Many-One Rank test, Dunnett's Multiple Comparisons test, or the Bonferoni adjusted (for unequal replicates) t-test.

3. Results

Sample chain-of-custody documents are provided in Appendix A. Original test records, including reference toxicant test results, are given in Appendix B. Statistical analyses are presented in Appendix C.

3.1 Overlying Water Quality Characteristics

3.1.1 Amphipod Tests

The temperature of overlying waters during the amphipod test remained constant at 24±1°C. The salinity of the overlying waters ranged from 19 to 24‰. Dissolved oxygen (DO) concentrations remained above 7.0 mg/L, or above ~94% saturation (based on the temperature and salinity of the test waters). Overlying water pH ranged between 7.7and 8.3 during the tests, but varied day-to-day within test treatments. Total NH_3-N concentrations in the overlying waters ranged from <0.01 to 7.16 mg/L. The maximum NH_3-N value was observed on day 4 of the test in the composite sample obtained from the EIWSED-02 replicate jars.

3.1.2 Polychaete Tests

The temperature of overlying waters during the polychaete test remained constant at 20±1°C[6]. The salinity of the overlying waters ranged from 24 to 29‰. Dissolved oxygen (DO) concentrations remained above 7.4 mg/L, or above ~98% saturation (based on the temperature and salinity of the test waters). Overlying water pH ranged between 7.6 and 8.3 during the tests, but varied day-to-day within test treatments. Total NH_3-N concentrations in the overlying waters ranged from <0.01 to 3.17 mg/L. The maximum NH_3-N value was observed on day 3 of the test in the composite sample obtained from the EWSED-02 replicate jars.

3.2 Sediment Toxicity Tests

3.2.1 *Leptocheirus plumulosus* Tests

Two negative control groups, each consisting of five replicate treatments with 20 organisms per replicate, were employed in the amphipod tests. Survival, growth and reproduction metrics for replicates in the two control groups were added together, increasing the group size, prior to statistical evaluations.

Survival Endpoint: Mean survival of organisms in the control group was 81.5% and the minimum observed in any individual control group was 77.5%; thus, the minimum test acceptance criteria[7] were met.. Survival of *Leptocheirus* exposed to the Gulfco GIWW sediments ranged from 41% (EIWSED-01) to 64% (EIWSED-02 and EIWSED-07). Survival in the Gulfco marsh sediments ranged from 13% (EWSED-06) to 58% (EWSED-02).

---

[3] Bartlett and Modified-Levene tests for variance equality; Shapiro-Wilk, Kilmogorov-Smirnov, D'Agostino, and Anderson-Darling tests for normal distribution.

[4] Mean dry biomass as used herein is the difference between dry weight of the organisms (total weight - tare weight) divided by the number of organisms exposed to the test or control sediment.

[5] Mean dry wreight as used herein is the difference between dry weight of the organisms (total weight - tare weight) divided by the number of surviving organisms (pan count) exposed to the test or control sediment.

[6] The lowest, corrected temperature measurement recorded during the 28-day test was 18°C.

[7] Average survival of amphipods in the negative control sediment must be greater than or equal to 80% at the end of the test, with no single replicate having 60% survival or less.

Mean survival of amphipods exposed to sediments from the GIWW stations EIWSED-01 and EIWSED–3 were statistically less than that of the control group. Similarly, mean survival of amphipods exposed to all marsh sediments except EWSED-02 was statistically less than that of the control group. There were no statistically-significant differences in amphipod survival for comparisons between the GIWW sediments and the GIWW reference sediments (EIWSED-06 and EIWSED-07), or between the marsh sediments and the marsh reference sediments (EWSED-08 and EWSED-09).

Growth Endpoints: Mean dry-biomass of the control group amphipods was 0.6773 mg (per organism) and the mean dry-weight was 0.8304 mg; therefore, the test acceptance criteria[8] were met. Mean dry-biomass of amphipods exposed to the GIWW sediments ranged from 0.19 mg (EIWSED-06) to 0.3463 mg (EIWSED-02). Mean dry-weight metrics for GIWW sites ranged from 0.3877 mg (EIWSED-07) to 0.5576 mg (EIWSED-02). Mean dry-biomass of amphipods exposed to the marsh sediments ranged from 0.0552 mg (EWSED-06) to 0.2607 mg (EWSED-01). Mean dry-weight metrics for marsh sites ranged from 0.3764 mg (EWSED-06) to 0.6566 mg (EWSED-01).

All mean dry-biomass values for site sediments were statistically less the control group mean value. The mean dry-weight values for EIWSED-06, EIWSED-07, EWSED-05, EWSED-06, and EWSED-07 were statistically less than that of the control group metric. There were no statistically-significant differences in the amphipod growth metrics for comparisons between the GIWW sediments and the GIWW reference sediments (EIWSED-06 and EIWSED-07), or between the marsh sediments and the marsh reference sediments (EWSED-08 and EWSED-09).

Reproduction Endpoint: Neonate amphipods were recovered from all but one of the 10 negative control[9] treatments; however, the number of neonate per test jar were small (range: 0-10). Similarly, the number of neonates produced by organisms in the test sediments was small (range: 0-5) and many treatment groups produced no young at all. Statistical analysis of the reproduction data could not be completed because the minimum P-level for the Wilcoxon/Mann-Whitney test was 0.0635, given the number of test groups, replicates and the specified alpha value (0.05).

3.2.1 *Neanthes arenaceodentata* Tests

Two negative control groups, each consisting of five replicate treatments with 5 organisms per replicate, were employed in the polychaete tests. Survival and growth metrics for replicates in the two control groups were added together, increasing the group size, prior to statistical evaluations.

Survival Endpoint: Mean survival of organisms in the control group was 96% and the minimum observed survival in any individual control group was 90%; thus, the minimum test acceptance criteria[10] were met. Survival of *Neanthes* exposed to the Gulfco GIWW sediments ranged from 80% (EIWSED-02 and EIWSED-03) to 100% (all others). Survival in the marsh sediments ranged from 60% (EWSED-04 and EWSED-07) to 100% (EWSED-01, EWSED-02, EWSED-03 and EWSED-05).

Mean survival of worms exposed to sediments from the GIWW stations was not statistically different than that of the control group. However, mean survival of polychaetes exposed to EWSED-05, EWSED-07 and EWSED-08 sediments were statistically less than that of the control group. There were no statistically-significant differences in polychaete survival for comparisons between the GIWW sediments and the GIWW

---

8 A representative subsample (100 specimens, in 5 groups of 20 animals) randomly selected from the batch of amphipods used for the test, exhibited a mean dry-biomass (and dry-weight) of 0.0615 mg per organism. Thus, the test met the test acceptance criterion of "measurable growth" for the control organisms.

9 The test did not meet the acceptance criterion of "measurable reproduction" in all negative control treatments until the replicates were combined.

10 A toxicity test is unacceptable if average survival in the negative control is below 90% or if survival is below 80% in an individual control test chamber.

reference sediments (EIWSED-06 and EIWSED-07), or between the marsh sediments and the marsh reference sediments (EWSED-08 and EWSED-09).

Growth Endpoints: Mean dry-biomass of the control group polychaetes was 4.073 mg (per organism) and the mean dry-weight was 4.28 mg. Mean dry-biomass of polychaetes exposed to the GIWW sediments ranged from 4.112 mg (EIWSED-01) to 6.026 mg (EIWSED-04). Mean dry-weight metrics for GIWW sites ranged from 4.119 mg (EIWSED-05) to 6.614 mg (EIWSED-02). Mean dry-biomass of amphipods exposed to the marsh sediments ranged from 1.9 mg (EWSED-08) to 3.1 mg (EWSED-05). Mean dry-weight metrics for marsh sites ranged from 2.36 mg (EWSED-06) to 3.371 mg (EWSED-07).

Mean dry-biomass values for GIWW sediments were not statistically different from the control group mean value. However, mean dry-weight values for all marsh stations except EWSED-01were statistically less than that of the control group metric. There were no statistically-significant differences in the amphipod growth metrics for comparisons between the GIWW sediments and the GIWW reference sediments (EIWSED-06 and EIWSED-07), or between the marsh sediments and the marsh reference sediments (EWSED-08 and EWSED-09).

3.3 Reference Toxicant Results

Except where reference toxicant data is provided by a vendor, PBS&J conducts a reference toxicant test using cadmium (administered as an aqueous solution of the chloride salt) with each lot of *Leptocheirus plumulosus* or *Neanthes arenaceodentata* to document that the test lot is suitable for the intended use.

Results of reference toxicant test conducted with specimens from the organisms lots used for the sediment tests reported herein are summarized below.

Taxon	96h LC50 (mg/L Cd)	95% Confidence Limits
Leptocheirus plumulosus	0.43	0.39 - 0.47
Neanthes arenaceodentata	7.11	6.80 - 7.43

4. Summary

Survival and growth (dry-biomass and dry-weight) of amphipods and polychaetes exposed to the control sediment exceeded the test acceptability criteria, indicating that the organisms were suitable for the intended use. As summarized below, all of the Gulfco GIWW and marsh sediments produced toxicity endpoint metrics which were statistically different from the corresponding negative-control group metrics; nine of the sixteen samples scored 3 or more such "toxicity hits." None of the toxicity endpoint metrics for Gulfco sediment samples, when compared to their respective "reference" sites (GIWW: EIWSED-06 and EIW-07; marsh: EWSED-08 and EWSED-09), demonstrated a statistically-significant difference.

GIWW or Marsh Station ID	*Leptocheirus plumulosus*			*Neanthes arenaceodentata*			"Toxicity Hits"
	Survival	Biomass	Dry-weight	Survival	Biomass	Dry-weight	
EIWSED-01	X	X					2
EIWSED-02		X				X	2
EIWSED-03	X	X				X	3
EIWSED-04		X				X	2
EIWSED-05		X				X	2
EIWSED-06		X	X			X	3
EIWSED-07		X	X			X	3
EWSED-01	X	X					2
EWSED-02		X				X	2
EWSED-03	X	X				X	3
EWSED-04	X	X				X	2
EWSED-05	X	X	X	X		X	5
EWSED-06	X	X	X			X	4
EWSED-07	X	X	X	X		X	5
EWSED-08	X	X		X		X	4
EWSED-09	X	X				X	3

5. References

ASTM, 2000. Standard Test Method for Conducting Sediment Toxicity Tests with Polychaetous Annelids (ASTM E 1611-2000). American Society for Testing and Materials, Philadelphia, PA.

EPA, 2001. Method for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with the Amphipod *Leptocheirus plumulosus*, (EPA 600/R-01/020). U.S. Environmental Protection Agency, Washington, D.C.

Appendix A

Sample Custody Forms

PBS&J

Environmental Toxicology Laboratory
888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

Tel: (713) 977-1500
Fax: (713) 977-9233

Analysis Request and Chain of Custody Record
Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Leptocheirus plumulosus	Neanthes arenaceodentata	Eisenia fetida	
Client Name: URS									
Contact Name: David Lingle Tel: 713 914 6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 28day	☐ 28day	☐ 28da	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco RERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1 EWSED09	Sediment	8-13-10		0853					
2 EWSED08				0952					
3 EWSED03				1023					
4 EWSED04				1051					
5 EWSED07				1125					
6 ~~NAS01 MAWE 8-17-10~~	~~Soil~~			~~1232~~					
7									

Sampled by: Neil Henthorne (Print Name) [signature] (Signature)

Samples received in good condition ☐ Yes ☐ No

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1 [signature]	8-13-10	1602	[signature]	8/13/10	1602
2					
3					
PBS&J Use Only: Received at PBS&J Laboratory:				All PBS&J Std Terms and Conditions Apply	

Samplers BESL Ryan Lak Brett Joutar, Neil Heathorne

PBS&J
Environmental Toxicology Laboratory
888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

Tel: (713) 977-1500
Fax: (713) 977-9233

Analysis Request and Chain of Custody Record
Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Leptocheirus plumulosus	Neanthes arenaceodentata		
Client Name: ~~Gulfco~~ URS 8-12-10 MWE									
Contact Name: David Lingle Tel: (713) 914-6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☒ 28 day	☒ 28 day	☐	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco BERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

	Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1	EWSED05	Sediment	8-12-10		1124					
2	EWSED06		8-12-10		1217					
3	EWSED01		8-12-10		1325					
4	EWSED02		8-12-10		1416					
5										
6										
7										

Sampled by: Neil Heathorne (Print Name) [signature] (Signature)

Samples received in good condition ☐ Yes ☐ No

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1	[signature]	8-13-10	1602	[signature]	8/13/10	1602
2						
3						

PBS&J Use Only: Received at PBS&J Laboratory:

All PBS&J Std Terms and Conditions Apply

PBS&J
Environmental Toxicology Laboratory
888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

Tel: (713) 977-1500
Fax: (713) 977-9233

Analysis Request and Chain of Custody Record

Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Leptocheirus plumulosus	Neanthes arenaceodentata		
Client Name: URS									
Contact Name: David Lisyle Tel: 713 914 6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☒ 28day	☒ 28day	☐	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco BERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

	Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1	EIWSED03	Sediment	8-18-10		0815					
2	EIW SE002				0910					
3	EIW SE001				1030					
4	EIW SE004				1156					
5	EIW SE005				1223					
6	EIW SE006				1437					
7	EIW SE007				1600					

Sampled by: Neil Hathaway (Print Name) Neil Hathaway (Signature)

Samples received in good condition ☐ Yes ☐ No

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1	8/19/10	1000		8/19/10	1000
2					
3					
PBS&J Use Only: Received at PBS&J Laboratory:	8/19/10	1000		All PBS&J Std Terms and Conditions Apply	

Appendix B

Toxicity Test Records

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1091	Job #:	100016848

Leptocheirus plumulosus 28d Test Condition Summary - EPA 600/R-01/020; PBS&J SOP No. 4050			
Test Material:	Sediment	Test Type:	28d Bioaccumulation Static Renewal
Temperature:	25 ± 2 °C	Photoperiod:	16L:8D
Test Chamber:	1L glass beaker or wide mouth jar	No. Replicates:	5
Test Organism:	*Leptocheirus plumulosus*	Organism Source:	Chesapeake
Organism Batch No.:	10-0084B	Date Received:	8/24/10
Age Class:	2-4mm	No. Organisms/Rep:	20
Aeration:	Moderate, overnight before start of test and throughout duration of test; maintain ≥ 90% saturation of dissolved oxygen concentration	Control Sediment:	Natural sediment from which the test organisms are collected
Feeding Schedule:	3 x per week after renewal	Food Type:	days 0-13, 20 mg TetraMin® per test vessel; days 14-28, 40 mg TetraMin® per test vessel
Water Type:	clean seawater, natural or reconstituted (5 ± 2 ppt or 20 ± 2 ppt)	Water Volume:	775 mL
Renewal Schedule:	48 h intervals, beginning on day 0 (minimum) or as specified	Sediment Volume:	~175 mL (2cm depth)

Comments:

***See attached documentation for chemistry analysis results.**

Water Changes/Feeding							
Day	0	2	4	6	8	10	12
Date	8/25/10	8/27/10	8/29/10	8/31/10	9/2/10	9/4/10	9/6/10
Time	1600	1630	1500	1430	1100	1300	1100
Initials	KM/BR	HJ HL	DK	RB/KM	LB/[illegible]	DK	RB
Day	14	16	18	20	22	24	26
Date	09/08/10	09/10/10	9/12/10	9/14/10	9/16/10	9/18/10	9/20/10
Time	0900	0930	1030 ①	1030	1000	0930	1000
Initials	KM	KM	RB	KM DK/LB	LB	DK	RB

① LE RB 9/12/10 --- > [1100]

Initial Review Completed By: [signature]

Final Review Completed By: [signature]

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Initiation Date:	8/25/10	Termination Date:	9/22/10
Initiation Time:	1700	Termination Time:	1500
Initials:	KM / RB	Initials:	SK / RB

Leptocheirus plumulosus - Survival

Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count
CONT	A	20	17	17	EIWSED 04	A	20	6	6
	B	20	17	17		B	20	7	7
	C	20	17	17		C	20	16	16
	D	20	~~12~~ ①	13		D	20	5	5
	E	20	19	19		E	20	8	8
EIWSED 01	A	20	7	7	EIWSED 05	A	20	~~9~~ ②	12
	B	20	11	11		B	20	9	9
	C	20	7	7		C	20	10	10
	D	20	11	11		D	20	2	2
	E	20	5	5		E	20	11	11
EIWSED 02	A	20	11	11	EIWSED 06	A	20	10	10
	B	20	8	8		B	20	5	5
	C	20	13	13		C	20	7	7
	D	20	13	13		D	20	15	15
	E	20	19	19		E	20	5	5
EIWSED 03	A	20	6	6	EIWSED 07	A	20	9	9
	B	20	16	16		B	20	19	19
	C	20	9	9		C	20	12	12
	D	20	2	2		D	20	8	~~8~~ ③
	E	20	6	6		E	20	16	16
Tech Initials		RB	SK	RB	Tech Initials		RB	SK	RB

① IE SK 9.22.10 → [13]
② IE SK 9.22.10 → [12]
③ IE RB 9/22/10 → [8]

Initial Review Completed By: R. B

Final Review Completed By: Jo Mondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Leptocheirus plumulosus - Survival									
Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count
CONT 2	A	20	15	15	EWSED 04	A	20	0 ①	0 ①
	B	20	14	14		B	20	4	4
	C	20	15	15		C	20	0	0
	D	20	20	20		D	20	2	2
	E	20	16	16		E	20	13	13
EWSED 01	A	20	8	8	EWSED 05	A	20	6	6
	B	20	2	2		B	20	6	6
	C	20	5	5		C	20	6	6
	D	20	11	11		D	20	9	9
	E	20	9	9		E	20	11	11
EWSED 02	A	20	14	14	EWSED 06	A	20	0	0
	B	20	15	15		B	20	7	7
	C	20	16	16		C	20	1	1
	D	20	10	10		D	20	1	1
	E	20	3	3		E	20	4	4
EWSED 03	A	20	0	0	EWSED 07	A	20	11	11
	B	20	14	14		B	20	11	11
	C	20	6	6		C	20	1	1
	D	20	0	0		D	20	3	3
	E	20	0	0		E	20	4	4
Tech Initials			SK	KB	Tech Initials		AB	SK	AB

① Spilled jar DK 9/22/10

Initial Review Completed By: R. B

Final Review Completed By: JoMondin

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Leptocheirus plumulosus - Survival									
Treatment	Rep	Day 0	Day 28		Treatment	Rep	Day 0	Day28	
			1st Count	2nd Count				1st Count	2nd Count
EWSED 08	A	20	6	6		A			
	B	20	1	1		B			
	C	20	8	8		C			
	D	20	9	9		D			
	E	20	9	9		E			
EWSED 09	A	20	4	4		A			
	B	20	2	2		B			
	C	20	5	5		C			
	D	20	1	1		D			
	E	20	7	7		E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
Tech Initials		RB	SK DK	RB	Tech Initials				

Initial Review Completed By: R.B.

Final Review Completed By: JoMondiw

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONTROL	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: RB

Final Review Completed By: JoMondeel

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
CONTROL	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 04	A	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: J. Monchen

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1031	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
EIWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONTROL 2	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Technician Initials	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: Jo Mondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
EIWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONTROL 2	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		RB	KM	[illegible]	[illegible]	[illegible]	KM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R.B.

Final Review Completed By: Jo Mondieu

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
EWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 08	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 09	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
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Initial Review Completed By: R. B.

Final Review Completed By: Jo Mondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
EWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 08	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 09	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
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Initial Review Completed By: [illegible]

Final Review Completed By: [illegible]

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Leptocheirus plumulosus - Offspring Count

Site	Replicate	Day 28	Site	Replicate	Day 28
CONTROL	A	10	EIWSED 04	A	0
	B	6		B	0
	C	3		C	1
	D	0		D	1
	E	7		E	1

Site	Replicate	Day 28	Site	Replicate	Day 28
EIWSED 01	A	1	EIWSED 05	A	2
	B	0		B	1
	C	2		C	0
	D	0		D	0
	E	0		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EIWSED 02	A	1	EIWSED 06	A	5
	B	3		B	0
	C	0		C	0
	D	1		D	1
	E	4		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EIWSED 03	A	1	EIWSED 07	A	0
	B	5		B	0
	C	0		C	0
	D	0		D	0
	E	0		E	0

Initial Review Completed By: R. B.

Final Review Completed By: Jo Monden

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1031	Job #:	100016848

Leptocheirus plumulosus - Offspring Count

Site	Replicate	Day 28	Site	Replicate	Day 28
CONTROL 2	A	2	EWSED 04	A ①	NA
	B	4		B	0
	C	3		C	0
	D	9		D	0
	E	9		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EWSED 01	A	0	EWSED 05	A	0
	B	0		B	0
	C	0		C	0
	D	0		D	0
	E	0		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EWSED 02	A	0	EWSED 06	A	0
	B	0		B	0
	C	1		C	0
	D	0		D	0
	E	0		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EWSED 03	A	0	EWSED 07	A	1
	B	0		B	0
	C	0		C	0
	D	0		D	3
	E	0		E	0

Site	Replicate	Day 28	Site	Replicate	Day 28
EWSED 08	A	0	EWSED 09	A	0
	B	1		B	2
	C	0		C	4
	D	0		D	0
	E	2		E	3

Initial Review Completed By: [illegible]

Final Review Completed By: [illegible]

QAU Form # 3570 ① spilled jar DK 9/22/10

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Tissue Weight - *L. plumulosus*

Treatment/Site (%)	REP	Pan #	Tare Wt (g)	TOTAL WT (g)
Archive	A	1	~~.00985~~	.01192
	B	2	.01084	.01202
	C	3	~~.00967~~	.01247
	D	4	.01125	.01244
	E	5	~~.00995~~	.01260
Control	A	6	.00932	.01839
	B	7	.00979	.02756
	C	8	.00994	.02445
	D	9	.00960	.01906
	E	10	.00989	.02501
EIWSED 01	A	11	.01117	.01735
	B	12	.01082	.01631
	C	13	.01120	.01292
	D	14	.01079	.01652
	E	15	.01125	.01437
EIWSED 02	A	16	.01104	.01816
	B	17	.01077	.01698
	C	18	.01050	.01372
	D	19	.00998	.01663
	E	20	.01019	.02157
EIWSED 03	A	21	.01027	.01314
	B	22	.01043	.02182
	C	23	.01056	.01491
	D	24	.01017	.01086
	E	25	.01019	.01459
EIWSED 04	A	26	.01057	.01281
	B	27	.01223	.01515
	C	28	.01231	.01962
	D	29	.01242	.01398
	E	30	.01182	.01871

Treatment/Site (%)	REP	Pan #	Tare WT (g)	TOTAL WT (g)
EIWSED 05	A	31	.01214	.01929
	B	32	.01176	.01771
	C	33	.01157	.01792
	D	34	.01145	.01233
	E	35	.01167	.01597
EIWSED 06	A	36	.01000	.01504
	B	37	.01034	.01188
	C	38	.01029	.01202
	D	39	.01053	.01938
	E	40	.01084	.01268
EIWSED 07	A	41	.01077	.01259
	B	42	.01085	.01866
	C	43	.01017	.01481
	D	44	.01025	.01440
	E	45	.00928	.01511

DATE/TIME Drying Initiated: 9/23/10 / 1130

DATE/TIME Drying Terminated: 9-24-10 / 1230

BALANCE ID#: ~~790~~ (4)

INITIALS: DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

(1) IE SK 9.8.10 → [.01034]
(2) IE SK 9.8.10 → [.01114]
(3) IE SK 9.8.10 → [.01130]
(4) IE DK 9/24/10 → [791]

Initial Review Completed By: DK

Final Review Completed By: Jo Mondin

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1031	Job #:	100016848

Tissue Weight - *L. plumulosus*

Treatment/Site (%)	REP	Pan #	Tare Wt (g)	TOTAL WT (g)
Control 2	A	46	.00994	.02336
	B	47	.00977	.02215
	C	48	.00999	.02172
	D	49	.01011	.02402
	E	50	.00959	.01778
EWSED 01	A	51	.00975	.01172
	B	52	.00950	.01068
	C	53	.00967	.01136
	D	54	.00952	.02189
	E	55	.00955	.01841
EWSED 02	A	56	.00942	.01474
	B	57	.00970	.01526
	C	58	.00996	.01539
	D	59	.01010	.01398
	E	60	.00973	.01267
EWSED 03	A	61	.00963	② NA
	B	62	.00972	.01500
	C	63	.00940	.01218
	D	64	.00985	② NA
	E	65	.00976	② NA
EWSED 04	A	66	.00974	① NA
	B	67	.01011	.01215
	C	68	.00953	② NA
	D	69	.00941	.01067
	E	70	.00881	.01462
EWSED 05	A	71	.00987	.01203
	B	72	.00985	.01179
	C	73	.00966	.01200
	D	74	.00906	.01397
	E	75	.00991	.01470

Treatment/Site (%)	REP	Pan #	Tare WT (g)	TOTAL WT (g)
EWSED 06	A	76	.00965	② NA
	B	77	.00967	.01223
	C	78	.00918	.00958
	D	79	.00885	.00935
	E	80	.00918	.01014
EWSED 07	A	81	.00982	.01524
	B	82	.01036	.01446
	C	83	.00980	.01017
	D	84	.00991	.01110
	E	85	.01035	.01167
EWSED 08	A	86	.01000	.01496
	B	87	.00993	.01014
	C	88	.00945	.01268
	D	89	.00992	.01823
	E	90	.01037	.01604

DATE/TIME Drying Initiated	9-23-10 / 1130
DATE/TIME Drying Terminated	9-24-10 / 1230
BALANCE ID#	~~790~~ ③
INITIALS	DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

① Spilled jar 9/22/10 RD

② Organisms all dead RD

③ JE DK 9/24/10 → [791]

Initial Review Completed By: DK

Final Review Completed By: J. Mondlin

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Tissue Weight - *L. plumulosus*

Treatment/Site (%)	REP	Pan #	Tare Wt (g)	TOTAL WT (g)
EWSED 09	A	91	.01043	.01156
	B	92	.00997	.01048
	C	93	.01008	.01438
	D	94	.01116	.01152
	E	95	.01076	.01558

Treatment/Site (%)	REP	Pan #	Tare WT (g)	TOTAL WT (g)
QA/QC	A	12	.01081	.01632
	B	18	.01054	.01372
	C	29	.01229	.01395
	D	33	.01158	.01794
	E	39	.01057	.01936
QA/QC	A	44	.01023	.01439
	B	51	.00971	.01172
	C	61	.00963	—
	D	84	.00991	.01109
	E	88	.00945	.01267

DATE/TIME Drying Initiated: 9-23-10 / ~~1430~~ 1130 ①

DATE/TIME Drying Terminated: 9-24-10 / 1230

BALANCE ID#: ~~790~~ 791 ②

INITIALS: DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

① I E DK 9/23/10 → (1130)

② SE DK 9/24/10 → [791]

Initial Review Completed By: DK

Final Review Completed By: Jo Monden

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1031	Job #:	100016848

Test Notes

Comments	Date	Time	Initials
TARE WT SCALE 791	9/8/10	1430	SK

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/24/10	URS - Gulfco BERA CONTROL - NEW Day -1	24 / 24	7.9	1530	RD
9/25/10	URS - Gulfco BERA CONTROL - NEW Day 0	25 / 25	7.8	1100	HL
	URS - Gulfco BERA CONTROL Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 01 Day 0	25 / 25	7.9		
	URS - Gulfco BERA EIWSED 02 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 03 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 04 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 05 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 06 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 07 Day 0	25 / 25	7.9		
	URS - Gulfco BERA CONTROL 2 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 01 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 02 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 03 Day 0	25 / 25	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/25/10	URS - Gulfco BERA EWSED 04 Day 0	25 / 25	7.9	1100	HL
	URS - Gulfco BERA EWSED 05 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 06 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 07 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 08 Day 0	25 / 25	8.0		
	URS - Gulfco BERA EWSED 09 Day 0	25 / 25	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
7/24/10	URS - Gulfco BERA CONTROL - NEW Day -1	20	7.7	NH	RB
8/5/10	URS - Gulfco BERA CONTROL - NEW Day 0	20	7.6	—	HL
	URS - Gulfco BERA CONTROL Day 0	21	7.7	0.42	
	URS - Gulfco BERA EIWSED 01 Day 0	21	7.8	0.11	
	URS - Gulfco BERA EIWSED 02 Day 0	21	7.8	0.23	
	URS - Gulfco BERA EIWSED 03 Day 0	21	7.9	0.35	
	URS - Gulfco BERA EIWSED 04 Day 0	21	7.9	0.42	
	URS - Gulfco BERA EIWSED 05 Day 0	21	7.9	0.49	
	URS - Gulfco BERA EIWSED 06 Day 0	21	7.8	0.19	
	URS - Gulfco BERA EIWSED 07 Day 0	21	7.7	0.17	
	URS - Gulfco BERA CONTROL 2 Day 0	21	7.6	0.44	
	URS - Gulfco BERA EWSED 01 Day 0	24	7.7	0.26	
	URS - Gulfco BERA EWSED 02 Day 0	24	7.6	~~0.10~~	
	URS - Gulfco BERA EWSED 03 Day 0	22	7.6	0.11	

Comments: ① IE HL 8/25/10 → [0.95]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
6/25/10	URS - Gulfco BERA EWSED 04 Day 0	24	7.6	0.05	HL
	URS - Gulfco BERA EWSED 05 Day 0	24	7.6	0.11	
	URS - Gulfco BERA EWSED 06 Day 0	24	7.6	0.04	
	URS - Gulfco BERA EWSED 07 Day 0	24	7.6	0.24	
	URS - Gulfco BERA EWSED 08 Day 0	24	7.6	0.44	
	URS - Gulfco BERA EWSED 09 Day 0	24	7.6	0.08	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/26/10	URS - Gulfco BERA CONTROL Day 1	24 / 24	7.7	0900	HL
	URS - Gulfco BERA EIWSED 01 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 03 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 04 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 1	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 1	24 / 24	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/26/10	URS - Gulfco BERA EWSED 04 Day 1	24 / 24	8.0	0900	HL
	URS - Gulfco BERA EWSED 05 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 1	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 1	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 1	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
5/26/10	URS - Gulfco BERA CONTROL Day 1	20	7.8	1.16	HC
	URS - Gulfco BERA EIWSED 01 Day 1	20	7.9	1.30	
	URS - Gulfco BERA EIWSED 02 Day 1	21	7.9	1.34	
	URS - Gulfco BERA EIWSED 03 Day 1	21	8.0	0.51	
	URS - Gulfco BERA EIWSED 04 Day 1	21	8.0	0.86	
	URS - Gulfco BERA EIWSED 05 Day 1	21	8.0	0.91	
	URS - Gulfco BERA EIWSED 06 Day 1	21	8.1	0.52	
	URS - Gulfco BERA EIWSED 07 Day 1	20	8.1	0.62	
	URS - Gulfco BERA CONTROL 2 Day 1	21	7.9	0.84	
	URS - Gulfco BERA EWSED 01 Day 1	22	7.9	2.13	
	URS - Gulfco BERA EWSED 02 Day 1	23	8.0	0.30	
	URS - Gulfco BERA EWSED 03 Day 1	21	7.9	0.35	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/20/10	URS - Gulfco BERA EWSED 04 Day 1	21	7.9	0.41	HC
	URS - Gulfco BERA EWSED 05 Day 1	21	7.9	0.24	
	URS - Gulfco BERA EWSED 06 Day 1	21	7.9	0.51	
	URS - Gulfco BERA EWSED 07 Day 1	21	7.9	0.43	
	URS - Gulfco BERA EWSED 08 Day 1	21	7.9	0.96	
	URS - Gulfco BERA EWSED 09 Day 1	21	7.9	0.12	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/27/10	URS - Gulfco BERA CONTROL - NEW Day 2	24 / 24	8.0	0930	AS
	URS - Gulfco BERA CONTROL Day 2	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 01 Day 2	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day 2	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 2	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 05 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 06 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 07 Day 2	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 2	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 2	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EWSED 03 Day 2	24 / 24	8.1		

Comments: Thermometer # T-80
pH meter # 759

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp °C (actual/corrected)	pH	Time	Init.
8/27/14	URS - Gulfco BERA EWSED 04 Day 2	24 / 24	8.1	0935	RB
	URS - Gulfco BERA EWSED 05 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EWSED 06 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EWSED 07 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EWSED 08 Day 2	24 / 24	8.1		
	URS - Gulfco BERA EWSED 09 Day 2	24 / 24	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/27/10	URS - Gulfco BERA CONTROL - NEW Day 2	21	7.7	NA	HL
	URS - Gulfco BERA CONTROL Day 2	21	7.8	2.18	
	URS - Gulfco BERA EIWSED 01 Day 2	21	7.8	2.48	
	URS - Gulfco BERA EIWSED 02 Day 2	21	7.9	2.50	
	URS - Gulfco BERA EIWSED 03 Day 2	21	7.9	3.89	
	URS - Gulfco BERA EIWSED 04 Day 2	22	7.8	2.20	
	URS - Gulfco BERA EIWSED 05 Day 2	22	7.9	2.38	
	URS - Gulfco BERA EIWSED 06 Day 2	21	7.9	1.25	
	URS - Gulfco BERA EIWSED 07 Day 2	20	7.9	2.10	
	URS - Gulfco BERA CONTROL 2 Day 2	21	7.9	2.09	
	URS - Gulfco BERA EWSED 01 Day 2	22	7.9	1.75	
	URS - Gulfco BERA EWSED 02 Day 2	23	7.9	4.16	
	URS - Gulfco BERA EWSED 03 Day 2	22	7.9	0.83	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ppt	D.O. mg/L	NH_3N ppm	Init.
8/27/10	URS - Gulfco BERA EWSED 04 Day 2	22	7.9	1.52	HL
	URS - Gulfco BERA EWSED 05 Day 2	22	7.9	0.48	
	URS - Gulfco BERA EWSED 06 Day 2	22	7.9	0.50	
	URS - Gulfco BERA EWSED 07 Day 2	22	7.9	1.42	
	URS - Gulfco BERA EWSED 08 Day 2	24	7.9	2.87	
	URS - Gulfco BERA EWSED 09 Day 2	26	7.9	0.13	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/28/10	URS - Gulfco BERA CONTROL Day 3	24 / 24	7.9	1430	RB/DK
	URS - Gulfco BERA EIWSED 01 Day 3	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 3	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 03 Day 3	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 04 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 3	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 3	24 / 24	8.0		

Comments: Thermometer #: T-80
pH Meter #: 757

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
4/29/10	URS - Gulfco BERA EWSED 04 Day 3	24 / 24	8.0	1430	RO/OK
	URS - Gulfco BERA EWSED 05 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 3	24 / 24	8.0		
	URS - Gulfco BERA EWSED 09 Day 3	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/28/10	URS - Gulfco BERA CONTROL Day 3	20	7.5	0.08	DK
	URS - Gulfco BERA EIWSED 01 Day 3	21	7.5	0.12	
	URS - Gulfco BERA EIWSED 02 Day 3	21	7.5	0.33	
	URS - Gulfco BERA EIWSED 03 Day 3	21	7.5	0.11	
	URS - Gulfco BERA EIWSED 04 Day 3	21	7.5	0.14	
	URS - Gulfco BERA EIWSED 05 Day 3	21	7.5	0.09	
	URS - Gulfco BERA EIWSED 06 Day 3	21	7.5	0.13	
	URS - Gulfco BERA EIWSED 07 Day 3	22	7.4	0.10	
	URS - Gulfco BERA CONTROL 2 Day 3	20	7.5	0.30	
	URS - Gulfco BERA EWSED 01 Day 3	21	7.4	0.53	
	URS - Gulfco BERA EWSED 02 Day 3	22	7.4	<0.01	
	URS - Gulfco BERA EWSED 03 Day 3	21	7.5	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
3-29-10	URS - Gulfco BERA EWSED 04 Day 3	21	7.5	<0.01	DK
	URS - Gulfco BERA EWSED 05 Day 3	21	7.5	0.02	
	URS - Gulfco BERA EWSED 06 Day 3	21	7.5	<0.01	
	URS - Gulfco BERA EWSED 07 Day 3	21	7.5	<0.01	
	URS - Gulfco BERA EWSED 08 Day 3	21	7.6	0.32	
	URS - Gulfco BERA EWSED 09 Day 3	23	7.5	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/29/10	URS - Gulfco BERA CONTROL - NEW Day 4	24 / 24	8.0	1900	RB
	URS - Gulfco BERA CONTROL Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 01 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 4	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 4	24 / 24	① ~~7.9~~		
	URS - Gulfco BERA EWSED 03 Day 4	24 / 24	8.0		

Comments: Thermometer #: T-80
pH meter #: 765

① IE RB 8/29/10 → [8.0]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/24/12	URS - Gulfco BERA EWSED 04 Day 4	24 / 24	8.0	1445	RB
	URS - Gulfco BERA EWSED 05 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 4	24 / 24	8.0		
	URS - Gulfco BERA EWSED 09 Day 4	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm*	Init.
8/29/10	URS - Gulfco BERA CONTROL - NEW Day 4	20	7.8	1.64	RB/DIL
	URS - Gulfco BERA CONTROL Day 4	21	7.8	2.41	
	URS - Gulfco BERA EIWSED 01 Day 4	21	7.8	4.34	
	URS - Gulfco BERA EIWSED 02 Day 4	21	7.7	7.16	
	URS - Gulfco BERA EIWSED 03 Day 4	22	7.6	1.79	
	URS - Gulfco BERA EIWSED 04 Day 4	22	7.6	1.93	
	URS - Gulfco BERA EIWSED 05 Day 4	21	7.5	1.65	
	URS - Gulfco BERA EIWSED 06 Day 4	21	7.5	2.03	
	URS - Gulfco BERA EIWSED 07 Day 4	20	7.5	2.29	
	URS - Gulfco BERA CONTROL 2 Day 4	21	7.5	1.63	
	URS - Gulfco BERA EWSED 01 Day 4	22	7.5	1.19	
	URS - Gulfco BERA EWSED 02 Day 4	22	7.5	1.34	
	URS - Gulfco BERA EWSED 03 Day 4	22	7.5	2.54	

Comments:

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WET CHEMISTRY LOG-Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
2/5/10	URS - Gulfco BERA EWSED 04 Day 4	21	7.5	0.58	RD/DIL
	URS - Gulfco BERA EWSED 05 Day 4	21	7.5	2.07	
	URS - Gulfco BERA EWSED 06 Day 4	22	7.5	1.27	
	URS - Gulfco BERA EWSED 07 Day 4	21	7.5	1.34	
	URS - Gulfco BERA EWSED 08 Day 4	21	7.5	4.88	
	URS - Gulfco BERA EWSED 09 Day 4	21	7.5	1.7	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/30/10	URS - Gulfco BERA CONTROL Day 5	23 / 23	7.9	1200	HS
	URS - Gulfco BERA EIWSED 01 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 02 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 03 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 04 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 05 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 06 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 07 Day 5	23 / 23	8.0		
	URS - Gulfco BERA CONTROL 2 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EWSED 01 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EWSED 02 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EWSED 03 Day 5	23 / 23	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/22/12	URS - Gulfco BERA EWSED 04 Day 5	23 / 23	8.0	1000	HS
	URS - Gulfco BERA EWSED 05 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EWSED 06 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EWSED 07 Day 5	23 / 23	8.0		
	URS - Gulfco BERA EWSED 08 Day 5	23 / 23	7.9		
	URS - Gulfco BERA EWSED 09 Day 5	23 / 23	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
8/30/10	URS - Gulfco BERA CONTROL Day 5	20	7.4	0.16	HJ HC
	URS - Gulfco BERA EIWSED 01 Day 5	21	7.4	0.37	
	URS - Gulfco BERA EIWSED 02 Day 5	21	7.4	0.40	
	URS - Gulfco BERA EIWSED 03 Day 5	21	7.4	0.30	
	URS - Gulfco BERA EIWSED 04 Day 5	21	7.5	0.43	
	URS - Gulfco BERA EIWSED 05 Day 5	21	7.5	0.15	
	URS - Gulfco BERA EIWSED 06 Day 5	21	7.5	0.21	
	URS - Gulfco BERA EIWSED 07 Day 5	21	7.5	0.22	
	URS - Gulfco BERA CONTROL 2 Day 5	20	7.3	0.45	
	URS - Gulfco BERA EWSED 01 Day 5	21	7.3	0.13	
	URS - Gulfco BERA EWSED 02 Day 5	22	7.3	1.21	
	URS - Gulfco BERA EWSED 03 Day 5	21	7.4	0.21	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/30/10	URS - Gulfco BERA EWSED 04 Day 5	21	7.4	0.11	HJ HC
	URS - Gulfco BERA EWSED 05 Day 5	21	7.5	0.22	
	URS - Gulfco BERA EWSED 06 Day 5	21	7.5	0.12	
	URS - Gulfco BERA EWSED 07 Day 5	21	7.5	0.18	
	URS - Gulfco BERA EWSED 08 Day 5	21	7.5	0.67	
	URS - Gulfco BERA EWSED 09 Day 5	21	7.5	0.06	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/31/10	URS - Gulfco BERA CONTROL - NEW Day 6	23 / 23	8.0	0930	HJS
	URS - Gulfco BERA CONTROL Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 01 Day 6	23 / 23	8.1		
	URS - Gulfco BERA EIWSED 02 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 03 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 04 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 05 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 06 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 07 Day 6	23 / 23	8.0		
	URS - Gulfco BERA CONTROL 2 Day 6	23 / 23	7.9		
	URS - Gulfco BERA EWSED 01 Day 6	23 / 23	7.9		
	URS - Gulfco BERA EWSED 02 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EWSED 03 Day 6	23 / 23	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp - C (actual/corrected)	pH	Time	Init.
8/9/10	URS - Gulfco BERA EWSED 04 Day 6	23 / 23	8.4	0950	HS
	URS - Gulfco BERA EWSED 05 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EWSED 06 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EWSED 07 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EWSED 08 Day 6	23 / 23	8.0		
	URS - Gulfco BERA EWSED 09 Day 6	23 / 23	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
8/31/10	URS - Gulfco BERA CONTROL - NEW Day 6	21	7.6	~~<0~~	HJ
	URS - Gulfco BERA CONTROL Day 6	21	7.5	0.09	
	URS - Gulfco BERA EIWSED 01 Day 6	21	7.5	0.08	
	URS - Gulfco BERA EIWSED 02 Day 6	21	7.5	0.04	
	URS - Gulfco BERA EIWSED 03 Day 6	21	7.6	0.05	
	URS - Gulfco BERA EIWSED 04 Day 6	22	7.5	0.30	
	URS - Gulfco BERA EIWSED 05 Day 6	21	7.5	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 6	21	7.5	0.11	
	URS - Gulfco BERA EIWSED 07 Day 6	21	7.5	0.12	
	URS - Gulfco BERA CONTROL 2 Day 6	20	7.5	0.15	
	URS - Gulfco BERA EWSED 01 Day 6	21	7.5	0.11	
	URS - Gulfco BERA EWSED 02 Day 6	22	7.5	0.08	
	URS - Gulfco BERA EWSED 03 Day 6	21	7.5	<0.01	

Comments: ① IE HJ 8/31/10 → [<0.01]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Salu ‰	D.O. mg/L	NH_3N ppm	Init.
8/5/10	URS - Gulfco BERA EWSED 04 Day 6	28	7.5	0.19	HJ
	URS - Gulfco BERA EWSED 05 Day 6	21	7.6	0.22	
	URS - Gulfco BERA EWSED 06 Day 6	21	7.6	0.39	
	URS - Gulfco BERA EWSED 07 Day 6	21	7.6	0.01	
	URS - Gulfco BERA EWSED 08 Day 6	28	7.6	0.32	
	URS - Gulfco BERA EWSED 09 Day 6	28	7.6	0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/1/10	URS - Gulfco BERA CONTROL Day 7	23 / 23	7.8	1030	HJ
	URS - Gulfco BERA EIWSED 01 Day 7	23 / 23	7.8		
	URS - Gulfco BERA EIWSED 02 Day 7	23 / 23	7.8		
	URS - Gulfco BERA EIWSED 03 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 04 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 05 Day 7	23 / 23	7.8		
	URS - Gulfco BERA EIWSED 06 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 07 Day 7	23 / 23	7.9		
	URS - Gulfco BERA CONTROL 2 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EWSED 01 Day 7	23 / 23	7.7		
	URS - Gulfco BERA EWSED 02 Day 7	23 / 23	7.8		
	URS - Gulfco BERA EWSED 03 Day 7	23 / 23	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects – 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/7/10	URS - Gulfco BERA EWSED 04 Day 7	23 / 23	7.9	1030	HS
	URS - Gulfco BERA EWSED 05 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EWSED 06 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EWSED 07 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EWSED 08 Day 7	23 / 23	7.9		
	URS - Gulfco BERA EWSED 09 Day 7	23 / 23	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/1/10	URS - Gulfco BERA CONTROL Day 7	20	7.6	0.23	HJ
	URS - Gulfco BERA EIWSED 01 Day 7	20	~~7.7~~ ①	0.43	
	URS - Gulfco BERA EIWSED 02 Day 7	20	~~7.6~~ ②	0.11	
	URS - Gulfco BERA EIWSED 03 Day 7	20	7.6	0.14	
	URS - Gulfco BERA EIWSED 04 Day 7	21	7.6	0.13	
	URS - Gulfco BERA EIWSED 05 Day 7	21	7.6	0.06	
	URS - Gulfco BERA EIWSED 06 Day 7	21	7.6	0.11	
	URS - Gulfco BERA EIWSED 07 Day 7	20	7.6	0.13	
	URS - Gulfco BERA CONTROL 2 Day 7	20	7.6	0.17	
	URS - Gulfco BERA EWSED 01 Day 7	21	7.6	0.14	
	URS - Gulfco BERA EWSED 02 Day 7	21	7.6	1.15	
	URS - Gulfco BERA EWSED 03 Day 7	21	2.5	0.10	

Comments: ① IE HJ 9/1/10 → [7.7]
② IE HJ 9/1/10 → [7.6]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/01/10	URS - Gulfco BERA EWSED 04 Day 7	21	7.7	0.18	HJ
	URS - Gulfco BERA EWSED 05 Day 7	21	7.7	0.01	
	URS - Gulfco BERA EWSED 06 Day 7	21	7.7	0.07	
	URS - Gulfco BERA EWSED 07 Day 7	21	7.7	0.13	
	URS - Gulfco BERA EWSED 08 Day 7	21	7.7	0.55	
	URS - Gulfco BERA EWSED 09 Day 7	21	7.7	0.05	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
09/02/10	URS - Gulfco BERA CONTROL - NEW Day 8	23 / 24 ①	7.9	0900	HJ
	URS - Gulfco BERA CONTROL Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EIWSED 01 Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EIWSED 02 Day 8	23 / 24 ①	8.0		
	URS - Gulfco BERA EIWSED 03 Day 8	23 / 24 ①	8.0		
	URS - Gulfco BERA EIWSED 04 Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EIWSED 05 Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EIWSED 06 Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EIWSED 07 Day 8	23 / 24 ①	8.0		
	URS - Gulfco BERA CONTROL 2 Day 8	23 / 24 ①	8.0		
	URS - Gulfco BERA EWSED 01 Day 8	23 / 24 ①	7.9		
	URS - Gulfco BERA EWSED 02 Day 8	23 / 24 ①	7.8		
	URS - Gulfco BERA EWSED 03 Day 8	23 / 24 ①	7.9		

Comments: ① TE HJ 9/2/10 → [23]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
09/02/10	URS - Gulfco BERA EWSED 04 Day 8	23 / 24.0	8.0	0900	HJ
	URS - Gulfco BERA EWSED 05 Day 8	23 / 24.0	7.9		
	URS - Gulfco BERA EWSED 06 Day 8	23 / 24.0	7.9		
	URS - Gulfco BERA EWSED 07 Day 8	23 / 24.0	8.0		
	URS - Gulfco BERA EWSED 08 Day 8	23 / 24.0	8.0		
	URS - Gulfco BERA EWSED 09 Day 8	23 / 24.0	7.9		

Comments: ① IE HJ 9/2/10 → [23]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
09/20/10	URS - Gulfco BERA CONTROL - NEW Day 8	20	7.8	0.01	HJ
	URS - Gulfco BERA CONTROL Day 8	20	7.7	0.06	
	URS - Gulfco BERA EIWSED 01 Day 8	21	7.7	0.10	
	URS - Gulfco BERA EIWSED 02 Day 8	21	7.7	0.09	
	URS - Gulfco BERA EIWSED 03 Day 8	21	7.7	0.08	
	URS - Gulfco BERA EIWSED 04 Day 8	21	7.7	0.07	
	URS - Gulfco BERA EIWSED 05 Day 8	20	7.7	0.07	
	URS - Gulfco BERA EIWSED 06 Day 8	21	7.7	0.05	
	URS - Gulfco BERA EIWSED 07 Day 8	21	7.7	0.04	
	URS - Gulfco BERA CONTROL 2 Day 8	20	7.6	0.05	
	URS - Gulfco BERA EWSED 01 Day 8	21	7.6	0.06	
	URS - Gulfco BERA EWSED 02 Day 8	21	7.6	0.55	
	URS - Gulfco BERA EWSED 03 Day 8	21	7.7	0.15	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
12/22/10	URS - Gulfco BERA EWSED 04 Day 8	21	7.7	0.07	HJ
	URS - Gulfco BERA EWSED 05 Day 8	21	7.7	0.20	
	URS - Gulfco BERA EWSED 06 Day 8	21	7.7	<0.01	
	URS - Gulfco BERA EWSED 07 Day 8	21	7.7	0.03	
	URS - Gulfco BERA EWSED 08 Day 8	21	7.7	0.18	
	URS - Gulfco BERA EWSED 09 Day 8	21	7.7	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
09/03/10	URS - Gulfco BERA CONTROL Day 9	23 / 23	7.8	0900	#5
	URS - Gulfco BERA EIWSED 01 Day 9	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 02 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 03 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 04 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 05 Day 9	23 / 23	7.9		
	URS - Gulfco BERA EIWSED 06 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EIWSED 07 Day 9	23 / 23	7.9		
	URS - Gulfco BERA CONTROL 2 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 01 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 02 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 03 Day 9	23 / 23	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/18/10	URS - Gulfco BERA EWSED 04 Day 9	23 / 23	8.0	0900	HJ
	URS - Gulfco BERA EWSED 05 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 06 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 07 Day 9	23 / 23	8.1		
	URS - Gulfco BERA EWSED 08 Day 9	23 / 23	8.0		
	URS - Gulfco BERA EWSED 09 Day 9	23 / 23	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
09/03/10	URS - Gulfco BERA CONTROL Day 9	21	7.6	<0.01	HJ
	URS - Gulfco BERA EIWSED 01 Day 9	21	7.6	0.15	
	URS - Gulfco BERA EIWSED 02 Day 9	21	7.6	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 9	21	7.6	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 9	21	7.7	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 9	21	7.6	0.05	
	URS - Gulfco BERA EIWSED 06 Day 9	21	7.5	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 9	21	7.5	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 9	20	7.6	0.04	
	URS - Gulfco BERA EWSED 01 Day 9	21	7.7	0.04	
	URS - Gulfco BERA EWSED 02 Day 9	21	7.7	0.17	
	URS - Gulfco BERA EWSED 03 Day 9	20	7.7	0.09	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm	Init.
09/03/10	URS - Gulfco BERA EWSED 04 Day 9	21	7.2	0.04	HS
	URS - Gulfco BERA EWSED 05 Day 9	21	7.2	0.15	
	URS - Gulfco BERA EWSED 06 Day 9	21	7.8	0.01	
	URS - Gulfco BERA EWSED 07 Day 9	21	7.2	0.03	
	URS - Gulfco BERA EWSED 08 Day 9	22	7.7	0.19	
	URS - Gulfco BERA EWSED 09 Day 9	21	7.7	0.02	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/21/10	URS - Gulfco BERA CONTROL - NEW Day 10	24 / 24	7.9	1100	SK
	URS - Gulfco BERA CONTROL Day 10	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 01 Day 10	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day 10	24 / 24	8.2		
	URS - Gulfco BERA EIWSED 03 Day 10	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 10	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 10	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 06 Day 10	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 10	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 10	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 10	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 10	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 10	24 / 24	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/14/10	URS - Gulfco BERA EWSED 04 Day 10	29 / 29	8.0	1100	SK
	URS - Gulfco BERA EWSED 05 Day 10	29 / 29	7.9		
	URS - Gulfco BERA EWSED 06 Day 10	29 / 29	7.9		
	URS - Gulfco BERA EWSED 07 Day 10	29 / 29	8.0		
	URS - Gulfco BERA EWSED 08 Day 10	29 / 29	8.0		
	URS - Gulfco BERA EWSED 09 Day 10	29 / 29	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/10 ①	URS - Gulfco BERA CONTROL - NEW Day 10	19	7.7	<0.01	SK/BE
	URS - Gulfco BERA CONTROL Day 10	20	7.7	.02	SK
	URS - Gulfco BERA EIWSED 01 Day 10	20	7.6	.04	
	URS - Gulfco BERA EIWSED 02 Day 10	20	7.5	.05	
	URS - Gulfco BERA EIWSED 03 Day 10	21	7.6	.03	
	URS - Gulfco BERA EIWSED 04 Day 10	22	7.6	.05	
	URS - Gulfco BERA EIWSED 05 Day 10	21	7.5	.11	
	URS - Gulfco BERA EIWSED 06 Day 10	21	7.5	.05	
	URS - Gulfco BERA EIWSED 07 Day 10	21	7.5	.06	
	URS - Gulfco BERA CONTROL 2 Day 10	21	7.5	.07	
	URS - Gulfco BERA EWSED 01 Day 10	21	7.4	.09	
	URS - Gulfco BERA EWSED 02 Day 10	21	7.4	.24	
	URS - Gulfco BERA EWSED 03 Day 10	21	7.4	.15	

Comments: ① 1E SK 9/4/10 → [9/4/10]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm	Init.
~~7/10/10~~ ①	URS - Gulfco BERA EWSED 04 Day 10	21	7.4	.11	SK
	URS - Gulfco BERA EWSED 05 Day 10	21	7.4	.19	
	URS - Gulfco BERA EWSED 06 Day 10	21	7.4	.17	
	URS - Gulfco BERA EWSED 07 Day 10	21	7.4	.12	
	URS - Gulfco BERA EWSED 08 Day 10	22	7.4	.17	
	URS - Gulfco BERA EWSED 09 Day 10	22	7.5	.09	

Comments: ① ~~RSK~~ 9-10-10 → [9-10-10]
② 1E SK 9-10-10 → [1E SK]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/5/10	URS - Gulfco BERA CONTROL Day 11	25 / 25	8.1	1400	DVL
	URS - Gulfco BERA EIWSED 01 Day 11	25 / 25	8.2		
	URS - Gulfco BERA EIWSED 02 Day 11	24 / 24	8.3		
	URS - Gulfco BERA EIWSED 03 Day 11	24 / 24	8.3		
	URS - Gulfco BERA EIWSED 04 Day 11	24 / 24	8.2		
	URS - Gulfco BERA EIWSED 05 Day 11	24 / 24	8.2		
	URS - Gulfco BERA EIWSED 06 Day 11	24 / 24	8.2		
	URS - Gulfco BERA EIWSED 07 Day 11	24 / 24	8.2		
	URS - Gulfco BERA CONTROL 2 Day 11	24 / 24	8.1		
	URS - Gulfco BERA EWSED 01 Day 11	24 / 24	8.1		
	URS - Gulfco BERA EWSED 02 Day 11	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 11	24 / 24	8.2		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No /Sample Date	Temp. C (actual/corrected)	pH	Time	Init.
9/5/10	URS - Gulfco BERA EWSED 04 Day 11	24 / 24	8.2	1600	DK
	URS - Gulfco BERA EWSED 05 Day 11	24 / 24	8.1		
	URS - Gulfco BERA EWSED 06 Day 11	24 / 24	8.2		
	URS - Gulfco BERA EWSED 07 Day 11	24 / 24	8.1		
	URS - Gulfco BERA EWSED 08 Day 11	24 / 24	8.1		
	URS - Gulfco BERA EWSED 09 Day 11	24 / 24	8.2		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/5/10	URS - Gulfco BERA CONTROL Day 11	20	8.3	0.11	DK
	URS - Gulfco BERA EIWSED 01 Day 11	21	8.3	0.78	
	URS - Gulfco BERA EIWSED 02 Day 11	21	8.4	0.07	
	URS - Gulfco BERA EIWSED 03 Day 11	21	8.4	0.10	
	URS - Gulfco BERA EIWSED 04 Day 11	22	8.4	0.09	
	URS - Gulfco BERA EIWSED 05 Day 11	21	8.3	0.14	
	URS - Gulfco BERA EIWSED 06 Day 11	22	8.3	0.08	
	URS - Gulfco BERA EIWSED 07 Day 11	21	8.3	0.07	
	URS - Gulfco BERA CONTROL 2 Day 11	20	8.3	0.12	
	URS - Gulfco BERA EWSED 01 Day 11	22	8.3	0.18	
	URS - Gulfco BERA EWSED 02 Day 11	21	8.2	0.20	
	URS - Gulfco BERA EWSED 03 Day 11	21	8.3	0.19	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/5/12	URS - Gulfco BERA EWSED 04 Day 11	21	8.3	0.15	DK
	URS - Gulfco BERA EWSED 05 Day 11	21	8.4	0.23	
	URS - Gulfco BERA EWSED 06 Day 11	22	8.3	0.19	
	URS - Gulfco BERA EWSED 07 Day 11	21	8.3	0.17	
	URS - Gulfco BERA EWSED 08 Day 11	22	8.4	0.32	
	URS - Gulfco BERA EWSED 09 Day 11	22	8.4	0.22	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected) (1)	pH	Time	Init.
9/6/10	URS - Gulfco BERA CONTROL - NEW Day 12	24 / 25	8.1	1200	KM/RD
	URS - Gulfco BERA CONTROL Day 12	24 / 25	8.1		
	URS - Gulfco BERA EIWSED 01 Day 12	24 / 25	8.1		
	URS - Gulfco BERA EIWSED 02 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EIWSED 03 Day 12	24 / 25	8.3		
	URS - Gulfco BERA EIWSED 04 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EIWSED 05 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EIWSED 06 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EIWSED 07 Day 12	24 / 25	8.2		
	URS - Gulfco BERA CONTROL 2 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EWSED 01 Day 12	24 / 25	8.1		
	URS - Gulfco BERA EWSED 02 Day 12	24 / 25	8.1		
	URS - Gulfco BERA EWSED 03 Day 12	24 / 25	8.1		

Comments: ~~Temperature~~ (1)

(1) IE RD 9/6/10 → [Thermometer # 7-81]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/6/10	URS - Gulfco BERA EWSED 04 Day 12	24 / 25 ①	8.1	1200	KM / RB
	URS - Gulfco BERA EWSED 05 Day 12	24 / 25	8.1		
	URS - Gulfco BERA EWSED 06 Day 12	24 / 25	8.1		
	URS - Gulfco BERA EWSED 07 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EWSED 08 Day 12	24 / 25	8.2		
	URS - Gulfco BERA EWSED 09 Day 12	24 / 25	8.1		

Comments:
① IE RB 9/6/10 → [25]

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/6/10	URS - Gulfco BERA CONTROL - NEW Day 12	22	7.3	Aff	KM/RB
	URS - Gulfco BERA CONTROL Day 12	21	7.3	0.49	
	URS - Gulfco BERA EIWSED 01 Day 12	21	7.3	0.51	
	URS - Gulfco BERA EIWSED 02 Day 12	22	7.2	0.52	
	URS - Gulfco BERA EIWSED 03 Day 12	23	7.2	0.23	
	URS - Gulfco BERA EIWSED 04 Day 12	21	7.2	0.34	
	URS - Gulfco BERA EIWSED 05 Day 12	22	7.2	0.34	
	URS - Gulfco BERA EIWSED 06 Day 12	22	7.2	0.16	
	URS - Gulfco BERA EIWSED 07 Day 12	22	7.2	0.26	
	URS - Gulfco BERA CONTROL 2 Day 12	20	7.0	0.17	
	URS - Gulfco BERA EWSED 01 Day 12	21	7.1	0.49	
	URS - Gulfco BERA EWSED 02 Day 12	21	7.1	0.51	
	URS - Gulfco BERA EWSED 03 Day 12	21	7.1	0.56	

Comments: ① LE RB 9/6/10 → 0.54, 0.24, 0.43, 0.49

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3-N ppm	Init.
9/6/10	URS - Gulfco BERA EWSED 04 Day 12	28	7.0	① 0.28	KB/KR
	URS - Gulfco BERA EWSED 05 Day 12	21	7.1	0.34	
	URS - Gulfco BERA EWSED 06 Day 12	27	7.2	0.21	
	URS - Gulfco BERA EWSED 07 Day 12	21	7.2	0.16	
	URS - Gulfco BERA EWSED 08 Day 12	28	7.3	0.22	
	URS - Gulfco BERA EWSED 09 Day 12	28	7.2	0.20	

Comments:
① IEPA 9/6/10 →

0.56
1.12
0.89
0.12
0.23
0.24

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/2/10	URS - Gulfco BERA CONTROL Day 13	20	7.1	0.09	KM HL
	URS - Gulfco BERA EIWSED 01 Day 13	21	7.1	0.08	
	URS - Gulfco BERA EIWSED 02 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 13	21	7.1	0.01	
	URS - Gulfco BERA EIWSED 05 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 13	21	7.1	0.02	
	URS - Gulfco BERA EIWSED 07 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 13	20	7.2	<0.01	
	URS - Gulfco BERA EWSED 01 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EWSED 02 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EWSED 03 Day 13	21	7.1	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/12/12	URS - Gulfco BERA EWSED 04 Day 13	22	7.0	<0.01	KM HL
	URS - Gulfco BERA EWSED 05 Day 13	21	7.1	<0.01	
	URS - Gulfco BERA EWSED 06 Day 13	21	7.2	<0.01	
	URS - Gulfco BERA EWSED 07 Day 13	20	7.2	<0.01	
	URS - Gulfco BERA EWSED 08 Day 13	21	7.2	<0.01	
	URS - Gulfco BERA EWSED 09 Day 13	22	7.2	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp, °C (actual/corrected)	pH	Time	Init.
9/7/10	URS - Gulfco BERA CONTROL Day 13	25 / 25	8.0	1000	Km /4L
	URS - Gulfco BERA EIWSED 01 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 02 Day 13	25 / 25	8.1		
	URS - Gulfco BERA EIWSED 03 Day 13	25 / 25	8.1		
	URS - Gulfco BERA EIWSED 04 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 05 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 06 Day 13	25 / 25	8.1		
	URS - Gulfco BERA EIWSED 07 Day 13	25 / 25	8.1		
	URS - Gulfco BERA CONTROL 2 Day 13	25 / 25	7.9		
	URS - Gulfco BERA EWSED 01 Day 13	25 / 25	7.9		
	URS - Gulfco BERA EWSED 02 Day 13	25 / 25	7.8		
	URS - Gulfco BERA EWSED 03 Day 13	25 / 25	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
2/18/13	URS - Gulfco BERA EWSED 04 Day 13	25 / 25	8.0	1000	KM/HL
	URS - Gulfco BERA EWSED 05 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EWSED 06 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EWSED 07 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EWSED 08 Day 13	25 / 25	8.0		
	URS - Gulfco BERA EWSED 09 Day 13	25 / 25	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/8/10	URS - Gulfco BERA CONTROL - NEW Day 14	24 / 24	7.8	0930	HL
	URS - Gulfco BERA CONTROL Day 14	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day 14	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 02 Day 14	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 14	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 14	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 14	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 14	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 14	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 14	24 / 24	7.8		
	URS - Gulfco BERA EWSED 01 Day 14	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 14	24 / 24	7.8		
	URS - Gulfco BERA EWSED 03 Day 14	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/8/10	URS - Gulfco BERA EWSED 04 Day 14	24 / 24	8.0	0950	HL
	URS - Gulfco BERA EWSED 05 Day 14	24 / 24	7.8		
	URS - Gulfco BERA EWSED 06 Day 14	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 14	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day 14	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 14	24 / 24	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/5/12	URS - Gulfco BERA CONTROL - NEW Day 14	20	7.3	NA	HL
	URS - Gulfco BERA CONTROL Day 14	21	7.4	0.07	
	URS - Gulfco BERA EIWSED 01 Day 14	21	7.4	0.31	
	URS - Gulfco BERA EIWSED 02 Day 14	21	7.5	0.32	
	URS - Gulfco BERA EIWSED 03 Day 14	21	7.4	0.36	
	URS - Gulfco BERA EIWSED 04 Day 14	20	7.5	0.26	
	URS - Gulfco BERA EIWSED 05 Day 14	21	7.4	0.31	
	URS - Gulfco BERA EIWSED 06 Day 14	21	7.4	0.91	
	URS - Gulfco BERA EIWSED 07 Day 14	21	7.4	1.42	
	URS - Gulfco BERA CONTROL 2 Day 14	20	7.4	0.27	
	URS - Gulfco BERA EWSED 01 Day 14	21	7.4	0.30	
	URS - Gulfco BERA EWSED 02 Day 14	21	7.4	0.35	
	URS - Gulfco BERA EWSED 03 Day 14	21	7.4	0.77	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
4/8/15	URS - Gulfco BERA EWSED 04 Day 14	22	7.3	0.44	HL
	URS - Gulfco BERA EWSED 05 Day 14	21	7.3	0.57	
	URS - Gulfco BERA EWSED 06 Day 14	22	7.3	0.35	
	URS - Gulfco BERA EWSED 07 Day 14	21	7.3	0.54	
	URS - Gulfco BERA EWSED 08 Day 14	22	7.4	<0.1	
	URS - Gulfco BERA EWSED 09 Day 14	22	7.4	0.23	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/9/10	URS - Gulfco BERA CONTROL Day 15	20	7.2	0.19	HL
	URS - Gulfco BERA EIWSED 01 Day 15	20	7.2	0.05	
	URS - Gulfco BERA EIWSED 02 Day 15	20	7.3	0.05	
	URS - Gulfco BERA EIWSED 03 Day 15	20	7.3	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 15	21	7.3	0.02	
	URS - Gulfco BERA EIWSED 05 Day 15	21	7.3	0.03	
	URS - Gulfco BERA EIWSED 06 Day 15	21	7.3	0.03	
	URS - Gulfco BERA EIWSED 07 Day 15	20	7.4	0.03	
	URS - Gulfco BERA CONTROL 2 Day 15	20	7.4	0.06	
	URS - Gulfco BERA EWSED 01 Day 15	20	7.3	0.05	
	URS - Gulfco BERA EWSED 02 Day 15	20	7.3	0.07	
	URS - Gulfco BERA EWSED 03 Day 15	20	7.3	0.06	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/9/10	URS - Gulfco BERA EWSED 04 Day 15	21	7.2	0.10	HL
	URS - Gulfco BERA EWSED 05 Day 15	20	7.2	<0.01	
	URS - Gulfco BERA EWSED 06 Day 15	21	7.3	<0.01	
	URS - Gulfco BERA EWSED 07 Day 15	21	7.3	0.04	
	URS - Gulfco BERA EWSED 08 Day 15	20	7.2	0.07	
	URS - Gulfco BERA EWSED 09 Day 15	21	7.3	0.07	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/9/10	URS - Gulfco BERA CONTROL Day 15	24 / 24	7.8	0930	HL
	URS - Gulfco BERA EIWSED 01 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 15	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 15	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 06 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 07 Day 15	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 15	24 / 24	7.8		
	URS - Gulfco BERA EWSED 01 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 15	24 / 24	7.8		
	URS - Gulfco BERA EWSED 03 Day 15	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/9/10	URS - Gulfco BERA EWSED 04 Day 15	24 / 24	7.9	0930	HL
	URS - Gulfco BERA EWSED 05 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EWSED 06 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day 15	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 15	24 / 24	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/10/10	URS - Gulfco BERA CONTROL - NEW Day 16	24 / 24	7.8	0900	DK/ HL
	URS - Gulfco BERA CONTROL Day 16	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 16	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 16	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 06 Day 16	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 16	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 16	24 / 24	~~8.0~~ ①		
	URS - Gulfco BERA EWSED 01 Day 16	24 / 24	7.8		
	URS - Gulfco BERA EWSED 02 Day 16	24 / 24	7.8		
	URS - Gulfco BERA EWSED 03 Day 16	24 / 24	7.9		

Comments: ① IC DK 9/10/10 → [7.8]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/10/10	URS - Gulfco BERA EWSED 04 Day 16	24 / 24	7.8	0900	DK / HL
	URS - Gulfco BERA EWSED 05 Day 16	24 / 24	7.8		
	URS - Gulfco BERA EWSED 06 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day 16	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 16	24 / 24	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/10/12	URS - Gulfco BERA CONTROL - NEW Day 16	20	7.1	NA	DK/HL
	URS - Gulfco BERA CONTROL Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 16	21	7.0	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 16	21	7.0	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 16	21	7.0	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 16	21	7.0	<0.01	
	URS - Gulfco BERA EWSED 01 Day 16	21	7.0	0.02	
	URS - Gulfco BERA EWSED 02 Day 16	21	7.0	<0.01	
	URS - Gulfco BERA EWSED 03 Day 16	21	7.0	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/10/10	URS - Gulfco BERA EWSED 04 Day 16	21	7.0	<0.01	DK/HL
	URS - Gulfco BERA EWSED 05 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EWSED 06 Day 16	21	7.1	<0.01	
	URS - Gulfco BERA EWSED 07 Day 16	21	7.2	<0.01	
	URS - Gulfco BERA EWSED 08 Day 16	21	7.2	<0.01	
	URS - Gulfco BERA EWSED 09 Day 16	22	7.2	0.02	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/11/18	URS - Gulfco BERA CONTROL Day 17	20	7.5	0.21	DK
	URS - Gulfco BERA EIWSED 01 Day 17	21	7.4	0.09	
	URS - Gulfco BERA EIWSED 02 Day 17	20	7.4	0.05	
	URS - Gulfco BERA EIWSED 03 Day 17	20	7.4	0.02	
	URS - Gulfco BERA EIWSED 04 Day 17	21	7.4	0.14	
	URS - Gulfco BERA EIWSED 05 Day 17	21	7.4	0.05	
	URS - Gulfco BERA EIWSED 06 Day 17	21	7.4	0.03	
	URS - Gulfco BERA EIWSED 07 Day 17	21	7.4	0.02	
	URS - Gulfco BERA CONTROL 2 Day 17	20	7.4	0.02	
	URS - Gulfco BERA EWSED 01 Day 17	21	7.4	0.06	
	URS - Gulfco BERA EWSED 02 Day 17	21	7.4	0.09	
	URS - Gulfco BERA EWSED 03 Day 17	21	7.4	0.16	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm	Init.
9/1/12	URS - Gulfco BERA EWSED 04 Day 17	24	7.4	0.03	DK
	URS - Gulfco BERA EWSED 05 Day 17	24	7.4	0.04	
	URS - Gulfco BERA EWSED 06 Day 17	24	7.4	0.08	
	URS - Gulfco BERA EWSED 07 Day 17	24	7.4	<0.01	
	URS - Gulfco BERA EWSED 08 Day 17	24	7.4	0.05	
	URS - Gulfco BERA EWSED 09 Day 17	24	7.4	0.06	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/11/10	URS - Gulfco BERA CONTROL Day 17	24 / 24	7.8	1130	DIL
	URS - Gulfco BERA EIWSED 01 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 02 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 05 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 06 Day 17	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 07 Day 17	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 17	24 / 24	7.8		
	URS - Gulfco BERA EWSED 01 Day 17	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 17	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 17	24 / 24	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/11/10	URS - Gulfco BERA EWSED 04 Day 17	24 / 24	8.0	1130	DIL
	URS - Gulfco BERA EWSED 05 Day 17	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 17	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 17	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 17	24 / 24	7.8		
	URS - Gulfco BERA EWSED 09 Day 17	24 / 24	8.0		

Comments: DSE DIL 9/11/10 → [24/24]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/17/10	URS - Gulfco BERA CONTROL - NEW Day 18	20	7.7	NA	RB/DC
	URS - Gulfco BERA CONTROL Day 18	20	7.6	0.08	
	URS - Gulfco BERA EIWSED 01 Day 18	20	7.5	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 18	20	7.5	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 18	20	7.5	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 18	20	7.4	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 18	20	7.5	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 18	20	7.5	0.02	
	URS - Gulfco BERA EIWSED 07 Day 18	20	7.5	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 18	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 01 Day 18	20	7.6	<0.01	
	URS - Gulfco BERA EWSED 02 Day 18	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 03 Day 18	20	7.4	0.06	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm	Init.
9/12/10	URS - Gulfco BERA EWSED 04 Day 18	21	7.3	<0.01	RB/DIL
	URS - Gulfco BERA EWSED 05 Day 18	25	7.3	<0.01	
	URS - Gulfco BERA EWSED 06 Day 18	21	7.3	<0.01	
	URS - Gulfco BERA EWSED 07 Day 18	23	7.3	<0.01	
	URS - Gulfco BERA EWSED 08 Day 18	21	7.3	<0.01	
	URS - Gulfco BERA EWSED 09 Day 18	21	7.4	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA CONTROL - NEW Day 18	24 / 24	7.9	1030	fb
	URS - Gulfco BERA CONTROL Day 18	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 01 Day 18	24 / 24	~~7.9~~ ①		
	URS - Gulfco BERA EIWSED 02 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 05 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 06 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 07 Day 18	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 18	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 18	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 18	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 18	24 / 24	8.1		

Comments: ① E FB 9/12/10 → [8.0]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA EWSED 04 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EWSED 05 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EWSED 06 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EWSED 07 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EWSED 08 Day 18	24 / 24	8.1		
	URS - Gulfco BERA EWSED 09 Day 18	24 / 24	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/13/10	URS - Gulfco BERA CONTROL Day 19	24 / 24	8.0	1000	HL
	URS - Gulfco BERA EIWSED 01 Day 19	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 02 Day 19	24 / 24	8.2		
	URS - Gulfco BERA EIWSED 03 Day 19	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 19	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 05 Day 19	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 06 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 19	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EWSED 01 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EWSED 02 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 19	24 / 24	8.1		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp °C (actual/corrected)	pH	Time	Init.
7/13/16	URS - Gulfco BERA EWSED 04 Day 19	24 / 24	8.1	10:22	HL
	URS - Gulfco BERA EWSED 05 Day 19	24 / 24	8.1		
	URS - Gulfco BERA EWSED 06 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 19	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 19	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 19	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/13/10	URS - Gulfco BERA CONTROL Day 19	21	7.6	0.07	HL
	URS - Gulfco BERA EIWSED 01 Day 19	21	7.6	0.07	
	URS - Gulfco BERA EIWSED 02 Day 19	20	7.6	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 19	20	7.6	0.14	
	URS - Gulfco BERA EIWSED 04 Day 19	20	7.6	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 19	20	7.6	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 19	20	7.6	0.06	
	URS - Gulfco BERA EIWSED 07 Day 19	20	7.6	0.04	
	URS - Gulfco BERA CONTROL 2 Day 19	20	7.6	0.06	
	URS - Gulfco BERA EWSED 01 Day 19	20	7.6	<0.01	
	URS - Gulfco BERA EWSED 02 Day 19	20	7.6	0.02	
	URS - Gulfco BERA EWSED 03 Day 19	20	7.6	0.14	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm	Init.
4/13/10	URS - Gulfco BERA EWSED 04 Day 19	20	7.6	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 19	20	7.6	0.01	
	URS - Gulfco BERA EWSED 06 Day 19	21	7.6	0.06	
	URS - Gulfco BERA EWSED 07 Day 19	20	7.6	0.07	
	URS - Gulfco BERA EWSED 08 Day 19	20	7.6	0.11	
	URS - Gulfco BERA EWSED 09 Day 19	20	7.6	0.12	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/14/16	URS - Gulfco BERA CONTROL - NEW Day 20	20	7.6	NA	HL
	URS - Gulfco BERA CONTROL Day 20	20	7.4	0.05	
	URS - Gulfco BERA EIWSED 01 Day 20	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 20	20	7.3	0.08	
	URS - Gulfco BERA EIWSED 03 Day 20	20	7.3	0.02	
	URS - Gulfco BERA EIWSED 04 Day 20	21	7.4	0.09	
	URS - Gulfco BERA EIWSED 05 Day 20	21	7.4	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 20	20	7.3	<0.01	
	URS - Gulfco BERA EWSED 01 Day 20	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 02 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 03 Day 20	20	7.4	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/14/10	URS - Gulfco BERA EWSED 04 Day 20	21	7.4	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 06 Day 20	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 07 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 08 Day 20	20	7.4	<0.01	
	URS - Gulfco BERA EWSED 09 Day 20	21	7.4	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/14/10	URS - Gulfco BERA CONTROL - NEW Day 20	24 / 24	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day 20	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day 20	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 20	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 20	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 07 Day 20	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 20	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 20	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 20	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 20	24 / 24	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/14/10	URS - Gulfco BERA EWSED 04 Day 20	24 / 24	8.0	0930	HL
	URS - Gulfco BERA EWSED 05 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 20	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 20	24 / 24	7.8		
	URS - Gulfco BERA EWSED 09 Day 20	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA CONTROL Day 21	24 / 24	7.9	0930	HL
	URS - Gulfco BERA EIWSED 01 Day 21	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day 21	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 21	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 21	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 21	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 21	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 21	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA EWSED 04 Day 21	24.0 / 24	8.0	0930	HL
	URS - Gulfco BERA EWSED 05 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 06 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 21	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day 21	24 / 24	7.8		
	URS - Gulfco BERA EWSED 09 Day 21	24 / 24	8.0		

Comments: ⊙ IE HL 9/15/10 → [24]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/5/10	URS - Gulfco BERA CONTROL Day 21	20	7.3	0.24	HL
	URS - Gulfco BERA EIWSED 01 Day 21	20	7.3	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 21	20	7.3	0.21	
	URS - Gulfco BERA EIWSED 03 Day 21	20	7.4	0.21	
	URS - Gulfco BERA EIWSED 04 Day 21	20	7.4	0.18	
	URS - Gulfco BERA EIWSED 05 Day 21	20	7.4	0.28	
	URS - Gulfco BERA EIWSED 06 Day 21	20	7.4	0.26	
	URS - Gulfco BERA EIWSED 07 Day 21	20	7.3	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 21	20	7.3	0.46	
	URS - Gulfco BERA EWSED 01 Day 21	20	7.3	0.27	
	URS - Gulfco BERA EWSED 02 Day 21	20	7.3	0.18	
	URS - Gulfco BERA EWSED 03 Day 21	20	7.3	0.25	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/15/10	URS - Gulfco BERA EWSED 04 Day 21	20	7.3	0.31	HL
	URS - Gulfco BERA EWSED 05 Day 21	20	7.3	0.19	
	URS - Gulfco BERA EWSED 06 Day 21	20	7.3	0.30	
	URS - Gulfco BERA EWSED 07 Day 21	20	7.4	0.34	
	URS - Gulfco BERA EWSED 08 Day 21	20	7.4	0.47	
	URS - Gulfco BERA EWSED 09 Day 21	20	7.3	0.24	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 22	19	7.4	<0.01	HL
	URS - Gulfco BERA CONTROL Day 22	20	7.4	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 22	20	7.4	0.04	
	URS - Gulfco BERA EIWSED 02 Day 22	20	7.4	0.21	
	URS - Gulfco BERA EIWSED 03 Day 22	20	7.4	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 22	21	7.4	0.01	
	URS - Gulfco BERA EIWSED 05 Day 22	20	7.4	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 22	19	7.4	0.04	
	URS - Gulfco BERA EIWSED 07 Day 22	20	7.4	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 22	19	7.4	0.19	
	URS - Gulfco BERA EWSED 01 Day 22	19	7.4	<0.01	
	URS - Gulfco BERA EWSED 02 Day 22	20	7.4	0.03	
	URS - Gulfco BERA EWSED 03 Day 22	20	7.4	0.03	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 22	20	7.4	0.07	HL
	URS - Gulfco BERA EWSED 05 Day 22	20	7.4	0.12	
	URS - Gulfco BERA EWSED 06 Day 22	~~21~~ 0	7.4	0.03	
	URS - Gulfco BERA EWSED 07 Day 22	20	7.4	0.14	
	URS - Gulfco BERA EWSED 08 Day 22	19	7.4	0.19	
	URS - Gulfco BERA EWSED 09 Day 22	20	7.4	0.01	

Comments: (1) IE HL 9/16/10 → [20]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 22	24 / 24	7.8	1000	HL
	URS - Gulfco BERA CONTROL Day 22	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 02 Day 22	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 03 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 04 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 05 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 06 Day 22	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 22	24 / 24	7.9		
	URS - Gulfco BERA CONTROL 2 Day 22	24 / 24	7.8		
	URS - Gulfco BERA EWSED 01 Day 22	24 / 24	7.8		
	URS - Gulfco BERA EWSED 02 Day 22	24 / 24	7.8		
	URS - Gulfco BERA EWSED 03 Day 22	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 22	24 / 24	8.0	1000	HL
	URS - Gulfco BERA EWSED 05 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EWSED 06 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EWSED 07 Day 22	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day 22	24 / 24	7.8		
	URS - Gulfco BERA EWSED 09 Day 22	24 / 24	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/17/10	URS - Gulfco BERA CONTROL Day 23	24 / 24	7.8	0900	HL
	URS - Gulfco BERA EIWSED 01 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 23	24 / 24	7.9		
	URS - Gulfco BERA CONTROL 2 Day 23	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 23	24 / 24	7.8		
	URS - Gulfco BERA EWSED 02 Day 23	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 23	24 / 24	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/7/10	URS - Gulfco BERA EWSED 04 Day 23	24 / 24	8.0	0900	HL
	URS - Gulfco BERA EWSED 05 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 23	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 23	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 23	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day 24	20	7.6	NA	SK BP
	URS - Gulfco BERA CONTROL Day 24	20	7.6	0.08	
	URS - Gulfco BERA EIWSED 01 Day 24	20	7.5	0.03	
	URS - Gulfco BERA EIWSED 02 Day 24	20	7.5	0.11	
	URS - Gulfco BERA EIWSED 03 Day 24	20	7.5	0.05	
	URS - Gulfco BERA EIWSED 04 Day 24	21	7.5	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 24	21	7.5	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 24	19	7.5	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 24	20	7.5	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 24	20	7.5	<0.01	
	URS - Gulfco BERA EWSED 01 Day 24	20	7.3	<0.01	
	URS - Gulfco BERA EWSED 02 Day 24	20	7.3	0.02	
	URS - Gulfco BERA EWSED 03 Day 24	20	7.4	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3-N ppm	Init.
9/12/10	URS - Gulfco BERA EWSED 04 Day 24	20	7.4	0.05	SK BR
	URS - Gulfco BERA EWSED 05 Day 24	20	7.5	0.02	
	URS - Gulfco BERA EWSED 06 Day 24	20	7.5	<0.01	
	URS - Gulfco BERA EWSED 07 Day 24	20	7.5	<0.01	
	URS - Gulfco BERA EWSED 08 Day 24	20	7.6	<0.01	
	URS - Gulfco BERA EWSED 09 Day 24	20	7.5	0.17	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day ____	24 / 24	7.8	1200	SK BR DC
	URS - Gulfco BERA CONTROL Day ____	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 02 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 03 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EIWSED 04 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day ____	24 / 24	7.9		
	URS - Gulfco BERA CONTROL 2 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day ____	24 / 24	7.8		
	URS - Gulfco BERA EWSED 03 Day ____	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/18/11	URS - Gulfco BERA EWSED 04 Day ____	24 / 24	8.0	1200	SK BR
	URS - Gulfco BERA EWSED 05 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day ____	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EWSED 08 Day ____	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day ____	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/19/10	URS - Gulfco BERA CONTROL Day 25	21	7.5	~~NA~~ ①	DIL
	URS - Gulfco BERA EIWSED 01 Day 25	21	7.6	0.04	
	URS - Gulfco BERA EIWSED 02 Day 25	21	7.7	0.12	
	URS - Gulfco BERA EIWSED 03 Day 25	21	7.6	0.08	
	URS - Gulfco BERA EIWSED 04 Day 25	21	7.6	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 25	21	7.7	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 25	21	7.7	0.06	
	URS - Gulfco BERA EIWSED 07 Day 25	21	7.6	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 25	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 01 Day 25	21	7.5	<0.01	
	URS - Gulfco BERA EWSED 02 Day 25	21	7.6	<0.01	
	URS - Gulfco BERA EWSED 03 Day 25	21	7.6	<0.01	

Comments: ① SE DL 9/19/10 → [0.15]

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WET CHEMISTRY LOG- Special Projects – 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/19/10	URS - Gulfco BERA EWSED 04 Day 25	21	7.7	~~NHO~~	DK
	URS - Gulfco BERA EWSED 05 Day 25	21	7.6	<0.01	
	URS - Gulfco BERA EWSED 06 Day 25	21	7.6	<0.01	
	URS - Gulfco BERA EWSED 07 Day 25	21	7.5	<0.01	
	URS - Gulfco BERA EWSED 08 Day 25	21	7.5	<0.01	
	URS - Gulfco BERA EWSED 09 Day 25	21	7.6	0.09	

Comments: ① IE DK 9/19/10 → 9 [<0.01]

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/9/10	URS - Gulfco BERA CONTROL Day 25	24 / 24	8.0	1200	DLS
	URS - Gulfco BERA EIWSED 01 Day 25	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 02 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 03 Day 25	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 25	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 07 Day 25	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 25	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 25	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 25	24 / 24	7.9		
	URS - Gulfco BERA EWSED 03 Day 25	24 / 24	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/19/10	URS - Gulfco BERA EWSED 04 Day 25	24 / 24	8.0	1200	DK
	URS - Gulfco BERA EWSED 05 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 25	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 25	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 25	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day NA (3)	NA (1) / NA	(2) NA	0930	HL
	URS - Gulfco BERA CONTROL Day 26	24 / 24	7.8		
	URS - Gulfco BERA EIWSED 01 Day 26	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 02 Day 26	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 26	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 04 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 05 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 06 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 26	24 / 24	8.0		
	URS - Gulfco BERA CONTROL 2 Day 26	24 / 24	7.9		
	URS - Gulfco BERA EWSED 01 Day 26	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 26	24 / 24	8.0		

Comments: (1) IE RB 9/20/10 → [24/24] (3) IE RB 9/20/10 → [26]
(2) IE RB 9/20/10 → [7.9]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 26	24 / 24	8.1	0930	HL
	URS - Gulfco BERA EWSED 05 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EWSED 07 Day 26	24 / 24	8.0		
	URS - Gulfco BERA EWSED 08 Day 26	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 26	24 / 24	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm*	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day NA ②	① NA	② NA	NA	4L
	URS - Gulfco BERA CONTROL Day 26	20	7.3	0.13	
	URS - Gulfco BERA EIWSED 01 Day 26	20	7.3	0.02	
	URS - Gulfco BERA EIWSED 02 Day 26	20	7.2	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 26	20	7.2	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 26	21	7.3	0.03	
	URS - Gulfco BERA EIWSED 05 Day 26	20	7.3	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 26	20	7.3	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 26	20	7.3	0.06	
	URS - Gulfco BERA CONTROL 2 Day 26	20	7.3	0.08	
	URS - Gulfco BERA EWSED 01 Day 26	20	7.3	0.12	
	URS - Gulfco BERA EWSED 02 Day 26	20	7.2	<0.01	
	URS - Gulfco BERA EWSED 03 Day 26	20	7.3	0.04	

Comments: ① IE RB 9/20/10 → [20] ③ IE RB 9/20/10 → [26]
② IE RB 9/20/10 → [7.3]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3-N ppm	Init.
9/20/10	URS - Gulfco BERA EWSED 04 Day 26	20	7.3	0.48	HL
	URS - Gulfco BERA EWSED 05 Day 26	20	7.3	<0.01	
	URS - Gulfco BERA EWSED 06 Day 26	20	7.3	0.08	
	URS - Gulfco BERA EWSED 07 Day 26	20	7.3	0.09	
	URS - Gulfco BERA EWSED 08 Day 26	20	7.3	0.01	
	URS - Gulfco BERA EWSED 09 Day 26	20	7.4	0.05	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/4/10	URS - Gulfco BERA CONTROL Day 27	25 / 25	7.8	0930	HL
	URS - Gulfco BERA EIWSED 01 Day 27	25 / 25	8.1		
	URS - Gulfco BERA EIWSED 02 Day 27	25 / 25	8.1		
	URS - Gulfco BERA EIWSED 03 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 04 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 05 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 06 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EIWSED 07 Day 27	25 / 25	8.1		
	URS - Gulfco BERA CONTROL 2 Day 27	25 / 25	7.9		
	URS - Gulfco BERA EWSED 01 Day 27	25 / 25	7.9		
	URS - Gulfco BERA EWSED 02 Day 27	25 / 25	7.9		
	URS - Gulfco BERA EWSED 03 Day 27	25 / 25	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/21/10	URS - Gulfco BERA EWSED 04 Day 27	25 / 25	8.0	0930	HL
	URS - Gulfco BERA EWSED 05 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EWSED 06 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EWSED 07 Day 27	25 / 25	8.0		
	URS - Gulfco BERA EWSED 08 Day 27	25 / 25	7.9		
	URS - Gulfco BERA EWSED 09 Day 27	25 / 25	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/21/10	URS - Gulfco BERA CONTROL Day 27	19	7.7	<0.01	HC
	URS - Gulfco BERA EIWSED 01 Day 27	20	7.7	0.15	
	URS - Gulfco BERA EIWSED 02 Day 27	20	7.7	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 27	20	7.7	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 27	21	7.7	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 27	20	7.7	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 27	20	7.8	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 27	20	7.8	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 27	20	7.7	<0.01	
	URS - Gulfco BERA EWSED 01 Day 27	20	7.7	<0.01	
	URS - Gulfco BERA EWSED 02 Day 27	20	7.8	<0.01	
	URS - Gulfco BERA EWSED 03 Day 27	20	7.8	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/21/10	URS - Gulfco BERA EWSED 04 Day 27	20	7.8	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 27	20	7.8	<0.01	
	URS - Gulfco BERA EWSED 06 Day 27	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 07 Day 27	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 08 Day 27	20	7.9	0.03	
	URS - Gulfco BERA EWSED 09 Day 27	20	7.9	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day NA	NA / NA	NA	0930	HL
	URS - Gulfco BERA CONTROL Day 28	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 01 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 02 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 03 Day 28	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 04 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 05 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EIWSED 06 Day 28	24 / 24	8.0		
	URS - Gulfco BERA EIWSED 07 Day 28	24 / 24	8.1		
	URS - Gulfco BERA CONTROL 2 Day 28	24 / 24	7.8		
	URS - Gulfco BERA EWSED 01 Day 28	24 / 24	7.9		
	URS - Gulfco BERA EWSED 02 Day 28	24 / 24	8.0		
	URS - Gulfco BERA EWSED 03 Day 28	24 / 24	8.0		

Comments:

CONTINUED ON NEXT PAGE.....

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/22/10	URS - Gulfco BERA EWSED 04 Day 28	24 / 24	8.1	0930	HL
	URS - Gulfco BERA EWSED 05 Day 28	24 / 24	8.0		
	URS - Gulfco BERA EWSED 06 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EWSED 07 Day 28	24 / 24	8.1		
	URS - Gulfco BERA EWSED 08 Day 28	24 / 24	7.9		
	URS - Gulfco BERA EWSED 09 Day 28	24 / 24	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day NA	NA	NA	NA	HL
	URS - Gulfco BERA CONTROL Day 28	20	7.3	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 28	21	7.3	1.53	
	URS - Gulfco BERA EIWSED 02 Day 28	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 28	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 28	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 28	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 28	21	7.3	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 28	20	7.3	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 28	20	7.3	0.07	
	URS - Gulfco BERA EWSED 01 Day 28	20	7.3	<0.01	
	URS - Gulfco BERA EWSED 02 Day 28	20	7.3	<0.01	
	URS - Gulfco BERA EWSED 03 Day 28	20	7.4	<0.01	

Comments:

CONTINUED ON NEXT PAGE.....

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
1/22/10	URS - Gulfco BERA EWSED 04 Day 28	21	7.4	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 28	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 06 Day 28	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 07 Day 28	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 08 Day 28	21	7.4	<0.01	
	URS - Gulfco BERA EWSED 09 Day 28	21	7.4	<0.01	

Comments:

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 8/31/10 TEST NUMBER: For 28d DURATION: 96 H
TOXICANT : CdCl2
SPECIES: L. plumulosus

RAW DATA: --- ----	Concentration (mg/l)	Number Exposed	Mortalities
	.00	30	2
	.36	30	10
	.55	30	25
	.85	30	28
	1.30	30	30
	2.00	30	30

SPEARMAN-KARBER TRIM: 28.57%

SPEARMAN-KARBER ESTIMATES: LC50: .43
95% LOWER CONFIDENCE: .39
95% UPPER CONFIDENCE: .47

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

Client:	PBS&J STOX - CdCl2 (For 28d Bioaccumulation)	Login No.:		PBS&J Job No.:	470001.00 0400

96 h Acute *Leptocheirus plumulosus* Toxicity Test Condition Summary
Test Method EPA -821-R-02-013; PBS&J SOP No. 4017

Test Organism:	*Leptocheirus plumulosus*	Age Class:	2-4 mm
Test Type:	Acute Static	Test Duration:	96 h
Temperature:	20 ± 1 or 25 ± 1	Photoperiod:	16:8 h; ambient light; 50-100 ft-c
Test Chamber size:	40 ml plastic cup	Cleaning:	None
No. of Replicates:	3 (1minimum)	No. organisms per Replicate:	10
Test Solution Volume:	25 mL (minimum)	Dilution Water:	LAB-W (20 ppt)
Renewal of test solution:	None	Aeration:	None
Feeding:	NA	Food Type:	N/A
Acceptability Criteria:	≥ 90% survival in control	Sampling Holding Time:	N/A

Test Organism Batch #:	10-00848	DOB:	NA
Source:	Chesapeake	Age (days):	< 2 mm

Test Concentrations (mg/L):	Control, 0.36, 0.55, 0.85, 1.3, 2.0	Critical Dilution:	NA

STOX Solution 1 Date/Time/Initials:	8/31/10	1600	HL	STOX Solution 3 Date/Time/Initials:	—	—	—
STOX Solution 2 Date/Time/Initials:	—	—	—	STOX Solution 4 Date/Time/Initials:	—	—	—

Event	Date	Time	Initials	Event	Date	Time	Initials
0 h Initiation:	8/31/10	1600	HL / RB	72 h Counts:	9/3/10	~~8~~ ①	RB
24 h Counts:	9/1/10	1530	LB	96 h Termination:	9/4/10	1500	DK
48 h Counts:	9-2-10	1500	DC		NA	NA	NA

This test was conducted in accordance with the method standards or according to the exception(s) as noted:

Comments: ① IE RB 9/3/10 → [~~9/3/10~~] ②
② IE RB 9/3/10 → [1430]

Susan E. Gregory
Final Review Signature

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

DK
Initial Review

Client	PBS&J STOX - CdCl2 (For 28d Bioaccumulation)	Login No		PBS&J Job No	470001.00 0400

Acute Toxicity Test with *Leptocheirus plumulosus*

Conc (mg/L)	Rep	No. of Surviving Organisms					Conc (mg/L)	Rep	No. of Surviving Organisms				
		0 hr	24 hr	48 hr	72 hr	96 hr			0 hr	24 hr	48 hr	72 hr	96 hr
Control	A	10	10	10	10	10	1.3	A	10	10	10	0	0
	B	10	10	10	10	10		B	10	10	10	0	0
	C	10	10	9	8	8		C	10	9	9	4	0
	D							D					
	E							E					
0.36	A	10	10	9	8	7	2.0	A	10	8	7	1	0
	B	10	10	10	7	6		B	10	8	8	2	0
	C	10	10	10	7	7		C	10	10	9	0	0
	D							D					
	E							E					
0.55	A	10	9	9	4	1		A					
	B	10	10	10	6	4		B					
	C	10	10	5	2	0		C					
	D							D					
	E							E					
0.85	A	10	9	9	5	1		A					
	B	10	10	10	4	0		B					
	C	10	9	7	2	1		C					
	D							D					
	E							E					

Comments:

Data correction codes: IE-Incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Initial Review

Client:	PBS&J STOX - CdCl2 (For 28d Bioaccumulation)	Login No:		PBS&J Job No:	470001.00 0400

Water Quality Parameters -*Leptocheirus plumulosus*

Conc. (mg/L)	pH	
	0 hr	96 hr
Rep	A	B
Cont.	7.7	7.9
0.36	7.7	7.9
0.55	7.7	8.0
0.85	7.7	8.0
1.3	7.7	8.0
2.0	7.7	8.0
Meter No.	765	765
Time	1600	1500
Initials	HL	DK

Conc. (mg/L)	Dissolved Oxygen (mg/L)	
	0 hr	96 hr
Rep	A	B
Cont.	7.8	7.8
0.36	7.8	7.7
0.55	7.7	7.7
0.85	7.7	7.6
1.3	7.7	7.7
2.0	7.7	7.7
Meter No.	735	735
Time	1600	1500
Initials	HL	DK

Comments:

HL/ DK
Initial Review

Data correction codes: IE-Incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Client:	PBS&J STOX - CdCl2 (For 28d Bioaccumulation)	Login No.:		PBS&J Job No.:	470001.00 0400

Water Quality Parameters -*Leptocheirus plumulosus*

Conc (mg/L)	Temperature (°C)	
	0 hr	96 hr
Rep	A	B
Cont.	24 / 25	24 / 25
0.36	24 / 25	24 / 25
0.55	24 / 25	24 / 25
0.85	24 / 25	24 / 25
1.3	24 / 25	24 / 25
2.0	24 / 25	24 / 25
Therm. No.	T81	T81
Time	1600	1500
Initials	HL	DK

Conc (mg/L)	Salinity (ppt)	
	0 hr	96 hr
Cont.	20	20
0.36	20	20
0.55	20	20
0.85	20	20
1.3	20	20
2.0	20	20
Meter No.	T49	749
Time	1600	1500
Initials	HL	DK

Comments:

HL / DK
Initial Review

Data correction codes: IE-Incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Neanthes arenaceodentata 28d Test Condition Summary - ASTM E 1611; PBS&J SOP No. 4049			
Test Material:	Sediment	Test Type:	28d Bioaccumulation Static Renewal
Temperature:	20 ± 1 °C	Photoperiod:	16L:8D
Test Chamber:	1L glass beaker or wide mouth jar	No. Replicates:	5
Test Organism:	*Neanthes arenaceodentata*	Organism Source:	~~U.f.C. Long Beach~~ ②
Organism Batch No.:	10-00849	Date Received:	8/24/10
Age Class:	2-3 week old juveniles	No. Organisms/Rep:	5
Aeration:	Moderate, overnight before start of test and throughout duration of test; maintain ≥ 90% saturation of dissolved oxygen concentration	Control Sediment:	Natural sediment from which the test organisms are collected
Feeding Schedule:	feed once per day	Food Type:	1 mL TetraMarin®/Alfalfa suspension per test vessel
Water Type:	clean seawater, natural or reconstituted (28-36ppt)	Water Volume:	775 mL
Renewal Schedule:	24 h intervals, beginning on day 0 (minimum) or as specified	Sediment Volume:	~175 mL (2cm depth)

Comments:

***See attached documentation for chemistry analysis results.**

Water Changes/Feeding														
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Date	8/25/10	8/26/10	8/27/10	8/28/10	8/29/10	8/30/10	8/31/10	9/1/10	9/2/10	9/3/10	9/4/10	9/5/10	09/06/10	9/7/10
Time	1600	1000	1630	1500	1430	1000	1430	1200	1200	1100	1330	1100	1100	0830
Initials	BK/KM	RB	HJ HL	RB	DK	HL	RB/KM	LB	LB	LB/KM	DK	DK	KM	LB
Day	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Date	9/8/10	9/9/10	09/10/10	9/11/10	9/12/10	9/13/10	9/14/10	9/15/10	9/16/10	9/17/10	9/18/10	9/19/10	09/20/10	9/21/10
Time	0930	0930	1000	1030	~~0930~~ ①	0930	1100	0930	1100	1200	1130	1100	0930	1430
Initials	LB/KM	SK	KM LB	DK	RB	SK	DK	SK	SK LB	DK	DK	DK	KM	LB

① IE RB 9/12/10 → [1030] ② IE JDH 9/27/10 → [California State University - Long Beach]

Initial Review Completed By: R.B.

Final Review Completed By: J. Mondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Initiation Date:	9/25/10	Termination Date:	9/22/10
Initiation Time:	1700	Termination Time:	
Initials:	PB / KM	Initials:	SK / PB

Nearthes arenaceodentata - Survival

Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count
CONT	A	5	5	5	EIWSED 04	A	5	5	5
	B	5	5	5		B	5	5	5
	C	5	5	5		C	5	5	5
	D	5	5	5		D	5	5	5
	E	5	5	5		E	5	5	5
EIWSED 01	A	5	5	5	EIWSED 05	A	5	5	5
	B	5	5	5		B	5	5	5
	C	5	4	4		C	5	5	5
	D	5	4	4		D	5	5	5
	E	5	5	5		E	5	5	5
EIWSED 02	A	5	4	4	EIWSED 06	A	5	5	5
	B	5	3	3		B	5	5	5
	C	5	5	5		C	5	5	5
	D	5	3	3		D	5	5	5
	E	5	~~4~~ (1)	5		E	5	5	5
EIWSED 03	A	5	4	4	EIWSED 07	A	5	5	5
	B	5	4	4		B	5	5	5
	C	5	5	5		C	5	4	4
	D	5	5	5		D	5	5	5
	E	5	5	5		E	5	4	4
Tech Initials		PB	SK	PB	Tech Initials		PB	SK	PB

(1) EA 9/22/10 → [5]

Initial Review Completed By: P. B

Final Review Completed By: J. Mondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Neanthes arenaceodentata - Survival

Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day28 1st Count	Day28 2nd Count
CONT 2	A	5	5	5	EWSED 04	A	5	4	4
	B	5	4	4		B	5	4	4
	C	5	5	5		C	5	4	4
	D	5	4	4		D	5	4	4
	E	5	5	5		E	5	5	5
EWSED 01	A	5	5	5	EWSED 05	A	5	3	3
	B	5	5	5		B	5	3	3
	C	5	5	5		C	5	5	5
	D	5	4	4		D	5	4	4
	E	5	5	5		E	5	3	3
EWSED 02	A	5	5	5	EWSED 06	A	5	5	5
	B	5	5	5		B	5	3	3
	C	5	3	3		C	5	4	4
	D	5	2	2		D	5	3	3
	E	5	4	4		E	5	5	5
EWSED 03	A	5	5	5	EWSED 07	A	5	3	3
	B	5	3	3		B	5	4	4
	C	5	5	5		C	5	2	2
	D	5	5	5		D	5	4	4
	E	5	3	3		E	5	5	5
Tech Initials		[illegible]	[illegible]	[illegible]	Tech Initials		[illegible]	[illegible]	[illegible]

Initial Review Completed By: RB

Final Review Completed By: JoMondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1031	Job #:	100016848

Neanthes arenaceodentata - Survival

Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day28 1st Count	Day28 2nd Count
EWSED 08	A	5	4	4		A			
	B	5	1	1		B			
	C	5	3	3		C			
	D	5	4	4		D			
	E	5	5	5		E			
EWSED 09	A	5	4	4		A			
	B	5	4	4		B			
	C	5	3	3		C			
	D	5	3	3		D			
	E	5	5	5		E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
Tech Initials:					Tech Initials:				

Initial Review Completed By: R. B

Final Review Completed By: JoMondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONTROL	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: Jo Mandrew

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1031	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
CONTROL	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		RS	[illegible]	HK	RS	[illegible]	DZ	TSK	SK	DL	DC	MC	[illegible]	LR	RS

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: J. Mondrick

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1031	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
EIWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONTROL 2	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	IE	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 02	A	✓	✓	✓	✓	✓	✓	IE	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: [illegible]

Final Review Completed By: [illegible]

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
EIWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EIWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONTROL 2	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		SK	KM	MK	KS	SK	MC	MK	LBR	DC	DC	MK	KS	LB	KS

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: Jo Moncrieff

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1091	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
EWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 08	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 09	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: [illegible]

Final Review Completed By: [illegible]

Client/Project Name:	URS - Gulfco BERA	Login #:	10-(08)	Job #:	100016848

Daily Observations

Treatment / Site	Rep	Day 15	16	17	18	19	20	21	22	23	24	25	26	27	28
EWSED 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 08	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWSED 09	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: JP Mondiew

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Tissue Weight - *N. arenaceodentata*

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)	Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
Archive	A	1	.00973	.01092	EIWSED 05	A	31	.00958	.02467
	B	2	.00978	.01073		B	32	.00950	.02851
	C	3	~~.00~~ 6	.01132		C	33	.00974	.03212
	D	4	.01032	.01112		D	34	.00990	.02932
	E	5	.01048	.01144		E	35	.00981	.03689
Control	A	6	.01110	.02917	EIWSED 06	A	36	.00972	.03487
	B	7	.00956	.03476		B	37	.01026	.03397
	C	8	.00952	.02879		C	38	.00944	.03054
	D	9	.00995	.02996		D	39	.00991	.02706
	E	10	.01007	.03029		E	40	.00976	.04225
EIWSED 01	A	11	.00989	.03490	EIWSED 07	A	41	.00990	.04182
	B	12	.00961	.03080		B	42	.01038	.03157
	C	13	.00978	.02812		C	43	.00998	.02735
	D	14	.00902	.03523		D	44	.01037	.03416
	E	15	.00977	.02931		E	45	.00951	.03628
EIWSED 02	A	16	.00942	.03391					
	B	17	.00968	.04455					
	C	18	.00927	.03218					
	D	19	.00942	.02650					
	E	20	.00967	.03491					
EIWSED 03	A	21	.00950	.03245					
	B	22	.00948	.03635					
	C	23	.00924	.03397					
	D	24	.00955	.03305					
	E	25	.00930	.03607					
EIWSED 04	A	26	.00951	.04048					
	B	27	.00917	.03153					
	C	28	.00920	.04273					
	D	29	.00916	.04305					
	E	30	.00900	.03890					

DATE/TIME Drying Initiated	9-23-10 / 1430
DATE/TIME Drying Terminated	9-24-10 / 1400
BALANCE ID#	79D
INITIALS	DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

① IE RB 8/26/10 → [.01056]

Initial Review Completed By: DK

Final Review Completed By: J Mondini

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1081	Job #:	100016848

Tissue Weight - *N. arenaceodentata*

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
Control 2	A	46	.00982	.02464
	B	47	.01003	.03426
	C	48	.00970	.03217
	D	49	.00934	.03319
	E	50	.00987	.02536
EWSED 01	A	51	.00899	.02267
	B	52	.00877	.02659
	C	53	.00930	.02633
	D	54	.00943	.02550
	E	55	.00974	.02197
EWSED 02	A	56	.00896	.02033
	B	57	.00904	.02653
	C	58	.00872	.01759
	D	59	.00904	.02142
	E	60	.00849	.01550
EWSED 03	A	61	.00886	.02356
	B	62	.00926	.01702
	C	63	.00969	.02028
	D	64	.00991	.01905
	E	65	.00939	.01729
EWSED 04	A	66	.00983	.01975
	B	67	.00947	.02504
	C	68	.00961	.02076
	D	69	.00966	.01880
	E	70	.00959	.02706
EWSED 05	A	71	.00940	.02490
	B	72	.00950	.02354
	C	73	.00938	.02099
	D	74	.00950	.01859
	E	75	.00977	.01572

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
EWSED 06	A	76	.00978	.02289
	B	77	.01029	.01847
	C	78	.00932	.01793
	D	79	.00916	.01950
	E	80	.00929	.01355
EWSED 07	A	81	.00918	.02058
	B	82	.00854	.02415
	C	83	.00926	.01523
	D	84	.00926	.01937
	E	85	.00937	.02756
EWSED 08	A	86	.00934	.01884
	B	87	.00924	.01380
	C	88	.00906	.01871
	D	89	.00925	.01657
	E	90	.00908	.01769

DATE/TIME Drying Initiated	9-23-10 / 1430
DATE/TIME Drying Terminated	9-24-10 / 1400
BALANCE ID#	79 D
INITIALS	DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

Initial Review Completed By: DK

Final Review Completed By: JoMondini

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1081	Job #:	100016848

Tissue Weight - *N. arenaceodentata*

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
EWSED 09	A	91	.00963	.02167
	B	92	.00929	.02169
	C	93	.00915	.01643
	D	94	.00970	.02345
	E	95	.00951	.01829

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
QA/QC	A	9	.00995	.02993
	B	30	.00897	.03899
	C	31	.00956	.02469
	D	37	.01030	.03397
	E	45	.00950	.03625
QA/QC	A	54	.00941	.02547
	B	64	.00990	.01906
	C	76	.00978	.02291
	D	81	.00918	.02057
	E	90	.00909	.01765

DATE/TIME Drying Initiated: 9-23-10 / 1430

DATE/TIME Drying Terminated: 9-24-10 / 1400

BALANCE ID#: 790

INITIALS: DL / DL

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

Initial Review Completed By: DL

Final Review Completed By: JoMondier

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1081	Job #:	100016848

Test Notes

Comments	Date	Time	Initials
TARE WT SCALE 790	9.8 10	1430	SK

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/24/10	URS - Gulfco BERA CONTROL - NEW Day -1	~~25~~ / 21	8.0	1530	RB
8/25/10	URS - Gulfco BERA CONTROL - NEW Day 0	20 / 20	8.0	1100	AL
	URS - Gulfco BERA CONTROL Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 01 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 02 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 03 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 04 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 05 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 06 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EIWSED 07 Day 0	20 / 20	8.0		
	URS - Gulfco BERA CONTROL 2 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 01 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 02 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 03 Day 0	20 / 20	8.0		

Comments: (1) IE RB 8/24/10 → [21]

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WET CHEMISTRY LOG- Special Projects – 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
7/25/11	URS - Gulfco BERA EWSED 04 Day 0	20 / 20	8.0	1100	HL
	URS - Gulfco BERA EWSED 05 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 06 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 07 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 08 Day 0	20 / 20	8.0		
	URS - Gulfco BERA EWSED 09 Day 0	20 / 20	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/24/10	URS - Gulfco BERA CONTROL - NEW Day -1	26	7.9	NA	AB
8/25/10	URS - Gulfco BERA CONTROL - NEW Day 0	26	7.7	NA	HC
	URS - Gulfco BERA CONTROL Day 0	26	7.7	0.37	
	URS - Gulfco BERA EIWSED 01 Day 0	26	7.2	0.41	
	URS - Gulfco BERA EIWSED 02 Day 0	26	7.8	0.28	
	URS - Gulfco BERA EIWSED 03 Day 0	26	7.8	0.19	
	URS - Gulfco BERA EIWSED 04 Day 0	26	7.8	0.12	
	URS - Gulfco BERA EIWSED 05 Day 0	27	7.7	0.39	
	URS - Gulfco BERA EIWSED 06 Day 0	27	7.7	0.42	
	URS - Gulfco BERA EIWSED 07 Day 0	27	7.7	0.21	
	URS - Gulfco BERA CONTROL 2 Day 0	26	7.7	0.48	
	URS - Gulfco BERA EWSED 01 Day 0	28	7.8	0.55	
	URS - Gulfco BERA EWSED 02 Day 0	28	7.8	1.09	
	URS - Gulfco BERA EWSED 03 Day 0	27	7.8	0.11	

Comments:

CONTINUED ON NEXT PAGE.....

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/25/10	URS - Gulfco BERA EWSED 04 Day 0	27	7.8	0.46	HC
	URS - Gulfco BERA EWSED 05 Day 0	27	7.7	0.20	
	URS - Gulfco BERA EWSED 06 Day 0	27	7.8	0.44	
	URS - Gulfco BERA EWSED 07 Day 0	27	7.8	0.21	
	URS - Gulfco BERA EWSED 08 Day 0	29	7.8	0.47	
	URS - Gulfco BERA EWSED 09 Day 0	29	7.8	0.69	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/26/10	URS - Gulfco BERA CONTROL - NEW Day 1	21 / 21	7.8	0930	KD
	URS - Gulfco BERA CONTROL Day 1	19 / 19	7.8	0930	HL
	URS - Gulfco BERA EIWSED 01 Day 1	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 02 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 03 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day 1	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 1	19 / 19	8.1		
	URS - Gulfco BERA CONTROL 2 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 1	19 / 19	8.1		
	URS - Gulfco BERA EWSED 03 Day 1	19 / 19	8.1		

Comments: Thermometer # 180
pH Meter # 742

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/30/10	URS - Gulfco BERA EWSED 04 Day 1	19 / 19	5.0	0990	HL
	URS - Gulfco BERA EWSED 05 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 1	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 1	19 / 19	8.1		
	URS - Gulfco BERA EWSED 08 Day 1	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 1	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
6/26/10	URS - Gulfco BERA CONTROL - NEW Day 1	25	7.4	NA	HL
	URS - Gulfco BERA CONTROL Day 1	25	7.4	0.45	
	URS - Gulfco BERA EIWSED 01 Day 1	25	7.4	0.86	
	URS - Gulfco BERA EIWSED 02 Day 1	24	7.5	1.07	
	URS - Gulfco BERA EIWSED 03 Day 1	25	7.5	1.53	
	URS - Gulfco BERA EIWSED 04 Day 1	25	7.6	0.35	
	URS - Gulfco BERA EIWSED 05 Day 1	27	7.6	1.01	
	URS - Gulfco BERA EIWSED 06 Day 1	27	7.6	0.58	
	URS - Gulfco BERA EIWSED 07 Day 1	27	7.6	1.02	
	URS - Gulfco BERA CONTROL 2 Day 1	28	7.6	0.73	
	URS - Gulfco BERA EWSED 01 Day 1	28	7.6	0.97	
	URS - Gulfco BERA EWSED 02 Day 1	27	7.6	2.13	
	URS - Gulfco BERA EWSED 03 Day 1	28	7.6	0.37	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/26/10	URS - Gulfco BERA EWSED 04 Day 1	27	7.7	0.26	HL
	URS - Gulfco BERA EWSED 05 Day 1	27	7.7	0.47	
	URS - Gulfco BERA EWSED 06 Day 1	27	7.7	0.26	
	URS - Gulfco BERA EWSED 07 Day 1	27	7.7	0.35	
	URS - Gulfco BERA EWSED 08 Day 1	28	7.7	0.42	
	URS - Gulfco BERA EWSED 09 Day 1	27	7.7	0.25	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	T&O Temp. °C (actual/corrected)	792 pH	Time	Init.
8/27/10	URS - Gulfco BERA CONTROL - NEW Day 2	18 / 18	7 ①	0930	HL
	URS - Gulfco BERA CONTROL Day 2	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 01 Day 2	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 02 Day 2	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 03 Day 2	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 04 Day 2	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 05 Day 2	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 06 Day 2	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 07 Day 2	18 / 18	8.0		
	URS - Gulfco BERA CONTROL 2 Day 2	18 / 18	7.9		
	URS - Gulfco BERA EWSED 01 Day 2	18 / 18	8.0		
	URS - Gulfco BERA EWSED 02 Day 2	18 / 18	8.0		
	URS - Gulfco BERA EWSED 03 Day 2	18 / 18	8.0		

Comments: D1E HL 8/24/10 → [8.0]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/27/10	URS - Gulfco BERA EWSED 04 Day 2	N/A	8.0	0900	HL
	URS - Gulfco BERA EWSED 05 Day 2	N/A	8.0		
	URS - Gulfco BERA EWSED 06 Day 2	N/A	8.0		
	URS - Gulfco BERA EWSED 07 Day 2	N/A	8.0		
	URS - Gulfco BERA EWSED 08 Day 2	N/A	7.9		
	URS - Gulfco BERA EWSED 09 Day 2	N/A	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
8/27/10	URS - Gulfco BERA CONTROL - NEW Day 2	27	7.9	~~1.240~~	HL
	URS - Gulfco BERA CONTROL Day 2	26	7.8	1.28	
	URS - Gulfco BERA EIWSED 01 Day 2	27	7.7	1.75	
	URS - Gulfco BERA EIWSED 02 Day 2	27	7.7	1.06	
	URS - Gulfco BERA EIWSED 03 Day 2	27	7.8	1.50	
	URS - Gulfco BERA EIWSED 04 Day 2	27	7.8	0.79	
	URS - Gulfco BERA EIWSED 05 Day 2	27	7.8	1.03	
	URS - Gulfco BERA EIWSED 06 Day 2	26	7.8	1.07	
	URS - Gulfco BERA EIWSED 07 Day 2	28	7.8	1.14	
	URS - Gulfco BERA CONTROL 2 Day 2	28	7.8	1.06	
	URS - Gulfco BERA EWSED 01 Day 2	27	7.8	1.34	
	URS - Gulfco BERA EWSED 02 Day 2	27	7.9	3.17	
	URS - Gulfco BERA EWSED 03 Day 2	27	7.9	0.41	

Comments: ①IE HL 8/27/10 → [NA]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
7/22/10	URS - Gulfco BERA EWSED 04 Day 2	27	8.0	0.29	HL
	URS - Gulfco BERA EWSED 05 Day 2	27	8.0	0.15	
	URS - Gulfco BERA EWSED 06 Day 2	27	8.0	0.21	
	URS - Gulfco BERA EWSED 07 Day 2	27	8.0	0.29	
	URS - Gulfco BERA EWSED 08 Day 2	29	8.0	1.58	
	URS - Gulfco BERA EWSED 09 Day 2	27	7.9	0.04	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/25/10	URS - Gulfco BERA CONTROL - NEW Day 3	20 / 20	8.0	1430	RB / DLC
	URS - Gulfco BERA CONTROL Day 3	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 3	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 3	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 3	19 / 19	7.9		

Comments: Thermometer #: T-80 CIE RB 8/28/10 → [765]

pH meter #: ~~757~~ ①

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/29/10	URS - Gulfco BERA EWSED 04 Day 3	19 / 19	7.9	1450	AB/DK
	URS - Gulfco BERA EWSED 05 Day 3	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 3	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 3	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 3	19 / 19	8.0		
	URS - Gulfco BERA EWSED 09 Day 3	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG-Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
8/26/10	URS - Gulfco BERA CONTROL - NEW Day 3	26	8.3	NA	DIL
	URS - Gulfco BERA CONTROL Day 3	26	8.4	0.16	
	URS - Gulfco BERA EIWSED 01 Day 3	26	8.4	0.25	
	URS - Gulfco BERA EIWSED 02 Day 3	27	8.5	0.48	
	URS - Gulfco BERA EIWSED 03 Day 3	27	8.5	0.42	
	URS - Gulfco BERA EIWSED 04 Day 3	27	8.5	0.40	
	URS - Gulfco BERA EIWSED 05 Day 3	27	8.5	0.31	
	URS - Gulfco BERA EIWSED 06 Day 3	27	8.5	0.33	
	URS - Gulfco BERA EIWSED 07 Day 3	27	8.5	0.16	
	URS - Gulfco BERA CONTROL 2 Day 3	26	8.4	0.25	
	URS - Gulfco BERA EWSED 01 Day 3	28	8.4	0.10	
	URS - Gulfco BERA EWSED 02 Day 3	28	8.4	0.58	
	URS - Gulfco BERA EWSED 03 Day 3	27	8.4	0.04	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm	Init.
3/28/10	URS - Gulfco BERA EWSED 04 Day 3	29	8.5	<0.01	DL
	URS - Gulfco BERA EWSED 05 Day 3	27	8.5	0.09	
	URS - Gulfco BERA EWSED 06 Day 3	27	8.5	<0.01	
	URS - Gulfco BERA EWSED 07 Day 3	27	8.5	0.02	
	URS - Gulfco BERA EWSED 08 Day 3	28	8.5	0.41	
	URS - Gulfco BERA EWSED 09 Day 3	27	8.5	0.02	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C: (actual/corrected)	pH	Time	Init.
8/30/10	URS - Gulfco BERA CONTROL - NEW Day 4	20 / 20	8.0	1400	AB
	URS - Gulfco BERA CONTROL Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 01 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 02 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 4	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 4	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 03 Day 4	19 / 19	8.0		

Comments: Thermometer #: T-80
pH Meter #: 765

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
2/24/10	URS - Gulfco BERA EWSED 04 Day 4	19 / 19	8.0	1400	RB
	URS - Gulfco BERA EWSED 05 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 4	19 / 19	8.0		
	URS - Gulfco BERA EWSED 09 Day 4	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/24/10	URS - Gulfco BERA CONTROL - NEW Day 4	26	8.1	0.43	RB / DIL
	URS - Gulfco BERA CONTROL Day 4	25	8.0	0.66	
	URS - Gulfco BERA EIWSED 01 Day 4	26	8.0	0.92	
	URS - Gulfco BERA EIWSED 02 Day 4	27	8.0	0.59	
	URS - Gulfco BERA EIWSED 03 Day 4	27	7.9	0.57	
	URS - Gulfco BERA EIWSED 04 Day 4	27	7.9	0.68	
	URS - Gulfco BERA EIWSED 05 Day 4	27	7.9	0.31	
	URS - Gulfco BERA EIWSED 06 Day 4	27	8.0	0.24	
	URS - Gulfco BERA EIWSED 07 Day 4	27	8.1	<0.20	
	URS - Gulfco BERA CONTROL 2 Day 4	27	8.1	0.46	
	URS - Gulfco BERA EWSED 01 Day 4	27	8.1	0.62	
	URS - Gulfco BERA EWSED 02 Day 4	27	8.1	2.15	
	URS - Gulfco BERA EWSED 03 Day 4	27	8.1	0.33	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/27/10	URS - Gulfco BERA EWSED 04 Day 4	22	8.1	0.98	RB/DIL
	URS - Gulfco BERA EWSED 05 Day 4	22	8.1	0.16	
	URS - Gulfco BERA EWSED 06 Day 4	22	8.1	0.29	
	URS - Gulfco BERA EWSED 07 Day 4	22	8.1	0.03	
	URS - Gulfco BERA EWSED 08 Day 4	22	8.1	0.85	
	URS - Gulfco BERA EWSED 09 Day 4	22	8.1	1.47	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/30/10	URS - Gulfco BERA CONTROL - NEW Day 5	21 / 21	8.0	0930	HJ
	URS - Gulfco BERA CONTROL Day 5	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 5	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 5	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 5	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 5	19 / 19	7.8		
	URS - Gulfco BERA EWSED 02 Day 5	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 5	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp, °C (actual/corrected)	pH	Time	Init.
3/22/12	URS - Gulfco BERA EWSED 04 Day 5	19 / 19	7.9	0955	HS
	URS - Gulfco BERA EWSED 05 Day 5	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 5	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 5	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 5	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 5	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
8/30/10	URS - Gulfco BERA CONTROL - NEW Day 5	26	8.1	0.07	HJ
	URS - Gulfco BERA CONTROL Day 5	26	8.2	0.14	
	URS - Gulfco BERA EIWSED 01 Day 5	26	8.1	0.47	
	URS - Gulfco BERA EIWSED 02 Day 5	26	8.1	0.84	
	URS - Gulfco BERA EIWSED 03 Day 5	26	8.2	0.76	
	URS - Gulfco BERA EIWSED 04 Day 5	26	8.2	0.33	
	URS - Gulfco BERA EIWSED 05 Day 5	26	8.0	0.53	
	URS - Gulfco BERA EIWSED 06 Day 5	26	8.1	0.32	
	URS - Gulfco BERA EIWSED 07 Day 5	26	8.1	0.21	
	URS - Gulfco BERA CONTROL 2 Day 5	26	8.1	0.28	
	URS - Gulfco BERA EWSED 01 Day 5	26	8.2	0.27	
	URS - Gulfco BERA EWSED 02 Day 5	26	8.2	1.08	
	URS - Gulfco BERA EWSED 03 Day 5	26	8.2	0.44	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/30/10	URS - Gulfco BERA EWSED 04 Day 5	22	8.1	0.04	HS
	URS - Gulfco BERA EWSED 05 Day 5	22	8.2	0.02	
	URS - Gulfco BERA EWSED 06 Day 5	22	8.2	0.10	
	URS - Gulfco BERA EWSED 07 Day 5	22	8.3	0.13	
	URS - Gulfco BERA EWSED 08 Day 5	22	8.3	0.02	
	URS - Gulfco BERA EWSED 09 Day 5	22	8.3	0.05	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
6/3/10	URS - Gulfco BERA CONTROL - NEW Day 6	20 / 20	8.0	1000	HJ
	URS - Gulfco BERA CONTROL Day 6	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 01 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 02 Day 6	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 03 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 04 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 05 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 06 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 07 Day 6	18 / 18	8.0		
	URS - Gulfco BERA CONTROL 2 Day 6	18 / 18	7.9		
	URS - Gulfco BERA EWSED 01 Day 6	18 / 18	7.9		
	URS - Gulfco BERA EWSED 02 Day 6	18 / 18	7.9		
	URS - Gulfco BERA EWSED 03 Day 6	18 / 18	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/31/10	URS - Gulfco BERA EWSED 04 Day 6	18 / 18	8.0	1000	HS
	URS - Gulfco BERA EWSED 05 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EWSED 06 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EWSED 07 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EWSED 08 Day 6	18 / 18	8.0		
	URS - Gulfco BERA EWSED 09 Day 6	18 / 18	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/21/10	URS - Gulfco BERA CONTROL - NEW Day 6	26	8.0	<0.01	HJ
	URS - Gulfco BERA CONTROL Day 6	26	8.0	0.30	
	URS - Gulfco BERA EIWSED 01 Day 6	26	8.0	0.50	
	URS - Gulfco BERA EIWSED 02 Day 6	26	8.0	0.12	
	URS - Gulfco BERA EIWSED 03 Day 6	26	8.0	0.73	
	URS - Gulfco BERA EIWSED 04 Day 6	26	8.0	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 6	26	8.1	0.50	
	URS - Gulfco BERA EIWSED 06 Day 6	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 6	27	8.1	0.35	
	URS - Gulfco BERA CONTROL 2 Day 6	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 01 Day 6	26	8.1	0.14	
	URS - Gulfco BERA EWSED 02 Day 6	27	8.1	0.64	
	URS - Gulfco BERA EWSED 03 Day 6	27	8.1	0.06	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
8/31/07	URS - Gulfco BERA EWSED 04 Day 6	22	8.1	0.81	HJ
	URS - Gulfco BERA EWSED 05 Day 6	22	8.1	0.39	
	URS - Gulfco BERA EWSED 06 Day 6	22	8.1	0.54	
	URS - Gulfco BERA EWSED 07 Day 6	22	8.1	0.18	
	URS - Gulfco BERA EWSED 08 Day 6	22	8.1	0.51	
	URS - Gulfco BERA EWSED 09 Day 6	22	8.1	0.26	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp °C (actual/corrected)	pH	Time	Init.
09/01/10	URS - Gulfco BERA CONTROL - NEW Day 7	20 / 20	7.9	1100	HJ
	URS - Gulfco BERA CONTROL Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 03 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 04 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 05 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 06 Day 7	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 7	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 01 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 02 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 7	19 / 19	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp °C (actual/corrected)	pH	Time	Init.
09/01/10	URS - Gulfco BERA EWSED 04 Day 7	19 / 19	7.8	1100	HJ
	URS - Gulfco BERA EWSED 05 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 06 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 07 Day 7	19 / 19	7.8		
	URS - Gulfco BERA EWSED 08 Day 7	19 / 19	7.7		
	URS - Gulfco BERA EWSED 09 Day 7	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/1/10	URS - Gulfco BERA CONTROL - NEW Day 7	25	7.8	0.01	HJ
	URS - Gulfco BERA CONTROL Day 7	26	7.7	0.15	
	URS - Gulfco BERA EIWSED 01 Day 7	26	7.8	0.33	
	URS - Gulfco BERA EIWSED 02 Day 7	26	7.8	0.49	
	URS - Gulfco BERA EIWSED 03 Day 7	26	7.9	0.48	
	URS - Gulfco BERA EIWSED 04 Day 7	26	8.0	0.32	
	URS - Gulfco BERA EIWSED 05 Day 7	26	8.0	0.45	
	URS - Gulfco BERA EIWSED 06 Day 7	26	8.0	0.10	
	URS - Gulfco BERA EIWSED 07 Day 7	26	8.0	0.06	
	URS - Gulfco BERA CONTROL 2 Day 7	26	7.9	0.12	
	URS - Gulfco BERA EWSED 01 Day 7	26	7.9	0.36	
	URS - Gulfco BERA EWSED 02 Day 7	26	7.9	1.33	
	URS - Gulfco BERA EWSED 03 Day 7	26	8.0	0.44	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/1/10	URS - Gulfco BERA EWSED 04 Day 7	26	7.9	0.09	HJ
	URS - Gulfco BERA EWSED 05 Day 7	26	8.0	0.06	
	URS - Gulfco BERA EWSED 06 Day 7	26	8.0	0.08	
	URS - Gulfco BERA EWSED 07 Day 7	26	8.0	0.10	
	URS - Gulfco BERA EWSED 08 Day 7	26	8.0	0.13	
	URS - Gulfco BERA EWSED 09 Day 7	26	8.0	0.29	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
09/29/10	URS - Gulfco BERA CONTROL - NEW Day 8	19 / 19	7.8	0930	HS / HL
	URS - Gulfco BERA CONTROL Day 8	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 01 Day 8	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 8	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 03 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 8	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 05 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 8	19 / 19	7.8		
	URS - Gulfco BERA CONTROL 2 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 8	19 / 19	7.8		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
29Nov10	URS - Gulfco BERA EWSED 04 Day 8	19 / 19	7.9	0930	HJ / HL
	URS - Gulfco BERA EWSED 05 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 8	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 8	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 8	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
09/03/10	URS - Gulfco BERA CONTROL - NEW Day 8	25	7.7	<0.01	HJ
	URS - Gulfco BERA CONTROL Day 8	25	7.8	0.04	
	URS - Gulfco BERA EIWSED 01 Day 8	25	7.9	0.05	
	URS - Gulfco BERA EIWSED 02 Day 8	26	7.9	0.21	
	URS - Gulfco BERA EIWSED 03 Day 8	26	7.9	0.11	
	URS - Gulfco BERA EIWSED 04 Day 8	26	8.0	0.01	
	URS - Gulfco BERA EIWSED 05 Day 8	26	8.0	0.04	
	URS - Gulfco BERA EIWSED 06 Day 8	26	8.0	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 8	26	8.0	0.02	
	URS - Gulfco BERA CONTROL 2 Day 8	26	7.9	0.03	
	URS - Gulfco BERA EWSED 01 Day 8	26	7.9	0.07	
	URS - Gulfco BERA EWSED 02 Day 8	26	7.9	0.44	
	URS - Gulfco BERA EWSED 03 Day 8	26	7.9	0.03	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
09/09/10	URS - Gulfco BERA EWSED 04 Day 8	26	7.9	0.04	HJ
	URS - Gulfco BERA EWSED 05 Day 8	26	7.9	0.16	
	URS - Gulfco BERA EWSED 06 Day 8	26	7.9	0.12	
	URS - Gulfco BERA EWSED 07 Day 8	26	7.9	0.01	
	URS - Gulfco BERA EWSED 08 Day 8	27	8.0	0.32	
	URS - Gulfco BERA EWSED 09 Day 8	26	8.0	0.07	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
8/23/10	URS - Gulfco BERA CONTROL - NEW Day 9	18 / 18	7.9	1000	HS / HL
	URS - Gulfco BERA CONTROL Day 9	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 01 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 02 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 03 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 04 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 05 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EIWSED 06 Day 9	18 / 18	7.9		
	URS - Gulfco BERA EIWSED 07 Day 9	18 / 18	7.9		
	URS - Gulfco BERA CONTROL 2 Day 9	18 / 18	7.9		
	URS - Gulfco BERA EWSED 01 Day 9	18 / 18	7.9		
	URS - Gulfco BERA EWSED 02 Day 9	18 / 18	7.8		
	URS - Gulfco BERA EWSED 03 Day 9	18 / 18	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/23/10	URS - Gulfco BERA EWSED 04 Day 9	18 / 18	7.8	1000	HJ / HL
	URS - Gulfco BERA EWSED 05 Day 9	18 / 18	7.9		
	URS - Gulfco BERA EWSED 06 Day 9	18 / 18	8.0		
	URS - Gulfco BERA EWSED 07 Day 9	18 / 18	8.0		
	URS - Gulfco BERA EWSED 08 Day 9	18 / 18	7.9		
	URS - Gulfco BERA EWSED 09 Day 9	18 / 18	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
09/03/10	URS - Gulfco BERA CONTROL - NEW Day 4	25	7.6	NA	HS / HL
	URS - Gulfco BERA CONTROL Day 9	26	7.7	0.20	
	URS - Gulfco BERA EIWSED 01 Day 9	26	7.7	0.28	
	URS - Gulfco BERA EIWSED 02 Day 9	26	7.8	0.08	
	URS - Gulfco BERA EIWSED 03 Day 9	26	7.8	0.18	
	URS - Gulfco BERA EIWSED 04 Day 9	26	7.8	0.22	
	URS - Gulfco BERA EIWSED 05 Day 9	26	7.7	0.23	
	URS - Gulfco BERA EIWSED 06 Day 9	26	7.7	0.22	
	URS - Gulfco BERA EIWSED 07 Day 9	26	7.7	0.05	
	URS - Gulfco BERA CONTROL 2 Day 9	26	7.8	0.15	
	URS - Gulfco BERA EWSED 01 Day 9	26	7.8	0.35	
	URS - Gulfco BERA EWSED 02 Day 9	26	7.8	1.15	
	URS - Gulfco BERA EWSED 03 Day 9	26	7.9	0.06	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3-N ppm	Init.
08/05/16	URS - Gulfco BERA EWSED 04 Day 9	26	7.9	0.14	HJ / HL
	URS - Gulfco BERA EWSED 05 Day 9	26	7.9	0.26	
	URS - Gulfco BERA EWSED 06 Day 9	26	7.9	0.03	
	URS - Gulfco BERA EWSED 07 Day 9	26	7.9	0.09	
	URS - Gulfco BERA EWSED 08 Day 9	27	7.9	0.37	
	URS - Gulfco BERA EWSED 09 Day 9	26	7.9	0.15	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/9/10	URS - Gulfco BERA CONTROL - NEW Day 10	19 / 19	7.7	1000	BC/SK
	URS - Gulfco BERA CONTROL Day 10	19 / 19	7.7	1000	BC/SK
	URS - Gulfco BERA EIWSED 01 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 02 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 03 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 04 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 05 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 06 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EIWSED 07 Day 10	19 / 19	7.6		
	URS - Gulfco BERA CONTROL 2 Day 10	19 / 19	7.6		
	URS - Gulfco BERA EWSED 01 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 02 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 10	19 / 19	7.8		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/4/15	URS - Gulfco BERA EWSED 04 Day 10	19 / 19	7.8	1200	BP/SK
	URS - Gulfco BERA EWSED 05 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 06 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 07 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 08 Day 10	19 / 19	7.8		
	URS - Gulfco BERA EWSED 09 Day 10	19 / 19	7.8		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/6/10	URS - Gulfco BERA CONTROL - NEW Day 10	25	7.7	NA	BR/SK
	URS - Gulfco BERA CONTROL Day 10	25	8.0	0.03	
	URS - Gulfco BERA EIWSED 01 Day 10	25	8.0	0.07	
	URS - Gulfco BERA EIWSED 02 Day 10	25	7.5	0.11	
	URS - Gulfco BERA EIWSED 03 Day 10	24	7.6	0.14	
	URS - Gulfco BERA EIWSED 04 Day 10	26	7.7	0.13	
	URS - Gulfco BERA EIWSED 05 Day 10	26	7.8	0.29	
	URS - Gulfco BERA EIWSED 06 Day 10	24	7.8	0.06	
	URS - Gulfco BERA EIWSED 07 Day 10	26	7.8	0.02	
	URS - Gulfco BERA CONTROL 2 Day 10	25	8.0	0.05	
	URS - Gulfco BERA EWSED 01 Day 10	24	8.0	0.09	
	URS - Gulfco BERA EWSED 02 Day 10	26	8.0	0.45	
	URS - Gulfco BERA EWSED 03 Day 10	28	7.9	0.05	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/14/10	URS - Gulfco BERA EWSED 04 Day 10	26	7.9	0.14	BR/SK
	URS - Gulfco BERA EWSED 05 Day 10	26	7.9	0.13	
	URS - Gulfco BERA EWSED 06 Day 10	26	7.9	0.05	
	URS - Gulfco BERA EWSED 07 Day 10	26	7.9	0.08	
	URS - Gulfco BERA EWSED 08 Day 10	26	7.9	0.24	
	URS - Gulfco BERA EWSED 09 Day 10	26	7.9	0.09	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenacsodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA CONTROL - NEW Day 11	19 / 19	7.9	1350	DL
	URS - Gulfco BERA CONTROL Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 03 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 04 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 05 Day 11	19 / 19	7.7		
	URS - Gulfco BERA EIWSED 06 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 07 Day 11	19 / 19	7.8		
	URS - Gulfco BERA CONTROL 2 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EWSED 01 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EWSED 02 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 11	19 / 19	7.8		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/19/12	URS - Gulfco BERA EWSED 04 Day 11	19 / 19	7.8	1305	DAL
	URS - Gulfco BERA EWSED 05 Day 11	19 / 19	7.8		
	URS - Gulfco BERA EWSED 06 Day 11	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 11	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 11	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 11	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/6/10	URS - Gulfco BERA CONTROL - NEW Day 11	25	7.9	NA	DK
	URS - Gulfco BERA CONTROL Day 11	25	7.7	0.15	
	URS - Gulfco BERA EIWSED 01 Day 11	25	7.8	0.23	
	URS - Gulfco BERA EIWSED 02 Day 11	26	7.8	0.19	
	URS - Gulfco BERA EIWSED 03 Day 11	26	7.9	0.27	
	URS - Gulfco BERA EIWSED 04 Day 11	26	7.9	0.28	
	URS - Gulfco BERA EIWSED 05 Day 11	26	7.9	0.32	
	URS - Gulfco BERA EIWSED 06 Day 11	26	7.8	0.24	
	URS - Gulfco BERA EIWSED 07 Day 11	26	7.8	0.18	
	URS - Gulfco BERA CONTROL 2 Day 11	26	7.8	0.22	
	URS - Gulfco BERA EWSED 01 Day 11	26	7.8	0.23	
	URS - Gulfco BERA EWSED 02 Day 11	26	7.7	0.65	
	URS - Gulfco BERA EWSED 03 Day 11	26	7.8	0.21	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/5/10	URS - Gulfco BERA EWSED 04 Day 11	26	7.8	0.35	DK
	URS - Gulfco BERA EWSED 05 Day 11	26	7.8	0.29	
	URS - Gulfco BERA EWSED 06 Day 11	25	7.8	0.26	
	URS - Gulfco BERA EWSED 07 Day 11	25	7.8	0.17	
	URS - Gulfco BERA EWSED 08 Day 11	27	7.8	0.20	
	URS - Gulfco BERA EWSED 09 Day 11	26	7.8	0.16	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/6/12	URS - Gulfco BERA CONTROL - NEW Day 12	19 / 19	7.9	1200	AD/LM
	URS - Gulfco BERA CONTROL Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 12	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 12	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 12	19 / 19	8.0		
	URS - Gulfco BERA EWSED 03 Day 12	19 / 19	8.1		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Temp. °C (actual/correcting)	pH	Time	Init.
8/10/10	URS - Gulfco BERA EWSED 04 Day 12	19	8.1	1202	RO/KM
	URS - Gulfco BERA EWSED 05 Day 12	19	8.0		
	URS - Gulfco BERA EWSED 06 Day 12	19	8.0		
	URS - Gulfco BERA EWSED 07 Day 12	19	8.0		
	URS - Gulfco BERA EWSED 08 Day 12	19	8.0		
	URS - Gulfco BERA EWSED 09 Day 12	19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/6/10	URS - Gulfco BERA CONTROL - NEW Day 12	~~30~~ ②	~~8.4~~ ①	N/A	RB/KM
	URS - Gulfco BERA CONTROL Day 12	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 12	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 12	26	8.1	0.04	
	URS - Gulfco BERA EIWSED 03 Day 12	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 12	26	8.1	0.02	
	URS - Gulfco BERA EIWSED 05 Day 12	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 12	26	8.0	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 12	26	8.0	0.01	
	URS - Gulfco BERA CONTROL 2 Day 12	26	~~8.4~~ ①	0.04	
	URS - Gulfco BERA EWSED 01 Day 12	26	7.9	0.15	
	URS - Gulfco BERA EWSED 02 Day 12	25	7.9	0.31	
	URS - Gulfco BERA EWSED 03 Day 12	26	7.9	0.17	

Comments: ① IE RB 9/6/10 → [7.9]
② IE RB 9/6/10 → [25]

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WET CHEMISTRY LOG- Special Projects - 28d L. plumulosus

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 12	26	7.9	0.23	to/hm
	URS - Gulfco BERA EWSED 05 Day 12	26	7.9	0.41	
	URS - Gulfco BERA EWSED 06 Day 12	26	7.9	0.16	
	URS - Gulfco BERA EWSED 07 Day 12	25	7.9	0.12	
	URS - Gulfco BERA EWSED 08 Day 12	26	7.9	0.57	
	URS - Gulfco BERA EWSED 09 Day 12	26	7.9	0.57	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/7/10	URS - Gulfco BERA CONTROL - NEW Day 13	19 / 19	8.0	1100	KM HC
	URS - Gulfco BERA CONTROL Day 13	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 03 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day 13	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 13	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 13	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 13	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 13	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 13	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/7/18	URS - Gulfco BERA EWSED 04 Day 13	17 / 17	8.0	1000	KM HL
	URS - Gulfco BERA EWSED 05 Day 13	17 / 17	8.0		
	URS - Gulfco BERA EWSED 06 Day 13	17 / 17	8.0		
	URS - Gulfco BERA EWSED 07 Day 13	17 / 17	8.0		
	URS - Gulfco BERA EWSED 08 Day 13	17 / 17	8.0		
	URS - Gulfco BERA EWSED 09 Day 13	17 / 17	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/9/10	URS - Gulfco BERA CONTROL - NEW Day 13	25	7.8	N/A	Km HL
	URS - Gulfco BERA CONTROL Day 13	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 13	25	8.0	0.09	
	URS - Gulfco BERA EIWSED 02 Day 13	25	8.1	0.14	
	URS - Gulfco BERA EIWSED 03 Day 13	25	8.1	0.13	
	URS - Gulfco BERA EIWSED 04 Day 13	25	8.2	0.11	
	URS - Gulfco BERA EIWSED 05 Day 13	25	8.2	0.09	
	URS - Gulfco BERA EIWSED 06 Day 13	25	8.2	0.11	
	URS - Gulfco BERA EIWSED 07 Day 13	25	8.2	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 13	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 01 Day 13	25	8.0	0.06	
	URS - Gulfco BERA EWSED 02 Day 13	25	8.0	0.01	
	URS - Gulfco BERA EWSED 03 Day 13	25	8.0	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
5-12-10	URS - Gulfco BERA EWSED 04 Day 13	25	8.1	0.21	Km HL
	URS - Gulfco BERA EWSED 05 Day 13	25	8.1	0.24	
	URS - Gulfco BERA EWSED 06 Day 13	24	8.2	<0.04	
	URS - Gulfco BERA EWSED 07 Day 13	24	8.2	0.09	
	URS - Gulfco BERA EWSED 08 Day 13	26	8.2	0.34	
	URS - Gulfco BERA EWSED 09 Day 13	25	8.2	0.10	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/8/10	URS - Gulfco BERA CONTROL - NEW Day 14	19 / 19	7.8	0930	HL
	URS - Gulfco BERA CONTROL Day 14	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 14	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 14	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 04 Day 14	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 05 Day 14	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 06 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 14	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 14	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 14	19 / 19	7.9		

Comments: #T80 #742

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA EWSED 04 Day 14	19 / 19	7.9	2230	HL
	URS - Gulfco BERA EWSED 05 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 14	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 14	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/8/10	URS - Gulfco BERA CONTROL - NEW Day 14	25	7.6	NA	HL
	URS - Gulfco BERA CONTROL Day 14	25	7.7	0.37	
	URS - Gulfco BERA EIWSED 01 Day 14	26	7.7	0.39	
	URS - Gulfco BERA EIWSED 02 Day 14	26	7.7	0.11	
	URS - Gulfco BERA EIWSED 03 Day 14	26	7.7	0.24	
	URS - Gulfco BERA EIWSED 04 Day 14	26	7.7	0.30	
	URS - Gulfco BERA EIWSED 05 Day 14	26	7.8	0.28	
	URS - Gulfco BERA EIWSED 06 Day 14	26	7.7	0.31	
	URS - Gulfco BERA EIWSED 07 Day 14	25	7.7	0.31	
	URS - Gulfco BERA CONTROL 2 Day 14	25	7.7	0.06	
	URS - Gulfco BERA EWSED 01 Day 14	25	7.8	0.19	
	URS - Gulfco BERA EWSED 02 Day 14	26	7.8	0.49	
	URS - Gulfco BERA EWSED 03 Day 14	26	7.8	0.07	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/8/10	URS - Gulfco BERA EWSED 04 Day 14	25	7.8	0.23	HC
	URS - Gulfco BERA EWSED 05 Day 14	26	7.8	0.26	
	URS - Gulfco BERA EWSED 06 Day 14	26	7.8	0.29	
	URS - Gulfco BERA EWSED 07 Day 14	26	7.8	0.17	
	URS - Gulfco BERA EWSED 08 Day 14	26	7.8	0.26	
	URS - Gulfco BERA EWSED 09 Day 14	26	7.8	0.39	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
7/9/10	URS - Gulfco BERA CONTROL - NEW Day 15	19 / 19	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day 15	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 01 Day 15	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 15	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 06 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 15	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 15	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 15	19 / 19	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/9/10	URS - Gulfco BERA EWSED 04 Day 15	19 / 19	7.9	0930	HL
	URS - Gulfco BERA EWSED 05 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 15	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 15	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/9/10	URS - Gulfco BERA CONTROL - NEW Day 15	25	7.9	~~0.05~~ ①	HL
	URS - Gulfco BERA CONTROL Day 15	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 15	25	7.8	0.03	
	URS - Gulfco BERA EIWSED 02 Day 15	26	7.8	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 15	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 15	25	7.9	0.01	
	URS - Gulfco BERA EIWSED 05 Day 15	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 15	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 15	26	7.9	0.15	
	URS - Gulfco BERA CONTROL 2 Day 15	26	7.8	<0.01	
	URS - Gulfco BERA EWSED 01 Day 15	25	7.8	0.02	
	URS - Gulfco BERA EWSED 02 Day 15	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 03 Day 15	26	7.9	0.05	

Comments: ① IE HL 9/9/10 → [NA]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm	Init.
9/9/10	URS - Gulfco BERA EWSED 04 Day 15	25	7.9	0.01	HL
	URS - Gulfco BERA EWSED 05 Day 15	26	7.9	0.04	
	URS - Gulfco BERA EWSED 06 Day 15	26	7.9	0.03	
	URS - Gulfco BERA EWSED 07 Day 15	26	8.0	<0.01	
	URS - Gulfco BERA EWSED 08 Day 15	26	8.0	0.05	
	URS - Gulfco BERA EWSED 09 Day 15	26	8.0	<0.01	

Comments: ① | E HL 9/9/10 → [32]

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/10/10	URS - Gulfco BERA CONTROL - NEW Day 16	19 / 19	7.8	0930	HL
	URS - Gulfco BERA CONTROL Day 16	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 16	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 02 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 03 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 16	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 16	19 / 19	7.8		
	URS - Gulfco BERA EWSED 01 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 16	19 / 19	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/1/10	URS - Gulfco BERA EWSED 04 Day 16	19 / 19	7.8	0930	HL
	URS - Gulfco BERA EWSED 05 Day 16	19 / 19	7.8		
	URS - Gulfco BERA EWSED 06 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 16	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 16	19 / 19	7.8		
	URS - Gulfco BERA EWSED 09 Day 16	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/10/10	URS - Gulfco BERA CONTROL - NEW Day 16	25	8.2	NA	HL
	URS - Gulfco BERA CONTROL Day 16	25	8.1	0.27	
	URS - Gulfco BERA EIWSED 01 Day 16	25	8.2	0.20	
	URS - Gulfco BERA EIWSED 02 Day 16	25	8.2	0.29	
	URS - Gulfco BERA EIWSED 03 Day 16	25	8.2	0.12	
	URS - Gulfco BERA EIWSED 04 Day 16	25	8.2	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 16	25	8.2	0.06	
	URS - Gulfco BERA EIWSED 06 Day 16	25	8.1	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 16	26	8.1	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 16	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 01 Day 16	25	8.1	<0.01	
	URS - Gulfco BERA EWSED 02 Day 16	25	8.1	0.24	
	URS - Gulfco BERA EWSED 03 Day 16	26	8.1	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/10/10	URS - Gulfco BERA EWSED 04 Day 16	25	8.1	0.02	HL
	URS - Gulfco BERA EWSED 05 Day 16	25	8.1	0.07	
	URS - Gulfco BERA EWSED 06 Day 16	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 07 Day 16	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 08 Day 16	26	8.1	0.02	
	URS - Gulfco BERA EWSED 09 Day 16	26	8.1	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/11/10	URS - Gulfco BERA CONTROL - NEW Day 17	26	7.4	N/A	DIL
	URS - Gulfco BERA CONTROL Day 17	26	7.5	0.06	
	URS - Gulfco BERA EIWSED 01 Day 17	26	7.5	0.03	
	URS - Gulfco BERA EIWSED 02 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 17	27	7.5	0.05	
	URS - Gulfco BERA EIWSED 06 Day 17	27	7.5	0.02	
	URS - Gulfco BERA EIWSED 07 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 17	27	7.5	0.02	
	URS - Gulfco BERA EWSED 01 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA EWSED 02 Day 17	27	7.5	<0.01	
	URS - Gulfco BERA EWSED 03 Day 17	27	7.5	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3-N ppm	Init.
9/11/10	URS - Gulfco BERA EWSED 04 Day 17	26	7.5	0.07	DK
	URS - Gulfco BERA EWSED 05 Day 17	26	7.5	0.04	
	URS - Gulfco BERA EWSED 06 Day 17	26	7.5	0.06	
	URS - Gulfco BERA EWSED 07 Day 17	26	7.5	0.01	
	URS - Gulfco BERA EWSED 08 Day 17	26	7.5	<0.01	
	URS - Gulfco BERA EWSED 09 Day 17	26	7.5	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/11/10	URS - Gulfco BERA CONTROL - NEW Day 12	18 / 18	8.0	1130	DK
	URS - Gulfco BERA CONTROL Day 17	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 01 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 02 Day 17	18 / 18	8.1		
	URS - Gulfco BERA EIWSED 03 Day 17	18 / 18	8.1		
	URS - Gulfco BERA EIWSED 04 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 05 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 06 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EIWSED 07 Day 17	18 / 18	8.0		
	URS - Gulfco BERA CONTROL 2 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 01 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 02 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 03 Day 17	18 / 18	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/11/10	URS - Gulfco BERA EWSED 04 Day 17	18 / 18	8.0	1130	DK
	URS - Gulfco BERA EWSED 05 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 06 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 07 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 08 Day 17	18 / 18	8.0		
	URS - Gulfco BERA EWSED 09 Day 17	18 / 18	7.8		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA CONTROL - NEW Day 18	19 / 19	8.1	0	RB
	URS - Gulfco BERA CONTROL Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 01 Day 18	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 02 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 03 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 04 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 05 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 06 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 07 Day 18	19 / 19	8.3		
	URS - Gulfco BERA CONTROL 2 Day 18	19 / 19	8.3		
	URS - Gulfco BERA EWSED 01 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 02 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 03 Day 18	19 / 19	8.2		

Comments: ① IE RB 9/12/10 → [0930]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA EWSED 04 Day 18	19 / 19	8.2	0750	RB
	URS - Gulfco BERA EWSED 05 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 06 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 07 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 08 Day 18	19 / 19	8.2		
	URS - Gulfco BERA EWSED 09 Day 18	19 / 19	8.2		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH3N ppm	Init.
9/12/10	URS - Gulfco BERA CONTROL - NEW Day 18	25	8.1	NA	KB
	URS - Gulfco BERA CONTROL Day 18	26	8.0	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 18	25	8.0	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 18	26	8.1	0.07	
	URS - Gulfco BERA EIWSED 04 Day 18	25	8.1	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 18	26	8.1	0.13	
	URS - Gulfco BERA EIWSED 06 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 01 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 02 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 03 Day 18	26	8.1	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/2/16	URS - Gulfco BERA EWSED 04 Day 18	26	8.1	<0.01	DB/DL
	URS - Gulfco BERA EWSED 05 Day 18	26	8.1	0.04	
	URS - Gulfco BERA EWSED 06 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 07 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 08 Day 18	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 09 Day 18	26	8.1	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/3/19	URS - Gulfco BERA CONTROL - NEW Day 19	19 / 19	8.0	1300	HL
	URS - Gulfco BERA CONTROL Day 19	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 19	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 03 Day 19	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 04 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 19	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 19	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 19	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA EWSED 04 Day 19	19 / 19	8.0	1000	HC
	URS - Gulfco BERA EWSED 05 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 19	19 / 19	8.0		
	URS - Gulfco BERA EWSED 09 Day 19	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/13/10	URS - Gulfco BERA CONTROL - NEW Day 19	25	7.9	N/A	HL
	URS - Gulfco BERA CONTROL Day 19	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 19	25	7.8	0.01	
	URS - Gulfco BERA EIWSED 02 Day 19	26	7.8	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 19	26	7.8	0.01	
	URS - Gulfco BERA EIWSED 04 Day 19	26	7.8	0.02	
	URS - Gulfco BERA EIWSED 05 Day 19	25	7.9	0.04	
	URS - Gulfco BERA EIWSED 06 Day 19	26	7.9	0.04	
	URS - Gulfco BERA EIWSED 07 Day 19	26	7.9	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 19	26	7.9	0.01	
	URS - Gulfco BERA EWSED 01 Day 19	25	7.9	0.01	
	URS - Gulfco BERA EWSED 02 Day 19	25	7.9	0.03	
	URS - Gulfco BERA EWSED 03 Day 19	26	7.9	0.09	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/13/10	URS - Gulfco BERA EWSED 04 Day 19	25	7.9	0.11	HL
	URS - Gulfco BERA EWSED 05 Day 19	25	7.9	0.18	
	URS - Gulfco BERA EWSED 06 Day 19	26	7.9	0.11	
	URS - Gulfco BERA EWSED 07 Day 19	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 08 Day 19	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 09 Day 19	25	8.0	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/14/10	URS - Gulfco BERA CONTROL - NEW Day 20	19 / 19	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day 20	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 03 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 20	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 20	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/4/10	URS - Gulfco BERA EWSED 04 Day 20	19 / 19	7.9	0930	HL
	URS - Gulfco BERA EWSED 05 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 20	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 20	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 20	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/14/10	URS - Gulfco BERA CONTROL - NEW Day 20	25	7.7	NA	
	URS - Gulfco BERA CONTROL Day 20	25	7.8	0.04	
	URS - Gulfco BERA EIWSED 01 Day 20	25	7.8	0.69	
	URS - Gulfco BERA EIWSED 02 Day 20	26	7.9	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 20	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 20	25	8.0	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 20	26	8.1	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 20	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 01 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA EWSED 02 Day 20	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 03 Day 20	25	8.0	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects – 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/4/10	URS - Gulfco BERA EWSED 04 Day 20	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 05 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA EWSED 06 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA EWSED 07 Day 20	26	8.1	<0.01	
	URS - Gulfco BERA EWSED 08 Day 20	26	8.0	<0.01	
	URS - Gulfco BERA EWSED 09 Day 20	25	8.0	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA CONTROL - NEW Day 21	19 / 19	8.0	0930	
	URS - Gulfco BERA CONTROL Day 21	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 21	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 03 Day 21	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 04 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 21	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 21	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 21	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA EWSED 04 Day 21	19 / 19	8.0	1930	
	URS - Gulfco BERA EWSED 05 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 21	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 21	19 / 19	8.0		
	URS - Gulfco BERA EWSED 09 Day 21	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/15/10	URS - Gulfco BERA CONTROL - NEW Day 21	25	7.8	0.11	
	URS - Gulfco BERA CONTROL Day 21	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 21	25	7.8	0.04	
	URS - Gulfco BERA EIWSED 02 Day 21	26	7.8	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 21	26	7.9	0.03	
	URS - Gulfco BERA EIWSED 04 Day 21	25	7.9	0.18	
	URS - Gulfco BERA EIWSED 05 Day 21	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 21	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 21	26	8.0	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 21	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 01 Day 21	25	8.0	0.05	
	URS - Gulfco BERA EWSED 02 Day 21	25	8.0	0.25	
	URS - Gulfco BERA EWSED 03 Day 21	26	8.0	0.05	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. aranaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3-N ppm	Init.
9/15/10	URS - Gulfco BERA EWSED 04 Day 21	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 05 Day 21	26	8.0	0.13	
	URS - Gulfco BERA EWSED 06 Day 21	26	8.0	0.12	
	URS - Gulfco BERA EWSED 07 Day 21	26	8.0	0.07	
	URS - Gulfco BERA EWSED 08 Day 21	26	8.0	0.10	
	URS - Gulfco BERA EWSED 09 Day 21	26	8.0	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 22	19 / 19	7.8	1030	HL
	URS - Gulfco BERA CONTROL Day 22	19 / 19	7.8		
	URS - Gulfco BERA EIWSED 01 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 02 Day 22	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 03 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 04 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 05 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 06 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 07 Day 22	19 / 19	7.9		
	URS - Gulfco BERA CONTROL 2 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 01 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 02 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day 22	19 / 19	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 22	19 / 19	7.9	1030	HL
	URS - Gulfco BERA EWSED 05 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 08 Day 22	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 22	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 22	25	7.9	0.04	HL
	URS - Gulfco BERA CONTROL Day 22	26	7.7	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 22	25	7.7	0.02	
	URS - Gulfco BERA EIWSED 02 Day 22	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 22	25	7.7	0.01	
	URS - Gulfco BERA EIWSED 04 Day 22	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 22	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 22	26	7.8	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 22	26	7.8	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 22	24	7.6	<0.01	
	URS - Gulfco BERA EWSED 01 Day 22	25	7.7	<0.01	
	URS - Gulfco BERA EWSED 02 Day 22	26	7.7	0.12	
	URS - Gulfco BERA EWSED 03 Day 22	26	7.8	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/16/10	URS - Gulfco BERA EWSED 04 Day 22	26	7.8	0.06	HL
	URS - Gulfco BERA EWSED 05 Day 22	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 06 Day 22	26	7.8	0.11	
	URS - Gulfco BERA EWSED 07 Day 22	26	7.8	0.10	
	URS - Gulfco BERA EWSED 08 Day 22	26	7.8	0.09	
	URS - Gulfco BERA EWSED 09 Day 22	26	7.8	0.02	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/17/10	URS - Gulfco BERA CONTROL - NEW Day 23	19 / 19	8.1	1600	HL
	URS - Gulfco BERA CONTROL Day 23	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 23	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 02 Day 23	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 03 Day 23	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 04 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 23	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 23	19 / 19	7.8		
	URS - Gulfco BERA EWSED 03 Day 23	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects – 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/17/10	URS - Gulfco BERA EWSED 04 Day 23	19 / 19	8.0	1000	HL
	URS - Gulfco BERA EWSED 05 Day 23	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day 23	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day 23	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 23	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day 23	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_4N ppm*	Init.
9/17/10	URS - Gulfco BERA CONTROL - NEW Day 23	25	7.4	~~<0.01~~ ①	HL
	URS - Gulfco BERA CONTROL Day 23	25	7.4	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 23	25	7.5	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 23	26	7.5	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 23	25	7.5	0.07	
	URS - Gulfco BERA EIWSED 04 Day 23	25	7.5	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 23	25	7.5	0.02	
	URS - Gulfco BERA EIWSED 06 Day 23	26	7.5	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 23	26	7.5	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 23	25	7.5	<0.01	
	URS - Gulfco BERA EWSED 01 Day 23	26	7.4	<0.01	
	URS - Gulfco BERA EWSED 02 Day 23	25	7.5	0.12	
	URS - Gulfco BERA EWSED 03 Day 23	26	7.5	<0.01	

Comments: ① IE HL 9/17/10 → [NA]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. %	D.O. mg/L	NH_3N ppm	Init.
9/7/10	URS - Gulfco BERA EWSED 04 Day 23	26	7.5	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 23	26	7.5	0.08	
	URS - Gulfco BERA EWSED 06 Day 23	26	7.5	0.02	
	URS - Gulfco BERA EWSED 07 Day 23	26	7.5	<0.01	
	URS - Gulfco BERA EWSED 08 Day 23	25	7.5	0.01	
	URS - Gulfco BERA EWSED 09 Day 23	26	7.5	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day 24	24	7.6	NA	DK SK BP
	URS - Gulfco BERA CONTROL Day 24	25	7.6	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 24	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 24	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 24	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 24	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 24	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 24	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 24	25	7.9	0.05	
	URS - Gulfco BERA CONTROL 2 Day 24	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 01 Day 24	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 02 Day 24	25	8.0	0.04	
	URS - Gulfco BERA EWSED 03 Day 24	25	8.0	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/17/10	URS - Gulfco BERA EWSED 04 Day 24	25	8.0	<0.01	OK SK BP
	URS - Gulfco BERA EWSED 05 Day 24	25	8.0	0.03	
	URS - Gulfco BERA EWSED 06 Day 24	25	8.0	0.01	
	URS - Gulfco BERA EWSED 07 Day 24	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 08 Day 24	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 09 Day 24	25	8.0	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day _____	19 / 19	8.0	NA	SK BP DK
	URS - Gulfco BERA CONTROL Day _____	19 / 19	8.0	1200	
	URS - Gulfco BERA EIWSED 01 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day _____	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 03 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day _____	19 / 19	8.0		
	URS - Gulfco BERA CONTROL 2 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day _____	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day _____	19 / 19	7.9		
	URS - Gulfco BERA EWSED 03 Day _____	19 / 19	7.9		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/18/10	URS - Gulfco BERA EWSED 04 Day ____	19 / 19	7.9	1200	SK BR
	URS - Gulfco BERA EWSED 05 Day ____	19 / 19	7.9		
	URS - Gulfco BERA EWSED 06 Day ____	19 / 19	7.9		
	URS - Gulfco BERA EWSED 07 Day ____	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day ____	19 / 19	7.9		
	URS - Gulfco BERA EWSED 09 Day ____	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/19/10	URS - Gulfco BERA CONTROL - NEW Day 25	25	7.8	NA	DLC
	URS - Gulfco BERA CONTROL Day 25	27	7.7	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 25	26	7.7	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 25	26	7.8	0.03	
	URS - Gulfco BERA EIWSED 03 Day _____	26	7.8	<0.01	
	URS - Gulfco BERA EIWSED 04 Day _____	26	7.9	<0.01	
	URS - Gulfco BERA EIWSED 05 Day _____	26	7.9	<0.01	
	URS - Gulfco BERA EIWSED 06 Day _____	26	7.9	<0.01	
	URS - Gulfco BERA EIWSED 07 Day _____	27	7.9	<0.01	
	URS - Gulfco BERA CONTROL 2 Day _____	26	7.9	<0.01	
	URS - Gulfco BERA EWSED 01 Day _____	27	7.8	<0.01	
	URS - Gulfco BERA EWSED 02 Day _____	26	7.9	<0.01	
	URS - Gulfco BERA EWSED 03 Day _____	27	7.9	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/19/10	URS - Gulfco BERA EWSED 04 Day ____	20	8.0	~~NA~~ ①	DK
	URS - Gulfco BERA EWSED 05 Day ____	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 06 Day ____	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 07 Day ____	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 08 Day ____	20	7.9	<0.01	
	URS - Gulfco BERA EWSED 09 Day ____	20	7.9	<0.01	

Comments: ① SG DK 9/19/10 → [<0.01]

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/19/10	URS - Gulfco BERA CONTROL - NEW Day 25	19 / 19	8.0	1200	DK
	URS - Gulfco BERA CONTROL Day 25	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 01 Day 25	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 02 Day 25	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 03 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 04 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 05 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 06 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 07 Day 25	19 / 19	8.1		
	URS - Gulfco BERA CONTROL 2 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 03 Day 25	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/19/10	URS - Gulfco BERA EWSED 04 Day 25	19 / 19	8.0	12:00	VK
	URS - Gulfco BERA EWSED 05 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 25	19 / 19	8.0		
	URS - Gulfco BERA EWSED 09 Day 25	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG-Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day 26	19 / 19	8.1	0930	HL
	URS - Gulfco BERA CONTROL Day 26	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 02 Day 26	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 03 Day 26	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 04 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 05 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 06 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 07 Day 26	19 / 19	8.1		
	URS - Gulfco BERA CONTROL 2 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EWSED 01 Day 26	19 / 19	8.0		
	URS - Gulfco BERA EWSED 02 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EWSED 03 Day 26	19 / 19	8.0		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/20/10	URS - Gulfco BERA EWSED 04 Day 26	19 / 19	8.0	0930	HL
	URS - Gulfco BERA EWSED 05 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EWSED 06 Day 26	19 / 19	8.0		
	URS - Gulfco BERA EWSED 07 Day 26	19 / 19	8.0		
	URS - Gulfco BERA EWSED 08 Day 26	19 / 19	8.1		
	URS - Gulfco BERA EWSED 09 Day 26	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day 26	24	7.7	NA	HL
	URS - Gulfco BERA CONTROL Day 26	25	7.9	0.51	
	URS - Gulfco BERA EIWSED 01 Day 26	25	7.9	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 26	25	7.9	0.05	
	URS - Gulfco BERA EIWSED 03 Day 26	25	8.0	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 26	25	8.0	0.02	
	URS - Gulfco BERA EIWSED 05 Day 26	25	8.0	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 26	25	8.0	0.06	
	URS - Gulfco BERA EIWSED 07 Day 26	25	8.0	0.07	
	URS - Gulfco BERA CONTROL 2 Day 26	26	7.9	0.10	
	URS - Gulfco BERA EWSED 01 Day 26	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 02 Day 26	24	7.9	0.08	
	URS - Gulfco BERA EWSED 03 Day 26	25	7.9	0.10	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/20/10	URS - Gulfco BERA EWSED 04 Day 26	25	7.9	0.13	HL
	URS - Gulfco BERA EWSED 05 Day 26	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 06 Day 26	25	8.0	<0.01	
	URS - Gulfco BERA EWSED 07 Day 26	25	8.0	0.17	
	URS - Gulfco BERA EWSED 08 Day 26	25	8.0	0.05	
	URS - Gulfco BERA EWSED 09 Day 26	25	8.0	0.09	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/21/10	URS - Gulfco BERA CONTROL - NEW Day 27	19 / 19	8.1	1000	HL
	URS - Gulfco BERA CONTROL Day 27	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 01 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 02 Day 27	19 / 19	8.3		
	URS - Gulfco BERA EIWSED 03 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 04 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 05 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 06 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 07 Day 27	19 / 19	8.1		
	URS - Gulfco BERA CONTROL 2 Day 27	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EWSED 02 Day 27	19 / 19	8.0		
	URS - Gulfco BERA EWSED 03 Day 27	19 / 19	8.1		

Comments:

CONTINUED ON NEXT PAGE.....

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp °C (actual/corrected)	pH	Time	Init.
9/21/10	URS - Gulfco BERA EWSED 04 Day 27	19 / 19	8.1	1000	HL
	URS - Gulfco BERA EWSED 05 Day 27	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EWSED 07 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EWSED 08 Day 27	19 / 19	8.1		
	URS - Gulfco BERA EWSED 09 Day 27	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/21/10	URS - Gulfco BERA CONTROL - NEW Day 27	24	7.7	~~<0.01~~ ①	HL
	URS - Gulfco BERA CONTROL Day 27	24	7.8	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 27	24	7.8	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 27	24	7.8	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 27	25	7.2	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 27	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 06 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EIWSED 07 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 01 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 02 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 03 Day 27	25	7.8	<0.01	

Comments: ①IE HL 9/21/10 → [NA]

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
9/21/10	URS - Gulfco BERA EWSED 04 Day 27	25	7.8	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 06 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 07 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 08 Day 27	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 09 Day 27	26	7.8	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day 28	NA / NA	NA	0930	HL
	URS - Gulfco BERA CONTROL Day 28	19 / 19	7.9		
	URS - Gulfco BERA EIWSED 01 Day 28	19 / 19	8.0		
	URS - Gulfco BERA EIWSED 02 Day 28	19 / 19	8.2		
	URS - Gulfco BERA EIWSED 03 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 04 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 05 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 06 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EIWSED 07 Day 28	19 / 19	8.1		
	URS - Gulfco BERA CONTROL 2 Day 28	19 / 19	8.0		
	URS - Gulfco BERA EWSED 01 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EWSED 02 Day 28	19 / 19	8.0		
	URS - Gulfco BERA EWSED 03 Day 28	19 / 19	8.1		

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9-2-10	URS - Gulfco BERA EWSED 04 Day 28	19 / 19	8.1	0930	HL
	URS - Gulfco BERA EWSED 05 Day 28	19 / 19	8.0		
	URS - Gulfco BERA EWSED 06 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EWSED 07 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EWSED 08 Day 28	19 / 19	8.1		
	URS - Gulfco BERA EWSED 09 Day 28	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal ‰	D.O. mg/L	NH_3N ppm*	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day NT	NA	NA	NA	HL
	URS - Gulfco BERA CONTROL Day 28	24	7.6	<0.01	
	URS - Gulfco BERA EIWSED 01 Day 28	24	7.7	<0.01	
	URS - Gulfco BERA EIWSED 02 Day 28	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 03 Day 28	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 04 Day 28	25	7.7	<0.01	
	URS - Gulfco BERA EIWSED 05 Day 28	25	7.8	0.15	
	URS - Gulfco BERA EIWSED 06 Day 28	25	7.8	0.02	
	URS - Gulfco BERA EIWSED 07 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA CONTROL 2 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 01 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 02 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 03 Day 28	25	7.8	<0.01	

Comments:

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WET CHEMISTRY LOG- Special Projects - 28d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm	Init.
4/22/10	URS - Gulfco BERA EWSED 04 Day 28	25	7.8	<0.01	HL
	URS - Gulfco BERA EWSED 05 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 06 Day 28	25	7.8	<0.01	
	URS - Gulfco BERA EWSED 07 Day 28	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 08 Day 28	25	7.9	<0.01	
	URS - Gulfco BERA EWSED 09 Day 28	26	7.8	<0.01	

Comments:

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 8/26/10 TEST NUMBER: 8/26/10 DURATION: 96 H
TOXICANT : CdCl2
SPECIES: Neanthes arenaceodenta

RAW DATA:

Concentration (mg/L)	Number Exposed	Mortalities
.00	12	0
4.80	12	0
6.30	12	1
8.40	12	12
11.20	12	12
15.00	12	12
20.00	12	12

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 7.11
95% LOWER CONFIDENCE: 6.80
95% UPPER CONFIDENCE: 7.43

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

96 h Acute *Neanthes arenaceodentata* Toxicity Test Condition Summary
Test Method ASTM E 1611

Test Organism	*Neanthes arenaceodentata*	Age Class	2-3 wk old juveniles
Test Type	Acute Static	Test Duration	96 h
Temperature	20 ± 1	Photoperiod	16:8 h; ambient light; 50-100 ft-c
Test Chamber size	40 ml plastic cup	Cleaning	None
No. of Replicates	3	No. organisms per Replicate	3 (minimum)
Test Solution Volume	30 mL (minimum)	Dilution Water	LAB-W (20 ppt)
Renewal of test solution	None	Aeration	None
Feeding	NA	Food Type	N/A
Acceptability Criteria	≥ 90% survival in control	Sampling Holding Time	N/A

Test Organism Batch	10-00849	DOB	NA
Source	U of C Long Beach	Age (days)	2-3 wks old

Test Concentrations (mg/L)	Control, 4.8, 6.3, 8.4, 11.2, 15.0, 20.0	Critical Dilution	NA

STOX Solution 1 Date/Time/Initials	8/26/10	1530	RB	STOX Solution 3 Date/Time/Initials	NA		
STOX Solution 2 Date/Time/Initials	NA			STOX Solution 4 Date/Time/Initials	NA		

Hour	Date	Time	Initials	Hour	Date	Time	Initials
0 h Initiation	8/26/10	1600	RB/HJ	72 h Counts	8/29/10	1530	DIL
24 h Counts	8/27/10	1630	HJ	96 h Termination	8/30/10	1800	HL
48 h Counts	8/29/10	1530	RB		NA	NA	NA

This test was conducted in accordance with the method standards or according to the exception(s) as noted:

Comments:

Susan Gregory
Final Review Signature

RB / HL
Initial Review

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

Acute Toxicity Test with *Neanthes arenaceodentata*

Conc. (mg/L)	Rep	No. of Surviving Organisms					Conc. (mg/L)	Rep	No. of Surviving Organisms				
		0 hr	24 hr	48 hr	72 hr	96 hr			0 hr	24 hr	48 hr	72 hr	96 hr
Control	A	3	3	3	3	3	11.2	A	3	3	1	0	0
	B	3	3	3	3	3		B	3	3	2	0	0
	C	3	3	3	3	3		C	3	3	1	0	0
	D	3	3	3	3	3		D	3	3	0	0	0
	E							E					
4.8	A	3	3	3	3	3	15.0	A	3	3	0	0	0
	B	3	3	3	3	3		B	3	3	0	0	0
	C	3	3	3	3	3		C	3	3	0	0	0
	D	3	3	3	3	3		D	3	3	0	0	0
	E							E					
6.3	A	3	3	3	3	3	20.0	A	3	0	0	0	0
	B	3	3	3	3	3		B	3	0	0	0	0
	C	3	3	3	2	2		C	3	0	0	0	0
	D	3	3	3	3	3		D	3	0	0	0	0
	E							E					
8.4	A	3	3	0	0	0		A	~~3~~ ②				
	B	3	3	2	0	0		B	~~3~~				
	C	3	3	2	0	0		C	~~3~~				
	D	3	3	2	0	0		D	~~3~~				
	E							E					

Comments: ① ~~IE RB 8/28/10 → [②]~~
② IE RB 8/28/10 → [NA]

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

RB / HL
Initial Review

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

Water Quality Parameters -*Neanthes arenaceodentata*

Conc. (mg/L)	pH	
	0 hr	96 hr
Rep	A	E
Cont.	8.0	7.8
4.8	8.0	7.8
6.3	8.0	7.8
8.4	8.0	7.8
11.2	8.0	7.8
15.0	8.1	7.8
20.0	8.1	7.8
Meter No.	765	765
Time	1530	1800
Initials	PB	HL

Conc. (mg/L)	Dissolved Oxygen (mg/L)	
	0 hr	96 hr
Rep	A	E
Cont.	7.8	7.7
4.8	7.8	7.6
6.3	7.9	7.6
8.4	7.9	7.6
11.2	8.0	7.6
15.0	8.0	7.6
20.0	8.1	7.6
Meter No.	735	735
Time	1530	1800
Initials	PB	HL

Comments:

PB / HL
Initial Review

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Client:	PBS&J STOX - CdCl2	Log# No.:		PBS&J Job No.:	470001.00 0400

Water Quality Parameters -*Neanthes arenaceodentata*

Conc. (mg/L)	Temperature (°C)	
Read	[illegible]	[illegible]
Cont.	20/21	19/20
4.8	20/21	19/20
6.3	20/21	19/20
8.4	20/21	19/20
11.2	20/21	19/20
15.0	20/21	19/20
20.0	20/21	19/20
Therm. No.	T-81	T81
Time	1530	1800
Initials	PD	HL

Conc. (mg/L)	Salinity (ppt)	
	[illegible]	[illegible]
Cont.	26	26
4.8	25	25
6.3	24	24
8.4	24	24
11.2	23	23
15.0	23	23
20.0		
Meter No.	749	749
Time	1530	1800
Initials	PD	HL

Comments:

PD / HL
Initial Review

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Appendix C

Statistical Analyses

CETIS Test Data Worksheet

Report Date: 28 Sep-10 17:35 (p 1 of 2)
Test Code: 18-2007-2383/Gulfco-BERA

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Start Date:	25 Aug-10 17:00	**Species:**	Leptocheirus plumulosus	**Sample Code:**	522B6A79
End Date:	22 Sep-10 15:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	23 Aug-10	**Material:**	Control Sediment	**Sample Station:**	York River, VA

Sample Code	Rep	Pos	# Exposed	# Survived	Total Weight-mg	Tare Weight-mg	Pan Count	Neonate Weight-mg	# Offspring
522B6A79	1	40	40	32	41.75	19.26	32	matrix Not processed	12
522B6A79	2	49	40	31	49.71	19.56	31		10
522B6A79	3	20	40	32	46.17	19.93	32		6
522B6A79	4	38	40	33	43.08	19.71	33		9
522B6A79	5	59	40	35	42.79	9.59	35		16
4E8E3F4E	1	63	20	7	17.35	11.12	7		1
4E8E3F4E	2	8	20	11	16.31	10.62	11		0
4E8E3F4E	3	46	20	7	12.92	11.2	7		2
4E8E3F4E	4	67	20	11	16.52	10.79	11		0
4E8E3F4E	5	84	20	5	14.37	11.25	5		0
6241A6DB	1	5	20	11	16.16	11.04	11		1
6241A6DB	2	54	20	8	16.99	10.72	8		3
6241A6DB	3	39	20	13	13.72	10.5	13		0
6241A6DB	4	76	20	13	16.63	9.98	13		1
6241A6DB	5	53	20	19	21.57	10.19	19		4
46A76891	1	47	20	6	13.14	10.27	6		1
46A76891	2	3	20	16	21.82	10.43	16		5
46A76891	3	77	20	9	14.91	10.56	9		0
46A76891	4	57	20	2	10.86	10.17	2		0
46A76891	5	60	20	6	14.59	10.18	6		0
13E96AA0	1	44	20	6	12.81	10.57	6		0
13E96AA0	2	43	20	7	15.15	12.23	7		0
13E96AA0	3	48	20	16	19.62	12.31	16		1
13E96AA0	4	66	20	5	13.98	12.42	5		1
13E96AA0	5	64	20	8	18.71	11.82	8		1
7E133628	1	21	20	12	19.29	12.14	12		2
7E133628	2	23	20	9	17.71	11.76	9		1
7E133628	3	18	20	10	17.92	11.57	10		0
7E133628	4	33	20	2	12.33	11.45	2		0
7E133628	5	85	20	11	15.97	11.67	11		0
1739F99E	1	13	20	10	15.04	10	10		5
1739F99E	2	82	20	5	11.88	10.34	5		0
1739F99E	3	79	20	7	12.02	10.29	7		0
1739F99E	4	10	20	15	19.38	10.53	15		1
1739F99E	5	17	20	5	12.68	10.84	5		0
3AE7FA68	1	65	20	9	12.59	10.27	9		0
3AE7FA68	2	74	20	19	18.66	10.85	19		0
3AE7FA68	3	69	20	12	14.81	10.17	12		0
3AE7FA68	4	34	20	8	14.4	10.25	8		0
3AE7FA68	5	31	20	16	15.11	9.28	16		0
34B11EA3	1	22	20	8	11.72	9.75	8		0
34B11EA3	2	56	20	2	10.68	9.5	2		0
34B11EA3	3	8	20	5	11.36	9.67	5		0
34B11EA3	4	42	20	11	21.89	9.52	11		0
34B11EA3	5	41	20	9	18.41	9.55	9		0
4DC7E5DB	1	80	20	14	14.74	9.42	14		0
4DC7E5DB	2	29	20	15	15.28	9.7	15		0

CETIS Test Data Worksheet

Report Date: 28 Sep-10 17:35 (p 2 of 2)
Test Code: 18-2007-2383/Gulfco-BERA

Sample Code	Rep	Pos	# Exposed	# Survived	Total Weight-mg	Tare Weight-mg	Pan Count	Neonate Weight-mg	# Offspring
4DC7E5DB	3	52	20	16	15.39	9.96	16		1
4DC7E5DB	4	11	20	10	13.98	10.1	10		0
4DC7E5DB	5	45	20	3	12.67	9.73	3		0
2740ACD8	1	50	20	0			0		0
2740ACD8	2	25	20	14	15	9.72	14		0
2740ACD8	3	75	20	6	12.18	9.4	6		0
2740ACD8	4	12	20	0			0		0
2740ACD8	5	72	20	0			0		0
28D4F9EE	2	73	20	4	12.15	10.11	4		0
28D4F9EE	3	28	20	0			0		0
28D4F9EE	4	81	20	2	10.67	9.41	2		0
28D4F9EE	5	7	20	13	14.62	8.81	13		0
1E840A85	1	24	20	6	12.03	9.87	6		0
1E840A85	2	37	20	6	11.79	9.85	6		0
1E840A85	3	6	20	6	12	9.66	6		0
1E840A85	4	71	20	9	13.97	9.06	9		0
1E840A85	5	68	20	11	14.7	9.91	11		0
6F919694	1	70	20	0			0		0
6F919694	2	62	20	7	12.23	9.67	7		0
6F919694	3	14	20	1	9.58	9.18	1		0
6F919694	4	30	20	1	9.35	8.85	1		0
6F919694	5	78	20	4	10.14	9.15	4		0
2D1B7F74	1	1	20	11	15.24	9.82	11		1
2D1B7F74	2	35	20	11	14.46	10.36	11		0
2D1B7F74	3	32	20	1	10.17	9.8	1		0
2D1B7F74	4	2	20	3	11.1	9.91	3		3
2D1B7F74	5	27	20	4	11.67	10.35	4		0
1A62F00C	1	58	20	6	14.86	10	6		0
1A62F00C	2	19	20	1	10.14	9.93	1		1
1A62F00C	3	51	20	8	12.68	9.45	8		0
1A62F00C	4	36	20	9	16.23	9.92	9		0
1A62F00C	5	16	20	9	16.04	10.37	9		2
77B11D52	1	4	20	4	11.56	10.43	4		0
77B11D52	2	83	20	2	10.48	9.97	2		2
77B11D52	3	26	20	5	14.38	10.08	5		4
77B11D52	4	15	20	1	11.52	11.16	1		0
77B11D52	5	55	20	7	15.58	10.26	7		3

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	15-6791-7192	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID:	15-6791-7192	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					56.1%

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	3.005	5.1	8	0.4659	0.7685	Non-Significant Effect
		6241A6DB	2.987	5.1	8	0.4659	0.7761	Non-Significant Effect
		46A76891	3.066	5.1	8	0.4659	0.7417	Non-Significant Effect
		13E96AA0	3.791	5.1	8	0.4659	0.3909	Non-Significant Effect
		7E133628	3.129	5.1	8	0.4659	0.7127	Non-Significant Effect
		1739F99E	4.674	5.1	8	0.4659	0.1086	Non-Significant Effect
		3AE7FA68	4.846	5.1	8	0.4659	0.0803	Non-Significant Effect
		34B11EA3	1.902	5.1	8	0.4659	0.9945	Non-Significant Effect
		4DC7E5DB	3.709	5.1	8	0.4659	0.4289	Non-Significant Effect
		2740ACD8	3.394	5.1	5	0.6164	0.5834	Non-Significant Effect
		28D4F9EE	2.858	5.1	6	0.538	0.8275	Non-Significant Effect
		1E840A85	4.593	5.1	8	0.4659	0.1247	Non-Significant Effect
		6F919694	4.685	5.1	7	0.4942	0.1065	Non-Significant Effect
		2D1B7F74	4.795	5.1	8	0.4659	0.0880	Non-Significant Effect
		1A62F00C	2.536	5.1	8	0.4659	0.9242	Non-Significant Effect
		77B11D52	3.579	5.1	8	0.4659	0.4915	Non-Significant Effect
4E8E3F4E		6241A6DB	0.01803	5.1	8	0.4659	1.0000	Non-Significant Effect
		46A76891	0.06095	5.1	8	0.4659	1.0000	Non-Significant Effect
		13E96AA0	0.7862	5.1	8	0.4659	1.0000	Non-Significant Effect
		7E133628	0.1245	5.1	8	0.4659	1.0000	Non-Significant Effect
		1739F99E	1.669	5.1	8	0.4659	0.9987	Non-Significant Effect
		3AE7FA68	1.841	5.1	8	0.4659	0.9961	Non-Significant Effect
		34B11EA3	1.102	5.1	8	0.4659	1.0000	Non-Significant Effect
		4DC7E5DB	0.7042	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	1.123	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.2557	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	1.588	5.1	8	0.4659	0.9993	Non-Significant Effect
		6F919694	1.853	5.1	7	0.4942	0.9959	Non-Significant Effect
		2D1B7F74	1.79	5.1	8	0.4659	0.9972	Non-Significant Effect
		1A62F00C	0.4686	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.5741	5.1	8	0.4659	1.0000	Non-Significant Effect
6241A6DB		46A76891	0.07898	5.1	8	0.4659	1.0000	Non-Significant Effect
		13E96AA0	0.8042	5.1	8	0.4659	1.0000	Non-Significant Effect
		7E133628	0.1425	5.1	8	0.4659	1.0000	Non-Significant Effect
		1739F99E	1.688	5.1	8	0.4659	0.9986	Non-Significant Effect
		3AE7FA68	1.859	5.1	8	0.4659	0.9957	Non-Significant Effect
		34B11EA3	1.084	5.1	8	0.4659	1.0000	Non-Significant Effect
		4DC7E5DB	0.7223	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	1.137	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.2713	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	1.606	5.1	8	0.4659	0.9992	Non-Significant Effect
		6F919694	1.87	5.1	7	0.4942	0.9954	Non-Significant Effect
		2D1B7F74	1.808	5.1	8	0.4659	0.9968	Non-Significant Effect
		1A62F00C	0.4506	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.5921	5.1	8	0.4659	1.0000	Non-Significant Effect
46A76891		13E96AA0	0.7252	5.1	8	0.4659	1.0000	Non-Significant Effect
		7E133628	0.06354	5.1	8	0.4659	1.0000	Non-Significant Effect
		1739F99E	1.609	5.1	8	0.4659	0.9992	Non-Significant Effect
		3AE7FA68	1.78	5.1	8	0.4659	0.9973	Non-Significant Effect
		34B11EA3	1.163	5.1	8	0.4659	1.0000	Non-Significant Effect
		4DC7E5DB	0.6433	5.1	8	0.4659	1.0000	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	15-6791-7192	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	Analysis:	Parametric-All Pairwise	Official Results:	Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	1.077	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.2029	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	1.527	5.1	8	0.4659	0.9996	Non-Significant Effect
		6F919694	1.795	5.1	7	0.4942	0.9971	Non-Significant Effect
		2D1B7F74	1.729	5.1	8	0.4659	0.9981	Non-Significant Effect
		1A62F00C	0.5295	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.5131	5.1	8	0.4659	1.0000	Non-Significant Effect
13E96AA0		7E133628	0.6617	5.1	8	0.4659	1.0000	Non-Significant Effect
		1739F99E	0.8833	5.1	8	0.4659	1.0000	Non-Significant Effect
		3AE7FA68	1.055	5.1	8	0.4659	1.0000	Non-Significant Effect
		34B11EA3	1.889	5.1	8	0.4659	0.9949	Non-Significant Effect
		4DC7E5DB	0.08197	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	0.5286	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.4252	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	0.8018	5.1	8	0.4659	1.0000	Non-Significant Effect
		6F919694	1.111	5.1	7	0.4942	1.0000	Non-Significant Effect
		2D1B7F74	1.004	5.1	8	0.4659	1.0000	Non-Significant Effect
		1A62F00C	1.255	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.2121	5.1	8	0.4659	1.0000	Non-Significant Effect
7E133628		1739F99E	1.545	5.1	8	0.4659	0.9995	Non-Significant Effect
		3AE7FA68	1.717	5.1	8	0.4659	0.9982	Non-Significant Effect
		34B11EA3	1.227	5.1	8	0.4659	1.0000	Non-Significant Effect
		4DC7E5DB	0.5797	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	1.029	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.1479	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	1.464	5.1	8	0.4659	0.9997	Non-Significant Effect
		6F919694	1.735	5.1	7	0.4942	0.9980	Non-Significant Effect
		2D1B7F74	1.665	5.1	8	0.4659	0.9988	Non-Significant Effect
		1A62F00C	0.5931	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.4496	5.1	8	0.4659	1.0000	Non-Significant Effect
1739F99E		3AE7FA68	0.1719	5.1	8	0.4659	1.0000	Non-Significant Effect
		34B11EA3	2.772	5.1	8	0.4659	0.8579	Non-Significant Effect
		4DC7E5DB	0.9652	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	0.1391	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	1.19	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	0.08144	5.1	8	0.4659	1.0000	Non-Significant Effect
		6F919694	0.2787	5.1	7	0.4942	1.0000	Non-Significant Effect
		2D1B7F74	0.1205	5.1	8	0.4659	1.0000	Non-Significant Effect
		1A62F00C	2.138	5.1	8	0.4659	0.9824	Non-Significant Effect
		77B11D52	1.095	5.1	8	0.4659	1.0000	Non-Significant Effect
3AE7FA68		34B11EA3	2.944	5.1	8	0.4659	0.7939	Non-Significant Effect
		4DC7E5DB	1.137	5.1	8	0.4659	1.0000	Non-Significant Effect
		2740ACD8	0.269	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	1.339	5.1	6	0.538	0.9999	Non-Significant Effect
		1E840A85	0.2533	5.1	8	0.4659	1.0000	Non-Significant Effect
		6F919694	0.1166	5.1	7	0.4942	1.0000	Non-Significant Effect
		2D1B7F74	0.05145	5.1	8	0.4659	1.0000	Non-Significant Effect
		1A62F00C	2.31	5.1	8	0.4659	0.9645	Non-Significant Effect
		77B11D52	1.267	5.1	8	0.4659	1.0000	Non-Significant Effect
34B11EA3		4DC7E5DB	1.807	5.1	8	0.4659	0.9969	Non-Significant Effect
		2740ACD8	1.956	5.1	5	0.6164	0.9927	Non-Significant Effect
		28D4F9EE	1.21	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	2.69	5.1	8	0.4659	0.8837	Non-Significant Effect
		6F919694	2.892	5.1	7	0.4942	0.8145	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	15-6791-7192	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	2.892	5.1	8	0.4659	0.8143	Non-Significant Effect
		1A62F00C	0.6338	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	1.676	5.1	8	0.4659	0.9987	Non-Significant Effect
4DC7E5DB		2740ACD8	0.5906	5.1	5	0.6164	1.0000	Non-Significant Effect
		28D4F9EE	0.3542	5.1	6	0.538	1.0000	Non-Significant Effect
		1E840A85	0.8838	5.1	8	0.4659	1.0000	Non-Significant Effect
		6F919694	1.189	5.1	7	0.4942	1.0000	Non-Significant Effect
		2D1B7F74	1.086	5.1	8	0.4659	1.0000	Non-Significant Effect
		1A62F00C	1.173	5.1	8	0.4659	1.0000	Non-Significant Effect
		77B11D52	0.1302	5.1	8	0.4659	1.0000	Non-Significant Effect
2740ACD8		28D4F9EE	0.8246	5.1	3	0.6725	1.0000	Non-Significant Effect
		1E840A85	0.07753	5.1	5	0.6164	1.0000	Non-Significant Effect
		6F919694	0.3502	5.1	4	0.638	1.0000	Non-Significant Effect
		2D1B7F74	0.2302	5.1	5	0.6164	1.0000	Non-Significant Effect
		1A62F00C	1.477	5.1	5	0.6164	0.9997	Non-Significant Effect
		77B11D52	0.689	5.1	5	0.6164	1.0000	Non-Significant Effect
28D4F9EE		1E840A85	1.12	5.1	6	0.538	1.0000	Non-Significant Effect
		6F919694	1.383	5.1	5	0.5627	0.9999	Non-Significant Effect
		2D1B7F74	1.294	5.1	6	0.538	0.9999	Non-Significant Effect
		1A62F00C	0.6615	5.1	6	0.538	1.0000	Non-Significant Effect
		77B11D52	0.2415	5.1	6	0.538	1.0000	Non-Significant Effect
1E840A85		6F919694	0.3554	5.1	7	0.4942	1.0000	Non-Significant Effect
		2D1B7F74	0.2019	5.1	8	0.4659	1.0000	Non-Significant Effect
		1A62F00C	2.057	5.1	8	0.4659	0.9879	Non-Significant Effect
		77B11D52	1.014	5.1	8	0.4659	1.0000	Non-Significant Effect
6F919694		2D1B7F74	0.1651	5.1	7	0.4942	1.0000	Non-Significant Effect
		1A62F00C	2.294	5.1	7	0.4942	0.9665	Non-Significant Effect
		77B11D52	1.311	5.1	7	0.4942	0.9999	Non-Significant Effect
2D1B7F74		1A62F00C	2.259	5.1	8	0.4659	0.9708	Non-Significant Effect
		77B11D52	1.216	5.1	8	0.4659	1.0000	Non-Significant Effect
1A62F00C		77B11D52	1.043	5.1	8	0.4659	1.0000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.036947	0.0648092	16	1.553	0.1101	Non-Significant Effect
Error	2.587153	0.04172828	62			
Total	3.6241	0.1065375	78			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	27.33	32	0.0379	Equal Variances
Variances	Mod Levene Equality of Variance	1.799	2.408	0.0603	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9748	0.9574	0.1202	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.09245	0.1164	0.0918	Normal Distribution
Distribution	D'Agostino Skewness	1.608	2.576	0.1078	Normal Distribution
Distribution	D'Agostino Kurtosis	0.9997	2.576	0.3175	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	3.585	9.21	0.1666	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7762	3.878	0.0435	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	15-6791-7192	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.8304	0.7818	0.8791	0.7028	0.9726	0.05723	0.128	15.41%	0.0%
4E8E3F4E	5	0.5559	0.4674	0.6445	0.2457	0.89	0.1041	0.2329	41.89%	33.05%
6241A6DB	5	0.5576	0.4819	0.6333	0.2477	0.7825	0.08902	0.1991	35.7%	32.86%
46A76891	5	0.5504	0.4869	0.6139	0.345	0.7333	0.07464	0.1669	30.32%	33.72%
13E96AA0	5	0.4841	0.4014	0.5669	0.312	0.8612	0.0973	0.2176	44.94%	41.7%
7E133628	5	0.5446	0.4984	0.5907	0.3909	0.6611	0.05428	0.1214	22.29%	34.42%
1739F99E	5	0.4034	0.3497	0.4571	0.2471	0.59	0.06313	0.1412	34.99%	51.42%
3AE7FA68	5	0.3877	0.3521	0.4234	0.2578	0.5187	0.04192	0.09373	24.18%	53.31%
34B11EA3	5	0.6566	0.5092	0.8041	0.2463	1.125	0.1733	0.3876	59.02%	20.93%
4DC7E5DB	5	0.4916	0.3875	0.5957	0.3394	0.98	0.1224	0.2736	55.66%	40.8%
2740ACD8	2	0.4202	0.3971	0.4434	0.3771	0.4633	0.0431	0.06095	14.5%	49.4%
28D4F9EE	3	0.529	0.4936	0.5644	0.4469	0.63	0.05369	0.093	17.58%	36.3%
1E840A85	5	0.4109	0.3782	0.4435	0.3233	0.5456	0.03836	0.08578	20.88%	50.52%
6F919694	4	0.3764	0.3356	0.4173	0.24	0.5	0.05366	0.1073	28.51%	54.67%
2D1B7F74	5	0.3924	0.3692	0.4156	0.33	0.4927	0.02726	0.06096	15.54%	52.74%
1A62F00C	5	0.5988	0.4866	0.7109	0.21	0.9233	0.1318	0.2947	49.22%	27.9%
77B11D52	5	0.5035	0.3952	0.6118	0.255	0.86	0.1273	0.2846	56.53%	39.37%

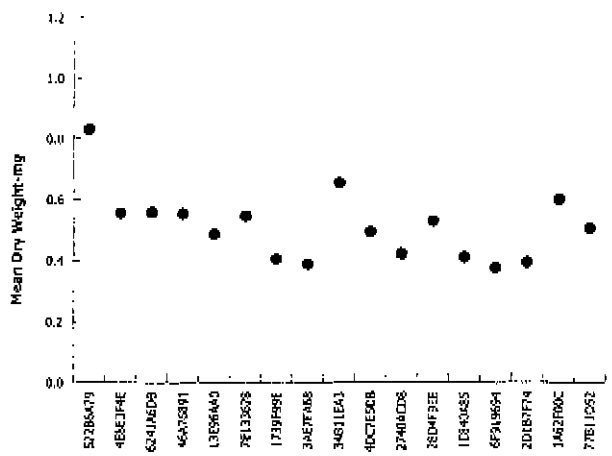
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

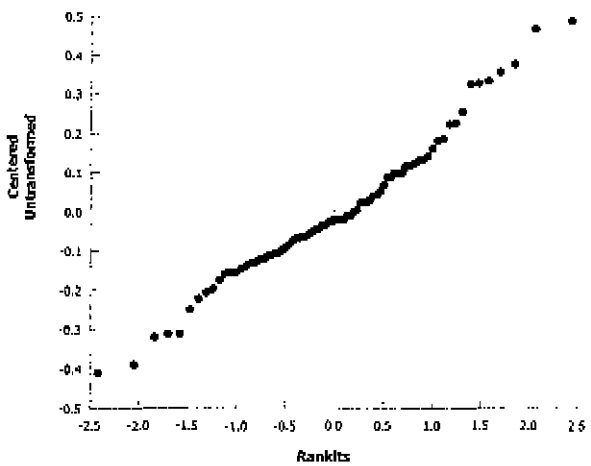
Analysis ID:	15-6791-7192	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:51	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.7028	0.9726	0.82	0.7082	0.9486
4E8E3F4E	0.89	0.4991	0.2457	0.5209	0.624
6241A6DB	0.6473	0.7825	0.2477	0.5115	0.5989
46A76891	0.4783	0.7119	0.4833	0.345	0.7333
13E96AA0	0.3733	0.4171	0.4569	0.312	0.8612
7E133628	0.5958	0.6611	0.635	0.44	0.3909
1739F99E	0.504	0.308	0.2471	0.59	0.368
3AE7FA68	0.2578	0.4111	0.3867	0.5187	0.3644
34B11EA3	0.2463	0.59	0.338	1.125	0.9844
4DC7E5DB	0.38	0.3707	0.3394	0.388	0.98
2740ACD8	0.3771	0.4633			
28D4F9EE	0.51	0.63	0.4469		
1E840A85	0.36	0.3233	0.39	0.5456	0.4355
6F919694	0.3657	0.4	0.5	0.24	
2D1B7F74	0.4927	0.3727	0.37	0.3967	0.33
1A62F00C	0.8267	0.21	0.4038	0.9233	0.63
77B11D52	0.2825	0.255	0.86	0.36	0.76

Graphics





Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	18-2955-3612	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID: 18-2955-3612 Endpoint: Survival Rate CETIS Version: CETISv1.8.0
Analyzed: 27 Sep-10 14:05 Analysis: Parametric-All Pairwise Official Results: Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	D<>0	Not Run					63.2%

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	4.044	5.085	8	0.5479	0.2831	Non-Significant Effect
		6241A6DB	1.668	5.085	8	0.5479	0.9988	Non-Significant Effect
		46A76891	4.299	5.085	8	0.5479	0.1965	Non-Significant Effect
		13E96AA0	3.919	5.085	8	0.5479	0.3334	Non-Significant Effect
		7E133628	3.852	5.085	8	0.5479	0.3620	Non-Significant Effect
		1739F99E	3.947	5.085	8	0.5479	0.3215	Non-Significant Effect
		3AE7FA68	1.635	5.085	8	0.5479	0.9990	Non-Significant Effect
		34B11EA3	4.712	5.085	8	0.5479	0.0998	Non-Significant Effect
		4DC7E5DB	2.433	5.085	8	0.5479	0.9458	Non-Significant Effect
		2740ACD8	6.928	5.085	8	0.5479	0.0009	Significant Effect
		28D4F9EE	5.854	5.085	7	0.5811	0.0100	Significant Effect
		1E840A85	4.324	5.085	8	0.5479	0.1890	Non-Significant Effect
		6F919694	7.387	5.085	8	0.5479	0.0004	Significant Effect
		2D1B7F74	5.349	5.085	8	0.5479	0.0295	Significant Effect
		1A62F00C	4.972	5.085	8	0.5479	0.0620	Non-Significant Effect
		77B11D52	6.444	5.085	8	0.5479	0.0026	Significant Effect
4E8E3F4E		6241A6DB	2.376	5.085	8	0.5479	0.9554	Non-Significant Effect
		46A76891	0.2546	5.085	8	0.5479	1.0000	Non-Significant Effect
		13E96AA0	0.1253	5.085	8	0.5479	1.0000	Non-Significant Effect
		7E133628	0.1918	5.085	8	0.5479	1.0000	Non-Significant Effect
		1739F99E	0.09685	5.085	8	0.5479	1.0000	Non-Significant Effect
		3AE7FA68	2.409	5.085	8	0.5479	0.9501	Non-Significant Effect
		34B11EA3	0.6678	5.085	8	0.5479	1.0000	Non-Significant Effect
		4DC7E5DB	1.611	5.085	8	0.5479	0.9992	Non-Significant Effect
		2740ACD8	2.884	5.085	8	0.5479	0.8183	Non-Significant Effect
		28D4F9EE	2.042	5.085	7	0.5811	0.9889	Non-Significant Effect
		1E840A85	0.2802	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	3.343	5.085	8	0.5479	0.6090	Non-Significant Effect
		2D1B7F74	1.305	5.085	8	0.5479	0.9999	Non-Significant Effect
		1A62F00C	0.9283	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.4	5.085	8	0.5479	0.9515	Non-Significant Effect
6241A6DB		46A76891	2.631	5.085	8	0.5479	0.9014	Non-Significant Effect
		13E96AA0	2.251	5.085	8	0.5479	0.9721	Non-Significant Effect
		7E133628	2.185	5.085	8	0.5479	0.9788	Non-Significant Effect
		1739F99E	2.28	5.085	8	0.5479	0.9688	Non-Significant Effect
		3AE7FA68	0.03261	5.085	8	0.5479	1.0000	Non-Significant Effect
		34B11EA3	3.044	5.085	8	0.5479	0.7518	Non-Significant Effect
		4DC7E5DB	0.7654	5.085	8	0.5479	1.0000	Non-Significant Effect
		2740ACD8	5.26	5.085	8	0.5479	0.0353	Significant Effect
		28D4F9EE	4.282	5.085	7	0.5811	0.2015	Non-Significant Effect
		1E840A85	2.657	5.085	8	0.5479	0.8943	Non-Significant Effect
		6F919694	5.719	5.085	8	0.5479	0.0134	Significant Effect
		2D1B7F74	3.681	5.085	8	0.5479	0.4409	Non-Significant Effect
		1A62F00C	3.305	5.085	8	0.5479	0.6280	Non-Significant Effect
		77B11D52	4.776	5.085	8	0.5479	0.0890	Non-Significant Effect
46A76891		13E96AA0	0.3799	5.085	8	0.5479	1.0000	Non-Significant Effect
		7E133628	0.4464	5.085	8	0.5479	1.0000	Non-Significant Effect
		1739F99E	0.3515	5.085	8	0.5479	1.0000	Non-Significant Effect
		3AE7FA68	2.664	5.085	8	0.5479	0.8923	Non-Significant Effect
		34B11EA3	0.4132	5.085	8	0.5479	1.0000	Non-Significant Effect
		4DC7E5DB	1.866	5.085	8	0.5479	0.9957	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID: 18-2955-3612 Endpoint: Survival Rate CETIS Version: CETISv1.8.0
Analyzed: 27 Sep-10 14:05 Analysis: Parametric-All Pairwise Official Results: Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	2.629	5.085	8	0.5479	0.9018	Non-Significant Effect
		28D4F9EE	1.802	5.085	7	0.5811	0.9971	Non-Significant Effect
		1E840A85	0.02557	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	3.088	5.085	8	0.5479	0.7321	Non-Significant Effect
		2D1B7F74	1.05	5.085	8	0.5479	1.0000	Non-Significant Effect
		1A62F00C	0.6737	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.146	5.085	8	0.5479	0.9821	Non-Significant Effect
13E95AA0		7E133628	0.06657	5.085	8	0.5479	1.0000	Non-Significant Effect
		1739F99E	0.02842	5.085	8	0.5479	1.0000	Non-Significant Effect
		3AE7FA68	2.284	5.085	8	0.5479	0.9683	Non-Significant Effect
		34B11EA3	0.7931	5.085	8	0.5479	1.0000	Non-Significant Effect
		4DC7E5DB	1.486	5.085	8	0.5479	0.9997	Non-Significant Effect
		2740ACD8	3.009	5.085	8	0.5479	0.7671	Non-Significant Effect
		28D4F9EE	2.16	5.085	7	0.5811	0.9809	Non-Significant Effect
		1E840A85	0.4054	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	3.468	5.085	8	0.5479	0.5460	Non-Significant Effect
		2D1B7F74	1.43	5.085	8	0.5479	0.9998	Non-Significant Effect
		1A62F00C	1.054	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.525	5.085	8	0.5479	0.9273	Non-Significant Effect
7E133628		1739F99E	0.09499	5.085	8	0.5479	1.0000	Non-Significant Effect
		3AE7FA68	2.217	5.085	8	0.5479	0.9757	Non-Significant Effect
		34B11EA3	0.8597	5.085	8	0.5479	1.0000	Non-Significant Effect
		4DC7E5DB	1.419	5.085	8	0.5479	0.9998	Non-Significant Effect
		2740ACD8	3.076	5.085	8	0.5479	0.7376	Non-Significant Effect
		28D4F9EE	2.222	5.085	7	0.5811	0.9751	Non-Significant Effect
		1E840A85	0.472	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	3.534	5.085	8	0.5479	0.5126	Non-Significant Effect
		2D1B7F74	1.496	5.085	8	0.5479	0.9997	Non-Significant Effect
		1A62F00C	1.12	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.592	5.085	8	0.5479	0.9115	Non-Significant Effect
1739F99E		3AE7FA68	2.312	5.085	8	0.5479	0.9647	Non-Significant Effect
		34B11EA3	0.7647	5.085	8	0.5479	1.0000	Non-Significant Effect
		4DC7E5DB	1.514	5.085	8	0.5479	0.9996	Non-Significant Effect
		2740ACD8	2.981	5.085	8	0.5479	0.7792	Non-Significant Effect
		28D4F9EE	2.133	5.085	7	0.5811	0.9830	Non-Significant Effect
		1E840A85	0.377	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	3.439	5.085	8	0.5479	0.5603	Non-Significant Effect
		2D1B7F74	1.401	5.085	8	0.5479	0.9999	Non-Significant Effect
		1A62F00C	1.025	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.497	5.085	8	0.5479	0.9334	Non-Significant Effect
3AE7FA68		34B11EA3	3.077	5.085	8	0.5479	0.7372	Non-Significant Effect
		4DC7E5DB	0.798	5.085	8	0.5479	1.0000	Non-Significant Effect
		2740ACD8	5.293	5.085	8	0.5479	0.0331	Significant Effect
		28D4F9EE	4.313	5.085	7	0.5811	0.1923	Non-Significant Effect
		1E840A85	2.689	5.085	8	0.5479	0.8849	Non-Significant Effect
		6F919694	5.752	5.085	8	0.5479	0.0125	Significant Effect
		2D1B7F74	3.713	5.085	8	0.5479	0.4254	Non-Significant Effect
		1A62F00C	3.337	5.085	8	0.5479	0.6117	Non-Significant Effect
		77B11D52	4.809	5.085	8	0.5479	0.0839	Non-Significant Effect
34B11EA3		4DC7E5DB	2.279	5.085	8	0.5479	0.9689	Non-Significant Effect
		2740ACD8	2.216	5.085	8	0.5479	0.9758	Non-Significant Effect
		28D4F9EE	1.412	5.085	7	0.5811	0.9998	Non-Significant Effect
		1E840A85	0.3876	5.085	8	0.5479	1.0000	Non-Significant Effect
		6F919694	2.675	5.085	8	0.5479	0.8891	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	18-2955-3612	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	0.6367	5.085	8	0.5479	1.0000	Non-Significant Effect
		1A62F00C	0.2605	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	1.732	5.085	8	0.5479	0.9981	Non-Significant Effect
4DC7E5DB		2740ACD8	4.495	5.085	8	0.5479	0.1443	Non-Significant Effect
		28D4F9EE	3.56	5.085	7	0.5811	0.4997	Non-Significant Effect
		1E840A85	1.891	5.085	8	0.5479	0.9950	Non-Significant Effect
		6F919694	4.954	5.085	8	0.5479	0.0643	Non-Significant Effect
		2D1B7F74	2.915	5.085	8	0.5479	0.8060	Non-Significant Effect
		1A62F00C	2.539	5.085	8	0.5479	0.9242	Non-Significant Effect
		77B11D52	4.011	5.085	8	0.5479	0.2959	Non-Significant Effect
2740ACD8		28D4F9EE	0.6773	5.085	7	0.5811	1.0000	Non-Significant Effect
		1E840A85	2.604	5.085	8	0.5479	0.9085	Non-Significant Effect
		6F919694	0.4587	5.085	8	0.5479	1.0000	Non-Significant Effect
		2D1B7F74	1.579	5.085	8	0.5479	0.9994	Non-Significant Effect
		1A62F00C	1.956	5.085	8	0.5479	0.9929	Non-Significant Effect
		77B11D52	0.4838	5.085	8	0.5479	1.0000	Non-Significant Effect
28D4F9EE		1E840A85	1.777	5.085	7	0.5811	0.9975	Non-Significant Effect
		6F919694	1.11	5.085	7	0.5811	1.0000	Non-Significant Effect
		2D1B7F74	0.8117	5.085	7	0.5811	1.0000	Non-Significant Effect
		1A62F00C	1.166	5.085	7	0.5811	1.0000	Non-Significant Effect
		77B11D52	0.2212	5.085	7	0.5811	1.0000	Non-Significant Effect
1E840A85		6F919694	3.062	5.085	8	0.5479	0.7436	Non-Significant Effect
		2D1B7F74	1.024	5.085	8	0.5479	1.0000	Non-Significant Effect
		1A62F00C	0.6482	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	2.12	5.085	8	0.5479	0.9840	Non-Significant Effect
6F919694		2D1B7F74	2.038	5.085	8	0.5479	0.9891	Non-Significant Effect
		1A62F00C	2.414	5.085	8	0.5479	0.9491	Non-Significant Effect
		77B11D52	0.9425	5.085	8	0.5479	1.0000	Non-Significant Effect
2D1B7F74		1A62F00C	0.3762	5.085	8	0.5479	1.0000	Non-Significant Effect
		77B11D52	1.096	5.085	8	0.5479	1.0000	Non-Significant Effect
1A62F00C		77B11D52	1.472	5.085	8	0.5479	0.9997	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.815	0.8 - NL	Yes	Passes Acceptibility Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.605311	0.2253319	16	3.881	<0.0001	Significant Effect
Error	3.889647	0.05805443	67			
Total	7.494958	0.2833863	83			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	17.84	32	0.3335	Equal Variances
Variances	Mod Levene Equality of Variance	0.5072	2.374	0.9317	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9871	0.9596	0.5681	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.07183	0.1129	0.3228	Normal Distribution
Distribution	D'Agostino Skewness	1.345	2.576	0.1786	Normal Distribution
Distribution	D'Agostino Kurtosis	0.2214	2.576	0.8248	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.858	9.21	0.3950	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.355	3.878	0.4646	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	18-2955-3612	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.815	0.8006	0.8294	0.775	0.875	0.01696	0.03791	4.65%	0.0%
4E8E3F4E	5	0.41	0.359	0.461	0.25	0.55	0.06	0.1342	32.72%	49.69%
6241A6DB	5	0.64	0.5635	0.7165	0.4	0.95	0.09	0.2012	31.44%	21.47%
46A76891	5	0.39	0.2908	0.4892	0.1	0.8	0.1166	0.2608	66.86%	52.15%
13E96AA0	5	0.42	0.3364	0.5036	0.25	0.8	0.09823	0.2197	52.3%	48.47%
7E133628	5	0.44	0.3646	0.5154	0.1	0.6	0.0886	0.1981	45.03%	46.01%
1739F99E	5	0.42	0.3398	0.5002	0.25	0.75	0.09434	0.211	50.23%	48.47%
3AE7FA68	5	0.64	0.5514	0.7286	0.4	0.95	0.1042	0.2329	36.39%	21.47%
34B11EA3	5	0.35	0.2828	0.4172	0.1	0.55	0.07906	0.1768	50.51%	57.06%
4DC7E5DB	5	0.58	0.4788	0.6812	0.15	0.8	0.119	0.266	45.86%	28.83%
2740ACD8	5	0.2	0.08276	0.3172	0	0.7	0.1378	0.3082	154.1%	75.46%
28D4F9EE	4	0.2375	0.1284	0.3466	0	0.65	0.1434	0.2869	120.8%	70.86%
1E840A85	5	0.38	0.3362	0.4238	0.3	0.55	0.05148	0.1151	30.29%	53.37%
6F919694	5	0.13	0.07521	0.1848	0	0.35	0.06442	0.144	110.8%	84.05%
2D1B7F74	5	0.3	0.2108	0.3892	0.05	0.55	0.1049	0.2345	78.17%	63.19%
1A62F00C	5	0.33	0.2661	0.3939	0.05	0.45	0.07517	0.1681	50.93%	59.51%
77B11D52	5	0.19	0.1446	0.2354	0.05	0.35	0.05339	0.1194	62.83%	76.69%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.128	1.109	1.147	1.077	1.209	0.02266	0.05067	4.49%	0.0%
4E8E3F4E	5	0.6921	0.6395	0.7447	0.5236	0.8355	0.06184	0.1383	19.98%	38.64%
6241A6DB	5	0.9482	0.855	1.041	0.6847	1.345	0.1095	0.245	25.83%	15.93%
46A76891	5	0.6647	0.555	0.7744	0.3218	1.107	0.129	0.2885	43.4%	41.07%
13E96AA0	5	0.7056	0.6173	0.794	0.5236	1.107	0.1039	0.2323	32.93%	37.44%
7E133628	5	0.7128	0.627	0.7987	0.3218	0.8861	0.1009	0.2257	31.66%	36.8%
1739F99E	5	0.7026	0.6187	0.7865	0.5236	1.047	0.09862	0.2205	31.39%	37.71%
3AE7FA68	5	0.9517	0.8473	1.056	0.6847	1.345	0.1228	0.2745	28.85%	15.62%
34B11EA3	5	0.6202	0.5436	0.6968	0.3218	0.8355	0.09005	0.2013	32.47%	45.02%
4DC7E5DB	5	0.8657	0.7561	0.9754	0.3977	1.107	0.1289	0.2883	33.3%	23.24%
2740ACD8	5	0.3814	0.2306	0.5322	0.112	0.9912	0.1773	0.3965	104.0%	66.19%
28D4F9EE	4	0.4588	0.3255	0.5921	0.112	0.9377	0.1752	0.3504	76.36%	59.32%
1E840A85	5	0.6619	0.617	0.7069	0.5796	0.8355	0.05283	0.1181	17.85%	41.31%
6F919694	5	0.332	0.2515	0.4124	0.112	0.6331	0.09461	0.2116	63.73%	70.57%
2D1B7F74	5	0.5516	0.4476	0.6556	0.2255	0.8355	0.1223	0.2734	49.56%	51.1%
1A62F00C	5	0.5921	0.5105	0.6737	0.2255	0.7353	0.09595	0.2146	36.24%	47.5%
77B11D52	5	0.4335	0.372	0.495	0.2255	0.6331	0.07232	0.1617	37.3%	61.56%

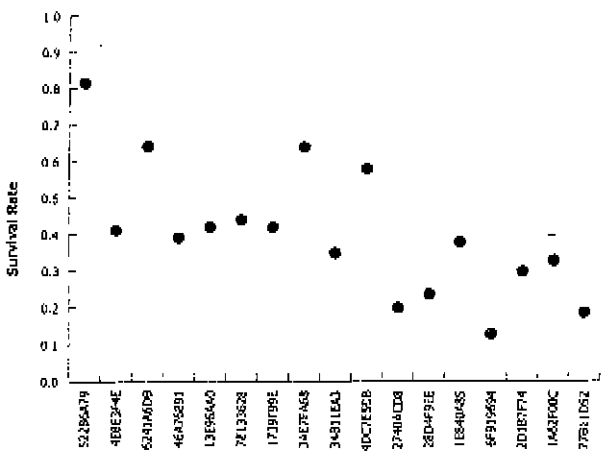
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

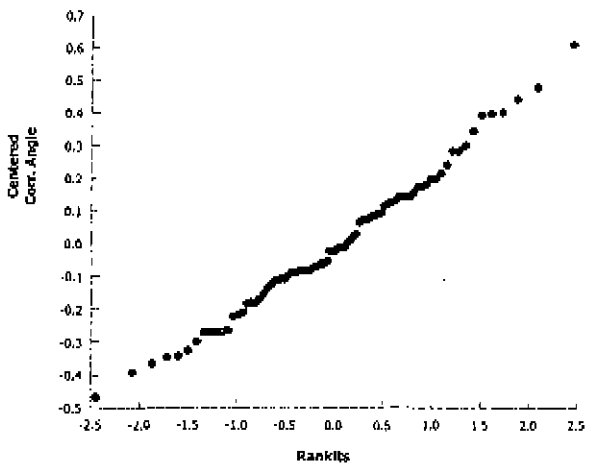
Analysis ID:	18-2955-3612	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.8	0.775	0.8	0.825	0.875
4E8E3F4E	0.35	0.55	0.35	0.55	0.25
6241A6DB	0.55	0.4	0.65	0.65	0.95
46A76891	0.3	0.8	0.45	0.1	0.3
13E96AA0	0.3	0.35	0.8	0.25	0.4
7E133628	0.6	0.45	0.5	0.1	0.55
1739F99E	0.5	0.25	0.35	0.75	0.25
3AE7FA68	0.45	0.95	0.6	0.4	0.8
34B11EA3	0.4	0.1	0.25	0.55	0.45
4DC7E5DB	0.7	0.75	0.8	0.5	0.15
2740ACD8	0	0.7	0.3	0	0
28D4F9EE	0.2	0	0.1	0.65	
1E840A85	0.3	0.3	0.3	0.45	0.55
6F919694	0	0.35	0.05	0.05	0.2
2D1B7F74	0.55	0.55	0.05	0.15	0.2
1A62F00C	0.3	0.05	0.4	0.45	0.45
77B11D52	0.2	0.1	0.25	0.05	0.35

Graphics





Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	17-4377-2855	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7657-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76691	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76691	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID:	17-4377-2855	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					45.7%

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	7.48	5.1	8	0.3098	0.0004	Significant Effect
		6241A6DB	5.449	5.1	8	0.3098	0.0250	Significant Effect
		46A76891	7.248	5.1	8	0.3098	0.0005	Significant Effect
		13E96AA0	7.706	5.1	8	0.3098	0.0003	Significant Effect
		7E133628	7.095	5.1	8	0.3098	0.0007	Significant Effect
		1739F99E	8.022	5.1	8	0.3098	0.0002	Significant Effect
		3AE7FA68	7.075	5.1	8	0.3098	0.0007	Significant Effect
		34B11EA3	6.858	5.1	8	0.3098	0.0011	Significant Effect
		4DC7E5DB	7.342	5.1	8	0.3098	0.0004	Significant Effect
		2740ACD8	5.921	5.1	5	0.4098	0.0091	Significant Effect
		28D4F9EE	7.491	5.1	6	0.3577	0.0004	Significant Effect
		1E840A85	8.493	5.1	8	0.3098	0.0002	Significant Effect
		6F919694	9.655	5.1	7	0.3286	0.0002	Significant Effect
		2D1B7F74	9.108	5.1	8	0.3098	0.0002	Significant Effect
		1A62F00C	7.465	5.1	8	0.3098	0.0004	Significant Effect
		77B11D52	9.237	5.1	8	0.3098	0.0002	Significant Effect
4E8E3F4E		6241A6DB	2.032	5.1	8	0.3098	0.9892	Non-Significant Effect
		46A76891	0.2321	5.1	8	0.3098	1.0000	Non-Significant Effect
		13E96AA0	0.2255	5.1	8	0.3098	1.0000	Non-Significant Effect
		7E133628	0.3852	5.1	8	0.3098	1.0000	Non-Significant Effect
		1739F99E	0.5416	5.1	8	0.3098	1.0000	Non-Significant Effect
		3AE7FA68	0.405	5.1	8	0.3098	1.0000	Non-Significant Effect
		34B11EA3	0.6223	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.1383	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.2663	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.013	5.1	6	0.3577	1.0000	Non-Significant Effect
		1E840A85	1.012	5.1	8	0.3098	1.0000	Non-Significant Effect
		6F919694	2.602	5.1	7	0.3286	0.9082	Non-Significant Effect
		2D1B7F74	1.628	5.1	8	0.3098	0.9991	Non-Significant Effect
		1A62F00C	0.01482	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	1.757	5.1	8	0.3098	0.9977	Non-Significant Effect
6241A6DB		46A76891	1.799	5.1	8	0.3098	0.9970	Non-Significant Effect
		13E96AA0	2.257	5.1	8	0.3098	0.9710	Non-Significant Effect
		7E133628	1.646	5.1	8	0.3098	0.9989	Non-Significant Effect
		1739F99E	2.573	5.1	8	0.3098	0.9155	Non-Significant Effect
		3AE7FA68	1.627	5.1	8	0.3098	0.9991	Non-Significant Effect
		34B11EA3	1.409	5.1	8	0.3098	0.9998	Non-Significant Effect
		4DC7E5DB	1.893	5.1	8	0.3098	0.9948	Non-Significant Effect
		2740ACD8	1.802	5.1	5	0.4098	0.9970	Non-Significant Effect
		28D4F9EE	2.773	5.1	6	0.3577	0.8576	Non-Significant Effect
		1E840A85	3.044	5.1	8	0.3098	0.7513	Non-Significant Effect
		6F919694	4.518	5.1	7	0.3286	0.1411	Non-Significant Effect
		2D1B7F74	3.66	5.1	8	0.3098	0.4522	Non-Significant Effect
		1A62F00C	2.017	5.1	8	0.3098	0.9900	Non-Significant Effect
		77B11D52	3.788	5.1	8	0.3098	0.3921	Non-Significant Effect
46A76891		13E96AA0	0.4577	5.1	8	0.3098	1.0000	Non-Significant Effect
		7E133628	0.1531	5.1	8	0.3098	1.0000	Non-Significant Effect
		1739F99E	0.7738	5.1	8	0.3098	1.0000	Non-Significant Effect
		3AE7FA68	0.1729	5.1	8	0.3098	1.0000	Non-Significant Effect
		34B11EA3	0.3902	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.09384	5.1	8	0.3098	1.0000	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	17-4377-2855	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	0.4418	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.214	5.1	6	0.3577	1.0000	Non-Significant Effect
		1E840A85	1.245	5.1	8	0.3098	1.0000	Non-Significant Effect
		6F919694	2.821	5.1	7	0.3286	0.8408	Non-Significant Effect
		2D1B7F74	1.86	5.1	8	0.3098	0.9957	Non-Significant Effect
		1A62F00C	0.2173	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	1.989	5.1	8	0.3098	0.9913	Non-Significant Effect
13E96AA0		7E133628	0.6108	5.1	8	0.3098	1.0000	Non-Significant Effect
		1739F99E	0.3161	5.1	8	0.3098	1.0000	Non-Significant Effect
		3AE7FA68	0.6305	5.1	8	0.3098	1.0000	Non-Significant Effect
		34B11EA3	0.8479	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.3638	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.09583	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	0.8179	5.1	6	0.3577	1.0000	Non-Significant Effect
		1E840A85	0.787	5.1	8	0.3098	1.0000	Non-Significant Effect
		6F919694	2.39	5.1	7	0.3286	0.9527	Non-Significant Effect
		2D1B7F74	1.403	5.1	8	0.3098	0.9998	Non-Significant Effect
		1A62F00C	0.2404	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	1.531	5.1	8	0.3098	0.9996	Non-Significant Effect
7E133628		1739F99E	0.9269	5.1	8	0.3098	1.0000	Non-Significant Effect
		3AE7FA68	0.01976	5.1	8	0.3098	1.0000	Non-Significant Effect
		34B11EA3	0.2371	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.247	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.5575	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.347	5.1	6	0.3577	0.9999	Non-Significant Effect
		1E840A85	1.398	5.1	8	0.3098	0.9999	Non-Significant Effect
		6F919694	2.965	5.1	7	0.3286	0.7850	Non-Significant Effect
		2D1B7F74	2.013	5.1	8	0.3098	0.9902	Non-Significant Effect
		1A62F00C	0.3704	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	2.142	5.1	8	0.3098	0.9821	Non-Significant Effect
1739F99E		3AE7FA68	0.9466	5.1	8	0.3098	1.0000	Non-Significant Effect
		34B11EA3	1.164	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.6799	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.1431	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	0.5442	5.1	6	0.3577	1.0000	Non-Significant Effect
		1E840A85	0.4709	5.1	8	0.3098	1.0000	Non-Significant Effect
		6F919694	2.092	5.1	7	0.3286	0.9857	Non-Significant Effect
		2D1B7F74	1.087	5.1	8	0.3098	1.0000	Non-Significant Effect
		1A62F00C	0.5565	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	1.215	5.1	8	0.3098	1.0000	Non-Significant Effect
3AE7FA68		34B11EA3	0.2173	5.1	8	0.3098	1.0000	Non-Significant Effect
		4DC7E5DB	0.2667	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.5725	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.364	5.1	6	0.3577	0.9999	Non-Significant Effect
		1E840A85	1.417	5.1	8	0.3098	0.9998	Non-Significant Effect
		6F919694	2.984	5.1	7	0.3286	0.7772	Non-Significant Effect
		2D1B7F74	2.033	5.1	8	0.3098	0.9892	Non-Significant Effect
		1A62F00C	0.3902	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	2.162	5.1	8	0.3098	0.9804	Non-Significant Effect
34B11EA3		4DC7E5DB	0.484	5.1	8	0.3098	1.0000	Non-Significant Effect
		2740ACD8	0.7368	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.552	5.1	6	0.3577	0.9995	Non-Significant Effect
		1E840A85	1.635	5.1	8	0.3098	0.9990	Non-Significant Effect
		6F919694	3.189	5.1	7	0.3286	0.6845	Non-Significant Effect

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	17-4377-2655	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Tukey-Kramer Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	2.251	5.1	8	0.3098	0.9717	Non-Significant Effect
		1A62F00C	0.6075	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	2.379	5.1	8	0.3098	0.9544	Non-Significant Effect
4DC7E5DB		2740ACD8	0.3709	5.1	5	0.4098	1.0000	Non-Significant Effect
		28D4F9EE	1.133	5.1	6	0.3577	1.0000	Non-Significant Effect
		1E840A85	1.151	5.1	8	0.3098	1.0000	Non-Significant Effect
		6F919694	2.733	5.1	7	0.3286	0.8707	Non-Significant Effect
		2D1B7F74	1.767	5.1	8	0.3098	0.9976	Non-Significant Effect
		1A62F00C	0.1235	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	1.895	5.1	8	0.3098	0.9947	Non-Significant Effect
2740ACD8		28D4F9EE	0.5665	5.1	3	0.4472	1.0000	Non-Significant Effect
		1E840A85	0.4991	5.1	5	0.4098	1.0000	Non-Significant Effect
		6F919694	1.758	5.1	4	0.4242	0.9977	Non-Significant Effect
		2D1B7F74	0.9645	5.1	5	0.4098	1.0000	Non-Significant Effect
		1A62F00C	0.2775	5.1	5	0.4098	1.0000	Non-Significant Effect
		77B11D52	1.062	5.1	5	0.4098	1.0000	Non-Significant Effect
28D4F9EE		1E840A85	0.1364	5.1	6	0.3577	1.0000	Non-Significant Effect
		6F919694	1.317	5.1	5	0.3741	0.9999	Non-Significant Effect
		2D1B7F74	0.3968	5.1	6	0.3577	1.0000	Non-Significant Effect
		1A62F00C	1.026	5.1	6	0.3577	1.0000	Non-Significant Effect
		77B11D52	0.5081	5.1	6	0.3577	1.0000	Non-Significant Effect
1E840A85		6F919694	1.648	5.1	7	0.3286	0.9989	Non-Significant Effect
		2D1B7F74	0.6157	5.1	8	0.3098	1.0000	Non-Significant Effect
		1A62F00C	1.027	5.1	8	0.3098	1.0000	Non-Significant Effect
		77B11D52	0.7441	5.1	8	0.3098	1.0000	Non-Significant Effect
6F919694		2D1B7F74	1.067	5.1	7	0.3286	1.0000	Non-Significant Effect
		1A62F00C	2.616	5.1	7	0.3286	0.9046	Non-Significant Effect
		77B11D52	0.9461	5.1	7	0.3286	1.0000	Non-Significant Effect
2D1B7F74		1A62F00C	1.643	5.1	8	0.3098	0.9990	Non-Significant Effect
		77B11D52	0.1284	5.1	8	0.3098	1.0000	Non-Significant Effect
1A62F00C		77B11D52	1.771	5.1	8	0.3098	0.9975	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.370975	0.08568596	16	4.645	<0.0001	Significant Effect
Error	1.143728	0.01844723	62			
Total	2.514704	0.1041332	78			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	16.53	32	0.4168	Equal Variances
Variances	Mod Levene Equality of Variance	0.6349	2.408	0.8389	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9688	0.9574	0.0497	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1023	0.1164	0.0398	Normal Distribution
Distribution	D'Agostino Skewness	2.152	2.576	0.0314	Normal Distribution
Distribution	D'Agostino Kurtosis	0.7892	2.576	0.4300	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	5.253	9.21	0.0723	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.6762	3.878	0.0775	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID: 17-4377-2855 | Endpoint: Mean Dry Biomass-mg | CETIS Version: CETISv1.8.0
Analyzed: 27 Sep-10 14:05 | Analysis: Parametric-All Pairwise | Official Results: Yes

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.6773	0.6341	0.7204	0.5623	0.83	0.05075	0.1135	16.76%	0.0%
4E8E3F4E	5	0.2229	0.1859	0.2599	0.086	0.3115	0.04346	0.09718	43.6%	67.09%
6241A6DB	5	0.3463	0.2907	0.4019	0.161	0.569	0.06532	0.1461	42.18%	48.87%
46A76891	5	0.237	0.1607	0.3133	0.0345	0.5695	0.08971	0.2006	84.64%	65.01%
13E96AA0	5	0.2092	0.1577	0.2607	0.078	0.3655	0.06058	0.1355	64.75%	69.11%
7E133628	5	0.2463	0.199	0.2936	0.044	0.3575	0.05566	0.1245	50.53%	63.63%
1739F99E	5	0.19	0.1297	0.2503	0.077	0.4425	0.07095	0.1587	83.5%	71.95%
3AE7FA68	5	0.2475	0.2087	0.2863	0.116	0.3905	0.04556	0.1019	41.16%	63.46%
34B11EA3	5	0.2607	0.1639	0.3575	0.059	0.6185	0.1139	0.2546	97.66%	61.51%
4DC7E5DB	5	0.2313	0.2092	0.2534	0.147	0.278	0.02598	0.05809	25.12%	65.85%
2740ACD8	2	0.2015	0.1679	0.2351	0.139	0.264	0.0625	0.08839	43.87%	70.25%
28D4F9EE	3	0.1518	0.1056	0.1981	0.063	0.2905	0.07024	0.1217	80.13%	77.58%
1E840A85	5	0.1614	0.1331	0.1897	0.097	0.2455	0.03327	0.0744	46.1%	76.17%
6F919694	4	0.05525	0.03623	0.07427	0.02	0.128	0.025	0.05001	90.51%	91.84%
2D1B7F74	5	0.124	0.08284	0.1652	0.0185	0.271	0.04839	0.1082	87.25%	81.69%
1A62F00C	5	0.2238	0.1667	0.2809	0.0105	0.4155	0.06719	0.1502	67.13%	66.95%
77B11D52	5	0.1162	0.07215	0.1602	0.018	0.266	0.05179	0.1158	99.65%	82.84%

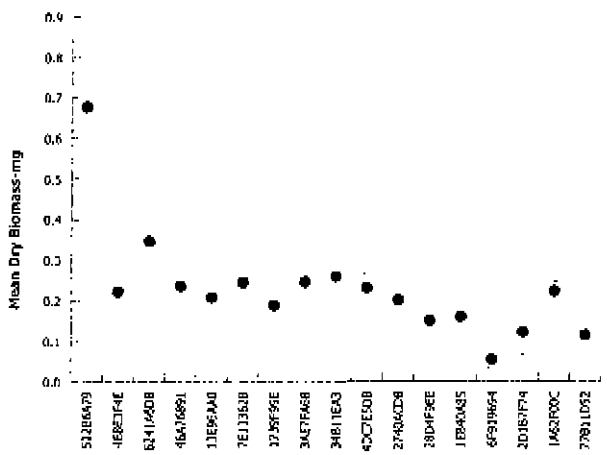
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

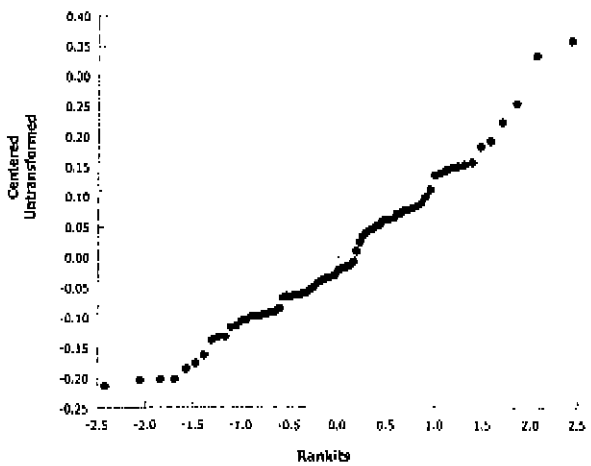
Analysis ID:	17-4377-2855	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:05	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.5623	0.7537	0.656	0.5843	0.83
4E8E3F4E	0.3115	0.2745	0.086	0.2865	0.156
6241A6DB	0.356	0.313	0.161	0.3325	0.569
46A76891	0.1435	0.5695	0.2175	0.0345	0.22
13E96AA0	0.112	0.146	0.3655	0.078	0.3445
7E133628	0.3575	0.2975	0.3175	0.044	0.215
1739F99E	0.252	0.077	0.0865	0.4425	0.092
3AE7FA68	0.116	0.3905	0.232	0.2075	0.2915
34B11EA3	0.0985	0.059	0.0845	0.6185	0.443
4DC7E5DB	0.266	0.278	0.2715	0.194	0.147
2740ACD8	0.264	0.139			
28D4F9EE	0.102	0.063	0.2905		
1E840A85	0.108	0.097	0.117	0.2455	0.2395
6F919694	0.128	0.02	0.025	0.048	
2D1B7F74	0.271	0.205	0.0185	0.0595	0.066
1A62F00C	0.248	0.0105	0.1615	0.4155	0.2835
77B11D52	0.0565	0.0255	0.215	0.018	0.266

Graphics





Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	14-3559-7671	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-6504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	16-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID:	14-3559-7671	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	Analysis:	Parametric-Multiple Comparison	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					44.0%

Bonferroni Adj t Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	2.125	2.831	8	0.3657	0.3009	Non-Significant Effect
		6241A6DB	2.112	2.831	8	0.3657	0.3099	Non-Significant Effect
		46A76891	2.168	2.831	8	0.3657	0.2722	Non-Significant Effect
		13E96AA0	2.681	2.831	8	0.3657	0.0752	Non-Significant Effect
		7E133628	2.213	2.831	8	0.3657	0.2449	Non-Significant Effect
		1739F99E	3.305	2.831	8	0.3657	0.0126	Significant Effect
		3AE7FA68	3.427	2.831	8	0.3657	0.0087	Significant Effect
		34B11EA3	1.345	2.831	8	0.3657	1.0000	Non-Significant Effect
		4DC7E5DB	2.623	2.831	8	0.3657	0.0877	Non-Significant Effect
		2740ACD8	2.4	2.831	5	0.4838	0.1553	Non-Significant Effect
		28D4F9EE	2.021	2.831	6	0.4223	0.3811	Non-Significant Effect
		1E840A85	3.248	2.831	8	0.3657	0.0150	Significant Effect
		6F919694	3.313	2.831	7	0.3879	0.0123	Significant Effect
		2D1B7F74	3.39	2.831	8	0.3657	0.0098	Significant Effect
		1A62F00C	1.793	2.831	8	0.3657	0.6225	Non-Significant Effect
		77B11D52	2.531	2.831	8	0.3657	0.1115	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.036947	0.0648092	16	1.553	0.1101	Non-Significant Effect
Error	2.587153	0.04172828	62			
Total	3.6241	0.1065375	78			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	27.33	32	0.0379	Equal Variances
Variances	Mod Levene Equality of Variance	1.799	2.408	0.0603	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9748	0.9574	0.1202	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.09245	0.1164	0.0918	Normal Distribution
Distribution	D'Agostino Skewness	1.608	2.576	0.1078	Normal Distribution
Distribution	D'Agostino Kurtosis	0.9997	2.576	0.3175	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	3.585	9.21	0.1666	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7762	3.878	0.0435	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID:	14-3559-7671	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	Analysis:	Parametric-Multiple Comparison	Official Results:	Yes

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.8304	0.7818	0.8791	0.7028	0.9726	0.05723	0.128	15.41%	0.0%
4E8E3F4E	5	0.5559	0.4674	0.6445	0.2457	0.89	0.1041	0.2329	41.89%	33.05%
6241A6DB	5	0.5576	0.4819	0.6333	0.2477	0.7825	0.08902	0.1991	35.7%	32.86%
46A76891	5	0.5504	0.4869	0.6139	0.345	0.7333	0.07464	0.1669	30.32%	33.72%
13E96AA0	5	0.4841	0.4014	0.5669	0.312	0.8612	0.0973	0.2176	44.94%	41.7%
7E133628	5	0.5446	0.4984	0.5907	0.3909	0.6611	0.05428	0.1214	22.29%	34.42%
1739F99E	5	0.4034	0.3497	0.4571	0.2471	0.59	0.06313	0.1412	34.99%	51.42%
3AE7FA68	5	0.3877	0.3521	0.4234	0.2578	0.5187	0.04192	0.09373	24.18%	53.31%
34B11EA3	5	0.6566	0.5092	0.8041	0.2463	1.125	0.1733	0.3876	59.02%	20.93%
4DC7E5DB	5	0.4916	0.3875	0.5957	0.3394	0.98	0.1224	0.2736	55.66%	40.8%
2740ACD8	2	0.4202	0.3971	0.4434	0.3771	0.4633	0.0431	0.06095	14.5%	49.4%
28D4F9EE	3	0.529	0.4936	0.5644	0.4469	0.63	0.05369	0.093	17.58%	36.3%
1E840A85	5	0.4109	0.3782	0.4435	0.3233	0.5456	0.03836	0.08578	20.88%	50.52%
6F919694	4	0.3764	0.3356	0.4173	0.24	0.5	0.05366	0.1073	28.51%	54.67%
2D1B7F74	5	0.3924	0.3692	0.4156	0.33	0.4927	0.02726	0.06096	15.54%	52.74%
1A62F00C	5	0.5988	0.4866	0.7109	0.21	0.9233	0.1318	0.2947	49.22%	27.9%
77B11D52	5	0.5035	0.3952	0.6118	0.255	0.86	0.1273	0.2846	56.53%	39.37%

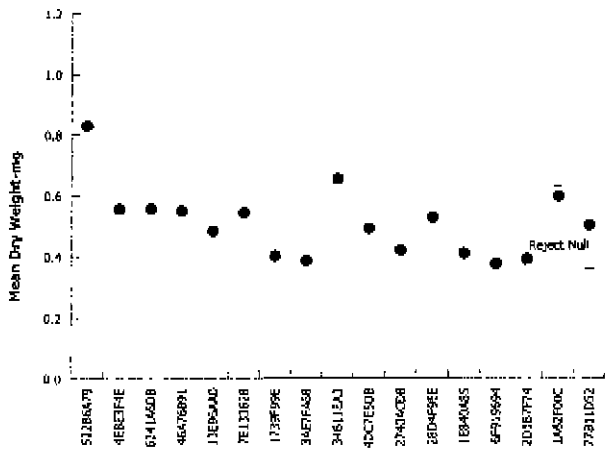
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

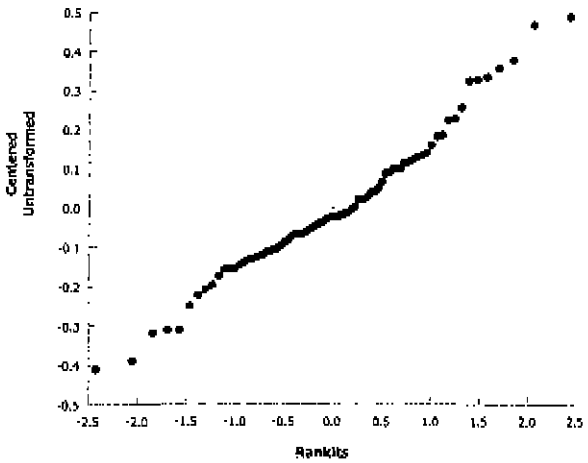
Analysis ID:	14-3559-7671	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.7028	0.9726	0.82	0.7082	0.9486
4E8E3F4E	0.89	0.4991	0.2457	0.5209	0.624
6241A6DB	0.6473	0.7825	0.2477	0.5115	0.5989
46A76891	0.4783	0.7119	0.4833	0.345	0.7333
13E96AA0	0.3733	0.4171	0.4569	0.312	0.8612
7E133628	0.5958	0.6611	0.635	0.44	0.3909
1739F99E	0.504	0.308	0.2471	0.59	0.368
3AE7FA68	0.2578	0.4111	0.3867	0.5187	0.3644
34B11EA3	0.2463	0.59	0.338	1.125	0.9844
4DC7E5DB	0.38	0.3707	0.3394	0.388	0.98
2740ACD8	0.3771	0.4633			
28D4F9EE	0.51	0.63	0.4469		
1E840A85	0.36	0.3233	0.39	0.5456	0.4355
6F919694	0.3657	0.4	0.5	0.24	
2D1B7F74	0.4927	0.3727	0.37	0.3967	0.33
1A62F00C	0.8267	0.21	0.4038	0.9233	0.63
77B11D52	0.2825	0.255	0.86	0.36	0.76

Graphics





Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	00-5077-1839	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	00-5077-1839	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					35.9%

Bonferroni Adj t Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	5.269	2.831	8	0.2432	<0.0001	Significant Effect
		6241A6DB	3.853	2.831	8	0.2432	0.0022	Significant Effect
		46A76891	5.125	2.831	8	0.2432	<0.0001	Significant Effect
		13E96AA0	5.449	2.831	8	0.2432	<0.0001	Significant Effect
		7E133628	5.017	2.831	8	0.2432	<0.0001	Significant Effect
		1739F99E	5.672	2.831	8	0.2432	<0.0001	Significant Effect
		3AE7FA68	5.003	2.831	8	0.2432	<0.0001	Significant Effect
		34B11EA3	4.849	2.831	8	0.2432	<0.0001	Significant Effect
		4DC7E5DB	5.191	2.831	8	0.2432	<0.0001	Significant Effect
		2740ACD8	4.187	2.831	5	0.3217	0.0007	Significant Effect
		28D4F9EE	5.297	2.831	6	0.2808	<0.0001	Significant Effect
		1E840A85	6.005	2.831	8	0.2432	<0.0001	Significant Effect
		6F919694	6.827	2.831	7	0.2579	<0.0001	Significant Effect
		2D1B7F74	6.441	2.831	8	0.2432	<0.0001	Significant Effect
		1A62F00C	5.279	2.831	8	0.2432	<0.0001	Significant Effect
		77B11D52	6.531	2.831	8	0.2432	<0.0001	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.370975	0.08568596	16	4.645	<0.0001	Significant Effect
Error	1.143728	0.01844723	62			
Total	2.514704	0.1041332	78			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	16.53	32	0.4168	Equal Variances
Variances	Mod Levene Equality of Variance	0.6349	2.408	0.8389	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9688	0.9574	0.0497	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1023	0.1164	0.0398	Normal Distribution
Distribution	D'Agostino Skewness	2.152	2.576	0.0314	Normal Distribution
Distribution	D'Agostino Kurtosis	0.7892	2.576	0.4300	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	5.253	9.21	0.0723	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.6762	3.878	0.0775	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	00-5077-1839	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.6773	0.6341	0.7204	0.5623	0.83	0.05075	0.1135	16.76%	0.0%
4E8E3F4E	5	0.2229	0.1859	0.2599	0.086	0.3115	0.04346	0.09718	43.6%	67.09%
6241A6DB	5	0.3463	0.2907	0.4019	0.161	0.569	0.06532	0.1461	42.18%	48.87%
46A76891	5	0.237	0.1607	0.3133	0.0345	0.5695	0.08971	0.2006	84.64%	65.01%
13E96AA0	5	0.2092	0.1577	0.2607	0.078	0.3655	0.06058	0.1355	64.75%	69.11%
7E133628	5	0.2463	0.199	0.2936	0.044	0.3575	0.05566	0.1245	50.53%	63.63%
1739F99E	5	0.19	0.1297	0.2503	0.077	0.4425	0.07095	0.1587	83.5%	71.95%
3AE7FA68	5	0.2475	0.2087	0.2863	0.116	0.3905	0.04556	0.1019	41.16%	63.46%
34B11EA3	5	0.2607	0.1639	0.3575	0.059	0.6185	0.1139	0.2546	97.66%	61.51%
4DC7E5DB	5	0.2313	0.2092	0.2534	0.147	0.278	0.02598	0.05809	25.12%	65.85%
2740ACD8	2	0.2015	0.1679	0.2351	0.139	0.264	0.0625	0.08839	43.87%	70.25%
28D4F9EE	3	0.1518	0.1056	0.1981	0.063	0.2905	0.07024	0.1217	80.13%	77.58%
1E840A85	5	0.1614	0.1331	0.1897	0.097	0.2455	0.03327	0.0744	46.1%	76.17%
6F919694	4	0.05525	0.03623	0.07427	0.02	0.128	0.025	0.05001	90.51%	91.84%
2D1B7F74	5	0.124	0.08284	0.1652	0.0185	0.271	0.04839	0.1082	87.25%	81.69%
1A62F00C	5	0.2238	0.1667	0.2809	0.0105	0.4155	0.06719	0.1502	67.13%	66.95%
77B11D52	5	0.1162	0.07215	0.1602	0.018	0.266	0.05179	0.1158	99.65%	82.84%

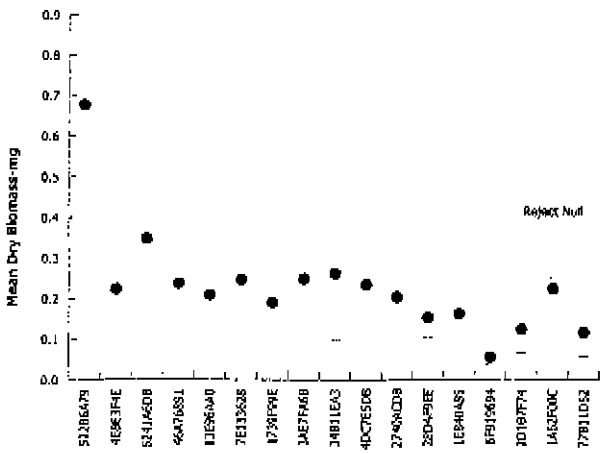
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

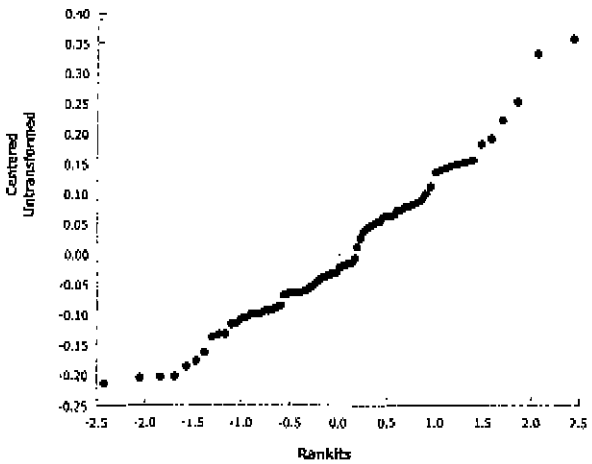
Analysis ID:	00-5077-1839	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.5623	0.7537	0.656	0.5843	0.83
4E8E3F4E	0.3115	0.2745	0.086	0.2865	0.156
6241A6DB	0.356	0.313	0.161	0.3325	0.569
46A76891	0.1435	0.5695	0.2175	0.0345	0.22
13E96AA0	0.112	0.146	0.3655	0.078	0.3445
7E133628	0.3575	0.2975	0.3175	0.044	0.215
1739F99E	0.252	0.077	0.0865	0.4425	0.092
3AE7FA68	0.116	0.3905	0.232	0.2075	0.2915
34B11EA3	0.0985	0.059	0.0845	0.6185	0.443
4DC7E5DB	0.266	0.278	0.2715	0.194	0.147
2740ACD8	0.264	0.139			
28D4F9EE	0.102	0.063	0.2905		
1E840A85	0.108	0.097	0.117	0.2455	0.2395
6F919694	0.128	0.02	0.025	0.048	
2D1B7F74	0.271	0.205	0.0185	0.0595	0.066
1A62F00C	0.248	0.0105	0.1615	0.4155	0.2835
77B11D52	0.0565	0.0255	0.215	0.018	0.266

Graphics





Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	13-6591-2500	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Batch ID:	09-9452-4477	**Test Type:**	Leptocheirus (28-d)	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	EPA/600/R-01/020 (2001)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 15:00	**Species:**	Leptocheirus plumulosus	**Brine:**	HW-Marinemix
Duration:	27d 22h	**Source:**	Chesapeake Cultures	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	13-6591-2500	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					49.4%

Bonferroni Adj t Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	2.86	2.823	8	0.4303	0.0452	Significant Effect
		6241A6DB	1.179	2.823	8	0.4303	1.0000	Non-Significant Effect
		46A76891	3.04	2.823	8	0.4303	0.0270	Significant Effect
		13E96AA0	2.771	2.823	8	0.4303	0.0578	Non-Significant Effect
		7E133628	2.724	2.823	8	0.4303	0.0657	Non-Significant Effect
		1739F99E	2.791	2.823	8	0.4303	0.0547	Non-Significant Effect
		3AE7FA68	1.156	2.823	8	0.4303	1.0000	Non-Significant Effect
		34B11EA3	3.332	2.823	8	0.4303	0.0113	Significant Effect
		4DC7E5DB	1.72	2.823	8	0.4303	0.7197	Non-Significant Effect
		2740ACD8	4.899	2.823	8	0.4303	<0.0001	Significant Effect
		28D4F9EE	4.14	2.823	7	0.4564	0.0008	Significant Effect
		1E840A65	3.058	2.823	8	0.4303	0.0256	Significant Effect
		6F919694	5.223	2.823	8	0.4303	<0.0001	Significant Effect
		2D1B7F74	3.782	2.823	8	0.4303	0.0027	Significant Effect
		1A62F00C	3.516	2.823	8	0.4303	0.0063	Significant Effect
		77B11D52	4.557	2.823	8	0.4303	0.0002	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.815	0.8 - NL	Yes	Passes Acceptibility Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.605311	0.2253319	16	3.881	<0.0001	Significant Effect
Error	3.889647	0.05805443	67			
Total	7.494958	0.2833863	83			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	17.84	32	0.3335	Equal Variances
Variances	Mod Levene Equality of Variance	0.5072	2.374	0.9317	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9871	0.9596	0.5681	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.07183	0.1129	0.3228	Normal Distribution
Distribution	D'Agostino Skewness	1.345	2.576	0.1786	Normal Distribution
Distribution	D'Agostino Kurtosis	0.2214	2.576	0.8248	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.858	9.21	0.3950	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.355	3.878	0.4646	Normal Distribution

Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — PBS&J-Houston Lab

Analysis ID:	13-6591-2500	Endpoint:	Survival Rate	CETIS Version:	CETISv1.6.0
Analyzed:	27 Sep-10 13:58	Analysis:	Parametric-Multiple Comparison	Official Results:	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.815	0.8006	0.8294	0.775	0.875	0.01696	0.03791	4.65%	0.0%
4E8E3F4E	5	0.41	0.359	0.461	0.25	0.55	0.06	0.1342	32.72%	49.69%
6241A6DB	5	0.64	0.5635	0.7165	0.4	0.95	0.09	0.2012	31.44%	21.47%
46A76891	5	0.39	0.2908	0.4892	0.1	0.8	0.1166	0.2608	66.86%	52.15%
13E96AA0	5	0.42	0.3364	0.5036	0.25	0.8	0.09823	0.2197	52.3%	48.47%
7E133628	5	0.44	0.3646	0.5154	0.1	0.6	0.0886	0.1981	45.03%	46.01%
1739F99E	5	0.42	0.3398	0.5002	0.25	0.75	0.09434	0.211	50.23%	48.47%
3AE7FA68	5	0.64	0.5514	0.7286	0.4	0.95	0.1042	0.2329	36.39%	21.47%
34B11EA3	5	0.35	0.2828	0.4172	0.1	0.55	0.07906	0.1768	50.51%	57.06%
4DC7E5DB	5	0.58	0.4788	0.6812	0.15	0.8	0.119	0.266	45.86%	28.83%
2740ACD8	5	0.2	0.08276	0.3172	0	0.7	0.1378	0.3082	154.1%	75.46%
28D4F9EE	4	0.2375	0.1284	0.3466	0	0.65	0.1434	0.2869	120.8%	70.86%
1E840A85	5	0.38	0.3362	0.4238	0.3	0.55	0.05148	0.1151	30.29%	53.37%
6F919694	5	0.13	0.07521	0.1848	0	0.35	0.06442	0.144	110.8%	84.05%
2D1B7F74	5	0.3	0.2108	0.3892	0.05	0.55	0.1049	0.2345	78.17%	63.19%
1A62F00C	5	0.33	0.2661	0.3939	0.05	0.45	0.07517	0.1681	50.93%	59.51%
77B11D52	5	0.19	0.1446	0.2354	0.05	0.35	0.05339	0.1194	62.83%	76.69%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.128	1.109	1.147	1.077	1.209	0.02266	0.05067	4.49%	0.0%
4E8E3F4E	5	0.6921	0.6395	0.7447	0.5236	0.8355	0.06184	0.1383	19.98%	38.64%
6241A6DB	5	0.9482	0.855	1.041	0.6847	1.345	0.1095	0.245	25.83%	15.93%
46A76891	5	0.6647	0.555	0.7744	0.3218	1.107	0.129	0.2885	43.4%	41.07%
13E96AA0	5	0.7056	0.6173	0.794	0.5236	1.107	0.1039	0.2323	32.93%	37.44%
7E133628	5	0.7128	0.627	0.7987	0.3218	0.8861	0.1009	0.2257	31.66%	36.8%
1739F99E	5	0.7026	0.6187	0.7865	0.5236	1.047	0.09862	0.2205	31.39%	37.71%
3AE7FA68	5	0.9517	0.8473	1.056	0.6847	1.345	0.1226	0.2745	28.85%	15.62%
34B11EA3	5	0.6202	0.5436	0.6968	0.3218	0.8355	0.09005	0.2013	32.47%	45.02%
4DC7E5DB	5	0.8657	0.7561	0.9754	0.3977	1.107	0.1289	0.2883	33.3%	23.24%
2740ACD8	5	0.3814	0.2306	0.5322	0.112	0.9912	0.1773	0.3965	104.0%	66.19%
28D4F9EE	4	0.4588	0.3255	0.5921	0.112	0.9377	0.1752	0.3504	76.38%	59.32%
1E840A85	5	0.6619	0.617	0.7069	0.5796	0.8355	0.05283	0.1181	17.85%	41.31%
6F919694	5	0.332	0.2515	0.4124	0.112	0.6331	0.09461	0.2116	63.73%	70.57%
2D1B7F74	5	0.5516	0.4476	0.6556	0.2255	0.8355	0.1223	0.2734	49.56%	51.1%
1A62F00C	5	0.5921	0.5105	0.6737	0.2255	0.7353	0.09595	0.2146	36.24%	47.5%
77B11D52	5	0.4335	0.372	0.495	0.2255	0.6331	0.07232	0.1617	37.3%	61.56%

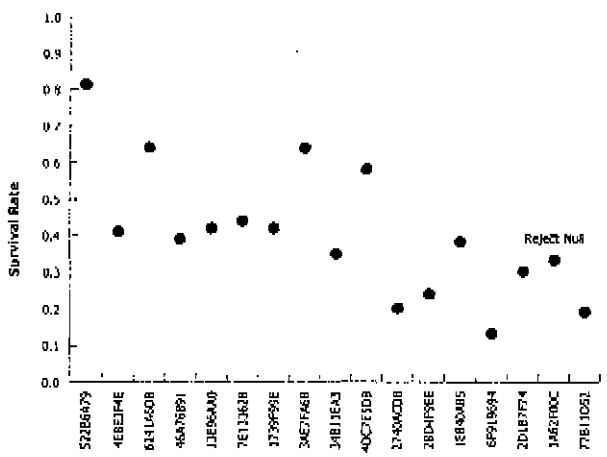
Leptocheirus 28-d Survival, Growth and Reproduction Sediment Test — **PBS&J-Houston Lab**

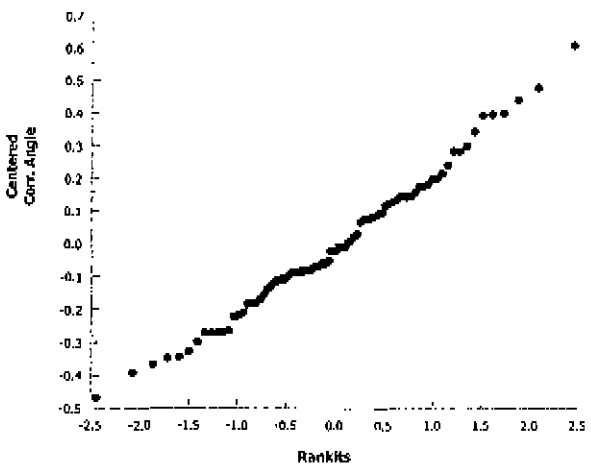
Analysis ID:	13-6591-2500	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 13:58	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	0.8	0.775	0.8	0.825	0.875
4E8E3F4E	0.35	0.55	0.35	0.55	0.25
6241A6DB	0.55	0.4	0.65	0.65	0.95
46A76891	0.3	0.8	0.45	0.1	0.3
13E96AA0	0.3	0.35	0.8	0.25	0.4
7E133628	0.6	0.45	0.5	0.1	0.55
1739F99E	0.5	0.25	0.35	0.75	0.25
3AE7FA68	0.45	0.95	0.6	0.4	0.8
34B11EA3	0.4	0.1	0.25	0.55	0.45
4DC7E5DB	0.7	0.75	0.8	0.5	0.15
2740ACD8	0	0.7	0.3	0	0
28D4F9EE	0.2	0	0.1	0.65	
1E840A85	0.3	0.3	0.3	0.45	0.55
6F919694	0	0.35	0.05	0.05	0.2
2D1B7F74	0.55	0.55	0.05	0.15	0.2
1A62F00C	0.3	0.05	0.4	0.45	0.45
77B11D52	0.2	0.1	0.25	0.05	0.35

Graphics





CETIS Test Data Worksheet

Report Date: 28 Sep-10 17:35 (p 1 of 2)
Test Code: 11-2127-8130/Gulfco-BERA

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Start Date:	25 Aug-10 17:00	**Species:**	Neanthes arenaceodentata	**Sample Code:**	522B6A79
End Date:	22 Sep-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	23 Aug-10	**Material:**	Control Sediment	**Sample Station:**	York River, VA

Sample Code	Rep	Pos	# Exposed	# Survived	Total Weight-mg	Tare Weight-mg	Pan Count	Mean Length-mm
522B6A79	1	54	10	10	53.81	20.92	10	matrix not assessable
522B6A79	2	63	10	9	69.02	19.59	9	
522B6A79	3	58	10	10	60.96	19.22	10	
522B6A79	4	35	10	9	63.15	19.29	9	
522B6A79	5	77	10	10	55.65	19.94	10	
4E8E3F4E	1	40	5	5	34.9	9.89	5	
4E8E3F4E	2	56	5	5	30.8	9.61	5	
4E8E3F4E	3	57	5	4	26.12	9.78	4	
4E8E3F4E	4	50	5	4	35.23	9.02	4	
4E8E3F4E	5	4	5	5	29.31	9.77	5	
6241A6DB	1	17	5	4	33.91	9.42	4	
6241A6DB	2	70	5	3	44.55	9.68	3	
6241A6DB	3	37	5	5	32.18	9.27	5	
6241A6DB	4	52	5	3	26.5	9.42	3	
6241A6DB	5	84	5	5	34.91	9.67	5	
46A76891	1	1	5	4	32.46	9.5	4	
46A76891	2	19	5	4	36.35	9.48	4	
46A76891	3	3	5	5	33.97	9.24	5	
46A76891	4	27	5	5	33.05	9.55	5	
46A76891	5	71	5	5	36.07	9.3	5	
13E96AA0	1	55	5	5	40.48	9.51	5	
13E96AA0	2	20	5	5	31.53	9.17	5	
13E96AA0	3	6	5	5	42.73	9.2	5	
13E96AA0	4	12	5	5	43.05	9.16	5	
13E96AA0	5	39	5	5	38.9	9	5	
7E133628	1	5	5	5	24.67	9.58	5	
7E133628	2	72	5	5	28.51	9.5	5	
7E133628	3	22	5	5	32.12	9.74	5	
7E133628	4	51	5	5	29.32	9.9	5	
7E133628	5	15	5	5	36.89	9.81	5	
1739F99E	1	2	5	5	34.87	9.72	5	
1739F99E	2	62	5	5	33.97	10.26	5	
1739F99E	3	67	5	5	30.54	9.44	5	
1739F99E	4	64	5	5	27.06	9.91	5	
1739F99E	5	69	5	5	42.25	9.76	5	
3AE7FA68	1	34	5	5	41.62	9.9	5	
3AE7FA68	2	60	5	5	31.57	10.38	5	
3AE7FA68	3	30	5	4	27.35	9.98	4	
3AE7FA68	4	36	5	5	34.16	10.37	5	
3AE7FA68	5	29	5	4	36.28	9.51	4	
34B11EA3	1	59	5	5	22.67	8.99	5	
34B11EA3	2	74	5	5	26.59	8.77	5	
34B11EA3	3	81	5	5	26.33	9.3	5	
34B11EA3	4	44	5	4	25.5	9.43	4	
34B11EA3	5	79	5	5	21.97	9.74	5	
4DC7E5DB	1	31	5	5	20.33	8.96	5	
4DC7E5DB	2	46	5	5	26.53	9.04	5	

CETIS Test Data Worksheet

Test Code: 11-2127-8130/Gulfco-BERA

Sample Code	Rep	Pos	# Exposed	# Survived	Total Weight-mg	Tare Weight-mg	Pan Count	Mean Length-mm
4DC7E5DB	3	48	5	3	17.59	8.72	3	
4DC7E5DB	4	75	5	2	21.42	9.04	2	
4DC7E5DB	5	28	5	4	15.5	8.49	4	
2740ACD8	1	24	5	5	23.56	8.86	5	
2740ACD8	2	14	5	3	17.02	9.26	3	
2740ACD8	3	23	5	5	20.28	9.69	5	
2740ACD8	4	47	5	5	19.05	9.91	5	
2740ACD8	5	68	5	3	17.29	9.39	3	
28D4F9EE	1	8	5	4	19.75	9.83	4	
28D4F9EE	2	78	5	4	25.04	9.47	4	
28D4F9EE	3	11	5	4	20.76	9.61	4	
28D4F9EE	4	25	5	4	18.8	9.66	4	
28D4F9EE	5	45	5	5	27.06	9.59	5	
1E840A85	1	26	5	3	24.9	9.4	3	
1E840A85	2	66	5	3	23.54	9.5	3	
1E840A85	3	53	5	5	20.99	9.38	5	
1E840A85	4	18	5	4	18.59	9.5	4	
1E840A85	5	32	5	3	15.72	9.77	3	
6F919694	1	42	5	5	22.89	9.78	5	
6F919694	2	49	5	3	18.47	10.29	3	
6F919694	3	10	5	4	17.93	9.32	4	
6F919694	4	21	5	3	19.5	9.16	3	
6F919694	5	61	5	5	13.55	9.29	5	
2D1B7F74	1	9	5	3	20.58	9.18	3	
2D1B7F74	2	65	5	4	24.15	8.54	4	
2D1B7F74	3	13	5	2	15.23	9.26	2	
2D1B7F74	4	33	5	4	19.37	9.26	4	
2D1B7F74	5	83	5	5	27.56	9.37	5	
1A62F00C	1	85	5	4	18.84	9.34	4	
1A62F00C	2	41	5	1	13.8	9.24	1	
1A62F00C	3	7	5	3	18.71	9.06	3	
1A62F00C	4	76	5	4	16.57	9.25	4	
1A62F00C	5	43	5	5	17.69	9.08	5	
77B11D52	1	80	5	4	21.67	9.63	4	
77B11D52	2	38	5	4	21.69	9.79	4	
77B11D52	3	82	5	3	16.43	9.15	3	
77B11D52	4	16	5	3	23.45	9.7	3	
77B11D52	5	73	5	5	18.28	9.51	5	

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	11-5336-0483	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016648
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	11-5338-0483	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					32.8%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	0.9446	3.389	8	1.216	0.7829	Non-Significant Effect
		6241A6DB	2.538	4.148	8	1.489	0.4759	Non-Significant Effect
		46A76891	2.564	4.297	8	1.542	0.5442	Non-Significant Effect
		13E96AA0	5.443	4.423	8	1.587	0.0062	Significant Effect
		7E133628	0.1298	2.823	8	1.013	0.9272	Non-Significant Effect
		1739F99E	1.982	3.726	8	1.337	0.5028	Non-Significant Effect
		3AE7FA68	2.143	3.964	8	1.423	0.5565	Non-Significant Effect
		34B11EA3	2.785	2.823	8	1.013	0.0531	Non-Significant Effect
		4DC7E5DB	4.981	3.964	8	1.423	0.0068	Significant Effect
		2740ACD8	5.765	4.423	8	1.587	0.0030	Significant Effect
		28D4F9EE	4.298	3.389	8	1.216	0.0094	Significant Effect
		1E840A85	5.085	4.148	8	1.489	0.0078	Significant Effect
		6F919694	6.388	4.532	8	1.626	0.0009	Significant Effect
		2D1B7F74	4.518	3.726	8	1.337	0.0112	Significant Effect
		1A62F00C	6.93	4.627	8	1.66	0.0004	Significant Effect
		77B11D52	5.357	4.297	8	1.542	0.0058	Significant Effect
4E8E3F4E		6241A6DB	1.594	3.726	8	1.337	0.6743	Non-Significant Effect
		46A76891	1.619	3.964	8	1.423	0.7820	Non-Significant Effect
		13E96AA0	4.498	4.148	8	1.489	0.0259	Significant Effect
		7E133628	0.8147	2.823	8	1.013	0.5666	Non-Significant Effect
		1739F99E	1.036	2.823	8	1.013	0.4658	Non-Significant Effect
		3AE7FA68	1.198	3.389	8	1.216	0.6752	Non-Significant Effect
		34B11EA3	3.729	3.726	8	1.337	0.0497	Significant Effect
		4DC7E5DB	5.926	4.297	8	1.542	0.0016	Significant Effect
		2740ACD8	6.71	4.627	8	1.66	0.0006	Significant Effect
		28D4F9EE	5.243	3.964	8	1.423	0.0039	Significant Effect
		1E840A85	6.03	4.423	8	1.587	0.0017	Significant Effect
		6F919694	7.333	4.711	8	1.691	0.0003	Significant Effect
		2D1B7F74	5.462	4.148	8	1.489	0.0034	Significant Effect
		1A62F00C	7.874	4.787	8	1.718	0.0001	Significant Effect
		77B11D52	6.302	4.532	8	1.626	0.0011	Significant Effect
6241A6DB		46A76891	0.02563	2.823	8	1.013	0.9857	Non-Significant Effect
		13E96AA0	2.905	3.389	8	1.216	0.1074	Non-Significant Effect
		7E133628	2.409	3.964	8	1.423	0.4390	Non-Significant Effect
		1739F99E	0.5562	3.389	8	1.216	0.9185	Non-Significant Effect
		3AE7FA68	0.3957	2.823	8	1.013	0.7806	Non-Significant Effect
		34B11EA3	5.323	4.297	8	1.542	0.0063	Significant Effect
		4DC7E5DB	7.52	4.627	8	1.66	0.0002	Significant Effect
		2740ACD8	8.303	4.856	8	1.743	0.0001	Significant Effect
		28D4F9EE	6.837	4.423	8	1.587	0.0003	Significant Effect
		1E840A85	7.624	4.711	8	1.691	0.0002	Significant Effect
		6F919694	8.926	4.92	8	1.766	0.0001	Significant Effect
		2D1B7F74	7.056	4.532	8	1.626	0.0003	Significant Effect
		1A62F00C	9.468	4.978	8	1.787	0.0001	Significant Effect
		77B11D52	7.895	4.787	8	1.718	0.0001	Significant Effect
46A76891		13E96AA0	2.879	2.823	8	1.013	0.0458	Non-Significant Effect
		7E133628	2.434	4.148	8	1.489	0.5229	Non-Significant Effect
		1739F99E	0.5818	3.726	8	1.337	0.9764	Non-Significant Effect
		3AE7FA68	0.4213	3.389	8	1.216	0.9524	Non-Significant Effect
		34B11EA3	5.349	4.423	8	1.587	0.0076	Significant Effect
		4DC7E5DB	7.546	4.711	8	1.691	0.0002	Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID: 11-5338-0483 | Endpoint: Mean Dry Biomass-mg | CETIS Version: CETISv1.8.0
Analyzed: 27 Sep-10 14:44 | Analysis: Parametric-All Pairwise | Official Results: Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	8.329	4.92	8	1.766	0.0001	Significant Effect
		28D4F9EE	6.862	4.532	8	1.626	0.0004	Significant Effect
		1E840A85	7.649	4.787	8	1.718	0.0002	Significant Effect
		6F919694	8.952	4.978	8	1.787	0.0001	Significant Effect
		2D1B7F74	7.082	4.627	8	1.66	0.0003	Significant Effect
		1A62F00C	9.494	5.031	8	1.806	0.0001	Significant Effect
		77B11D52	7.921	4.856	8	1.743	0.0001	Significant Effect
13E96AA0		7E133628	5.313	4.297	8	1.542	0.0064	Significant Effect
		1739F99E	3.461	3.964	8	1.423	0.1155	Non-Significant Effect
		3AE7FA68	3.3	3.726	8	1.337	0.1006	Non-Significant Effect
		34B11EA3	8.228	4.532	8	1.626	0.0001	Significant Effect
		4DC7E5DB	10.42	4.787	8	1.718	0.0001	Significant Effect
		2740ACD8	11.21	4.978	8	1.787	0.0001	Significant Effect
		28D4F9EE	9.741	4.627	8	1.66	0.0002	Significant Effect
		1E840A85	10.53	4.856	8	1.743	0.0001	Significant Effect
		6F919694	11.83	5.031	8	1.806	0.0001	Significant Effect
		2D1B7F74	9.961	4.711	8	1.691	0.0002	Significant Effect
		1A62F00C	12.37	5.082	8	1.824	0.0002	Significant Effect
		77B11D52	10.8	4.92	8	1.766	0.0001	Significant Effect
7E133628		1739F99E	1.852	3.389	8	1.216	0.3947	Non-Significant Effect
		3AE7FA68	2.013	3.726	8	1.337	0.4895	Non-Significant Effect
		34B11EA3	2.915	3.389	8	1.216	0.1058	Non-Significant Effect
		4DC7E5DB	5.111	4.148	8	1.489	0.0074	Significant Effect
		2740ACD8	5.895	4.532	8	1.626	0.0028	Significant Effect
		28D4F9EE	4.428	3.726	8	1.337	0.0135	Significant Effect
		1E840A85	5.215	4.297	8	1.542	0.0079	Significant Effect
		6F919694	6.518	4.627	8	1.66	0.0009	Significant Effect
		2D1B7F74	4.648	3.964	8	1.423	0.0136	Significant Effect
		1A62F00C	7.06	4.711	8	1.691	0.0004	Significant Effect
		77B11D52	5.487	4.423	8	1.587	0.0056	Significant Effect
1739F99E		3AE7FA68	0.1605	2.823	8	1.013	0.9101	Non-Significant Effect
		34B11EA3	4.767	3.964	8	1.423	0.0106	Significant Effect
		4DC7E5DB	6.964	4.423	8	1.587	0.0003	Significant Effect
		2740ACD8	7.747	4.711	8	1.691	0.0002	Significant Effect
		28D4F9EE	6.28	4.148	8	1.489	0.0006	Significant Effect
		1E840A85	7.067	4.532	8	1.626	0.0003	Significant Effect
		6F919694	8.37	4.787	8	1.718	0.0001	Significant Effect
		2D1B7F74	6.5	4.297	8	1.542	0.0005	Significant Effect
		1A62F00C	8.912	4.856	8	1.743	0.0001	Significant Effect
		77B11D52	7.339	4.627	8	1.66	0.0002	Significant Effect
3AE7FA68		34B11EA3	4.927	4.148	8	1.489	0.0109	Significant Effect
		4DC7E5DB	7.124	4.532	8	1.626	0.0002	Significant Effect
		2740ACD8	7.908	4.787	8	1.718	0.0001	Significant Effect
		28D4F9EE	6.441	4.297	8	1.542	0.0005	Significant Effect
		1E840A85	7.228	4.627	8	1.66	0.0003	Significant Effect
		6F919694	8.531	4.856	8	1.743	0.0001	Significant Effect
		2D1B7F74	6.661	4.423	8	1.587	0.0004	Significant Effect
		1A62F00C	9.072	4.92	8	1.766	0.0001	Significant Effect
		77B11D52	7.5	4.711	8	1.691	0.0002	Significant Effect
34B11EA3		4DC7E5DB	2.197	3.726	8	1.337	0.4120	Non-Significant Effect
		2740ACD8	2.98	4.297	8	1.542	0.3603	Non-Significant Effect
		28D4F9EE	1.514	2.823	8	1.013	0.2684	Non-Significant Effect
		1E840A85	2.3	3.964	8	1.423	0.4860	Non-Significant Effect
		6F919694	3.603	4.423	8	1.587	0.1938	Non-Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	11-5338-0483	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	Analysis:	Parametric-All Pairwise	Official Results:	Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	1.733	3.389	8	1.216	0.4425	Non-Significant Effect
		1A62F00C	4.145	4.532	8	1.626	0.0994	Non-Significant Effect
		77B11D52	2.572	4.148	8	1.489	0.4608	Non-Significant Effect
4DC7E5DB		2740ACD8	0.7835	3.726	8	1.337	0.9452	Non-Significant Effect
		28D4F9EE	0.6832	3.389	8	1.216	0.8796	Non-Significant Effect
		1E840A85	0.1037	2.823	8	1.013	0.9419	Non-Significant Effect
		6F919694	1.407	3.964	8	1.423	0.8570	Non-Significant Effect
		2D1B7F74	0.4637	2.823	8	1.013	0.7442	Non-Significant Effect
		1A62F00C	1.948	4.148	8	1.489	0.7401	Non-Significant Effect
		77B11D52	0.3756	3.389	8	1.216	0.9620	Non-Significant Effect
2740ACD8		28D4F9EE	1.467	4.148	8	1.489	0.9037	Non-Significant Effect
		1E840A85	0.6799	3.389	8	1.216	0.8807	Non-Significant Effect
		6F919694	0.623	2.823	8	1.013	0.6611	Non-Significant Effect
		2D1B7F74	1.247	3.964	8	1.423	0.9027	Non-Significant Effect
		1A62F00C	1.165	3.389	8	1.216	0.6899	Non-Significant Effect
		77B11D52	0.4079	2.823	8	1.013	0.7740	Non-Significant Effect
28D4F9EE		1E840A85	0.7869	3.726	8	1.337	0.9446	Non-Significant Effect
		6F919694	2.09	4.297	8	1.542	0.7569	Non-Significant Effect
		2D1B7F74	0.2196	2.823	8	1.013	0.8772	Non-Significant Effect
		1A62F00C	2.631	4.423	8	1.587	0.5820	Non-Significant Effect
		77B11D52	1.059	3.964	8	1.423	0.9441	Non-Significant Effect
1E840A85		6F919694	1.303	3.726	8	1.337	0.7936	Non-Significant Effect
		2D1B7F74	0.5673	3.389	8	1.216	0.9153	Non-Significant Effect
		1A62F00C	1.845	3.964	8	1.423	0.6895	Non-Significant Effect
		77B11D52	0.272	2.823	8	1.013	0.8482	Non-Significant Effect
6F919694		2D1B7F74	1.87	4.148	8	1.489	0.7717	Non-Significant Effect
		1A62F00C	0.5417	2.823	8	1.013	0.7030	Non-Significant Effect
		77B11D52	1.031	3.389	8	1.216	0.7473	Non-Significant Effect
2D1B7F74		1A62F00C	2.412	4.297	8	1.542	0.6149	Non-Significant Effect
		77B11D52	0.8393	3.726	8	1.337	0.9338	Non-Significant Effect
1A62F00C		77B11D52	1.573	3.726	8	1.337	0.6835	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	158.3741	9.898382	16	15.37	<0.0001	Significant Effect
Error	43.79239	0.6440058	68			
Total	202.1665	10.54239	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.87	32	0.6081	Equal Variances
Variances	Mod Levene Equality of Variance	0.7643	2.374	0.7160	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9916	0.9601	0.8635	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.05171	0.1123	0.8260	Normal Distribution
Distribution	D'Agostino Skewness	0.8258	2.576	0.4089	Normal Distribution
Distribution	D'Agostino Kurtosis	0.5222	2.576	0.6016	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	0.9546	9.21	0.6205	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.1851	3.878	0.9627	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	11-5338-0483	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	Analysis:	Parametric-All Pairwise	Official Results:	Yes

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	4.073	3.822	4.323	3.289	4.943	0.2943	0.658	16.16%	0.0%
4E8E3F4E	5	4.412	4.151	4.672	3.668	5.242	0.3062	0.6846	15.52%	-8.32%
6241A6DB	5	4.984	4.495	5.472	3.416	6.974	0.5741	1.284	25.76%	-22.37%
46A76891	5	4.993	4.855	5.131	4.59	5.374	0.1622	0.3626	7.26%	-22.59%
13E96AA0	5	6.026	5.672	6.38	4.472	6.778	0.4167	0.9318	15.46%	-47.96%
7E133628	5	4.119	3.78	4.458	3.018	5.416	0.3986	0.8913	21.64%	-1.14%
1739F99E	5	4.784	4.352	5.216	3.43	6.498	0.5075	1.135	23.72%	-17.47%
3AE7FA68	5	4.842	4.421	5.262	3.474	6.384	0.4941	1.105	22.82%	-18.88%
34B11EA3	5	3.073	2.895	3.251	2.446	3.564	0.2096	0.4687	15.25%	24.54%
4DC7E5DB	5	2.285	1.981	2.588	1.402	3.498	0.357	0.7982	34.94%	43.9%
2740ACD8	5	2.004	1.786	2.221	1.552	2.94	0.2554	0.571	28.5%	50.6%
28D4F9EE	5	2.53	2.251	2.809	1.828	3.494	0.328	0.7334	28.99%	37.88%
1E840A85	5	2.248	1.956	2.539	1.19	3.1	0.3427	0.7664	34.1%	44.81%
6F919694	5	1.78	1.534	2.026	0.852	2.622	0.2896	0.6475	36.38%	56.29%
2D1B7F74	5	2.451	2.088	2.815	1.194	3.638	0.4273	0.9556	38.98%	39.81%
1A62F00C	5	1.586	1.426	1.745	0.912	1.93	0.1877	0.4197	26.47%	61.07%
77B11D52	5	2.15	1.949	2.351	1.456	2.75	0.2363	0.5283	24.57%	47.21%

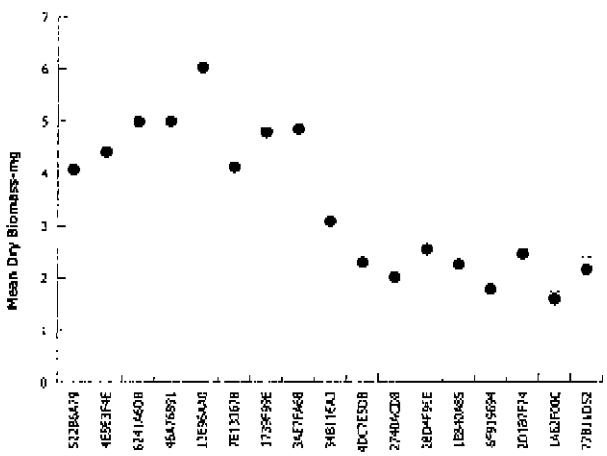
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

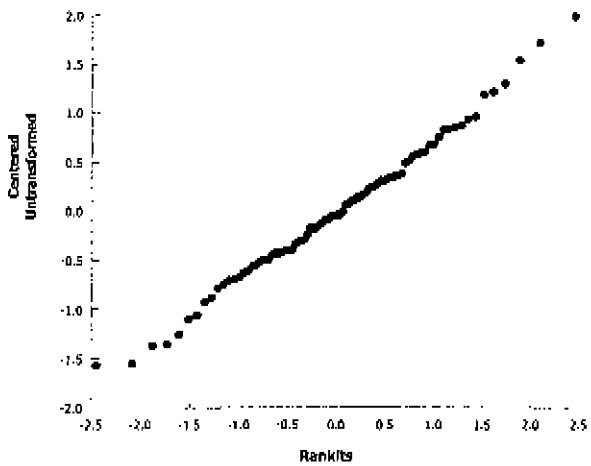
Analysis ID:	11-5338-0483	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	3.289	4.943	4.174	4.386	3.571
4E8E3F4E	5.002	4.238	3.668	5.242	3.908
6241A6DB	4.898	6.974	4.582	3.416	5.048
46A76891	4.59	5.374	4.946	4.7	5.354
13E96AA0	6.194	4.472	6.706	6.778	5.98
7E133628	3.018	3.802	4.476	3.884	5.416
1739F99E	5.03	4.742	4.22	3.43	6.498
3AE7FA68	6.384	4.238	3.474	4.758	5.354
34B11EA3	2.736	3.564	3.406	3.214	2.446
4DC7E5DB	2.274	3.498	1.774	2.476	1.402
2740ACD8	2.94	1.552	2.118	1.828	1.58
28D4F9EE	1.984	3.114	2.23	1.828	3.494
1E840A85	3.1	2.808	2.322	1.818	1.19
6F919694	2.622	1.636	1.722	2.068	0.852
2D1B7F74	2.28	3.122	1.194	2.022	3.638
1A62F00C	1.9	0.912	1.93	1.464	1.722
77B11D52	2.408	2.38	1.456	2.75	1.756

Graphics





Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	19-5621-4939	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	19-5621-4939	Endpoint:	Survival Rate	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	Analysis:	Parametric-All Pairwise	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	D<>0	Not Run					22.7%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		6241A6DB	2.805	4.711	8	0.391	0.6605	Non-Significant Effect
		46A76891	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		13E96AA0	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		7E133628	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		1739F99E	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		3AE7FA68	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		34B11EA3	0.5924	3.964	8	0.329	0.9935	Non-Significant Effect
		4DC7E5DB	3.291	4.856	8	0.4031	0.5065	Non-Significant Effect
		2740ACD8	2.232	4.532	8	0.3761	0.8132	Non-Significant Effect
		28D4F9EE	2.314	4.627	8	0.384	0.8257	Non-Significant Effect
		1E840A85	3.912	5.031	8	0.4176	0.3133	Non-Significant Effect
		6F919694	2.805	4.711	8	0.391	0.6605	Non-Significant Effect
		2D1B7F74	3.864	4.978	8	0.4132	0.3087	Non-Significant Effect
		1A62F00C	4.397	5.082	8	0.4218	0.1684	Non-Significant Effect
		77B11D52	3.379	4.92	8	0.4083	0.4983	Non-Significant Effect
4E8E3F4E		6241A6DB	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		46A76891	0		8		>0.05	Non-Significant Effect
		13E96AA0	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		7E133628	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		1739F99E	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		3AE7FA68	0		8		>0.05	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
6241A6DB		46A76891	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		13E96AA0	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		7E133628	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		1739F99E	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		3AE7FA68	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		34B11EA3	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		4DC7E5DB	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		2740ACD8	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		28D4F9EE	0.4916	2.823	8	0.2343	0.7294	Non-Significant Effect
		1E840A85	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		6F919694	0		8		>0.05	Non-Significant Effect
		2D1B7F74	1.059	3.726	8	0.3092	0.8769	Non-Significant Effect
		1A62F00C	1.592	4.148	8	0.3443	0.8692	Non-Significant Effect
		77B11D52	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
46A76891		13E96AA0	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		7E133628	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		1739F99E	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		3AE7FA68	0		8		>0.05	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID: 19-5621-4939 | Endpoint: Survival Rate | CETIS Version: CETISv1.8.0
Analyzed: 27 Sep-10 14:44 | Analysis: Parametric-All Pairwise | Official Results: Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
13E96AA0		7E133628	0		8		>0.05	Non-Significant Effect
		1739F99E	0		8		>0.05	Non-Significant Effect
		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
7E133628		1739F99E	0		8		>0.05	Non-Significant Effect
		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
1739F99E		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
3AE7FA68		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
34B11EA3		4DC7E5DB	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		2740ACD8	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		28D4F9EE	1.721	4.148	8	0.3443	0.8271	Non-Significant Effect
		1E840A85	3.319	4.787	8	0.3973	0.4550	Non-Significant Effect
		6F919694	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	19-5621-4939	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		1A62F00C	3.805	4.856	8	0.4031	0.2807	Non-Significant Effect
		77B11D52	2.787	4.627	8	0.384	0.6220	Non-Significant Effect
4DC7E5DB		2740ACD8	1.059	3.964	8	0.329	0.9441	Non-Significant Effect
		28D4F9EE	0.9767	3.726	8	0.3092	0.9004	Non-Significant Effect
		1E840A85	0.6213	3.726	8	0.3092	0.9715	Non-Significant Effect
		6F919694	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		2D1B7F74	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		1A62F00C	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		77B11D52	0.08861	2.823	8	0.2343	0.9503	Non-Significant Effect
2740ACD8		28D4F9EE	0.08223	2.823	8	0.2343	0.9539	Non-Significant Effect
		1E840A85	1.68	4.423	8	0.3671	0.9327	Non-Significant Effect
		6F919694	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		2D1B7F74	1.633	4.297	8	0.3567	0.9084	Non-Significant Effect
		1A62F00C	2.165	4.532	8	0.3761	0.8369	Non-Significant Effect
		77B11D52	1.148	4.148	8	0.3443	0.9645	Non-Significant Effect
28D4F9EE		1E840A85	1.598	4.297	8	0.3567	0.9166	Non-Significant Effect
		6F919694	0.4916	2.823	8	0.2343	0.7294	Non-Significant Effect
		2D1B7F74	1.551	4.148	8	0.3443	0.8812	Non-Significant Effect
		1A62F00C	2.083	4.423	8	0.3671	0.8188	Non-Significant Effect
		77B11D52	1.065	3.964	8	0.329	0.9429	Non-Significant Effect
1E840A85		6F919694	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		2D1B7F74	0.0475	2.823	8	0.2343	0.9734	Non-Significant Effect
		1A62F00C	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		77B11D52	0.5327	3.389	8	0.2813	0.9249	Non-Significant Effect
6F919694		2D1B7F74	1.059	3.726	8	0.3092	0.8769	Non-Significant Effect
		1A62F00C	1.592	4.148	8	0.3443	0.8692	Non-Significant Effect
		77B11D52	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
2D1B7F74		1A62F00C	0.5327	3.389	8	0.2813	0.9249	Non-Significant Effect
		77B11D52	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
1A62F00C		77B11D52	1.018	3.726	8	0.3092	0.8890	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.298512	0.08115702	16	2.356	0.0076	Significant Effect
Error	2.342463	0.03444798	68			
Total	3.640975	0.115605	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.856	2.374	0.0486	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9792	0.9601	0.1851	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1308	0.1123	0.0011	Non-normal Distribution
Distribution	D'Agostino Skewness	1.199	2.576	0.2306	Normal Distribution
Distribution	D'Agostino Kurtosis	0.8957	2.576	0.3704	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	2.24	9.21	0.3263	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7556	3.878	0.0490	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	19-5621-4939	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.96	0.9392	0.9808	0.9	1	0.02449	0.05477	5.71%	0.0%
4E8E3F4E	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
6241A6DB	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
46A76891	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
13E96AA0	5	1	1	1	1	1	0	0	0.0%	-4.17%
7E133628	5	1	1	1	1	1	0	0	0.0%	-4.17%
1739F99E	5	1	1	1	1	1	0	0	0.0%	-4.17%
3AE7FA68	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
34B11EA3	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	0.0%
4DC7E5DB	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	20.83%
2740ACD8	5	0.84	0.7567	0.9233	0.6	1	0.09798	0.2191	26.08%	12.5%
28D4F9EE	5	0.84	0.806	0.874	0.8	1	0.04	0.08944	10.65%	12.5%
1E840A85	5	0.72	0.652	0.788	0.6	1	0.08	0.1789	24.85%	25.0%
6F919694	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
2D1B7F74	5	0.72	0.6333	0.8067	0.4	1	0.102	0.228	31.67%	25.0%
1A62F00C	5	0.68	0.5646	0.7954	0.2	1	0.1356	0.3033	44.61%	29.17%
77B11D52	5	0.76	0.6964	0.8236	0.6	1	0.07483	0.1673	22.02%	20.83%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.347	1.313	1.381	1.249	1.412	0.03992	0.08926	6.63%	0.0%
4E8E3F4E	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
6241A6DB	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
46A76891	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
13E96AA0	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
7E133628	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
1739F99E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
3AE7FA68	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
34B11EA3	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.65%
4DC7E5DB	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.28%
2740ACD8	5	1.162	1.066	1.257	0.8861	1.345	0.1125	0.2515	21.65%	13.75%
28D4F9EE	5	1.155	1.114	1.195	1.107	1.345	0.04763	0.1065	9.22%	14.26%
1E840A85	5	1.022	0.9444	1.1	0.8861	1.345	0.09143	0.2044	20.0%	24.11%
6F919694	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
2D1B7F74	5	1.026	0.9308	1.121	0.6847	1.345	0.1121	0.2508	24.42%	23.82%
1A62F00C	5	0.9819	0.8555	1.108	0.4636	1.345	0.1485	0.3321	33.82%	27.1%
77B11D52	5	1.066	0.9936	1.139	0.8861	1.345	0.08548	0.1911	17.92%	20.83%

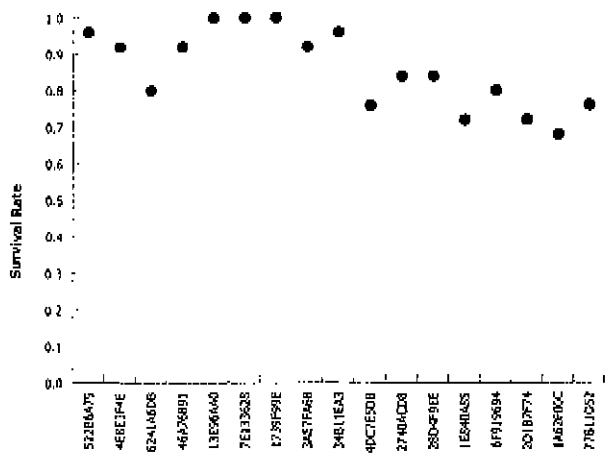
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

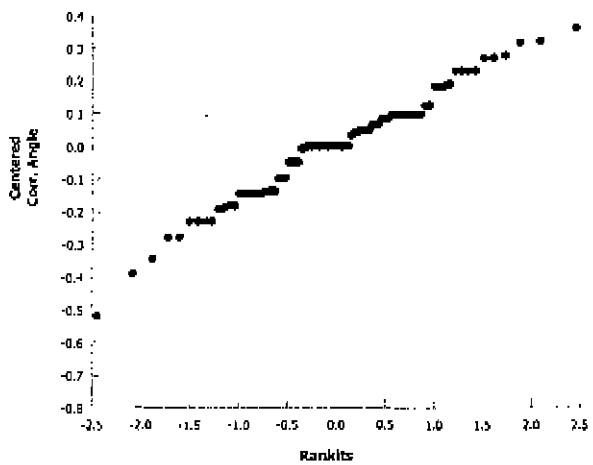
Analysis ID:	19-5621-4939	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	1	0.9	1	0.9	1
4E8E3F4E	1	1	0.8	0.8	1
6241A6DB	0.8	0.6	1	0.6	1
46A76891	0.8	0.8	1	1	1
13E96AA0	1	1	1	1	1
7E133628	1	1	1	1	1
1739F99E	1	1	1	1	1
3AE7FA68	1	1	0.8	1	0.8
34B11EA3	1	1	1	0.8	1
4DC7E5DB	1	1	0.6	0.4	0.8
2740ACD8	1	0.6	1	1	0.6
28D4F9EE	0.8	0.8	0.8	0.8	1
1E840A85	0.6	0.6	1	0.8	0.6
6F919694	1	0.6	0.8	0.6	1
2D1B7F74	0.6	0.8	0.4	0.8	1
1A62F00C	0.8	0.2	0.6	0.8	1
77B11D52	0.8	0.8	0.6	0.6	1

Graphics





Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	19-5422-7270	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-6264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	19-5422-7270	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					47.5%

Steel Many-One Rank Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	32	15	8	0	0.9972	Non-Significant Effect
		6241A6DB	37	15	8	0	1.0000	Non-Significant Effect
		46A76891	36	15	8	0	0.9999	Non-Significant Effect
		13E96AA0	38	15	8	0	1.0000	Non-Significant Effect
		7E133628	26	15	8	0	0.8784	Non-Significant Effect
		1739F99E	31	15	8	0	0.9938	Non-Significant Effect
		3AE7FA68	34	15	8	0	0.9995	Non-Significant Effect
		34B11EA3	19	15	8	0	0.2543	Non-Significant Effect
		4DC7E5DB	21	15	8	0	0.4427	Non-Significant Effect
		2740ACD8	15	15	8	0	0.0467	Significant Effect
		28D4F9EE	18	15	8	0	0.1795	Non-Significant Effect
		1E840A85	22	15	8	0	0.5462	Non-Significant Effect
		6F919694	16	15	8	0	0.0769	Non-Significant Effect
		2D1B7F74	21	15	8	0	0.4427	Non-Significant Effect
		1A62F00C	18	15	8	0	0.1795	Non-Significant Effect
		77B11D52	18	15	8	0	0.1795	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	135.3953	8.462206	16	5.728	<0.0001	Significant Effect
Error	100.4606	1.477361	68			
Total	235.8559	9.939568	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	25.81	32	0.0568	Equal Variances
Variances	Mod Levene Equality of Variance	0.6885	2.374	0.7916	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9209	0.9601	<0.0001	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.08982	0.1123	0.0870	Normal Distribution
Distribution	D'Agostino Skewness	4.397	2.576	<0.0001	Non-normal Distribution
Distribution	D'Agostino Kurtosis	3.761	2.576	0.0002	Non-normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	33.46	9.21	<0.0001	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.089	3.878	0.0076	Non-normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	19-5422-7270	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	4.28	3.933	4.626	3.289	5.492	0.4073	0.9107	21.28%	0.0%
4E8E3F4E	5	4.857	4.465	5.249	3.908	6.552	0.4612	1.031	21.23%	-13.49%
6241A6DB	5	6.614	5.525	7.702	4.582	11.62	1.28	2.862	43.27%	-54.53%
46A76891	5	5.491	5.19	5.792	4.7	6.717	0.354	0.7916	14.42%	-28.3%
13E96AA0	5	6.026	5.672	6.38	4.472	6.778	0.4167	0.9318	15.46%	-40.8%
7E133628	5	4.119	3.78	4.458	3.018	5.416	0.3986	0.8913	21.64%	3.76%
1739F99E	5	4.784	4.352	5.216	3.43	6.498	0.5075	1.135	23.72%	-11.78%
3AE7FA68	5	5.283	4.839	5.727	4.238	6.692	0.5221	1.167	22.1%	-23.44%
34B11EA3	5	3.234	2.992	3.476	2.446	4.017	0.2847	0.6367	19.69%	24.44%
4DC7E5DB	5	3.334	2.677	3.992	1.753	6.19	0.773	1.728	51.84%	22.1%
2740ACD8	5	2.421	2.253	2.59	1.828	2.94	0.1982	0.4431	18.3%	43.43%
28D4F9EE	5	2.988	2.728	3.248	2.285	3.893	0.3055	0.6831	22.86%	30.19%
1E640A85	5	3.285	2.71	3.86	1.983	5.167	0.6758	1.511	46.0%	23.25%
6F919694	5	2.36	1.994	2.726	0.852	3.447	0.4302	0.9619	40.76%	44.86%
2D1B7F74	5	3.371	3.146	3.595	2.528	3.902	0.2644	0.5913	17.54%	21.25%
1A62F00C	5	2.741	2.293	3.188	1.722	4.56	0.5262	1.177	42.93%	35.96%
77B11D52	5	2.95	2.553	3.348	1.756	4.583	0.4675	1.045	35.44%	31.07%

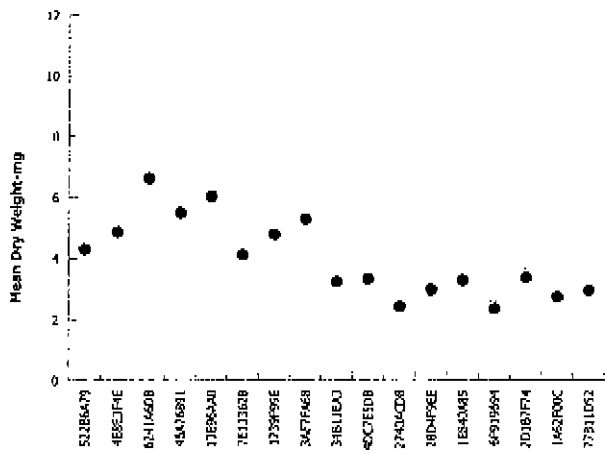
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

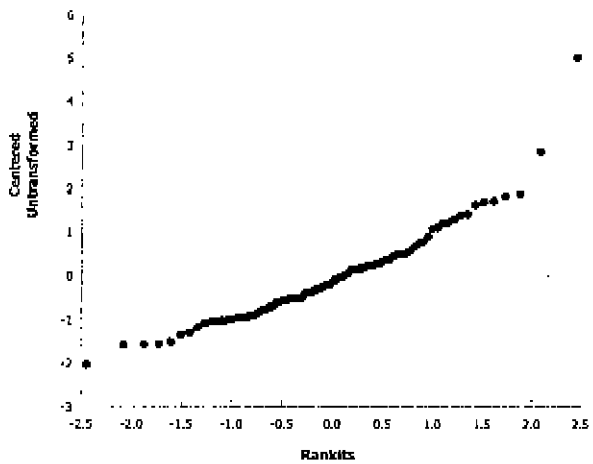
Analysis ID:	19-5422-7270	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	3.289	5.492	4.174	4.873	3.571
4E8E3F4E	5.002	4.238	4.585	6.552	3.908
6241A6DB	6.122	11.62	4.582	5.693	5.048
46A76891	5.738	6.717	4.946	4.7	5.354
13E96AA0	6.194	4.472	6.706	6.778	5.98
7E133628	3.018	3.802	4.476	3.884	5.416
1739F99E	5.03	4.742	4.22	3.43	6.498
3AE7FA68	6.384	4.238	4.343	4.758	6.692
34B11EA3	2.736	3.564	3.406	4.017	2.446
4DC7E5DB	2.274	3.498	2.957	6.19	1.753
2740ACD8	2.94	2.587	2.118	1.828	2.633
28D4F9EE	2.48	3.893	2.788	2.285	3.494
1E840A85	5.167	4.68	2.322	2.273	1.983
6F919694	2.622	2.727	2.153	3.447	0.852
2D1B7F74	3.8	3.902	2.985	2.528	3.638
1A62F00C	2.375	4.56	3.217	1.83	1.722
77B11D52	3.01	2.975	2.427	4.583	1.756

Graphics





Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	01-9587-8001	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4286	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	01-9587-8001	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					32.9%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	-0.6679	2.643	8	1.342	0.9920	Non-Significant Effect
		6241A6DB	-1.795	2.643	8	1.342	0.9999	Non-Significant Effect
		46A76891	-1.813	2.643	8	1.342	0.9999	Non-Significant Effect
		13E96AA0	-3.849	2.643	8	1.342	1.0000	Non-Significant Effect
		7E133628	-0.09181	2.643	8	1.342	0.9536	Non-Significant Effect
		1739F99E	-1.402	2.643	8	1.342	0.9995	Non-Significant Effect
		3AE7FA68	-1.515	2.643	8	1.342	0.9997	Non-Significant Effect
		34B11EA3	1.969	2.643	8	1.342	0.1919	Non-Significant Effect
		4DC7E5DB	3.522	2.643	8	1.342	0.0048	Significant Effect
		2740ACD8	4.076	2.643	8	1.342	0.0008	Significant Effect
		28D4F9EE	3.039	2.643	8	1.342	0.0188	Significant Effect
		1E840A85	3.596	2.643	8	1.342	0.0039	Significant Effect
		6F919694	4.517	2.643	8	1.342	0.0002	Significant Effect
		2D1B7F74	3.195	2.643	8	1.342	0.0124	Significant Effect
		1A62F00C	4.9	2.643	8	1.342	<0.0001	Significant Effect
		77B11D52	3.788	2.643	8	1.342	0.0021	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	158.3741	9.898382	16	15.37	<0.0001	Significant Effect
Error	43.79239	0.6440058	68			
Total	202.1665	10.54239	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.87	32	0.6081	Equal Variances
Variances	Mod Levene Equality of Variance	0.7643	2.374	0.7160	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9916	0.9601	0.8635	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.05171	0.1123	0.8260	Normal Distribution
Distribution	D'Agostino Skewness	0.8258	2.576	0.4089	Normal Distribution
Distribution	D'Agostino Kurtosis	0.5222	2.576	0.6016	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	0.9646	9.21	0.6205	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.1851	3.878	0.9627	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	01-9587-8001	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	4.073	3.822	4.323	3.269	4.943	0.2943	0.658	16.16%	0.0%
4E8E3F4E	5	4.412	4.151	4.672	3.668	5.242	0.3062	0.6846	15.52%	-8.32%
6241A6DB	5	4.984	4.495	5.472	3.416	6.974	0.5741	1.284	25.76%	-22.37%
46A76891	5	4.993	4.855	5.131	4.59	5.374	0.1622	0.3626	7.26%	-22.59%
13E96AA0	5	6.026	5.672	6.38	4.472	6.778	0.4167	0.9318	15.46%	-47.96%
7E133628	5	4.119	3.78	4.458	3.018	5.416	0.3986	0.8913	21.64%	-1.14%
1739F99E	5	4.784	4.352	5.216	3.43	6.498	0.5075	1.135	23.72%	-17.47%
3AE7FA68	5	4.842	4.421	5.262	3.474	6.384	0.4941	1.105	22.82%	-18.88%
34B11EA3	5	3.073	2.895	3.251	2.446	3.564	0.2096	0.4687	15.25%	24.54%
4DC7E5DB	5	2.285	1.981	2.588	1.402	3.498	0.357	0.7982	34.94%	43.9%
2740ACD8	5	2.004	1.786	2.221	1.552	2.94	0.2554	0.571	28.5%	50.8%
28D4F9EE	5	2.53	2.251	2.809	1.828	3.494	0.328	0.7334	28.99%	37.88%
1E840A85	5	2.248	1.956	2.539	1.19	3.1	0.3427	0.7664	34.1%	44.81%
6F919694	5	1.78	1.534	2.026	0.852	2.622	0.2896	0.6475	36.38%	56.29%
2D1B7F74	5	2.451	2.088	2.815	1.194	3.638	0.4273	0.9556	38.98%	39.81%
1A62F00C	5	1.586	1.426	1.745	0.912	1.93	0.1877	0.4197	26.47%	61.07%
77B11D52	5	2.15	1.949	2.351	1.456	2.75	0.2363	0.5283	24.57%	47.21%

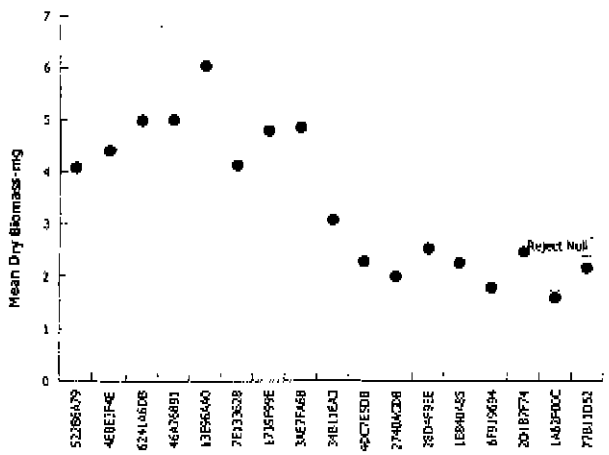
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

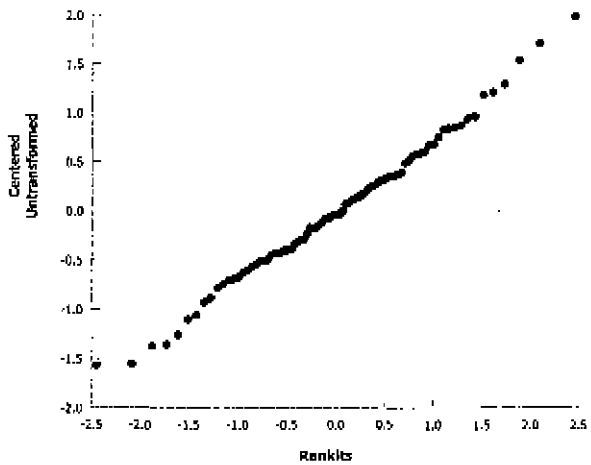
Analysis ID:	01-9587-8001	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:44	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	3.289	4.943	4.174	4.386	3.571
4E8E3F4E	5.002	4.238	3.668	5.242	3.908
6241A6DB	4.898	6.974	4.582	3.416	5.048
46A76891	4.59	5.374	4.946	4.7	5.354
13E96AA0	6.194	4.472	6.706	6.778	5.98
7E133628	3.018	3.802	4.476	3.884	5.416
1739F99E	5.03	4.742	4.22	3.43	6.498
3AE7FA68	6.384	4.238	3.474	4.758	5.354
34B11EA3	2.736	3.564	3.406	3.214	2.446
4DC7E5DB	2.274	3.498	1.774	2.476	1.402
2740ACD8	2.94	1.552	2.118	1.828	1.58
28D4F9EE	1.984	3.114	2.23	1.828	3.494
1E840A85	3.1	2.808	2.322	1.818	1.19
6F919694	2.622	1.636	1.722	2.068	0.852
2D1B7F74	2.28	3.122	1.194	2.022	3.638
1A62F00C	1.9	0.912	1.93	1.464	1.722
77B11D52	2.408	2.38	1.456	2.75	1.756

Graphics





Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	16-4888-6468	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ, Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4268	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	16-4888-6468	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					22.8%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		6241A6DB	1.984	2.643	8	0.3103	0.1873	Non-Significant Effect
		46A76891	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		13E96AA0	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		7E133628	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		1739F99E	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		3AE7FA68	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		34B11EA3	0.4189	2.643	8	0.3103	0.8495	Non-Significant Effect
		4DC7E5DB	2.327	2.643	8	0.3103	0.0991	Non-Significant Effect
		2740ACD8	1.578	2.643	8	0.3103	0.3431	Non-Significant Effect
		28D4F9EE	1.636	2.643	8	0.3103	0.3177	Non-Significant Effect
		1E840A85	2.766	2.643	8	0.3103	0.0374	Significant Effect
		6F919694	1.984	2.643	8	0.3103	0.1873	Non-Significant Effect
		2D1B7F74	2.732	2.643	8	0.3103	0.0406	Significant Effect
		1A62F00C	3.109	2.643	8	0.3103	0.0156	Significant Effect
		77B11D52	2.389	2.643	8	0.3103	0.0872	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.298512	0.08115702	16	2.356	0.0076	Significant Effect
Error	2.342463	0.03444798	68			
Total	3.640975	0.115605	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.856	2.374	0.0486	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9792	0.9601	0.1851	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1308	0.1123	0.0011	Non-normal Distribution
Distribution	D'Agostino Skewness	1.199	2.576	0.2306	Normal Distribution
Distribution	D'Agostino Kurtosis	0.8957	2.576	0.3704	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	2.24	9.21	0.3263	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7556	3.878	0.0490	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	16-4888-6468	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.96	0.9392	0.9808	0.9	1	0.02449	0.05477	5.71%	0.0%
4E8E3F4E	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
6241A6DB	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
46A76891	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
13E96AA0	5	1	1	1	1	1	0	0	0.0%	-4.17%
7E133628	5	1	1	1	1	1	0	0	0.0%	-4.17%
1739F99E	5	1	1	1	1	1	0	0	0.0%	-4.17%
3AE7FA68	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
34B11EA3	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	0.0%
4DC7E5DB	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	20.83%
2740ACD8	5	0.84	0.7567	0.9233	0.6	1	0.09798	0.2191	26.08%	12.5%
28D4F9EE	5	0.84	0.806	0.874	0.8	1	0.04	0.08944	10.65%	12.5%
1E840A85	5	0.72	0.652	0.788	0.6	1	0.08	0.1789	24.85%	25.0%
6F919694	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
2D1B7F74	5	0.72	0.6333	0.8067	0.4	1	0.102	0.228	31.67%	25.0%
1A62F00C	5	0.68	0.5646	0.7954	0.2	1	0.1356	0.3033	44.61%	29.17%
77B11D52	5	0.76	0.6964	0.8236	0.6	1	0.07483	0.1673	22.02%	20.83%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.347	1.313	1.381	1.249	1.412	0.03992	0.08926	6.63%	0.0%
4E8E3F4E	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
6241A6DB	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
46A76891	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
13E96AA0	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
7E133628	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
1739F99E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
3AE7FA68	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
34B11EA3	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.65%
4DC7E5DB	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.28%
2740ACD8	5	1.162	1.066	1.257	0.8861	1.345	0.1125	0.2515	21.65%	13.75%
28D4F9EE	5	1.155	1.114	1.195	1.107	1.345	0.04763	0.1065	9.22%	14.26%
1E840A85	5	1.022	0.9444	1.1	0.8861	1.345	0.09143	0.2044	20.0%	24.11%
6F919694	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
2D1B7F74	5	1.026	0.9308	1.121	0.6847	1.345	0.1121	0.2506	24.42%	23.82%
1A62F00C	5	0.9819	0.8555	1.108	0.4636	1.345	0.1485	0.3321	33.82%	27.1%
77B11D52	5	1.066	0.9936	1.139	0.8861	1.345	0.08548	0.1911	17.92%	20.83%

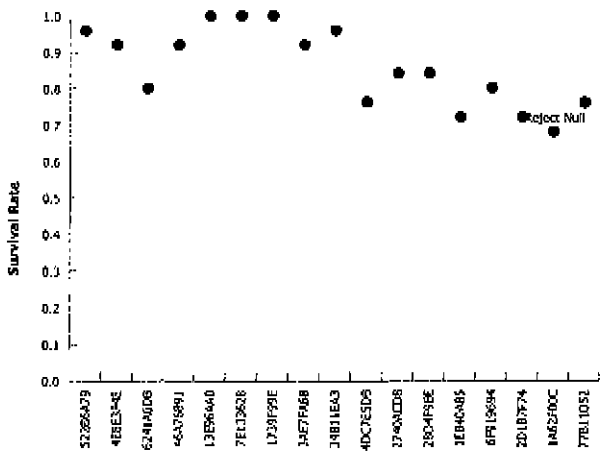
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

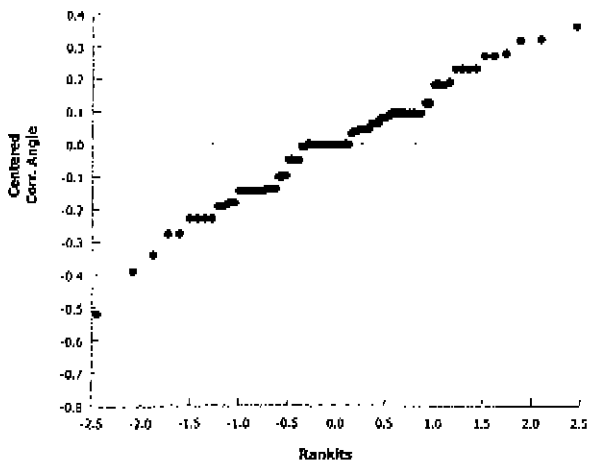
Analysis ID:	16-4888-6468	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	27 Sep-10 14:43	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	1	0.9	1	0.9	1
4E8E3F4E	1	1	0.8	0.8	1
6241A6DB	0.8	0.6	1	0.6	1
46A76891	0.8	0.8	1	1	1
13E96AA0	1	1	1	1	1
7E133628	1	1	1	1	1
1739F99E	1	1	1	1	1
3AE7FA68	1	1	0.8	1	0.8
34B11EA3	1	1	1	0.8	1
4DC7E5DB	1	1	0.6	0.4	0.8
2740ACD8	1	0.6	1	1	0.6
28D4F9EE	0.8	0.8	0.8	0.8	1
1E840A85	0.6	0.6	1	0.8	0.6
6F919694	1	0.6	0.8	0.6	1
2D1B7F74	0.6	0.8	0.4	0.8	1
1A62F00C	0.8	0.2	0.6	0.8	1
77B11D52	0.8	0.8	0.6	0.6	1

Graphics





Neanthes 28-d Survival and Growth Sediment Test — PBS&J-Houston Lab

Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ, Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-8537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zota	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	D<>0	Not Run					22.7%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		6241A6DB	2.805	4.711	8	0.391	0.6605	Non-Significant Effect
		46A76891	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		13E96AA0	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		7E133628	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		1739F99E	0.01861	3.389	8	0.2813	0.9999	Non-Significant Effect
		3AE7FA68	1.166	4.297	8	0.3567	0.9816	Non-Significant Effect
		34B11EA3	0.5924	3.964	8	0.329	0.9935	Non-Significant Effect
		4DC7E5DB	3.291	4.856	8	0.4031	0.5065	Non-Significant Effect
		2740ACD8	2.232	4.532	8	0.3761	0.8132	Non-Significant Effect
		28D4F9EE	2.314	4.627	8	0.384	0.8257	Non-Significant Effect
		1E840A85	3.912	5.031	8	0.4176	0.3133	Non-Significant Effect
		6F919694	2.805	4.711	8	0.391	0.6605	Non-Significant Effect
		2D1B7F74	3.864	4.978	8	0.4132	0.3087	Non-Significant Effect
		1A62F00C	4.397	5.082	8	0.4218	0.1684	Non-Significant Effect
		77B11D52	3.379	4.92	8	0.4083	0.4983	Non-Significant Effect
4E8E3F4E		6241A6DB	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		46A76891	0		8		>0.05	Non-Significant Effect
		13E96AA0	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		7E133628	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		1739F99E	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		3AE7FA68	0		8		>0.05	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
6241A6DB		46A76891	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		13E96AA0	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		7E133628	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		1739F99E	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		3AE7FA68	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		34B11EA3	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		4DC7E5DB	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		2740ACD8	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		28D4F9EE	0.4916	2.823	8	0.2343	0.7294	Non-Significant Effect
		1E840A85	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		6F919694	0		8		>0.05	Non-Significant Effect
		2D1B7F74	1.059	3.726	8	0.3092	0.8769	Non-Significant Effect
		1A62F00C	1.592	4.148	8	0.3443	0.8692	Non-Significant Effect
		77B11D52	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
46A76891		13E96AA0	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		7E133628	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		1739F99E	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		3AE7FA68	0		8		>0.05	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
13E96AA0		7E133628	0		8		>0.05	Non-Significant Effect
		1739F99E	0		8		>0.05	Non-Significant Effect
		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
7E133628		1739F99E	0		8		>0.05	Non-Significant Effect
		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
1739F99E		3AE7FA68	1.148	3.964	8	0.329	0.9263	Non-Significant Effect
		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		2740ACD8	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect
		28D4F9EE	2.295	4.423	8	0.3671	0.7350	Non-Significant Effect
		1E840A85	3.893	4.92	8	0.4083	0.2733	Non-Significant Effect
		6F919694	2.787	4.532	8	0.3761	0.5687	Non-Significant Effect
		2D1B7F74	3.846	4.856	8	0.4031	0.2656	Non-Significant Effect
		1A62F00C	4.378	4.978	8	0.4132	0.1456	Non-Significant Effect
		77B11D52	3.361	4.787	8	0.3973	0.4358	Non-Significant Effect
3AE7FA68		34B11EA3	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		4DC7E5DB	2.124	4.297	8	0.3567	0.7426	Non-Significant Effect
		2740ACD8	1.065	3.389	8	0.2813	0.7327	Non-Significant Effect
		28D4F9EE	1.148	3.726	8	0.3092	0.8489	Non-Significant Effect
		1E840A85	2.746	4.627	8	0.384	0.6415	Non-Significant Effect
		6F919694	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		2D1B7F74	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		1A62F00C	3.231	4.711	8	0.391	0.4561	Non-Significant Effect
		77B11D52	2.213	4.423	8	0.3671	0.7691	Non-Significant Effect
34B11EA3		4DC7E5DB	2.698	4.532	8	0.3761	0.6109	Non-Significant Effect
		2740ACD8	1.639	3.964	8	0.329	0.7744	Non-Significant Effect
		28D4F9EE	1.721	4.148	8	0.3443	0.8271	Non-Significant Effect
		1E840A85	3.319	4.787	8	0.3973	0.4550	Non-Significant Effect
		6F919694	2.213	4.297	8	0.3567	0.7048	Non-Significant Effect

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
		2D1B7F74	3.272	4.711	8	0.391	0.4370	Non-Significant Effect
		1A62F00C	3.805	4.856	8	0.4031	0.2807	Non-Significant Effect
		77B11D52	2.787	4.627	8	0.384	0.6220	Non-Significant Effect
4DC7E5DB		2740ACD8	1.059	3.964	8	0.329	0.9441	Non-Significant Effect
		28D4F9EE	0.9767	3.726	8	0.3092	0.9004	Non-Significant Effect
		1E840A85	0.6213	3.726	8	0.3092	0.9715	Non-Significant Effect
		6F919694	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		2D1B7F74	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		1A62F00C	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		77B11D52	0.08861	2.823	8	0.2343	0.9503	Non-Significant Effect
2740ACD8		28D4F9EE	0.08223	2.823	8	0.2343	0.9539	Non-Significant Effect
		1E840A85	1.68	4.423	8	0.3671	0.9327	Non-Significant Effect
		6F919694	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
		2D1B7F74	1.633	4.297	8	0.3567	0.9084	Non-Significant Effect
		1A62F00C	2.165	4.532	8	0.3761	0.8369	Non-Significant Effect
		77B11D52	1.148	4.148	8	0.3443	0.9645	Non-Significant Effect
28D4F9EE		1E840A85	1.598	4.297	8	0.3567	0.9166	Non-Significant Effect
		6F919694	0.4916	2.823	8	0.2343	0.7294	Non-Significant Effect
		2D1B7F74	1.551	4.148	8	0.3443	0.8812	Non-Significant Effect
		1A62F00C	2.083	4.423	8	0.3671	0.8188	Non-Significant Effect
		77B11D52	1.065	3.964	8	0.329	0.9429	Non-Significant Effect
1E840A85		6F919694	1.106	3.964	8	0.329	0.9349	Non-Significant Effect
		2D1B7F74	0.0475	2.823	8	0.2343	0.9734	Non-Significant Effect
		1A62F00C	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
		77B11D52	0.5327	3.389	8	0.2813	0.9249	Non-Significant Effect
6F919694		2D1B7F74	1.059	3.726	8	0.3092	0.8769	Non-Significant Effect
		1A62F00C	1.592	4.148	8	0.3443	0.8692	Non-Significant Effect
		77B11D52	0.5738	3.389	8	0.2813	0.9134	Non-Significant Effect
2D1B7F74		1A62F00C	0.5327	3.389	8	0.2813	0.9249	Non-Significant Effect
		77B11D52	0.4852	2.823	8	0.2343	0.7327	Non-Significant Effect
1A62F00C		77B11D52	1.018	3.726	8	0.3092	0.8890	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.298512	0.08115702	16	2.356	0.0076	Significant Effect
Error	2.342463	0.03444798	68			
Total	3.640975	0.115605	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.856	2.374	0.0486	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9792	0.9601	0.1851	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1308	0.1123	0.0011	Non-normal Distribution
Distribution	D'Agostino Skewness	1.199	2.576	0.2306	Normal Distribution
Distribution	D'Agostino Kurtosis	0.8957	2.576	0.3704	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	2.24	9.21	0.3263	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7556	3.878	0.0490	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.96	0.9392	0.9808	0.9	1	0.02449	0.05477	5.71%	0.0%
4E8E3F4E	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
6241A6DB	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
46A76891	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
13E96AA0	5	1	1	1	1	1	0	0	0.0%	-4.17%
7E133628	5	1	1	1	1	1	0	0	0.0%	-4.17%
1739F99E	5	1	1	1	1	1	0	0	0.0%	-4.17%
3AE7FA68	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
34B11EA3	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	0.0%
4DC7E5DB	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	20.83%
2740ACD8	5	0.84	0.7567	0.9233	0.6	1	0.09798	0.2191	26.08%	12.5%
28D4F9EE	5	0.84	0.806	0.874	0.8	1	0.04	0.08944	10.65%	12.5%
1E840A85	5	0.72	0.652	0.788	0.6	1	0.08	0.1789	24.85%	25.0%
6F919694	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
2D1B7F74	5	0.72	0.6333	0.8067	0.4	1	0.102	0.228	31.67%	25.0%
1A62F00C	5	0.68	0.5646	0.7954	0.2	1	0.1356	0.3033	44.61%	29.17%
77B11D52	5	0.76	0.6964	0.8236	0.6	1	0.07483	0.1673	22.02%	20.83%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.347	1.313	1.381	1.249	1.412	0.03992	0.08926	6.63%	0.0%
4E8E3F4E	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
6241A6DB	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
46A76891	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
13E96AA0	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
7E133628	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
1739F99E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
3AE7FA68	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
34B11EA3	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.65%
4DC7E5DB	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.28%
2740ACD8	5	1.162	1.066	1.257	0.8861	1.345	0.1125	0.2515	21.65%	13.75%
28D4F9EE	5	1.155	1.114	1.195	1.107	1.345	0.04763	0.1065	9.22%	14.26%
1E840A85	5	1.022	0.9444	1.1	0.8861	1.345	0.09143	0.2044	20.0%	24.11%
6F919694	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
2D1B7F74	5	1.026	0.9308	1.121	0.6847	1.345	0.1121	0.2506	24.42%	23.82%
1A62F00C	5	0.9819	0.8555	1.108	0.4636	1.345	0.1485	0.3321	33.82%	27.1%
77B11D52	5	1.066	0.9936	1.139	0.8861	1.345	0.08548	0.1911	17.92%	20.83%

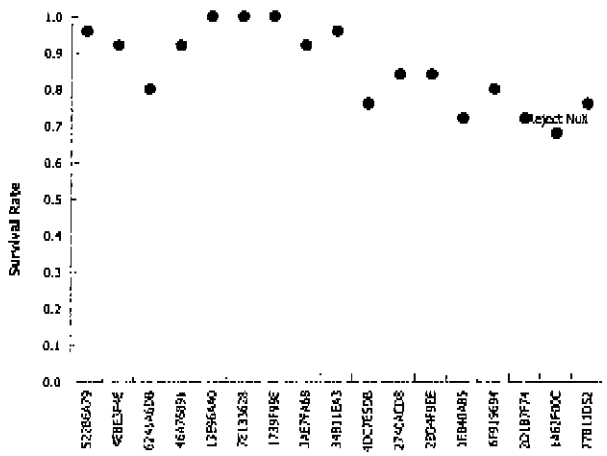
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

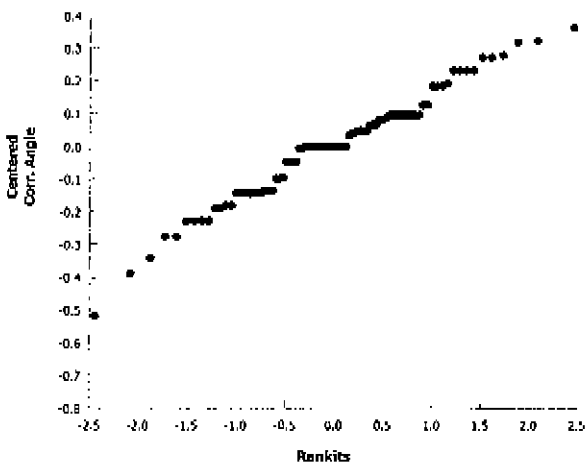
Analysis ID:	14-7666-4034	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	1	0.9	1	0.9	1
4E8E3F4E	1	1	0.8	0.8	1
6241A6DB	0.8	0.6	1	0.6	1
46A76891	0.8	0.8	1	1	1
13E96AA0	1	1	1	1	1
7E133628	1	1	1	1	1
1739F99E	1	1	1	1	1
3AE7FA68	1	1	0.8	1	0.8
34B11EA3	1	1	1	0.8	1
4DC7E5DB	1	1	0.6	0.4	0.8
2740ACD8	1	0.6	1	1	0.6
28D4F9EE	0.8	0.8	0.8	0.8	1
1E840A85	0.6	0.6	1	0.8	0.6
6F919694	1	0.6	0.8	0.6	1
2D1B7F74	0.6	0.8	0.4	0.8	1
1A62F00C	0.8	0.2	0.6	0.8	1
77B11D52	0.8	0.8	0.6	0.6	1

Graphics





Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	09-1995-0299	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	17-1252-9754	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	25 Aug-10 17:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	22 Sep-10 17:00	**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	28d 0h	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
522B6A79	13-7857-7017	23 Aug-10	24 Aug-10	65h	URS Corp	100016848
4E8E3F4E	13-1794-5166	18 Aug-10 10:30	19 Aug-10 10:00	7d 7h		
6241A6DB	16-4846-9723	18 Aug-10 09:10	19 Aug-10 10:00	7d 8h		
46A76891	11-6537-6401	18 Aug-10 08:15	19 Aug-10 10:00	7d 9h		
13E96AA0	03-3406-4288	18 Aug-10 11:56	19 Aug-10 10:00	7d 5h		
7E133628	21-1518-8264	18 Aug-10 12:23	19 Aug-10 10:00	7d 5h		
1739F99E	03-8967-5422	18 Aug-10 14:37	19 Aug-10 10:00	7d 2h		
3AE7FA68	09-8828-1448	18 Aug-10 16:00	19 Aug-10 10:00	7d 1h		
34B11EA3	08-8402-2947	12 Aug-10 13:25	13 Aug-10 16:02	13d 4h		
4DC7E5DB	13-0494-6139	12 Aug-10 14:16	13 Aug-10 16:02	13d 3h		
2740ACD8	06-5854-9976	13 Aug-10 10:23	13 Aug-10 16:02	12d 7h		
28D4F9EE	06-8504-6254	13 Aug-10 10:51	13 Aug-10 16:02	12d 6h		
1E840A85	05-1196-9925	12 Aug-10 11:29	13 Aug-10 16:02	13d 6h		
6F919694	18-7181-2244	12 Aug-10 12:17	13 Aug-10 16:02	13d 5h		
2D1B7F74	07-5677-6820	13 Aug-10 11:25	13 Aug-10 16:02	12d 6h		
1A62F00C	04-4269-1596	13 Aug-10 09:52	13 Aug-10 16:02	12d 7h		
77B11D52	20-0809-6082	13 Aug-10 08:53	13 Aug-10 16:02	12d 8h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
522B6A79	Control Sediment	Gulfco Marine - BERA	York River, VA		
4E8E3F4E	Test Sediment	Gulfco Marine - BERA	EIWSED-01		
6241A6DB	Test Sediment	Gulfco Marine - BERA	EIWSED-02		
46A76891	Test Sediment	Gulfco Marine - BERA	EIWSED-03		
13E96AA0	Test Sediment	Gulfco Marine - BERA	EIWSED-04		
7E133628	Test Sediment	Gulfco Marine - BERA	EIWSED-05		
1739F99E	Test Sediment	Gulfco Marine - BERA	EIWSED-06		
3AE7FA68	Test Sediment	Gulfco Marine - BERA	EIWSED-07		
34B11EA3	Test Sediment	Gulfco Marine - BERA	EWSED-01		
4DC7E5DB	Test Sediment	Gulfco Marine - BERA	EWSED-02		
2740ACD8	Test Sediment	Gulfco Marine - BERA	EWSED-03		
28D4F9EE	Test Sediment	Gulfco Marine - BERA	EWSED-04		
1E840A85	Test Sediment	Gulfco Marine - BERA	EWSED-05		
6F919694	Test Sediment	Gulfco Marine - BERA	EWSED-06		
2D1B7F74	Test Sediment	Gulfco Marine - BERA	EWSED-07		
1A62F00C	Test Sediment	Gulfco Marine - BERA	EWSED-08		
77B11D52	Test Sediment	Gulfco Marine - BERA	EWSED-09		

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	09-1995-0299	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					22.8%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
522B6A79		4E8E3F4E	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		6241A6DB	1.984	2.643	8	0.3103	0.1873	Non-Significant Effect
		46A76891	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		13E96AA0	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		7E133628	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		1739F99E	0.01316	2.643	8	0.3103	0.9392	Non-Significant Effect
		3AE7FA68	0.8246	2.643	8	0.3103	0.6998	Non-Significant Effect
		34B11EA3	0.4189	2.643	8	0.3103	0.8495	Non-Significant Effect
		4DC7E5DB	2.327	2.643	8	0.3103	0.0991	Non-Significant Effect
		2740ACD8	1.578	2.643	8	0.3103	0.3431	Non-Significant Effect
		28D4F9EE	1.636	2.643	8	0.3103	0.3177	Non-Significant Effect
		1E840A85	2.766	2.643	8	0.3103	0.0374	Significant Effect
		6F919694	1.984	2.643	8	0.3103	0.1873	Non-Significant Effect
		2D1B7F74	2.732	2.643	8	0.3103	0.0406	Significant Effect
		1A62F00C	3.109	2.643	8	0.3103	0.0156	Significant Effect
		77B11D52	2.389	2.643	8	0.3103	0.0872	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.298512	0.08115702	16	2.356	0.0076	Significant Effect
Error	2.342463	0.03444798	68			
Total	3.640975	0.115605	84			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1.856	2.374	0.0486	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9792	0.9601	0.1851	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1308	0.1123	0.0011	Non-normal Distribution
Distribution	D'Agostino Skewness	1.199	2.576	0.2306	Normal Distribution
Distribution	D'Agostino Kurtosis	0.8957	2.576	0.3704	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	2.24	9.21	0.3263	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7556	3.878	0.0490	Normal Distribution

Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

Analysis ID:	09-1995-0299	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	0.96	0.9392	0.9808	0.9	1	0.02449	0.05477	5.71%	0.0%
4E8E3F4E	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
6241A6DB	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
46A76891	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
13E96AA0	5	1	1	1	1	1	0	0	0.0%	-4.17%
7E133628	5	1	1	1	1	1	0	0	0.0%	-4.17%
1739F99E	5	1	1	1	1	1	0	0	0.0%	-4.17%
3AE7FA68	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	4.17%
34B11EA3	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	0.0%
4DC7E5DB	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	20.83%
2740ACD8	5	0.84	0.7567	0.9233	0.6	1	0.09798	0.2191	26.08%	12.5%
28D4F9EE	5	0.84	0.806	0.874	0.8	1	0.04	0.08944	10.65%	12.5%
1E840A85	5	0.72	0.652	0.788	0.6	1	0.08	0.1789	24.85%	25.0%
6F919694	5	0.8	0.7239	0.8761	0.6	1	0.08944	0.2	25.0%	16.67%
2D1B7F74	5	0.72	0.6333	0.8067	0.4	1	0.102	0.228	31.67%	25.0%
1A62F00C	5	0.68	0.5646	0.7954	0.2	1	0.1356	0.3033	44.61%	29.17%
77B11D52	5	0.76	0.6964	0.8236	0.6	1	0.07483	0.1673	22.02%	20.83%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
522B6A79	5	1.347	1.313	1.381	1.249	1.412	0.03992	0.08926	6.63%	0.0%
4E8E3F4E	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
6241A6DB	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
46A76891	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
13E96AA0	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
7E133628	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
1739F99E	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.11%
3AE7FA68	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.19%
34B11EA3	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.65%
4DC7E5DB	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.28%
2740ACD8	5	1.162	1.066	1.257	0.8861	1.345	0.1125	0.2515	21.65%	13.75%
28D4F9EE	5	1.155	1.114	1.195	1.107	1.345	0.04763	0.1065	9.22%	14.26%
1E840A85	5	1.022	0.9444	1.1	0.8861	1.345	0.09143	0.2044	20.0%	24.11%
6F919694	5	1.114	1.027	1.201	0.8861	1.345	0.1027	0.2296	20.61%	17.29%
2D1B7F74	5	1.026	0.9308	1.121	0.6847	1.345	0.1121	0.2506	24.42%	23.82%
1A62F00C	5	0.9819	0.8555	1.108	0.4636	1.345	0.1485	0.3321	33.82%	27.1%
77B11D52	5	1.066	0.9936	1.139	0.8861	1.345	0.08548	0.1911	17.92%	20.83%

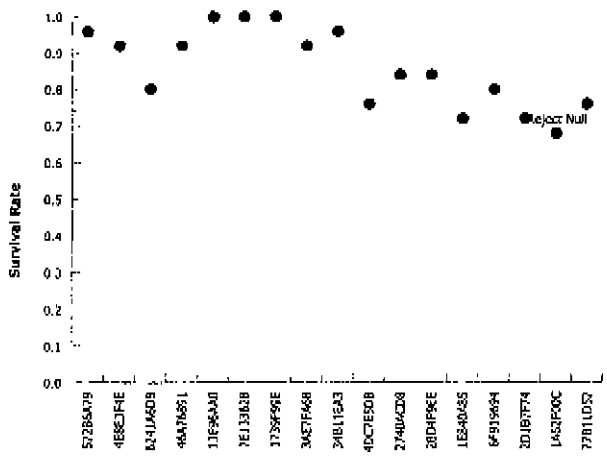
Neanthes 28-d Survival and Growth Sediment Test — **PBS&J-Houston Lab**

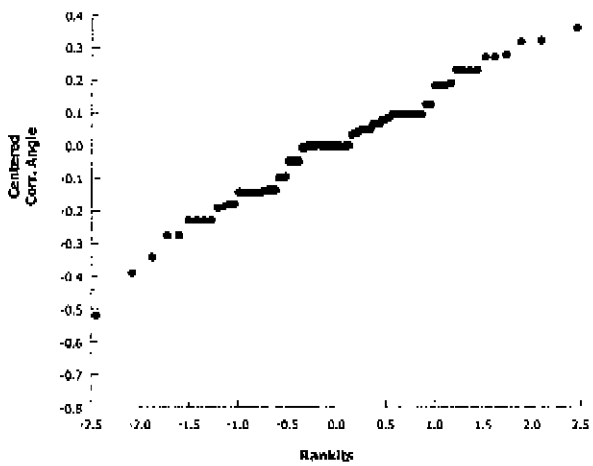
Analysis ID:	09-1995-0299	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	23 Sep-10 15:29	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
522B6A79	1	0.9	1	0.9	1
4E8E3F4E	1	1	0.8	0.8	1
6241A6DB	0.8	0.6	1	0.6	1
46A76891	0.8	0.8	1	1	1
13E96AA0	1	1	1	1	1
7E133628	1	1	1	1	1
1739F99E	1	1	1	1	1
3AE7FA68	1	1	0.8	1	0.8
34B11EA3	1	1	1	0.8	1
4DC7E5DB	1	1	0.6	0.4	0.8
2740ACD8	1	0.6	1	1	0.6
28D4F9EE	0.8	0.8	0.8	0.8	1
1E840A85	0.6	0.6	1	0.8	0.6
6F919694	1	0.6	0.8	0.6	1
2D1B7F74	0.6	0.8	0.4	0.8	1
1A62F00C	0.8	0.2	0.6	0.8	1
77B11D52	0.8	0.8	0.6	0.6	1

Graphics





CETIS Analytical Report

21-d

Report Date: 03 Oct-10 13:47 (p 1 of 8)
Test Code: Gulfco-BERA | 02-5451-4489

Neanthes ~~20~~-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Neanthes ~~20-d~~ Survival and Growth Sediment Test — PBS&J Environmental Toxicology Laboratory

Analysis ID:	14-9818-7789	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	Analysis:	Parametric-All Pairwise	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					41.7%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	5.595	4.232	8	1.054	0.0039	Significant Effect
		35ED0318	0.2585	2.859	8	0.7122	0.8560	Non-Significant Effect
		634EFACF	2.187	3.443	8	0.8577	0.2806	Non-Significant Effect
		28602B1E	9.883	3.792	8	0.9445	0.0002	Significant Effect
		1CD8C95F	0.2425	2.859	8	0.7122	0.8648	Non-Significant Effect
		31E0E5B3	1.649	3.443	8	0.8577	0.4800	Non-Significant Effect
		64BB680B	2.11	3.792	8	0.9445	0.4517	Non-Significant Effect
		196479DF	5.502	4.04	8	1.006	0.0033	Significant Effect
		141B370A	6.051	4.389	8	1.093	0.0021	Significant Effect
2F8DB23		35ED0318	5.853	4.389	8	1.093	0.0032	Significant Effect
		634EFACF	7.782	4.521	8	1.126	0.0002	Significant Effect
		28602B1E	15.48	4.635	8	1.155	0.0001	Significant Effect
		1CD8C95F	5.352	4.04	8	1.006	0.0045	Significant Effect
		31E0E5B3	3.946	3.792	8	0.9445	0.0387	Significant Effect
		64BB680B	3.485	3.443	8	0.8577	0.0468	Significant Effect
		196479DF	0.09314	2.859	8	0.7122	0.9479	Non-Significant Effect
		141B370A	0.4561	2.859	8	0.7122	0.7489	Non-Significant Effect
35ED0318		634EFACF	1.929	2.859	8	0.7122	0.1804	Non-Significant Effect
		28602B1E	9.624	3.443	8	0.8577	0.0001	Significant Effect
		1CD8C95F	0.501	3.443	8	0.8577	0.9334	Non-Significant Effect
		31E0E5B3	1.908	3.792	8	0.9445	0.5381	Non-Significant Effect
		64BB680B	2.369	4.04	8	1.006	0.4605	Non-Significant Effect
		196479DF	5.76	4.232	8	1.054	0.0028	Significant Effect
		141B370A	6.309	4.521	8	1.126	0.0016	Significant Effect
634EFACF		28602B1E	7.695	2.859	8	0.7122	0.0001	Significant Effect
		1CD8C95F	2.43	3.792	8	0.9445	0.3281	Non-Significant Effect
		31E0E5B3	3.836	4.04	8	1.006	0.0698	Non-Significant Effect
		64BB680B	4.297	4.232	8	1.054	0.0448	Significant Effect
		196479DF	7.689	4.389	8	1.093	0.0002	Significant Effect
		141B370A	8.238	4.635	8	1.155	0.0002	Significant Effect
28602B1E		1CD8C95F	10.13	4.04	8	1.006	0.0001	Significant Effect
		31E0E5B3	11.53	4.232	8	1.054	0.0001	Significant Effect
		64BB680B	11.99	4.389	8	1.093	0.0001	Significant Effect
		196479DF	15.38	4.521	8	1.126	0.0001	Significant Effect
		141B370A	15.93	4.735	8	1.179	0.0002	Significant Effect
1CD8C95F		31E0E5B3	1.407	2.859	8	0.7122	0.3260	Non-Significant Effect
		64BB680B	1.868	3.443	8	0.8577	0.3924	Non-Significant Effect
		196479DF	5.259	3.792	8	0.9445	0.0034	Significant Effect
		141B370A	5.808	4.232	8	1.054	0.0026	Significant Effect
31E0E5B3		64BB680B	0.4609	2.859	8	0.7122	0.7463	Non-Significant Effect
		196479DF	3.852	3.443	8	0.8577	0.0254	Significant Effect
		141B370A	4.402	4.04	8	1.006	0.0268	Significant Effect
64BB680B		196479DF	3.392	2.859	8	0.7122	0.0213	Significant Effect
		141B370A	3.941	3.792	8	0.9445	0.0390	Significant Effect
196479DF		141B370A	0.5492	3.443	8	0.8577	0.9205	Non-Significant Effect

Neanthes ~~20-d~~ 21-d Survival and Growth Sediment Test — PBS&J Environmental Toxicology Laboratory

Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	62.09045	6.898939	9	22.24	<0.0001	Significant Effect
Error	12.40873	0.3102184	40			
Total	74.49918	7.209157	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	19.59	21.67	0.0206	Equal Variances
Variances	Mod Levene Equality of Variance	1.847	3.067	0.1003	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9545	0.9367	0.0523	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1258	0.1453	0.0464	Normal Distribution
Distribution	D'Agostino Skewness	1.535	2.576	0.1247	Normal Distribution
Distribution	D'Agostino Kurtosis	2.253	2.576	0.0243	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	7.431	9.21	0.0243	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7207	3.878	0.0599	Normal Distribution

Mean Dry Biomass-mg Summary

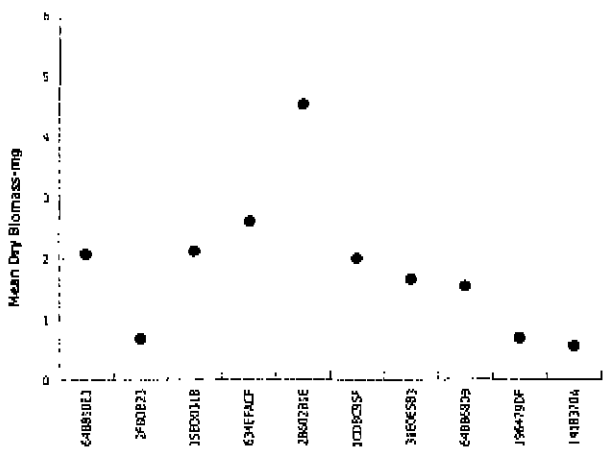
Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	2.058	1.899	2.218	1.454	2.564	0.1876	0.4195	20.38%	0.0%
2F8DB23	5	0.6648	0.5914	0.7382	0.484	0.962	0.08634	0.1931	29.04%	67.7%
35ED0318	5	2.123	1.956	2.29	1.552	2.656	0.1964	0.4391	20.68%	-3.13%
634EFACF	5	2.603	2.369	2.837	1.918	3.358	0.2752	0.6154	23.64%	-26.47%
28602B1E	5	4.52	4.228	4.812	3.43	5.484	0.3434	0.7679	16.99%	-119.6%
1CD8C95F	5	1.998	1.584	2.412	0.91	3.722	0.4873	1.09	54.54%	2.93%
31E0E5B3	5	1.648	1.445	1.85	1.016	2.478	0.2382	0.5327	32.33%	19.96%
64BB680B	5	1.533	1.385	1.681	0.954	1.96	0.1742	0.3896	25.42%	25.53%
196479DF	5	0.688	0.6058	0.7702	0.384	0.918	0.09667	0.2162	31.42%	66.58%
141B370A	5	0.5512	0.4594	0.643	0.18	0.828	0.1079	0.2413	43.77%	73.22%

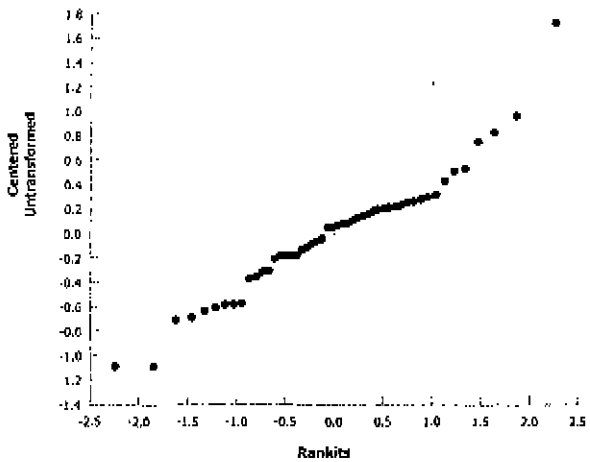
Neanthes ~~20-d~~ Survival and Growth Sediment Test				PBS&J Environmental Toxicology Laboratory
Analysis ID: 14-9818-7789	**Endpoint:** Mean Dry Biomass-mg		**CETIS Version:**	CETISv1.8.0
Analyzed: 03 Oct-10 13:46	**Analysis:** Parametric-All Pairwise		**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	2.564	2.27	1.876	1.454	2.128
2F8DB23	0.962	0.58	0.548	0.484	0.75
35ED0318	2.656	1.81	2.268	2.328	1.552
634EFACF	1.918	2.022	3.358	2.918	2.8
28602B1E	3.43	4.78	4.166	5.484	4.74
1CD8C95F	3.722	2.248	1.292	0.91	1.818
31E0E5B3	1.016	1.7	1.6	1.444	2.478
64BB680B	1.712	1.686	1.96	1.35	0.954
196479DF	0.77	0.384	0.552	0.816	0.918
141B370A	0.828	0.658	0.486	0.18	0.604

Graphics





Neanthes ~~20-d~~ Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Neanthes ~~20-d~~ Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	D<>0	Not Run					19.9%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	3.276	4.389	8	0.3638	0.2616	Non-Significant Effect
		35ED0318	1.724	3.792	8	0.3143	0.6188	Non-Significant Effect
		634EFACF	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		28602B1E	2.257	4.232	8	0.3508	0.6060	Non-Significant Effect
		1CD8C95F	3.276	4.389	8	0.3638	0.2616	Non-Significant Effect
		31E0E5B3	1.724	3.792	8	0.3143	0.6188	Non-Significant Effect
		64BB680B	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		196479DF	4.959	4.635	8	0.3842	0.0282	Significant Effect
		141B370A	5.445	4.735	8	0.3925	0.0136	Significant Effect
2F8DB23		35ED0318	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		634EFACF	2.702	4.232	8	0.3508	0.4111	Non-Significant Effect
		28602B1E	1.019	2.859	8	0.237	0.4754	Non-Significant Effect
		1CD8C95F	0		8		>0.05	Non-Significant Effect
		31E0E5B3	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		64BB680B	2.127	4.04	8	0.3349	0.5660	Non-Significant Effect
		196479DF	1.682	2.859	8	0.237	0.2413	Non-Significant Effect
		141B370A	2.168	3.443	8	0.2854	0.2866	Non-Significant Effect
35ED0318		634EFACF	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		28602B1E	0.5334	2.859	8	0.237	0.7082	Non-Significant Effect
		1CD8C95F	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		31E0E5B3	0		8		>0.05	Non-Significant Effect
		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	3.235	4.04	8	0.3349	0.1703	Non-Significant Effect
		141B370A	3.721	4.232	8	0.3508	0.1133	Non-Significant Effect
634EFACF		28602B1E	1.682	4.04	8	0.3349	0.7572	Non-Significant Effect
		1CD8C95F	2.702	4.232	8	0.3508	0.4111	Non-Significant Effect
		31E0E5B3	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	4.384	4.521	8	0.3748	0.0631	Non-Significant Effect
		141B370A	4.87	4.635	8	0.3842	0.0331	Significant Effect
28602B1E		1CD8C95F	1.019	2.859	8	0.237	0.4754	Non-Significant Effect
		31E0E5B3	0.5334	2.859	8	0.237	0.7082	Non-Significant Effect
		64BB680B	1.108	3.792	8	0.3143	0.8616	Non-Significant Effect
		196479DF	2.702	3.792	8	0.3143	0.2401	Non-Significant Effect
		141B370A	3.188	4.04	8	0.3349	0.1815	Non-Significant Effect
1CD8C95F		31E0E5B3	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		64BB680B	2.127	4.04	8	0.3349	0.5660	Non-Significant Effect
		196479DF	1.682	2.859	8	0.237	0.2413	Non-Significant Effect
		141B370A	2.168	3.443	8	0.2854	0.2866	Non-Significant Effect
31E0E5B3		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	3.235	4.04	8	0.3349	0.1703	Non-Significant Effect
		141B370A	3.721	4.232	8	0.3508	0.1133	Non-Significant Effect
64BB680B		196479DF	3.81	4.389	8	0.3638	0.1264	Non-Significant Effect
		141B370A	4.295	4.521	8	0.3748	0.0730	Non-Significant Effect
196479DF		141B370A	0.4858	2.859	8	0.237	0.7331	Non-Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.9939352	0.1104372	9	3.214	0.0051	Significant Effect
Error	1.374281	0.03435702	40			
Total	2.368216	0.1447943	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.788	3.067	0.0167	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9719	0.9367	0.2760	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.08322	0.1453	0.4953	Normal Distribution
Distribution	D'Agostino Skewness	0.9149	2.576	0.3602	Normal Distribution
Distribution	D'Agostino Kurtosis	0.4794	2.576	0.6316	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.067	9.21	0.5866	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.3312	3.878	0.5245	Normal Distribution

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1	1	1	1	1	0	0	0.0%	0.0%
2F8DB23	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
35ED0318	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
634EFACF	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
28602B1E	5	0.84	0.7764	0.9036	0.6	1	0.07483	0.1673	19.92%	16.0%
1CD8C95F	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
31E0E5B3	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
64BB680B	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	8.0%
196479DF	5	0.64	0.5764	0.7036	0.4	0.8	0.07483	0.1673	26.15%	36.0%
141B370A	5	0.6	0.5239	0.6761	0.4	0.8	0.08944	0.2	33.33%	40.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
2F8DB23	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
35ED0318	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
634EFACF	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
28602B1E	5	1.158	1.085	1.232	0.8861	1.345	0.08639	0.1932	16.68%	13.91%
1CD8C95F	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
31E0E5B3	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
64BB680B	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.08%
196479DF	5	0.9342	0.8665	1.002	0.6847	1.107	0.07959	0.178	19.05%	30.55%
141B370A	5	0.894	0.8136	0.9743	0.6847	1.107	0.09448	0.2113	23.63%	33.55%

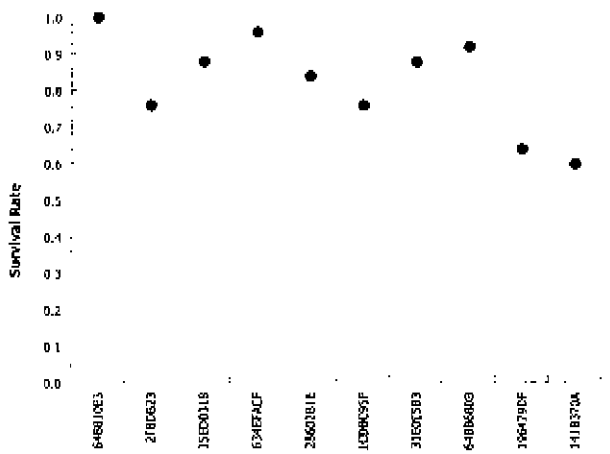
Neanthes ~~20-d~~ Survival and Growth Sediment Test — PBS&J Environmental Toxicology Laboratory

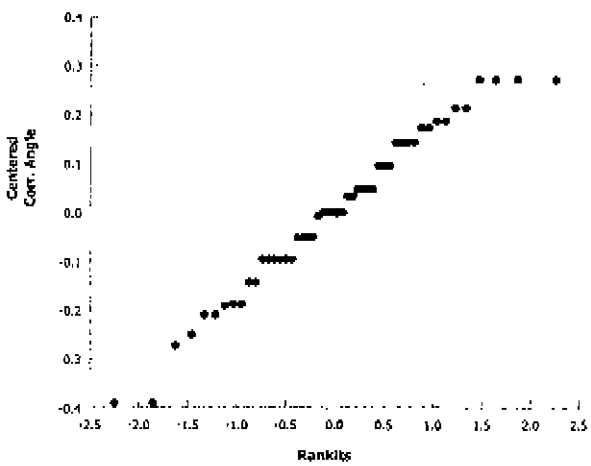
Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	1	1	1	1	1
2F8DB23	0.6	1	0.4	0.8	1
35ED0318	1	0.8	1	0.8	0.8
634EFACF	1	0.8	1	1	1
28602B1E	0.6	1	0.8	1	0.8
1CD8C95F	0.8	1	0.4	0.6	1
31E0E5B3	0.8	1	1	0.8	0.8
64BB680B	1	1	0.8	1	0.8
196479DF	0.6	0.4	0.8	0.6	0.8
141B370A	0.4	0.8	0.6	0.4	0.8

Graphics





Appendix B-2

21 Day Soil Toxicity Tests for *Neanthes arenaceodentata* (Preliminary Results)

PBS&J®

An employee-owned company

October 5, 2010

David Lingle
URS Corporation
10550 Richmond Ave, Suite 155
Houston, TX 77042

PBS&J Job No. 100016848
Gulfco Marine Maintenance BERA
21-day Sediment Toxicity Tests
URS Subcontract No. 236208.UB
Work Order No. 237933.US

Dear Mr. Lingle:

Enclosed please find our report conveying the results of 21-day whole sediment toxicity tests conducted during September 10 - October 1, 21010, of samples collected at the Gulfco Marine Maintenance NPL site near Freeport, Texas. The tests were performed using the marine sediment dweller, *Neanthes arenaceodentata* (Annelida).

Although statistical differences were observed in survival and growth metrics for comparisons between the test and negative control sediments, there were no differences observed for comparisons among the test and reference sediments.

The whole sediment toxicity tests reported herein were conducted according to the appropriate EPA or ASTM protocols and are in compliance with the National Environmental Laboratory Accreditation Conference (NELAC) Standards.

If you have any questions or comments, please do not hesitate to call.

Regards,

Jim Horne

James D. Horne
Assoc. Vice President, Technical Director
Environmental Toxicology Laboratory

PBS&J
an **Atkins** company

Enclosure

Pages: Ltr + 92

Environmental Toxicology Laboratory
888 West Sam Houston Pkwy South • Houston, Texas 77042-1917 • Telephone: 713.977.1500 • Fax: 713.977.9233 • www.pbsj.com

An employee-owned company

GULFCO MARINE MAINTENANCE
BASELINE ECOLOGICAL RISK ASSESSMENT

21d WHOLE-SEDIMENT TOXICITY TESTS
Neanthes arenaceodentata

URS Subcontract Number 236208.UB
Work Order Number 237933.US

PBS&J Log No. 10-1109

Prepared for:

URS Corporation
9801 Westheimer, Suite 500
Houston, Texas 77042

Prepared by:

PBS&J Environmental Toxicology Laboratory
888 West Sam Houston Parkway, South - Ste. 110
Houston, TX 77042-1917

TCEQ Certificate No. T104704202-10-1

October 5, 2010

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1. Introduction

PBS&J was subcontracted by URS Corporation (URS), in support of a URS prime contract with the Dow Chemical Company, to conduct whole-sediment bioassays of samples collected from the Gulfco Marine Maintenance NPL site, located in Brazoria County near Freeport, Texas. Data acquired through tests conducted by PBS&J will be used to support decisions required for a Baseline Ecological Risk Assessment.

The tests reported herein were added to the original work scope as a replacement for a 28-day earthworm survival and growth test of upland soils collected at the Gulfco Marine Maintenence site. The earthworm tests demonstrated massive mortality, believed to have been caused by the high salt content of the soils. The soils were hydrated with reconstituted seawater and tested as sediment.

2. Methods and Materials

The toxicity tests reported herein were conducted in accordance with protocols and internal standard operating procedures (SOP) as identified below.

Test Title	Protocol	PBS&J SOP
21-day *Neanthes arenaceodentata* Survival and Growth Test	ASTM 1611	4049

2.1 Laboratory Facilities

The toxicity tests were conducted at the PBS&J Environmental Toxicology Laboratory in Houston, Texas in temperature-controlled rooms maintained at 20±1°C. Cool-white fluorescent light fixtures positioned over benches in the testing areas provided a light intensity of 100-1000 lux (~10-100 ft-c); the photoperiod was 16L:8D hours.

2.2 Test Organism

Neanthes arenaceodentata, a polychaetous annelid, were obtained from cultures maintained at the California State University at Long Beach. Specimens were 2-3 weeks old at the beginning of the test.

2.3 Overlying Water

Reconstituted saltwater was prepared from a commercial aquarium sea-salt mix (HW Marinemix). Make-up water was provided by a high-capacity, water purification system (activated carbon, cation exchange, anion exchange, mixed-bed resin polishing); the City of Houston municipal water supply was the ultimate water source.

2.4 Soil Samples

The soil samples were collected over several days during August 13-17, by Benchmark Ecological Services, Inc. personnel. The samples were placed into 3.5-gal plastic buckets (sediments), packed (in wet ice) in insulated coolers, and transported on the same or following day to the PBS&J laboratory following standard chain-of custody procedures. The samples were in good condition upon arrival at the lab and showed no evidence of tampering during transit. The samples were stored until used in a darkened, walk-in cooler maintained at 1-6 °C.

2.5 Control Media

Subtidal sediment from the York River, Virginia (supplied by Chesapeake Cultures) was used as a control medium for the *Neanthes* tests. The control sediment was press-sieved through a 500 µM stainless steel screen to remove vegetative matter and macrofauna, then frozen to kill microfauna that could prey upon the test organisms.

2.6 Sample Preparation

For the tests reported herein, reconstituted seawater was added in small portions to about 1000 cc of soil in a polyethylene mixing bowl; the mixture was stirred and kneaded with a polyethylene spatula until it had reached a consistency similar to a typical marine/estuarine sediment.

2.7 Exposure Systems

The tests were conducted in 1 qt, glass canning jars. Sediment[1] was placed into each jar to a depth of about 2 cm (~175 cc volume) and each jar was filled with ~775 mL reconstituted seawater. The test containers were allowed to stand overnight to facilitate settling of fine particles disturbed during filling.

2.8 Experimental Design

The tests were static renewal exposures; the overlying water in each test jar was changed once each day. Five replicate treatments were established for each sediment; each test container received 5 polychaetes. Five milliliters of TetraMin/alfalfa suspension[2] was added to 3.3 L test water prior to daily renewal for each set of the polychaete test jars.

The test containers were aerated gently (~60 bubbles·min^{-1}) throughout the test and covered to minimize evaporative losses and concomitant increases in salinity. Temperature, dissolved oxygen, pH, salinity, and total ammonia nitrogen were measured in a small sample composited across the replicates for each test treatment.

The tests were terminated after 21 days. The sediment was wet-sieved (0.5-mm screen) to remove surviving adult organisms. Surviving polychaetes were counted, then dried overnight in a 60-degree oven for dry-weight measurements.

2.9 Reference Toxicant Tests

PBS&J conducts reference toxicant tests with vendor-supplied organisms on a per-lot basis or, if more than one lot of test organisms is received within in a one-month period, a least once during that month. Reference toxicant tests with the polychaete consisted of 96-hr (water-only) exposures to cadmium. The median lethal concentration (LC50) was determined by the Trimmed Spearman-Karber method.

2.10 Statistical Analyses

Statistical analysis was performed on survival and growth (dry-biomass and dry-weight) data to determine if results for the Gulfco sites were significantly different from the results of the control and/or reference sediment group(s). Statistical analyses were conducted at a 95% confidence level (α= 0.05), using CETIS™v1.8.0.4 (Tidepool Scientific Software, McKinleyville, CA).

Following distribution tests,[3] mean survival, mean biomass,[4] and mean dry-weght[5] were examined using the Student-Newman-Kuels test or Dunnett's Multiple Comparisons test.

---

1 As used herein, "sediment" refers to the hydrated soil samples prepared as described in 2.6.

2 Two grams each, finely-ground TetraMin® flake food and alfalfa flower, per liter synthetic test water (4 mg/ml)/

3 Bartlett and Modified-Levene tests for variance equality; Shapiro-Wilk, Kilmogorov-Smirnov, D'Agostino, and Anderson-Darling tests for normal distribution.

4 Mean dry biomass as used herein is the difference between dry weight of the organisms (total weight - tare weight) divided by the number of organisms exposed to the test or control sediment.

5 Mean dry wreight as used herein is the difference between dry weight of the organisms (total weight - tare weight) divided by the number of surviving organisms (pan count) exposed to the test or control sediment.

3. Results

Sample chain-of-custody documents are provided in Appendix A. Original test records, including reference toxicant test results, are given in Appendix B. Statistical analyses are presented in Appendix C.

3.1 Overlying Water Quality Characteristics

The temperature of overlying waters during the polychaete test remained constant at 19±1°C. The salinity of the overlying waters ranged from 23 to 27‰ . Dissolved oxygen (DO) concentrations remained above 7.2 mg/L, or above ~94% saturation (based on the temperature and salinity of the test waters). Overlying water pH ranged between 7.6 and 8.2 during the tests, but varied day-to-day within test treatments. Total NH_3-N concentrations in the overlying waters ranged from <0.01 to 1.41 mg/L. The maximum NH_3-N value was observed on day 1 of the test in the composite sample obtained from the Control replicate jars.

3.2 *Neanthes arenaceodentata* ToxicityTests

A negative control group, consisting of five replicate treatments with 5 organisms per replicate, was employed in the polychaete tests.

Survival Endpoint: No mortality was observed in any of the control group replicates; thus, the minimum test acceptance criteria[6] were met. Survival of *Neanthes* exposed to the Gulfco sediments ranged from 60% (NAS-09) to 96% (NAS-03). The mean survival of worms exposed to sediments from stations NAS-08 and NAS-09 were statistically less than that of the control group.

Growth Endpoints: The mean dry-biomass (and mean dry-weight, as there were no mortalities) of the control group polychaetes was 2.058 mg (per organism). Mean dry-biomass of polychaetes exposed to the sediments ranged from 0.5512 mg (NAS-09) to 4.52 mg (NAS-04). Mean dry-weight metrics for the site sediments ranged from 0.9815 mg (NAS-09) to 5.423 mg (NAS-04). Mean dry-biomass and mean dry-weight values for the Gulfco sediments were not statistically less than[7] that of the control group mean values.

3.3 Reference Toxicant Results

PBS&J conducts a reference toxicant test using cadmium (administered as an aqueous solution of the chloride salt) with each lot of *Neanthes arenaceodentata* to document that the test lot is suitable for the intended use. Results of reference toxicant test conducted with specimens from the organisms used for the sediment tests reported herein are summarized below.

Taxon	96h LC50 (mg/L Cd)	95% Confidence Limits
Neanthes arenaceodentata	7.40	6.86-7.99

4. Summary

Survival of the polychaetes exposed to the control sediment exceeded the test acceptability criteria, indicating that the organisms were suitable for the intended use. As summarized below, three of the Gulfco sediments produced toxicity endpoint metrics which were statistically less than the corresponding negative-control group metrics; the NAS-01 and NAS-09 samples scored 2 or more such "toxicity hits."

---

[6] A toxicity test is unacceptable if average survival in the negative control is below 90% or if survival is below 80% in an individual control test chamber.

[7] The mean dry-biomass and mean dry-weight values of organisms exposed tothe NAS-04 sediment were statistically greater than that of the control group organisms.

No Gulfco sediment exhibited a toxicity endpoint metric which was statistically less than the corresponding metric of any of the internal reference sites (NAS-07, NAS-08, and NAS-09).

Station ID	*Neanthes arenaceodentata*			"Toxicity Hits"
	Survival	Biomass	Dry-weight	
NAS-01		X	X	2
NAS-02				
NAS-03				
NAS-04				
NAS-05				
NAS-06				
NAS-07				
NAS-08	X			1
NAS-09	X	X	X	3

5. References

ASTM, 2000. Standard Test Method for Conducting Sediment Toxicity Tests with Polychaetous Annelids (ASTM E 1611-2000). American Society for Testing and Materials, Philadelphia, PA.

Appendix A

Sample Custody Forms

PBS&J

Environmental Toxicology Laboratory
888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

Tel: (713) 977-1500
Fax: (713) 977-9233

Analysis Request and Chain of Custody Record
Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Eisenia fetida			
Client Name: URS									
Contact Name: David Lingle Tel: 713 914 6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☒ 28 day	☐	☐	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco BERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

	Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1	NAS01	Soil	8-13-10	—	1232	—				
2										
3										
4										
5										
6										
7										

Sampled by: Neil Henthorne (Print Name) [signature] (Signature)

Samples received in good condition ☐ Yes ☐ No

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1	Brett Souter [signature]	8-13-10	1602	[signature]	8/13/10	1602
2						
3						
	PBS&J Use Only: Received at PBS&J Laboratory:				All PBS&J Std Terms and Conditions Apply	

PBS&J

Environmental Toxicology Laboratory
888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

Tel: (713) 977-1500
Fax: (713) 977-9233

Analysis Request and Chain of Custody Record

Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Eisenia fetida			
Client Name: URS									
Contact Name: David Lingle Tel: 713-914-6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☒ 28day	☐	☐	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco BERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

	Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1	NAS02	Soil	8-16-10		1528		1	2 GAL		DWM
2	NAS03				1600		1			
3	NAS05				1618		1			
4	NAS04				1636		1			
5	NAS06				1700		1			
6										
7										

Sampled by: Neil Henthorne (Print Name) [signature] (Signature)

Samples received in good condition ☑ Yes ☐ No

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1 [signature]	8-17-10	1230	Dennis Melody	8-17-10	1230
2					
3					
PBS&J Use Only: Received at PBS&J Laboratory:	8-17-10	1230	Dennis Melody	All PBS&J Std Terms and Conditions Apply	

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888 West Sam Houston Parkway South
Suite 110
Houston, Texas 77042

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Analysis Request and Chain of Custody Record

Please indicate type of test required

	C. dubia (Waterflea)	D. pulex (Waterflea)	P. promelas (Fathead minnow)	M. bahia (opossum shrimp)	M. beryllina (Inland silverside)	Eisenia fetida			
Client Name: URS									
Contact Name: David Wingle Tel: 713 914-6699	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☐ 24 hr	☒ 28day	☐	☐	☐
P.O. Number:	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐ 48 hr	☐	☐	☐	☐
Project Name: Gulfco BERA	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐ 7 day	☐	☐	☐	☐
PBS&J Job No:	☐	☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions/comments:

	Sample Location/ID& outfall	Sample Type (Effluent, receiving water, Sediment, etc.)	Sample Date (mm/dd/yy) From	Sample Date (mm/dd/yy) To	Sample Time (Military) From	Sample Time (Military) To	PBS&J Use Only: Containers Received Number	Containers Received Tot. Vol.	Temperature °C	Temperature Init.
1	NAS07	Soil	8-17-10	/	0900		1	2 GAL		DWM
2	NAS08	|	|	/	0931		1	2 GAL		↓
3	NAS09				1002		1	2 GAL		
4										
5										
6										
7										

Sampled by: Neil Heathorne (Print Name) — Neil Heathorne (Signature)

Samples received in good condition ☑ Yes ☐ No

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
1 [signature]	8-17-10	1230	Dennis Melder	8-17-10	1230
2					
3					
PBS&J Use Only: Received at PBS&J Laboratory:	8-17-10	1230	Dennis Melder	All PBS&J Std Terms and Conditions Apply	

Appendix B

Toxicity Test Records

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Neanthes arenaceodentata 21d Test Condition Summary - ASTM E 1611; PBS&J SOP No. 4049			
Test Material:	Sediment	Test Type:	21d Bioaccumulation Static Renewal
Temperature:	20 ± 1 °C	Photoperiod:	16L:8D
Test Chamber:	1L glass beaker or wide mouth jar	No. Replicates:	5
Test Organism:	***Neanthes arenaceodentata***	Organism Source:	California State U. - Long Beach
Organism Batch No.:	10-00889	Date Received:	9/9/10
Age Class:	2-3 week old juveniles	No. Organisms/Rep:	5
Aeration:	Moderate, overnight before start of test and throughout duration of test; maintain ≥ 90% saturation of dissolved oxygen concentration	Control Sediment:	Natural sediment from which the test organisms are collected
Feeding Schedule:	feed once per day	Food Type:	1 mL TetraMarin®/Alfalfa suspension per test vessel
Water Type:	clean seawater, natural or reconstituted (28-36ppt)	Water Volume:	775 mL
Renewal Schedule:	24 h intervals, beginning on day 0 (minimum) or as specified	Sediment Volume:	~175 mL (2cm depth)

Comments:

***See attached documentation for chemistry analysis results.**

Water Changes/Feeding											
Day	0	1	2	3	4	5	6	7	8	9	10
Date	9/10/10	9/11/10	9/12/10	9/13/10	9/14/10	9/15/10	9/16/10	9/17/10	9/18/10	9/19/10	9/20/10
Time	~~1100~~ ①	1100	1000	0900	1000	0900	1030	1100	1030	1000	0900
Initials	Km/LB	DK	RB	SK	DK	SK	SK	DK	DK	DK	LB
Day	11	12	13	14	15	16	17	18	19	20	
Date	09/21/10	09/22/10	9/23/10	9/24/10	9/25/10	9/26/10	9/27/10	09/28/10	9/29/10	9/30/10	
Time	1430	1030	0830	1100	1100	0900	0930	1430	0900	1200	
Initials	Km	Km	LB	RB/SK	DK	DK	DK	Km	DC	LB	

① IE RB 9/10/10 ⟶ [1030]

Initial Review Completed By: R. B

Final Review Completed By: Jo Mondie

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Initiation Date:	9/10/10	Termination Date:	~~9~~ ①
Initiation Time:	1300	Termination Time:	1330
Initials:	RB / RB	Initials:	DK / SK / RB

***Neanthes arenaceodentata* - Survival**									
Treatment	Rep	Day 0	Day 21		Treatment	Rep	Day 0	Day21	
			1st Count	2nd Count				1st Count	2nd Count
CONT	A	5	5	5	NAS 04	A	5	3	3
	B	5	5	5		B	5	5	5
	C	5	5	5		C	5	~~5~~ ②	~~5~~ ②
	D	5	5	5		D	5	5	5
	E	5	5	5		E	5	4	4
NAS 01	A	5	3	3	NAS 05	A	5	4	4
	B	5	5	5		B	5	5	5
	C	5	2	2		C	5	2	2
	D	5	4	4		D	5	3	3
	E	5	5	5		E	5	5	5
NAS 02	A	5	5	5	NAS 06	A	5	~~5~~ ②	4
	B	5	4	4		B	5	5	5
	C	5	5	5		C	5	5	5
	D	5	4	4		D	5	4	4
	E	5	4	4		E	5	4	4
NAS 03	A	5	5	5	NAS 07	A	5	5	5
	B	5	4	4		B	5	5	5
	C	5	5	5		C	5	4	4
	D	5	5	5		D	5	5	5
	E	5	5	5		E	5	4	4
Tech Initials		RB	SK DK	RB	Tech Initials:		RB	SK DK	RB

① IE RB 10/1/10 → [10/1/10]
② IE RB 10/1/10 → [4]

Initial Review Completed By: R. B

Final Review Completed By: Jo Monden

Client/Project Name:	URS - Gulfco BERA	Login #:	16 - 1109	Job #:	100016848

Neanthes arenaceodentata - Survival									
Treatment	Rep	Day 0	Day 21		Treatment	Rep	Day 0	Day21	
			1st Count	2nd Count				1st Count	2nd Count
NAS 08	A	5	3	3		A			
	B	5	~~3~~ ~~5~~ 2	2		B			
	C	5	4	4		C			
	D	5	3	3		D			
	E	5	4	4		E			
NAS 09	A	5	~~3~~ 2	2		A			
	B	5	4	4		B			
	C	5	3	3		C			
	D	5	2	2		D			
	E	5	4	4		E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
Tech Initials		RB	SK DK	RB	Tech Initials:				

~~1 IE RB 9 2~~
2 IE RB 10/1/10 → [2]

Initial Review Completed By: R. B

Final Review Completed By: J. Mondin

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONTROL	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 01	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 02	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 03	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 04	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 05	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		DM	DK	DM	SK	DK	SK	SK	DK	DK	DK	CB	KM	KM	CB	SK

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B

Final Review Completed By: Jo Mondieu

Client/Project Name:	URS - Gulfco BERA	Login #:	10 - 1109	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 15	16	17	18	19	20	21
CONTROL	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 01	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 02	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 03	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 04	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 05	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
Technician Initials:		DK	DK	DK	KM	KO	LB	DK

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: Jo Mondieu

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
NAS 06	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 07	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 08	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NAS 09	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	A															
	B															
	C															
	D															
	E															
	A															
	B															
	C															
	D															
	E															
Technician Initials:		RB	DL	RB	SK	DL	SK	SK	DL	DL	DK	LB	[illegible]	[illegible]	LB	SK

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B[illegible]

Final Review Completed By: Jo Mondie

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Daily Observations

Treatment / Site	Rep.	Day 15	16	17	18	19	20	21
NAS 06	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 07	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 08	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
NAS 09	A	✓	✓	✓	✓	✓	✓	✓
	B	✓	✓	✓	✓	✓	✓	✓
	C	✓	✓	✓	✓	✓	✓	✓
	D	✓	✓	✓	✓	✓	✓	✓
	E	✓	✓	✓	✓	✓	✓	✓
	A							
	B							
	C							
	D							
	E							
	A							
	B							
	C							
	D							
	E							
Technician Initials:		DK	DK	DK	KM	RM	UB	DK

Key: E = Emergent
D = Dead
✓ = All organisms burrowed

Initial Review Completed By: R. B.

Final Review Completed By: Jo Mondieu

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Tissue Weight - *N. arenaceodentata*

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
Archive	A	1	.00924	.01169
	B	2	.00995	.01034
	C	3	.01027	~~.01080~~
	D	4	.01040	.01126
	E	5	.01060	.01105
Control	A	6	.00729	.02011
	B	7	.00870	.02005
	C *	8	.00765	.01703
	D	9	.00798	.01525
	E	10	.00805	.01869
NAS 01	A	11	.00771	.01252
	B *	12	.00775	.01065
	C	13	.00720	.00994
	D	14	.00778	.01020
	E	15	.00731	.01106
NAS 02	A	16	.00774	.02102
	B	17	.00710	.01615
	C	18	.00761	.01895
	D *	19	.00810	.01974
	E	20	.00787	.01563
NAS 03	A	21	.00795	.01754
	B	22	.00792	.01803
	C	23	.00805	.02484
	D	24	.00665	.02124
	E *	25	.00759	.02159
NAS 04	A	26	.00714	.02429
	B	27	.00691	.03081
	C	28	.00695	.02778
	D	29	.00683	.03425
	E	30	.00762	.03132
NAS 05	A	31	.00709	.02570
	B *	32	.00702	.01826
	C	33	.00747	.01393
	D	34	.00705	.01160
	E	35	.00721	.01630
NAS 06	A	36	.00672	.01180
	B	37	.00670	.01520
	C *	38	.00711	~~.01770~~ ②
	D	39	.00736	.01458
	E	40	.00693	.01932
NAS 07	A	41	.00691	.01547
	B	42	.00725	.01569
	C	43	.00741	.01721
	D	44	.00710	.01385
	E	45	.00658	.01135

DATE/TIME Drying Initiated 10/01/10 / 1500

DATE/TIME Drying Terminated 10/02/10 / 1530

BALANCE ID# 791

INITIALS DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

① IE DK 9/23/10 → [.01072]

② IE DK 10/2/10 → [.01511]

Initial Review Completed By: DK

Final Review Completed By: JoMondew

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Tissue Weight - *N. arenaceodentata*

Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)	Treatment/Site (%)	REP	Pan #	Tare Weight (g)	TOTAL WT (g)
NAS 08	A	46	.00679	.01064	QA/QC	A	8	.00763	.01701
	B	47	.00669	.00861		B	12	.00772	.01062
	C	48	.00676	.00952		C	19	.00811	.01975
	D	49	.00722	.01130		D	25	.00758	.02158
	E	50	.00694	.01153		E	32	.00704	.01823
NAS 09	A	51	.00677	.01091	QA/QC	A	38	.00708	.01510
	B	52	.00746	.01075		B			
	C	53	.00708	.00951		C			
	D	54	.00763	.00853		D			
	E	55	.00753	.01055		E			
	A					A			
	B					B			
	C					C			
	D					D			
	E					E			
	A								
	B								
	C								
	D								
	E								
	A								
	B								
	C								
	D								
	E								
	A								
	B								
	C								
	D								
	E								

DATE/TIME Drying Initiated 10-01-10 / 1500

DATE/TIME Drying Terminated 10-02-10 / 1530

BALANCE ID# 791

INITIALS DK / DK

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

Initial Review Completed By: DK

Final Review Completed By: J. Mondiw

Client/Project Name:	URS - Gulfco BERA	Login #:	10-1109	Job #:	100016848

Test Notes

Comments	Date	Time	Initials

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/7/10	URS - Gulfco BERA CONTROL - NEW Day -1	19 / 19	7.9	0930	HL/RB
9/10/10	URS - Gulfco BERA CONTROL - NEW Day 0	17 / 18	7.6	1000	HL/DIL
	URS - Gulfco BERA CONTROL Day 0	18 / 19	7.7		
	URS - Gulfco BERA NAS 01 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 02 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 03 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 04 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 05 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 06 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 07 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 08 Day 0	18 / 18	7.8		
	URS - Gulfco BERA NAS 09 Day 0	18 / 18	7.8		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/9/10	URS - Gulfco BERA CONTROL - NEW Day -1	25	7.9	NM	/RB
9/10/10	URS - Gulfco BERA CONTROL - NEW Day 0	25	7.5	NA	HL/DIL
	URS - Gulfco BERA CONTROL Day 0	25	7.5	1.15	
	URS - Gulfco BERA NAS 01 Day 0	26	7.6	<0.01	
	URS - Gulfco BERA NAS 02 Day 0	25	7.7	<0.01	
	URS - Gulfco BERA NAS 03 Day 0	26	7.7	<0.01	
	URS - Gulfco BERA NAS 04 Day 0	25	7.7	0.04	
	URS - Gulfco BERA NAS 05 Day 0	26	7.7	<0.01	
	URS - Gulfco BERA NAS 06 Day 0	26	7.7	0.02	
	URS - Gulfco BERA NAS 07 Day 0	26	7.7	<0.01	
	URS - Gulfco BERA NAS 08 Day 0	26	7.7	0.01	
	URS - Gulfco BERA NAS 09 Day 0	26	7.7	<0.01	

Comments: ①IE HL 9/10/10 → [1b]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/11/10	URS - Gulfco BERA CONTROL - NEW Day 1	18 / 18	7.8	1200	VIC
	URS - Gulfco BERA CONTROL Day 1	18 / 18	7.9		
	URS - Gulfco BERA NAS 01 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 02 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 03 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 04 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 05 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 06 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 07 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 08 Day 1	18 / 18	8.0		
	URS - Gulfco BERA NAS 09 Day 1	18 / 18	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/11/10	URS - Gulfco BERA CONTROL - NEW Day 1	26	7.3	NA	DK
	URS - Gulfco BERA CONTROL Day 1	27	7.4	1.41	
	URS - Gulfco BERA NAS 01 Day 1	27	7.4	0.07	
	URS - Gulfco BERA NAS 02 Day 1	27	7.3	0.03	
	URS - Gulfco BERA NAS 03 Day 1	27	7.3	<0.01	
	URS - Gulfco BERA NAS 04 Day 1	27	7.3	<0.01	
	URS - Gulfco BERA NAS 05 Day 1	27	7.2	0.04	
	URS - Gulfco BERA NAS 06 Day 1	27	7.3	0.01	
	URS - Gulfco BERA NAS 07 Day 1	27	7.3	<0.01	
	URS - Gulfco BERA NAS 08 Day 1	27	7.3	<0.01	
	URS - Gulfco BERA NAS 09 Day 1	27	7.3	0.05	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/12/10	URS - Gulfco BERA CONTROL - NEW Day 2	19 / 19	8.1	0930	fB
	URS - Gulfco BERA CONTROL Day 2	19 / 19	7.8		
	URS - Gulfco BERA NAS 01 Day 2	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 2	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 2	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 2	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/12/10	URS - Gulfco BERA CONTROL - NEW Day 2	25	8.1	1.87	RB/DK
	URS - Gulfco BERA CONTROL Day 2	25	7.3	<0.01	
	URS - Gulfco BERA NAS 01 Day 2	27	7.3	<0.01	
	URS - Gulfco BERA NAS 02 Day 2	26	7.3	<0.01	
	URS - Gulfco BERA NAS 03 Day 2	26	7.4	0.03	
	URS - Gulfco BERA NAS 04 Day 2	26	7.5	0.27	
	URS - Gulfco BERA NAS 05 Day 2	27	7.5	<0.01	
	URS - Gulfco BERA NAS 06 Day 2	26	7.6	<0.01	
	URS - Gulfco BERA NAS 07 Day 2	26	7.6	<0.01	
	URS - Gulfco BERA NAS 08 Day 2	26	7.7	<0.01	
	URS - Gulfco BERA NAS 09 Day 2	26	7.7	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/13/10	URS - Gulfco BERA CONTROL - NEW Day 3	19 / 19	7.9	1000	HL
	URS - Gulfco BERA CONTROL Day 3	19 / 19	7.9		
	URS - Gulfco BERA NAS 01 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 3	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 3	19 / 19	7.9		
	URS - Gulfco BERA NAS 09 Day 3	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/13/10	URS - Gulfco BERA CONTROL - NEW Day 3	25	7.6	0.87	HL
	URS - Gulfco BERA CONTROL Day 3	28	7.6	<0.01	
	URS - Gulfco BERA NAS 01 Day 3	26	7.7	<0.01	
	URS - Gulfco BERA NAS 02 Day 3	26	7.7	<0.01	
	URS - Gulfco BERA NAS 03 Day 3	26	7.7	0.39	
	URS - Gulfco BERA NAS 04 Day 3	26	7.7	0.46	
	URS - Gulfco BERA NAS 05 Day 3	25	7.7	0.34	
	URS - Gulfco BERA NAS 06 Day 3	26	7.7	<0.01	
	URS - Gulfco BERA NAS 07 Day 3	26	7.8	0.29	
	URS - Gulfco BERA NAS 08 Day 3	26	7.7	0.81	
	URS - Gulfco BERA NAS 09 Day 3	26	7.7	0.34	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/14/10	URS - Gulfco BERA CONTROL - NEW Day ~~5~~ 1	19 / 19	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day ~~5~~ 1	19 / 19	7.7		
	URS - Gulfco BERA NAS 01 Day ~~5~~ 1	19 / 19	7.8		
	URS - Gulfco BERA NAS 02 Day ~~5~~ 1	19 / 19	7.8		
	URS - Gulfco BERA NAS 03 Day ~~5~~ 1	19 / 19	7.9		
	URS - Gulfco BERA NAS 04 Day ~~5~~ 1	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day ~~5~~ 1	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day ~~5~~ 1	19 / 19	7.9		
	URS - Gulfco BERA NAS 07 Day ~~5~~ 1	19 / 19	7.9		
	URS - Gulfco BERA NAS 08 Day ~~5~~ 1	19 / 19	7.7		
	URS - Gulfco BERA NAS 09 Day ~~5~~ 1	19 / 19	7.8		

Comments: 1E HL 9/14/10 → [Y]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/14/10	URS - Gulfco BERA CONTROL - NEW Day 4	25	7.7	<0.01	HL
	URS - Gulfco BERA CONTROL Day 4	25	7.7	<0.01	
	URS - Gulfco BERA NAS 01 Day 4	27	7.7	0.03	
	URS - Gulfco BERA NAS 02 Day 4	25	7.7	<0.01	
	URS - Gulfco BERA NAS 03 Day 4	26	7.8	0.11	
	URS - Gulfco BERA NAS 04 Day 4	25	7.8	0.10	
	URS - Gulfco BERA NAS 05 Day 4	26	7.9	0.14	
	URS - Gulfco BERA NAS 06 Day 4	26	7.9	<0.01	
	URS - Gulfco BERA NAS 07 Day 4	26	7.9	<0.01	
	URS - Gulfco BERA NAS 08 Day 4	26	7.9	<0.01	
	URS - Gulfco BERA NAS 09 Day 4	26	7.9	0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/15/10	URS - Gulfco BERA CONTROL - NEW Day 5	19 / 19	8.0	0930	HL
	URS - Gulfco BERA CONTROL Day 5	19 / 19	7.7		
	URS - Gulfco BERA NAS 01 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 04 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 07 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 08 Day 5	19 / 19	7.9		
	URS - Gulfco BERA NAS 09 Day 5	19 / 19	7.9		

Comments:

6a

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/15/10	URS - Gulfco BERA CONTROL - NEW Day 5	25	7.8	0.61	HL
	URS - Gulfco BERA CONTROL Day 5	24	7.9	0.17	
	URS - Gulfco BERA NAS 01 Day 5	25	7.9	0.28	
	URS - Gulfco BERA NAS 02 Day 5	25	7.9	0.34	
	URS - Gulfco BERA NAS 03 Day 5	25	7.9	<0.01	
	URS - Gulfco BERA NAS 04 Day 5	26	7.9	<0.01	
	URS - Gulfco BERA NAS 05 Day 5	26	7.9	<0.01	
	URS - Gulfco BERA NAS 06 Day 5	25	7.9	0.30	
	URS - Gulfco BERA NAS 07 Day 5	25	7.9	<0.01	
	URS - Gulfco BERA NAS 08 Day 5	25	7.9	<0.01	
	URS - Gulfco BERA NAS 09 Day 5	26	7.9	0.19	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 6	19 / 19	7.9	1030	HL
	URS - Gulfco BERA CONTROL Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 01 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 04 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day 6	19 / 19	7.9		
	URS - Gulfco BERA NAS 07 Day 6	19 / 19	7.8		
	URS - Gulfco BERA NAS 08 Day 6	19 / 19	7.8		
	URS - Gulfco BERA NAS 09 Day 6	19 / 19	7.8		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/16/10	URS - Gulfco BERA CONTROL - NEW Day 6	25	7.6	0.08 ①	HL
	URS - Gulfco BERA CONTROL Day 6	25	7.6	<0.01	
	URS - Gulfco BERA NAS 01 Day 6	26	7.6	0.15	
	URS - Gulfco BERA NAS 02 Day 6	25	7.6	0.22	
	URS - Gulfco BERA NAS 03 Day 6	26	7.7	<0.01	
	URS - Gulfco BERA NAS 04 Day 6	26	7.7	<0.01	
	URS - Gulfco BERA NAS 05 Day 6	26	7.7	0.21	
	URS - Gulfco BERA NAS 06 Day 6	26	7.7	<0.01	
	URS - Gulfco BERA NAS 07 Day 6	26	7.7	0.09	
	URS - Gulfco BERA NAS 08 Day 6	26	7.8	0.08	
	URS - Gulfco BERA NAS 09 Day 6	26	7.8	<0.01	

Comments: ① IE HL 9/16/10 → [NA, 0.08, <0.01, 0.15, 0.22]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/17/10	URS - Gulfco BERA CONTROL - NEW Day 7	19 / 19	8.1	0930	HL
	URS - Gulfco BERA CONTROL Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 7	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 7	19 / 19	7.9		
	URS - Gulfco BERA NAS 08 Day 7	19 / 19	7.9		
	URS - Gulfco BERA NAS 09 Day 7	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/17/10	URS - Gulfco BERA CONTROL - NEW Day 7	25	7.4	<0.01	HL
	URS - Gulfco BERA CONTROL Day 7	25	7.5	<0.01	
	URS - Gulfco BERA NAS 01 Day 7	25	7.5	<0.01	
	URS - Gulfco BERA NAS 02 Day 7	25	7.4	0.09	
	URS - Gulfco BERA NAS 03 Day 7	26	7.4	<0.01	
	URS - Gulfco BERA NAS 04 Day 7	26	7.4	0.25	
	URS - Gulfco BERA NAS 05 Day 7	26	7.5	<0.01	
	URS - Gulfco BERA NAS 06 Day 7	26	7.5	<0.01	
	URS - Gulfco BERA NAS 07 Day 7	26	7.5	0.05	
	URS - Gulfco BERA NAS 08 Day 7	26	7.5	<0.01	
	URS - Gulfco BERA NAS 09 Day 7	26	7.5	0.16	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day 8	19 / 19	8.0	1200	SK DK BP
	URS - Gulfco BERA CONTROL Day 8	19 / 19	7.9		
	URS - Gulfco BERA NAS 01 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 8	19 / 19	7.9		
	URS - Gulfco BERA NAS 04 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 8	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 8	19 / 19	7.9		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/18/10	URS - Gulfco BERA CONTROL - NEW Day 8	24	7.6	NA	DK SK BP
	URS - Gulfco BERA CONTROL Day 8	24	7.6	0.15	
	URS - Gulfco BERA NAS 01 Day 8	25	7.6	0.34	
	URS - Gulfco BERA NAS 02 Day 8	25	7.6	0.31	
	URS - Gulfco BERA NAS 03 Day 8	25	7.7	0.49	
	URS - Gulfco BERA NAS 04 Day 8	25	7.7	0.65	
	URS - Gulfco BERA NAS 05 Day 8	25	7.7	0.43	
	URS - Gulfco BERA NAS 06 Day 8	25	7.8	0.39	
	URS - Gulfco BERA NAS 07 Day 8	25	7.8	0.36	
	URS - Gulfco BERA NAS 08 Day 8	25	7.8	0.32	
	URS - Gulfco BERA NAS 09 Day 8	25	7.8	0.40	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/19/10	URS - Gulfco BERA CONTROL - NEW Day 9	19 / 19	8.0	1200	DK
	URS - Gulfco BERA CONTROL Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 9	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 9	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 9	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/19/10	URS - Gulfco BERA CONTROL - NEW Day 9	25	7.8	NA	DIL
	URS - Gulfco BERA CONTROL Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 01 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 02 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 03 Day 9	25	7.7	<0.01	
	URS - Gulfco BERA NAS 04 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 05 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 06 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 07 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 08 Day 9	25	7.8	<0.01	
	URS - Gulfco BERA NAS 09 Day 9	25	7.8	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day 10	19 / 19	8.1	0930	HL
	URS - Gulfco BERA CONTROL Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 01 Day 10	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 03 Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 04 Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 05 Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 06 Day 10	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 10	19 / 19	8.1		
	URS - Gulfco BERA NAS 08 Day 10	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 10	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/20/10	URS - Gulfco BERA CONTROL - NEW Day 10	24	7.7	NA	HL
	URS - Gulfco BERA CONTROL Day 10	25	7.6	0.17	
	URS - Gulfco BERA NAS 01 Day 10	26	7.6	0.65	
	URS - Gulfco BERA NAS 02 Day 10	24	7.7	0.33	
	URS - Gulfco BERA NAS 03 Day 10	23	7.7	0.53	
	URS - Gulfco BERA NAS 04 Day 10	25	7.7	0.47	
	URS - Gulfco BERA NAS 05 Day 10	25	7.7	0.60	
	URS - Gulfco BERA NAS 06 Day 10	25	7.8	<0.01	
	URS - Gulfco BERA NAS 07 Day 10	25	7.9	<0.01	
	URS - Gulfco BERA NAS 08 Day 10	25	7.8	0.43	
	URS - Gulfco BERA NAS 09 Day 10	25	7.7	0.60	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/21/10	URS - Gulfco BERA CONTROL - NEW Day 11	20 / 20	8.1	1000	HL
	URS - Gulfco BERA CONTROL Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 01 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 02 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 03 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 04 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 05 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 06 Day 11	20 / 20	8.0		
	URS - Gulfco BERA NAS 07 Day 11	20 / 20	7.9		
	URS - Gulfco BERA NAS 08 Day 11	20 / 20	8.0		
	URS - Gulfco BERA NAS 09 Day 11	20 / 20	7.9		

Comments: ① IE HL 9/16/10 → [12a]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/21/10	URS - Gulfco BERA CONTROL - NEW Day 11	25	7.7	~~<0.01~~ 0	HL
	URS - Gulfco BERA CONTROL Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 01 Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 02 Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 03 Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 04 Day 11	25	7.9	0.07	
	URS - Gulfco BERA NAS 05 Day 11	25	7.9	0.01	
	URS - Gulfco BERA NAS 06 Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 07 Day 11	25	7.8	<0.01	
	URS - Gulfco BERA NAS 08 Day 11	25	7.9	<0.01	
	URS - Gulfco BERA NAS 09 Day 11	26	7.9	<0.01	

Comments: DIE HL 9/21/10 → [NA]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day 12	19 / 19	8.1	0930	HL
	URS - Gulfco BERA CONTROL Day 12	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 12	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 12	19 / 19	8.1		
	URS - Gulfco BERA NAS 03 Day 12	19 / 19	8.1		
	URS - Gulfco BERA NAS 04 Day 12	19 / 19	8.1		
	URS - Gulfco BERA NAS 05 Day 12	19 / 19	8.1		
	URS - Gulfco BERA NAS 06 Day 12	19 / 19	8.1		
	URS - Gulfco BERA NAS 07 Day 12	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 12	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 12	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/22/10	URS - Gulfco BERA CONTROL - NEW Day 21	24	7.6	<0.01	HL
	URS - Gulfco BERA CONTROL Day 21	25	7.6	0.04	
	URS - Gulfco BERA NAS 01 Day 21	24	7.6	<0.01	
	URS - Gulfco BERA NAS 02 Day 21	24	7.7	0.06	
	URS - Gulfco BERA NAS 03 Day 21	25	7.7	0.09	
	URS - Gulfco BERA NAS 04 Day 21	25	7.7	<0.01	
	URS - Gulfco BERA NAS 05 Day 21	25	7.7	0.02	
	URS - Gulfco BERA NAS 06 Day 21	25	7.6	<0.01	
	URS - Gulfco BERA NAS 07 Day 21	25	7.6	<0.01	
	URS - Gulfco BERA NAS 08 Day 21	25	7.6	<0.01	
	URS - Gulfco BERA NAS 09 Day 21	25	7.6	0.02	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/23/10	URS - Gulfco BERA CONTROL - NEW Day 13	19 / 19	8.0	1000	HL
	URS - Gulfco BERA CONTROL Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 01 Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 13	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 13	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 07 Day 13	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 13	19 / 19	7.9		
	URS - Gulfco BERA NAS 09 Day 13	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/23/10	URS - Gulfco BERA CONTROL - NEW Day 13	24	7.6	NA	HC
	URS - Gulfco BERA CONTROL Day 13	24	7.4	0.05	
	URS - Gulfco BERA NAS 01 Day 13	24	7.4	0.76	
	URS - Gulfco BERA NAS 02 Day 13	24	7.4	0.02	
	URS - Gulfco BERA NAS 03 Day 13	24	7.5	0.69	
	URS - Gulfco BERA NAS 04 Day 13	25	7.5	0.64	
	URS - Gulfco BERA NAS 05 Day 13	24	7.5	<0.01	
	URS - Gulfco BERA NAS 06 Day 13	24	7.5	<0.01	
	URS - Gulfco BERA NAS 07 Day 13	24	7.5	<0.01	
	URS - Gulfco BERA NAS 08 Day 13	24	7.5	0.07	
	URS - Gulfco BERA NAS 09 Day 13	25	7.5	0.27	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/24/10	URS - Gulfco BERA CONTROL - NEW Day 14	19 / 19	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day 14	19 / 19	7.8		
	URS - Gulfco BERA NAS 01 Day 14	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 14	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 14	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 14	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day 14	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day 14	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 14	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 14	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 14	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/24/10	URS - Gulfco BERA CONTROL - NEW Day 14	~~23~~ ①	7.8	NA	HL
	URS - Gulfco BERA CONTROL Day 14	24	7.8	<0.01	
	URS - Gulfco BERA NAS 01 Day 14	24	7.7	0.15	
	URS - Gulfco BERA NAS 02 Day 14	24	7.7	0.04	
	URS - Gulfco BERA NAS 03 Day 14	24	7.7	0.11	
	URS - Gulfco BERA NAS 04 Day 14	24	7.7	0.16	
	URS - Gulfco BERA NAS 05 Day 14	24	7.7	0.15	
	URS - Gulfco BERA NAS 06 Day 14	24	7.7	<0.01	
	URS - Gulfco BERA NAS 07 Day 14	24	7.7	<0.01	
	URS - Gulfco BERA NAS 08 Day 14	25	7.7	0.01	
	URS - Gulfco BERA NAS 09 Day 14	25	7.7	<0.01	

Comments: ①IE HL 9/24/10 → [25]

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/25/10	URS - Gulfco BERA CONTROL - NEW Day 15	19 / 19	8.0	1230	DK
	URS - Gulfco BERA CONTROL Day 15	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 15	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 15	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 15	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 15	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day 15	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 15	19 / 19	7.8		
	URS - Gulfco BERA NAS 07 Day 15	19 / 19	7.9		
	URS - Gulfco BERA NAS 08 Day 15	19 / 19	7.9		
	URS - Gulfco BERA NAS 09 Day 15	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/25/10	URS - Gulfco BERA CONTROL - NEW Day 15	25	7.7	NA	DK
	URS - Gulfco BERA CONTROL Day 15	26	7.7	<0.01	
	URS - Gulfco BERA NAS 01 Day 15	26	7.7	0.08	
	URS - Gulfco BERA NAS 02 Day 15	26	7.8	<0.01	
	URS - Gulfco BERA NAS 03 Day 15	26	7.8	0.04	
	URS - Gulfco BERA NAS 04 Day 15	26	7.7	0.09	
	URS - Gulfco BERA NAS 05 Day 15	26	7.7	<0.01	
	URS - Gulfco BERA NAS 06 Day 15	26	7.4	<0.01	
	URS - Gulfco BERA NAS 07 Day 15	26	7.7	<0.01	
	URS - Gulfco BERA NAS 08 Day 15	26	7.8	<0.01	
	URS - Gulfco BERA NAS 09 Day 15	26	7.7	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/26/10	URS - Gulfco BERA CONTROL - NEW Day 16	19 / 19	8.0	1300	DK
	URS - Gulfco BERA CONTROL Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 16	19 / 19	7.9		
	URS - Gulfco BERA NAS 06 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 16	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 16	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/26/10	URS - Gulfco BERA CONTROL - NEW Day 16	24	8.1	NA	DK LS
	URS - Gulfco BERA CONTROL Day 16	24	8.1	<0.01	
	URS - Gulfco BERA NAS 01 Day 16	24	8.1	0.12	
	URS - Gulfco BERA NAS 02 Day 16	24	8.1	<0.01	
	URS - Gulfco BERA NAS 03 Day 16	24	8.2	<0.01	
	URS - Gulfco BERA NAS 04 Day 16	24	8.2	0.08	
	URS - Gulfco BERA NAS 05 Day 16	24	8.2	<0.01	
	URS - Gulfco BERA NAS 06 Day 16	24	8.1	<0.01	
	URS - Gulfco BERA NAS 07 Day 16	24	8.0	<0.01	
	URS - Gulfco BERA NAS 08 Day 16	24	8.1	<0.01	
	URS - Gulfco BERA NAS 09 Day 16	24	8.1	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/27/10	URS - Gulfco BERA CONTROL - NEW Day 17	19 / 19	8.2	1000	HL
	URS - Gulfco BERA CONTROL Day 17	19 / 19	8.2		
	URS - Gulfco BERA NAS 01 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 02 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 03 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 04 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 05 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 06 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 07 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 08 Day 17	19 / 19	8.1		
	URS - Gulfco BERA NAS 09 Day 17	19 / 19	8.2		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/27/10	URS - Gulfco BERA CONTROL - NEW Day 17	24	7.7	NA	HL
	URS - Gulfco BERA CONTROL Day 17	24	7.7	0.22	
	URS - Gulfco BERA NAS 01 Day 17	24	7.7	0.78	
	URS - Gulfco BERA NAS 02 Day 17	24	7.7	0.19	
	URS - Gulfco BERA NAS 03 Day 17	24	7.8	0.48	
	URS - Gulfco BERA NAS 04 Day 17	24	7.8	0.57	
	URS - Gulfco BERA NAS 05 Day 17	24	7.8	0.69	
	URS - Gulfco BERA NAS 06 Day 17	24	7.8	0.22	
	URS - Gulfco BERA NAS 07 Day 17	24	7.8	0.33	
	URS - Gulfco BERA NAS 08 Day 17	24	7.8	0.18	
	URS - Gulfco BERA NAS 09 Day 17	25	7.8	0.25	

Comments:

18b

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/28/10	URS - Gulfco BERA CONTROL - NEW Day 18	19 / 19	7.9	1030	HL
	URS - Gulfco BERA CONTROL Day 18	19 / 19	7.9		
	URS - Gulfco BERA NAS 01 Day 18	19 / 19	7.9		
	URS - Gulfco BERA NAS 02 Day 18	19 / 19	7.9		
	URS - Gulfco BERA NAS 03 Day 18	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 18	19 / 19	7.9		
	URS - Gulfco BERA NAS 05 Day 18	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 18	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 18	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 18	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 18	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/28/10	URS - Gulfco BERA CONTROL - NEW Day 18	24	7.6	NA	HL
	URS - Gulfco BERA CONTROL Day 18	25	7.7	<0.01	
	URS - Gulfco BERA NAS 01 Day 18	25	7.7	0.02	
	URS - Gulfco BERA NAS 02 Day 18	25	7.7	<0.01	
	URS - Gulfco BERA NAS 03 Day 18	25	7.8	<0.01	
	URS - Gulfco BERA NAS 04 Day 18	25	7.8	0.03	
	URS - Gulfco BERA NAS 05 Day 18	24	7.8	<0.01	
	URS - Gulfco BERA NAS 06 Day 18	25	7.8	<0.01	
	URS - Gulfco BERA NAS 07 Day 18	25	7.8	<0.01	
	URS - Gulfco BERA NAS 08 Day 18	25	7.8	<0.01	
	URS - Gulfco BERA NAS 09 Day 18	25	7.8	0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/29/10	URS - Gulfco BERA CONTROL - NEW Day 19	19 / 19	8.1	1000	HC
	URS - Gulfco BERA CONTROL Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 19	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 19	19 / 19	8.1		
	URS - Gulfco BERA NAS 09 Day 19	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/29/10	URS - Gulfco BERA CONTROL - NEW Day 19	24	7.4	NA	HL
	URS - Gulfco BERA CONTROL Day 19	25	7.3	<0.01	
	URS - Gulfco BERA NAS 01 Day 19	24	7.3	<0.01	
	URS - Gulfco BERA NAS 02 Day 19	25	7.3	<0.01	
	URS - Gulfco BERA NAS 03 Day 19	25	7.3	<0.01	
	URS - Gulfco BERA NAS 04 Day 19	25	7.3	<0.01	
	URS - Gulfco BERA NAS 05 Day 19	25	7.3	<0.01	
	URS - Gulfco BERA NAS 06 Day 19	25	7.4	<0.01	
	URS - Gulfco BERA NAS 07 Day 19	25	7.5	<0.01	
	URS - Gulfco BERA NAS 08 Day 19	25	7.5	<0.01	
	URS - Gulfco BERA NAS 09 Day 19	25	7.5	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
9/30/10	URS - Gulfco BERA CONTROL - NEW Day 20	19 / 19	7.9	0930	HL
	URS - Gulfco BERA CONTROL Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 01 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 04 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 05 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 06 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 20	19 / 19	8.0		
	URS - Gulfco BERA NAS 09 Day 20	19 / 19	8.0		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
9/30/10	URS - Gulfco BERA CONTROL - NEW Day 20	24	8.0	NA	HL
	URS - Gulfco BERA CONTROL Day 20	24	8.0	<0.01	
	URS - Gulfco BERA NAS 01 Day 20	24	8.0	0.01	
	URS - Gulfco BERA NAS 02 Day 20	24	8.0	<0.01	
	URS - Gulfco BERA NAS 03 Day 20	24	8.0	<0.01	
	URS - Gulfco BERA NAS 04 Day 20	24	8.0	<0.01	
	URS - Gulfco BERA NAS 05 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA NAS 06 Day 20	25	8.1	<0.01	
	URS - Gulfco BERA NAS 07 Day 20	24	8.0	<0.01	
	URS - Gulfco BERA NAS 08 Day 20	25	8.0	<0.01	
	URS - Gulfco BERA NAS 09 Day 20	25	8.0	<0.01	

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Temp. °C (actual/corrected)	pH	Time	Init.
10/1/10	URS - Gulfco BERA CONTROL Day 21	19 / 19	8.0	0900	HL
	URS - Gulfco BERA NAS 01 Day 21	19 / 19	8.0		
	URS - Gulfco BERA NAS 02 Day 21	19 / 19	8.0		
	URS - Gulfco BERA NAS 03 Day 21	19 / 19	8.1		
	URS - Gulfco BERA NAS 04 Day 21	19 / 19	8.1		
	URS - Gulfco BERA NAS 05 Day 21	19 / 19	8.1		
	URS - Gulfco BERA NAS 06 Day 21	19 / 19	8.0		
	URS - Gulfco BERA NAS 07 Day 21	19 / 19	8.0		
	URS - Gulfco BERA NAS 08 Day 21	19 / 19	8.1		
	URS - Gulfco BERA NAS 09 Day 21	19 / 19	8.1		

Comments:

WET CHEMISTRY LOG- Special Projects - 21d N. arenaceodentata

Date	Client/ Sample No./Sample Date	Sal. ‰	D.O. mg/L	NH_3N ppm*	Init.
10/1/10	URS - Gulfco BERA CONTROL Day 21	25	7.7	<0.01	HL
	URS - Gulfco BERA NAS 01 Day 21	24	7.7	<0.01	
	URS - Gulfco BERA NAS 02 Day 21	25	7.7	<0.01	
	URS - Gulfco BERA NAS 03 Day 21	25	7.7	<0.01	
	URS - Gulfco BERA NAS 04 Day 21	25	7.7	<0.01	
	URS - Gulfco BERA NAS 05 Day 21	25	7.8	<0.01	
	URS - Gulfco BERA NAS 06 Day 21	25	7.8	<0.01	
	URS - Gulfco BERA NAS 07 Day 21	25	7.8	<0.01	
	URS - Gulfco BERA NAS 08 Day 21	25	7.8	<0.01	
	URS - Gulfco BERA NAS 09 Day 21	25	7.8	<0.01	

Comments:

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 9/10/10 TEST NUMBER: 9/10/10 DURATION: 96 H
TOXICANT : CdCl2
SPECIES: Neanthes arenaceodenta

RAW DATA: ---	Concentration (mg/l)	Number Exposed	Mortalities
	.00	9	1
	4.80	9	0
	6.30	9	1
	8.40	9	8
	11.20	9	9
	15.00	9	9
	20.00	9	9

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 7.40
95% LOWER CONFIDENCE: 6.86
95% UPPER CONFIDENCE: 7.99

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

96 h Acute *Neanthes arenaceodentata* Toxicity Test Condition Summary
Test Method ASTM E 1611

Test Organism:	*Neanthes arenaceodentata*	Age Class:	2-3 wk old juveniles
Test Type:	Acute Static	Test Duration:	96 h
Temperature:	20 ± 1	Photoperiod:	16:8 h; ambient light; 50-100 ft-c
Test Chamber size:	40 ml plastic cup	Cleaning:	None
No. of Replicates:	3	No. organisms per Replicate:	3 (minimum)
Test Solution Volume	30 mL (minimum)	Dilution Water:	LAB-W (20 ppt)
Renewal of test solution:	None	Aeration:	None
Feeding:	NA	Food Type:	N/A
Acceptability Criteria	≥ 90% survival in control	Sampling Holding Time	N/A

Test Organism Batch #	10-00889	DOB	~~NA~~ ①
Source	California State U. Long Beach	Age (days) / Size	NA

Test Concentrations (mg/L):	Control, 4.8, 6.3, 8.4, 11.2, 15.0, 20.0	Critical Dilution	NA

STOX Solution 1 Date/Time/Initials:	9/10/10	1230	HJ	STOX Solution 3 Date/Time/Initials:	NA		
STOX Solution 2 Date/Time/Initials:	NA			STOX Solution 4 Date/Time/Initials:	NA		

Hour	Date	Time	Initials	Day	Date	Time	Initials
0 h Initiation	9/10/10	1530	HL/RB	72 h Counts	9/13/10	1530	RB
24 h Counts	9/11/10	1530	DL	96 h Termination	9/14/10	1430	SK
48 h Counts	9/12/10	1500	DL		NA	NA	NA

This test was conducted in accordance with the method standards or according to the exception(s) as noted:

Comments: ① IE RB 9/10/10 → [2-3 wks]

Susan Gregory
Final Review Signature

HJ / HJ
Initial Review

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

Client	PBS&J STOX - CdCl2	Login No:		PBS&J Job No.	470001.00 0400

Acute Toxicity Test with *Neanthes arenaceodentata*

Conc. (mg/L)	Rep.	No. of Surviving Organisms					Conc. (mg/L)	Rep.	No. of Surviving Organisms				
		0 hr	24 hr	48 hr	72 hr	96 hr			0 hr	24 hr	48 hr	72 hr	96 hr
Control	A	3	3	3	3	2	11.2	A	3	2	0	0	0
	B	3	3	3	3	3		B	3	2	1	0	0
	C	3	3	3	3	3		C	3	2	1	0	0
	D							D					
	E							E					
4.8	A	3	3	3	3	3	15.0	A	3	0	0	0	0
	B	3	3	3	3	3		B	3	0	0	0	0
	C	3	3	3	3	3		C	3	0	0	0	0
	D							D					
	E							E					
6.3	A	3	3	3	3	2	20.0	A	3	0	0	0	0
	B	3	3	3	3	3		B	3	0	0	0	0
	C	3	3	3	3	3		C	3	0	0	0	0
	D							D					
	E							E					
8.4	A	3	3	3	2	0		A					
	B	3	2	2	1	0		B					
	C	3	3	3	1	1		C					
	D							D					
	E							E					

Comments:

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

HT / HS
Initial Review

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

Water Quality Parameters -*Neanthes arenaceodentata*

Conc. (mg/L)	pH	
	0 hr	96 hr
Rep	A	E
Cont.	7.9	7.8
4.8	7.9	7.8
6.3	8.0	7.8
8.4	8.0	7.8
11.2	8.0	7.8
15.0	8.0	7.8
20.0	8.0	7.8
Meter No.	765	765
Time	1230	1430
Initials	HJ SK	BR SK

Conc. (mg/L)	Dissolved Oxygen (mg/L)	
	0 hr	96 hr
Rep	A	E
Cont.	8.0	7.3
4.8	8.0	7.3
6.3	8.1	7.3
8.4	8.2	7.3
11.2	8.3	7.3
15.0	8.3	7.4
20.0	8.4	7.4
Meter No.	735	735
Time	1230	1430
Initials	HJ SK	BR SK

Comments:

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

HJ / HJ
Initial Review

Client	PBS&J STOX - CdCl2	Login No.		PBS&J Job No.	470001.00 0400

Water Quality Parameters -*Neanthes arenaceodentata*

Conc. (mg/L)	Temperature °C	
	0 hr	96 hr
Rep	A	E
Cont.	20/21	21 / 22
4.8	20/21	21 / 22
6.3	20/21	21 / 22
8.4	20/21	21 / 22
11.2	20/21	21 / 22
15.0	20/21	21 / 22
20.0	20/21	21 / 22
Therm. No.	T-81	T-81
Time	1230	1430
Initials	HJ SK	SK

Conc. (mg/L)	Salinity (‰)	
	0 hr	96 hr
Cont.	24	24
4.8	25	25
6.3	25	25
8.4	24	24
11.2	23	23
15.0	22	22
20.0	21	21
Meter No.	755	755
Time	1230	1430
Initials	HJ RB	SK

Comments:

Data correction codes: IE-incorrect entry; WC- wrong column; WR-wrong row; TN-transposed number; ONV-organism not visible

HJ / HJ
Initial Review

Appendix C

Statistical Analyses

CETIS Analytical Report

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	05-1830-7015	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run					24.6%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	2.317	2.506	8	0.2938	0.0744	Non-Significant Effect
		35ED0318	1.219	2.506	8	0.2938	0.4202	Non-Significant Effect
		634EFACF	0.4063	2.506	8	0.2938	0.7827	Non-Significant Effect
		28602B1E	1.596	2.506	8	0.2938	0.2605	Non-Significant Effect
		1CD8C95F	2.317	2.506	8	0.2938	0.0744	Non-Significant Effect
		31E0E5B3	1.219	2.506	8	0.2938	0.4202	Non-Significant Effect
		64BB680B	0.8125	2.506	8	0.2938	0.6123	Non-Significant Effect
		196479DF	3.506	2.506	8	0.2938	0.0042	Significant Effect
		141B370A	3.85	2.506	8	0.2938	0.0016	Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	05-1830-7015	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.9939352	0.1104372	9	3.214	0.0051	Significant Effect
Error	1.374281	0.03435702	40			
Total	2.368216	0.1447943	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.788	3.067	0.0167	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9719	0.9367	0.2760	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.08322	0.1453	0.4953	Normal Distribution
Distribution	D'Agostino Skewness	0.9149	2.576	0.3602	Normal Distribution
Distribution	D'Agostino Kurtosis	0.4794	2.576	0.6316	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.067	9.21	0.5866	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.3312	3.878	0.5245	Normal Distribution

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1	1	1	1	1	0	0	0.0%	0.0%
2F8DB23	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
35ED0318	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
634EFACF	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
28602B1E	5	0.84	0.7764	0.9036	0.6	1	0.07483	0.1673	19.92%	16.0%
1CD8C95F	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
31E0E5B3	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
64BB680B	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	8.0%
196479DF	5	0.64	0.5764	0.7036	0.4	0.8	0.07483	0.1673	26.15%	36.0%
141B370A	5	0.6	0.5239	0.6761	0.4	0.8	0.08944	0.2	33.33%	40.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
2F8DB23	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
35ED0318	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
634EFACF	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
28602B1E	5	1.158	1.085	1.232	0.8861	1.345	0.08639	0.1932	16.68%	13.91%
1CD8C95F	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
31E0E5B3	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
64BB680B	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.08%
196479DF	5	0.9342	0.8665	1.002	0.6847	1.107	0.07959	0.178	19.05%	30.55%
141B370A	5	0.894	0.8136	0.9743	0.6847	1.107	0.09448	0.2113	23.63%	33.55%

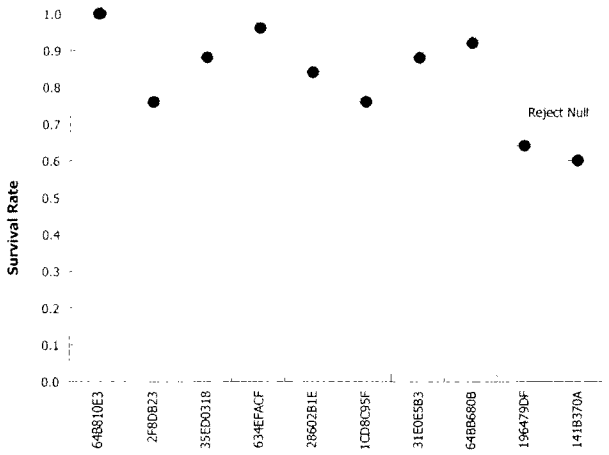
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

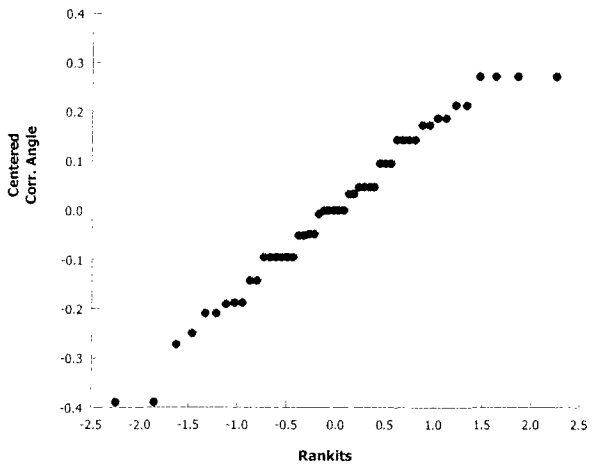
Analysis ID:	05-1830-7015	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	1	1	1	1	1
2F8DB23	0.6	1	0.4	0.8	1
35ED0318	1	0.8	1	0.8	0.8
634EFACF	1	0.8	1	1	1
28602B1E	0.6	1	0.8	1	0.8
1CD8C95F	0.8	1	0.4	0.6	1
31E0E5B3	0.8	1	1	0.8	0.8
64BB680B	1	1	0.8	1	0.8
196479DF	0.6	0.4	0.8	0.6	0.8
141B370A	0.4	0.8	0.6	0.4	0.8

Graphics





Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	01-7680-5971	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					47.7%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	2.748	2.506	8	0.9821	0.0291	Significant Effect
		35ED0318	-0.8904	2.506	8	0.9821	0.9910	Non-Significant Effect
		634EFACF	-1.648	2.506	8	0.9821	0.9994	Non-Significant Effect
		28602B1E	-8.586	2.506	8	0.9821	1.0000	Non-Significant Effect
		1CD8C95F	-1.62	2.506	8	0.9821	0.9994	Non-Significant Effect
		31E0E5B3	0.4183	2.506	8	0.9821	0.7783	Non-Significant Effect
		64BB680B	0.9695	2.506	8	0.9821	0.5382	Non-Significant Effect
		196479DF	2.476	2.506	8	0.9821	0.0534	Non-Significant Effect
		141B370A	2.748	2.506	8	0.9821	0.0290	Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID: 01-7680-5971 **Endpoint:** Mean Dry Weight-mg **CETIS Version:** CETISv1.8.0
Analyzed: 04 Oct-10 15:03 **Analysis:** Parametric-Control vs Treatments **Official Results:** Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	77.57763	8.619737	9	22.46	<0.0001	Significant Effect
Error	15.35432	0.3838581	40			
Total	92.93195	9.003594	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.57	21.67	0.1385	Equal Variances
Variances	Mod Levene Equality of Variance	1.183	3.067	0.3408	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9511	0.9367	0.0377	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1105	0.1453	0.1264	Normal Distribution
Distribution	D'Agostino Skewness	2.68	2.576	0.0074	Non-normal Distribution
Distribution	D'Agostino Kurtosis	2.312	2.576	0.0208	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	12.52	9.21	0.0019	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	0.6844	3.878	0.0739	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	2.058	1.899	2.218	1.454	2.564	0.1876	0.4195	20.38%	0.0%
2F8DB23	5	0.9817	0.8018	1.162	0.58	1.603	0.2114	0.4728	48.16%	52.31%
35ED0318	5	2.407	2.263	2.551	1.94	2.91	0.1693	0.3786	15.73%	-16.95%
634EFACF	5	2.704	2.502	2.907	1.918	3.358	0.2379	0.5319	19.67%	-31.38%
28602B1E	5	5.423	5.252	5.593	4.78	5.925	0.2002	0.4477	8.26%	-163.4%
1CD8C95F	5	2.693	2.209	3.177	1.517	4.653	0.569	1.272	47.25%	-30.83%
31E0E5B3	5	1.894	1.628	2.161	1.27	3.097	0.3138	0.7017	37.04%	7.96%
64BB680B	5	1.679	1.494	1.863	1.193	2.45	0.2169	0.4849	28.89%	18.46%
196479DF	5	1.088	0.9857	1.191	0.69	1.36	0.1205	0.2695	24.76%	47.14%
141B370A	5	0.9815	0.7429	1.22	0.45	2.07	0.2805	0.6272	63.9%	52.32%

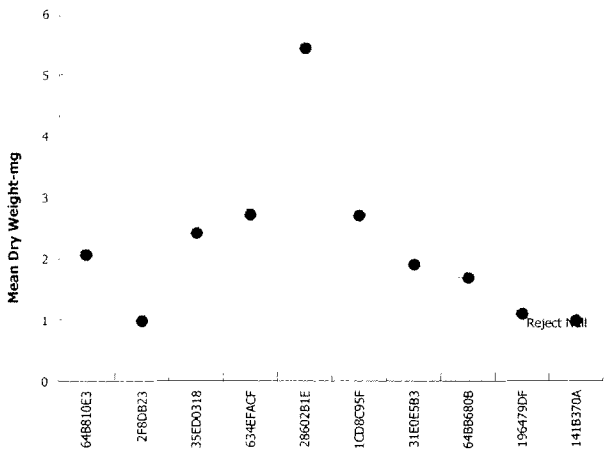
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

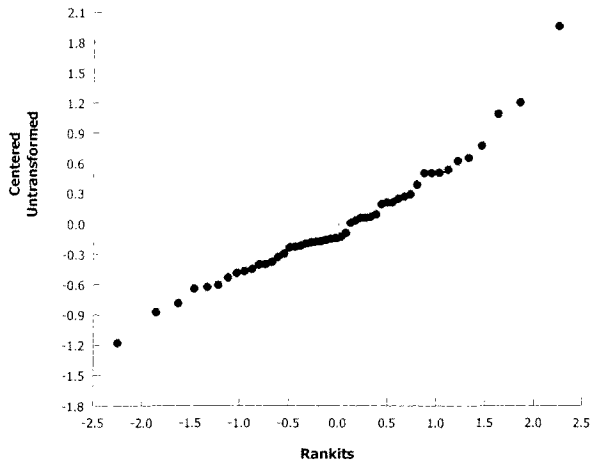
Analysis ID:	01-7680-5971	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:03	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	2.564	2.27	1.876	1.454	2.128
2F8DB23	1.603	0.58	1.37	0.605	0.75
35ED0318	2.656	2.262	2.268	2.91	1.94
634EFACF	1.918	2.528	3.358	2.918	2.8
28602B1E	5.717	4.78	5.208	5.484	5.925
1CD8C95F	4.653	2.248	3.23	1.517	1.818
31E0E5B3	1.27	1.7	1.6	1.805	3.097
64BB680B	1.712	1.688	2.45	1.35	1.193
196479DF	1.283	0.96	0.69	1.36	1.147
141B370A	2.07	0.8225	0.81	0.45	0.755

Graphics





Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	07-9275-2912	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:02	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	C > T	Not Run					42.9%

Dunnett's Multiple Comparison Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	3.956	2.506	8	0.8829	0.0012	Significant Effect
		35ED0318	-0.1828	2.506	8	0.8829	0.9340	Non-Significant Effect
		634EFACF	-1.547	2.506	8	0.8829	0.9991	Non-Significant Effect
		28602B1E	-6.988	2.506	8	0.8829	1.0000	Non-Significant Effect
		1CD8C95F	0.1715	2.506	8	0.8829	0.8577	Non-Significant Effect
		31E0E5B3	1.166	2.506	8	0.8829	0.4447	Non-Significant Effect
		64BB680B	1.492	2.506	8	0.8829	0.3009	Non-Significant Effect
		196479DF	3.89	2.506	8	0.8829	0.0014	Significant Effect
		141B370A	4.279	2.506	8	0.8829	0.0005	Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	07-9275-2912	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:02	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	62.09045	6.898939	9	22.24	<0.0001	Significant Effect
Error	12.40873	0.3102184	40			
Total	74.49918	7.209157	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	19.59	21.67	0.0206	Equal Variances
Variances	Mod Levene Equality of Variance	1.847	3.067	0.1003	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9545	0.9367	0.0523	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1258	0.1453	0.0464	Normal Distribution
Distribution	D'Agostino Skewness	1.535	2.576	0.1247	Normal Distribution
Distribution	D'Agostino Kurtosis	2.253	2.576	0.0243	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	7.431	9.21	0.0243	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7207	3.878	0.0599	Normal Distribution

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	2.058	1.899	2.218	1.454	2.564	0.1876	0.4195	20.38%	0.0%
2F8DB23	5	0.6648	0.5914	0.7382	0.484	0.962	0.08634	0.1931	29.04%	67.7%
35ED0318	5	2.123	1.956	2.29	1.552	2.656	0.1964	0.4391	20.68%	-3.13%
634EFACF	5	2.603	2.369	2.837	1.918	3.358	0.2752	0.6154	23.64%	-26.47%
28602B1E	5	4.52	4.228	4.812	3.43	5.484	0.3434	0.7679	16.99%	-119.6%
1CD8C95F	5	1.998	1.584	2.412	0.91	3.722	0.4873	1.09	54.54%	2.93%
31E0E5B3	5	1.648	1.445	1.85	1.016	2.478	0.2382	0.5327	32.33%	19.96%
64BB680B	5	1.533	1.385	1.681	0.954	1.96	0.1742	0.3896	25.42%	25.53%
196479DF	5	0.688	0.6058	0.7702	0.384	0.918	0.09667	0.2162	31.42%	66.58%
141B370A	5	0.5512	0.4594	0.643	0.18	0.828	0.1079	0.2413	43.77%	73.22%

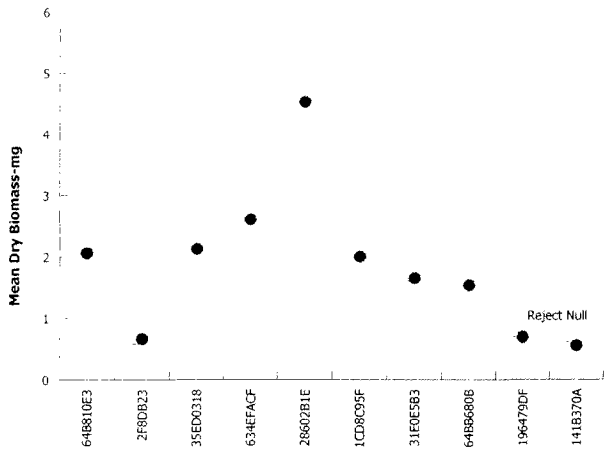
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

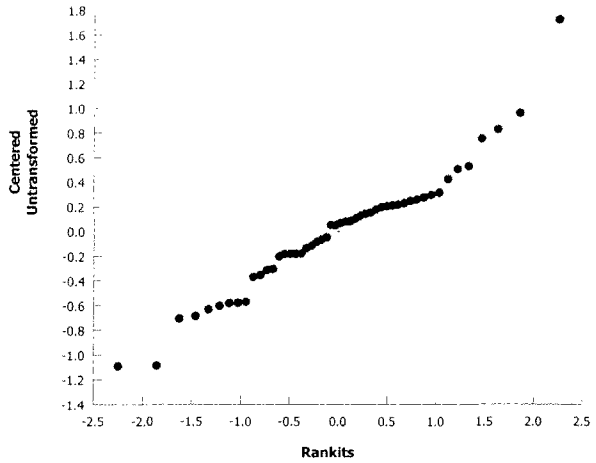
Analysis ID:	07-9275-2912	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 15:02	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	2.564	2.27	1.876	1.454	2.128
2F8DB23	0.962	0.58	0.548	0.484	0.75
35ED0318	2.656	1.81	2.268	2.328	1.552
634EFACF	1.918	2.022	3.358	2.918	2.8
28602B1E	3.43	4.78	4.166	5.484	4.74
1CD8C95F	3.722	2.248	1.292	0.91	1.818
31E0E5B3	1.016	1.7	1.6	1.444	2.478
64BB680B	1.712	1.688	1.96	1.35	0.954
196479DF	0.77	0.384	0.552	0.816	0.918
141B370A	0.828	0.658	0.486	0.18	0.604

Graphics





Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	20-8204-7622	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 13:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	20-8204-7622	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 13:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					46.3%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	3.886	4.04	8	1.119	0.0644	Non-Significant Effect
		35ED0318	1.259	2.859	8	0.7922	0.3787	Non-Significant Effect
		634EFACF	2.331	3.792	8	1.051	0.3641	Non-Significant Effect
		28602B1E	12.14	4.04	8	1.119	0.0001	Significant Effect
		1CD8C95F	2.29	3.443	8	0.954	0.2494	Non-Significant Effect
		31E0E5B3	0.5915	2.859	8	0.7922	0.6781	Non-Significant Effect
		64BB680B	1.371	3.443	8	0.954	0.6002	Non-Significant Effect
		196479DF	3.502	3.792	8	1.051	0.0794	Non-Significant Effect
		141B370A	3.887	4.232	8	1.173	0.0879	Non-Significant Effect
2F8DB23		35ED0318	5.145	4.232	8	1.173	0.0095	Significant Effect
		634EFACF	6.217	4.521	8	1.253	0.0020	Significant Effect
		28602B1E	16.03	4.635	8	1.284	0.0001	Significant Effect
		1CD8C95F	6.177	4.389	8	1.216	0.0017	Significant Effect
		31E0E5B3	3.295	3.792	8	1.051	0.1084	Non-Significant Effect
		64BB680B	2.515	3.443	8	0.954	0.1899	Non-Significant Effect
		196479DF	0.3844	2.859	8	0.7922	0.7873	Non-Significant Effect
		141B370A	0.0006016	2.859	8	0.7922	0.9997	Non-Significant Effect
35ED0318		634EFACF	1.072	3.443	8	0.954	0.7307	Non-Significant Effect
		28602B1E	10.88	3.792	8	1.051	0.0002	Significant Effect
		1CD8C95F	1.031	2.859	8	0.7922	0.4703	Non-Significant Effect
		31E0E5B3	1.851	3.443	8	0.954	0.3988	Non-Significant Effect
		64BB680B	2.63	3.792	8	1.051	0.2615	Non-Significant Effect
		196479DF	4.761	4.04	8	1.119	0.0139	Significant Effect
		141B370A	5.146	4.389	8	1.216	0.0127	Significant Effect
634EFACF		28602B1E	9.811	2.859	8	0.7922	0.0001	Significant Effect
		1CD8C95F	0.04066	2.859	8	0.7922	0.9773	Non-Significant Effect
		31E0E5B3	2.923	4.04	8	1.119	0.2545	Non-Significant Effect
		64BB680B	3.702	4.232	8	1.173	0.1165	Non-Significant Effect
		196479DF	5.833	4.389	8	1.216	0.0033	Significant Effect
		141B370A	6.218	4.635	8	1.284	0.0024	Significant Effect
28602B1E		1CD8C95F	9.851	3.443	8	0.954	0.0001	Significant Effect
		31E0E5B3	12.73	4.232	8	1.173	0.0001	Significant Effect
		64BB680B	13.51	4.389	8	1.216	0.0001	Significant Effect
		196479DF	15.64	4.521	8	1.253	0.0001	Significant Effect
		141B370A	16.03	4.735	8	1.312	0.0002	Significant Effect
1CD8C95F		31E0E5B3	2.882	3.792	8	1.051	0.1916	Non-Significant Effect
		64BB680B	3.662	4.04	8	1.119	0.0918	Non-Significant Effect
		196479DF	5.792	4.232	8	1.173	0.0027	Significant Effect
		141B370A	6.177	4.521	8	1.253	0.0021	Significant Effect
31E0E5B3		64BB680B	0.7796	2.859	8	0.7922	0.5847	Non-Significant Effect
		196479DF	2.91	3.443	8	0.954	0.1119	Non-Significant Effect
		141B370A	3.295	4.04	8	1.119	0.1568	Non-Significant Effect
64BB680B		196479DF	2.131	2.859	8	0.7922	0.1399	Non-Significant Effect
		141B370A	2.516	3.792	8	1.051	0.2984	Non-Significant Effect
196479DF		141B370A	0.385	3.443	8	0.954	0.9601	Non-Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	20-8204-7622	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 13:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Control Trend	15	-6		0.2269	Non-significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	77.57763	8.619737	9	22.46	<0.0001	Significant Effect
Error	15.35432	0.3838581	40			
Total	92.93195	9.003594	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.57	21.67	0.1385	Equal Variances
Variances	Mod Levene Equality of Variance	1.183	3.067	0.3408	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9511	0.9367	0.0377	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1105	0.1453	0.1264	Normal Distribution
Distribution	D'Agostino Skewness	2.68	2.576	0.0074	Non-normal Distribution
Distribution	D'Agostino Kurtosis	2.312	2.576	0.0208	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	12.52	9.21	0.0019	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	0.6844	3.878	0.0739	Normal Distribution

Mean Dry Weight-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	2.058	1.899	2.218	1.454	2.564	0.1876	0.4195	20.38%	0.0%
2F8DB23	5	0.9817	0.8018	1.162	0.58	1.603	0.2114	0.4728	48.16%	52.31%
35ED0318	5	2.407	2.263	2.551	1.94	2.91	0.1693	0.3786	15.73%	-16.95%
634EFACF	5	2.704	2.502	2.907	1.918	3.358	0.2379	0.5319	19.67%	-31.38%
28602B1E	5	5.423	5.252	5.593	4.78	5.925	0.2002	0.4477	8.26%	-163.4%
1CD8C95F	5	2.693	2.209	3.177	1.517	4.653	0.569	1.272	47.25%	-30.83%
31E0E5B3	5	1.894	1.628	2.161	1.27	3.097	0.3138	0.7017	37.04%	7.96%
64BB680B	5	1.679	1.494	1.863	1.193	2.45	0.2169	0.4849	28.89%	18.46%
196479DF	5	1.088	0.9857	1.191	0.69	1.36	0.1205	0.2695	24.76%	47.14%
141B370A	5	0.9815	0.7429	1.22	0.45	2.07	0.2805	0.6272	63.9%	52.32%

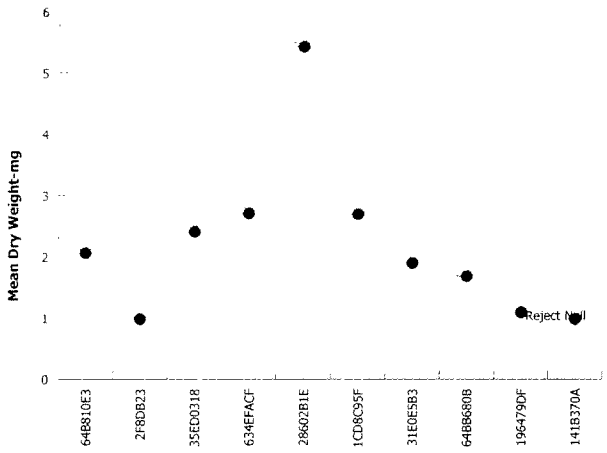
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

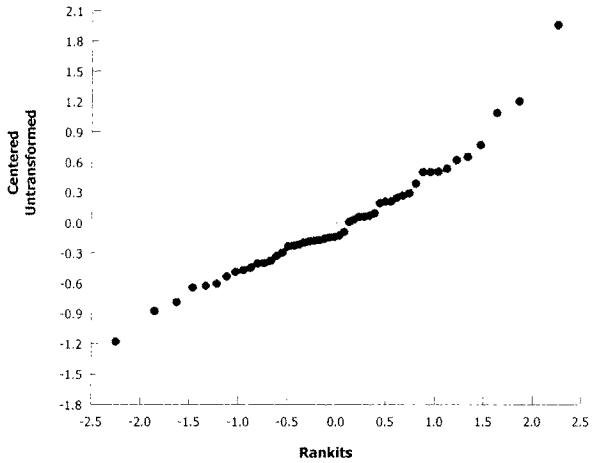
Analysis ID:	20-8204-7622	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	04 Oct-10 13:29	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Weight-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	2.564	2.27	1.876	1.454	2.128
2F8DB23	1.603	0.58	1.37	0.605	0.75
35ED0318	2.656	2.262	2.268	2.91	1.94
634EFACF	1.918	2.528	3.358	2.918	2.8
28602B1E	5.717	4.78	5.208	5.484	5.925
1CD8C95F	4.653	2.248	3.23	1.517	1.818
31E0E5B3	1.27	1.7	1.6	1.805	3.097
64BB680B	1.712	1.688	2.45	1.35	1.193
196479DF	1.283	0.96	0.69	1.36	1.147
141B370A	2.07	0.8225	0.81	0.45	0.755

Graphics





Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	0	D<>0	Not Run					41.7%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	5.595	4.232	8	1.054	0.0039	Significant Effect
		35ED0318	0.2585	2.859	8	0.7122	0.8560	Non-Significant Effect
		634EFACF	2.187	3.443	8	0.8577	0.2806	Non-Significant Effect
		28602B1E	9.883	3.792	8	0.9445	0.0002	Significant Effect
		1CD8C95F	0.2425	2.859	8	0.7122	0.8648	Non-Significant Effect
		31E0E5B3	1.649	3.443	8	0.8577	0.4800	Non-Significant Effect
		64BB680B	2.11	3.792	8	0.9445	0.4517	Non-Significant Effect
		196479DF	5.502	4.04	8	1.006	0.0033	Significant Effect
		141B370A	6.051	4.389	8	1.093	0.0021	Significant Effect
2F8DB23		35ED0318	5.853	4.389	8	1.093	0.0032	Significant Effect
		634EFACF	7.782	4.521	8	1.126	0.0002	Significant Effect
		28602B1E	15.48	4.635	8	1.155	0.0001	Significant Effect
		1CD8C95F	5.352	4.04	8	1.006	0.0045	Significant Effect
		31E0E5B3	3.946	3.792	8	0.9445	0.0387	Significant Effect
		64BB680B	3.485	3.443	8	0.8577	0.0468	Significant Effect
		196479DF	0.09314	2.859	8	0.7122	0.9479	Non-Significant Effect
		141B370A	0.4561	2.859	8	0.7122	0.7489	Non-Significant Effect
35ED0318		634EFACF	1.929	2.859	8	0.7122	0.1804	Non-Significant Effect
		28602B1E	9.624	3.443	8	0.8577	0.0001	Significant Effect
		1CD8C95F	0.501	3.443	8	0.8577	0.9334	Non-Significant Effect
		31E0E5B3	1.908	3.792	8	0.9445	0.5381	Non-Significant Effect
		64BB680B	2.369	4.04	8	1.006	0.4605	Non-Significant Effect
		196479DF	5.76	4.232	8	1.054	0.0028	Significant Effect
		141B370A	6.309	4.521	8	1.126	0.0016	Significant Effect
634EFACF		28602B1E	7.695	2.859	8	0.7122	0.0001	Significant Effect
		1CD8C95F	2.43	3.792	8	0.9445	0.3281	Non-Significant Effect
		31E0E5B3	3.836	4.04	8	1.006	0.0698	Non-Significant Effect
		64BB680B	4.297	4.232	8	1.054	0.0448	Significant Effect
		196479DF	7.689	4.389	8	1.093	0.0002	Significant Effect
		141B370A	8.238	4.635	8	1.155	0.0002	Significant Effect
28602B1E		1CD8C95F	10.13	4.04	8	1.006	0.0001	Significant Effect
		31E0E5B3	11.53	4.232	8	1.054	0.0001	Significant Effect
		64BB680B	11.99	4.389	8	1.093	0.0001	Significant Effect
		196479DF	15.38	4.521	8	1.126	0.0001	Significant Effect
		141B370A	15.93	4.735	8	1.179	0.0002	Significant Effect
1CD8C95F		31E0E5B3	1.407	2.859	8	0.7122	0.3260	Non-Significant Effect
		64BB680B	1.868	3.443	8	0.8577	0.3924	Non-Significant Effect
		196479DF	5.259	3.792	8	0.9445	0.0034	Significant Effect
		141B370A	5.808	4.232	8	1.054	0.0026	Significant Effect
31E0E5B3		64BB680B	0.4609	2.859	8	0.7122	0.7463	Non-Significant Effect
		196479DF	3.852	3.443	8	0.8577	0.0254	Significant Effect
		141B370A	4.402	4.04	8	1.006	0.0268	Significant Effect
64BB680B		196479DF	3.392	2.859	8	0.7122	0.0213	Significant Effect
		141B370A	3.941	3.792	8	0.9445	0.0390	Significant Effect
196479DF		141B370A	0.5492	3.443	8	0.8577	0.9205	Non-Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	62.09045	6.898939	9	22.24	<0.0001	Significant Effect
Error	12.40873	0.3102184	40			
Total	74.49918	7.209157	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	19.59	21.67	0.0206	Equal Variances
Variances	Mod Levene Equality of Variance	1.847	3.067	0.1003	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9545	0.9367	0.0523	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1258	0.1453	0.0464	Normal Distribution
Distribution	D'Agostino Skewness	1.535	2.576	0.1247	Normal Distribution
Distribution	D'Agostino Kurtosis	2.253	2.576	0.0243	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	7.431	9.21	0.0243	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7207	3.878	0.0599	Normal Distribution

Mean Dry Biomass-mg Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	2.058	1.899	2.218	1.454	2.564	0.1876	0.4195	20.38%	0.0%
2F8DB23	5	0.6648	0.5914	0.7382	0.484	0.962	0.08634	0.1931	29.04%	67.7%
35ED0318	5	2.123	1.956	2.29	1.552	2.656	0.1964	0.4391	20.68%	-3.13%
634EFACF	5	2.603	2.369	2.837	1.918	3.358	0.2752	0.6154	23.64%	-26.47%
28602B1E	5	4.52	4.228	4.812	3.43	5.484	0.3434	0.7679	16.99%	-119.6%
1CD8C95F	5	1.998	1.584	2.412	0.91	3.722	0.4873	1.09	54.54%	2.93%
31E0E5B3	5	1.648	1.445	1.85	1.016	2.478	0.2382	0.5327	32.33%	19.96%
64BB680B	5	1.533	1.385	1.681	0.954	1.96	0.1742	0.3896	25.42%	25.53%
196479DF	5	0.688	0.6058	0.7702	0.384	0.918	0.09667	0.2162	31.42%	66.58%
141B370A	5	0.5512	0.4594	0.643	0.18	0.828	0.1079	0.2413	43.77%	73.22%

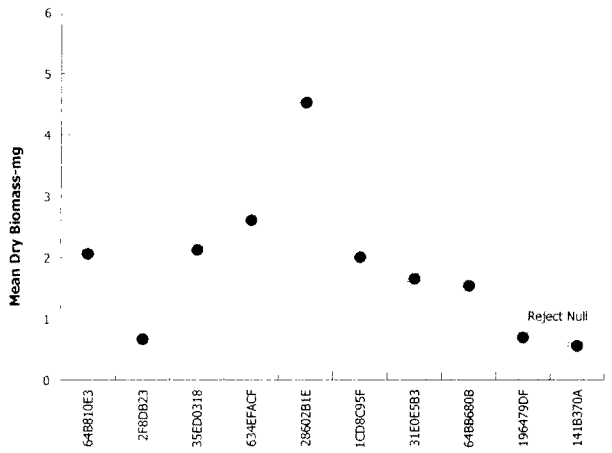
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

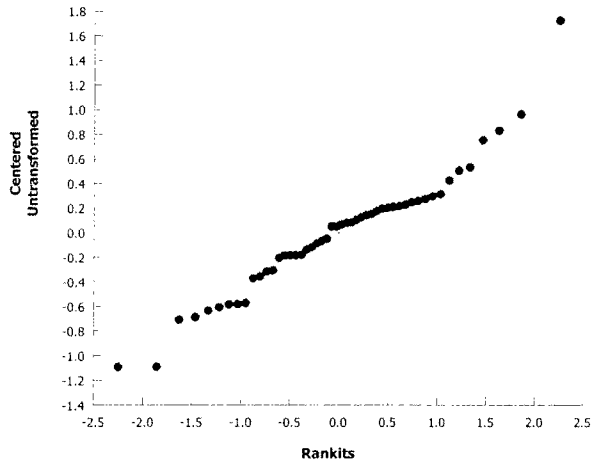
Analysis ID:	14-9818-7789	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 13:46	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	2.564	2.27	1.876	1.454	2.128
2F8DB23	0.962	0.58	0.548	0.484	0.75
35ED0318	2.656	1.81	2.268	2.328	1.552
634EFACF	1.918	2.022	3.358	2.918	2.8
28602B1E	3.43	4.78	4.166	5.484	4.74
1CD8C95F	3.722	2.248	1.292	0.91	1.818
31E0E5B3	1.016	1.7	1.6	1.444	2.478
64BB680B	1.712	1.688	1.96	1.35	0.954
196479DF	0.77	0.384	0.552	0.816	0.918
141B370A	0.828	0.658	0.486	0.18	0.604

Graphics





Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Batch ID:	13-0329-4912	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	10 Sep-10 13:00	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:		**Species:**	Neanthes arenaceodentata	**Brine:**	HW-Marinemix
Duration:	N/A	**Source:**	Cal State Univ. Long Beach	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
64B810E3	16-8978-4547	08 Sep-10	09 Sep-10	61h	URS Corp	100016848
2F8DB23	00-4986-3459	13 Aug-10 12:32	13 Aug-10 16:02	28d 0h		
35ED0318	09-0472-5272	16 Aug-10 15:28	17 Aug-10 12:30	24d 22h		
634EFACF	16-6612-0399	16 Aug-10 16:00	17 Aug-10 12:30	24d 21h		
28602B1E	06-7739-1134	16 Aug-10 16:36	17 Aug-10 12:30	24d 20h		
1CD8C95F	04-8396-9375	16 Aug-10 16:18	17 Aug-10 12:30	24d 21h		
31E0E5B3	08-3682-2451	16 Aug-10 17:00	17 Aug-10 12:30	24d 20h		
64BB680B	16-9000-3467	17 Aug-10 09:00	17 Aug-10 12:30	24d 4h		
196479DF	04-2601-5199	17 Aug-10 09:31	17 Aug-10 12:30	24d 3h		
141B370A	03-3732-7882	17 Aug-10 10:02	17 Aug-10 12:30	24d 3h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
64B810E3	Control Sediment	Gulfco Marine - BERA	York River, VA		
2F8DB23	Test Sediment	Gulfco Marine - BERA	NAS-01		
35ED0318	Test Sediment	Gulfco Marine - BERA	NAS-02		
634EFACF	Test Sediment	Gulfco Marine - BERA	NAS-03		
28602B1E	Test Sediment	Gulfco Marine - BERA	NAS-04		
1CD8C95F	Test Sediment	Gulfco Marine - BERA	NAS-05		
31E0E5B3	Test Sediment	Gulfco Marine - BERA	NAS-06		
64BB680B	Test Sediment	Gulfco Marine - BERA	NAS-07		
196479DF	Test Sediment	Gulfco Marine - BERA	NAS-08		
141B370A	Test Sediment	Gulfco Marine - BERA	NAS-09		

Batch Note: Test was 21d duration, per work-scope agreement.

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID: 18-1476-5183 **Endpoint:** Survival Rate **CETIS Version:** CETISv1.8.0
Analyzed: 01 Oct-10 17:50 **Analysis:** Parametric-All Pairwise **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	D<>0	Not Run					19.9%

Student-Newman-Keuls Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
64B810E3		2F8DB23	3.276	4.389	8	0.3638	0.2616	Non-Significant Effect
		35ED0318	1.724	3.792	8	0.3143	0.6188	Non-Significant Effect
		634EFACF	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		28602B1E	2.257	4.232	8	0.3508	0.6060	Non-Significant Effect
		1CD8C95F	3.276	4.389	8	0.3638	0.2616	Non-Significant Effect
		31E0E5B3	1.724	3.792	8	0.3143	0.6188	Non-Significant Effect
		64BB680B	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		196479DF	4.959	4.635	8	0.3842	0.0282	Significant Effect
		141B370A	5.445	4.735	8	0.3925	0.0136	Significant Effect
2F8DB23		35ED0318	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		634EFACF	2.702	4.232	8	0.3508	0.4111	Non-Significant Effect
		28602B1E	1.019	2.859	8	0.237	0.4754	Non-Significant Effect
		1CD8C95F	0		8		>0.05	Non-Significant Effect
		31E0E5B3	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		64BB680B	2.127	4.04	8	0.3349	0.5660	Non-Significant Effect
		196479DF	1.682	2.859	8	0.237	0.2413	Non-Significant Effect
		141B370A	2.168	3.443	8	0.2854	0.2866	Non-Significant Effect
35ED0318		634EFACF	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		28602B1E	0.5334	2.859	8	0.237	0.7082	Non-Significant Effect
		1CD8C95F	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		31E0E5B3	0		8		>0.05	Non-Significant Effect
		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	3.235	4.04	8	0.3349	0.1703	Non-Significant Effect
		141B370A	3.721	4.232	8	0.3508	0.1133	Non-Significant Effect
634EFACF		28602B1E	1.682	4.04	8	0.3349	0.7572	Non-Significant Effect
		1CD8C95F	2.702	4.232	8	0.3508	0.4111	Non-Significant Effect
		31E0E5B3	1.149	3.443	8	0.2854	0.6976	Non-Significant Effect
		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	4.384	4.521	8	0.3748	0.0631	Non-Significant Effect
		141B370A	4.87	4.635	8	0.3842	0.0331	Significant Effect
28602B1E		1CD8C95F	1.019	2.859	8	0.237	0.4754	Non-Significant Effect
		31E0E5B3	0.5334	2.859	8	0.237	0.7082	Non-Significant Effect
		64BB680B	1.108	3.792	8	0.3143	0.8616	Non-Significant Effect
		196479DF	2.702	3.792	8	0.3143	0.2401	Non-Significant Effect
		141B370A	3.188	4.04	8	0.3349	0.1815	Non-Significant Effect
1CD8C95F		31E0E5B3	1.553	3.792	8	0.3143	0.6930	Non-Significant Effect
		64BB680B	2.127	4.04	8	0.3349	0.5660	Non-Significant Effect
		196479DF	1.682	2.859	8	0.237	0.2413	Non-Significant Effect
		141B370A	2.168	3.443	8	0.2854	0.2866	Non-Significant Effect
31E0E5B3		64BB680B	0.5746	2.859	8	0.237	0.6868	Non-Significant Effect
		196479DF	3.235	4.04	8	0.3349	0.1703	Non-Significant Effect
		141B370A	3.721	4.232	8	0.3508	0.1133	Non-Significant Effect
64BB680B		196479DF	3.81	4.389	8	0.3638	0.1264	Non-Significant Effect
		141B370A	4.295	4.521	8	0.3748	0.0730	Non-Significant Effect
196479DF		141B370A	0.4858	2.859	8	0.237	0.7331	Non-Significant Effect

Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.9939352	0.1104372	9	3.214	0.0051	Significant Effect
Error	1.374281	0.03435702	40			
Total	2.368216	0.1447943	49			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.788	3.067	0.0167	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9719	0.9367	0.2760	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.08322	0.1453	0.4953	Normal Distribution
Distribution	D'Agostino Skewness	0.9149	2.576	0.3602	Normal Distribution
Distribution	D'Agostino Kurtosis	0.4794	2.576	0.6316	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.067	9.21	0.5866	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.3312	3.878	0.5245	Normal Distribution

Survival Rate Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1	1	1	1	1	0	0	0.0%	0.0%
2F8DB23	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
35ED0318	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
634EFACF	5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%
28602B1E	5	0.84	0.7764	0.9036	0.6	1	0.07483	0.1673	19.92%	16.0%
1CD8C95F	5	0.76	0.6608	0.8592	0.4	1	0.1166	0.2608	34.31%	24.0%
31E0E5B3	5	0.88	0.8383	0.9217	0.8	1	0.04899	0.1095	12.45%	12.0%
64BB680B	5	0.92	0.8783	0.9617	0.8	1	0.04899	0.1095	11.91%	8.0%
196479DF	5	0.64	0.5764	0.7036	0.4	0.8	0.07483	0.1673	26.15%	36.0%
141B370A	5	0.6	0.5239	0.6761	0.4	0.8	0.08944	0.2	33.33%	40.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
64B810E3	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
2F8DB23	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
35ED0318	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
634EFACF	5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%
28602B1E	5	1.158	1.085	1.232	0.8861	1.345	0.08639	0.1932	16.68%	13.91%
1CD8C95F	5	1.074	0.9636	1.184	0.6847	1.345	0.1294	0.2895	26.96%	20.19%
31E0E5B3	5	1.202	1.153	1.252	1.107	1.345	0.05833	0.1304	10.85%	10.62%
64BB680B	5	1.25	1.2	1.3	1.107	1.345	0.05833	0.1304	10.43%	7.08%
196479DF	5	0.9342	0.8665	1.002	0.6847	1.107	0.07959	0.178	19.05%	30.55%
141B370A	5	0.894	0.8136	0.9743	0.6847	1.107	0.09448	0.2113	23.63%	33.55%

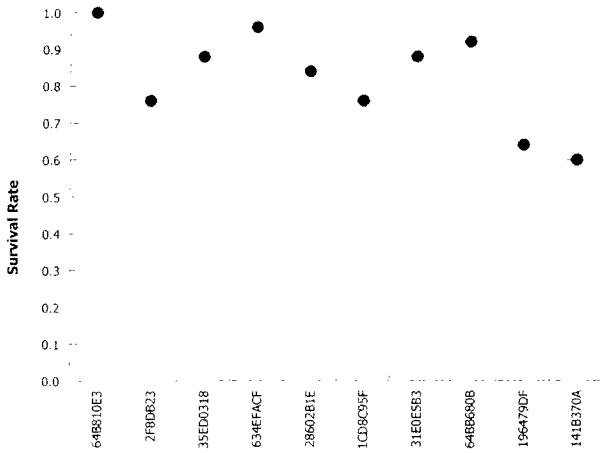
Neanthes 20-d Survival and Growth Sediment Test — **PBS&J Environmental Toxicology Laboratory**

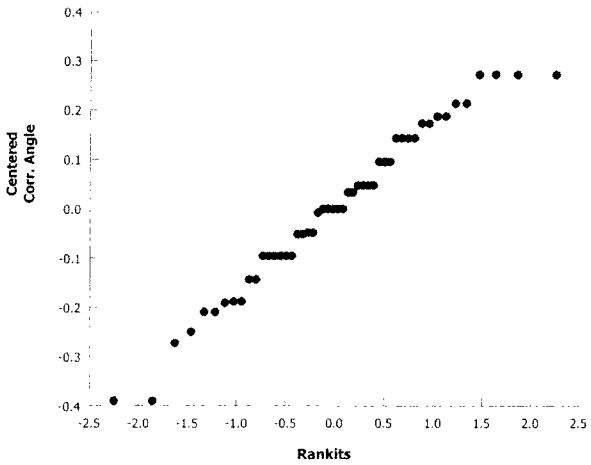
Analysis ID:	18-1476-5183	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	01 Oct-10 17:50	**Analysis:**	Parametric-All Pairwise	**Official Results:**	Yes

Survival Rate Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
64B810E3	1	1	1	1	1
2F8DB23	0.6	1	0.4	0.8	1
35ED0318	1	0.8	1	0.8	0.8
634EFACF	1	0.8	1	1	1
28602B1E	0.6	1	0.8	1	0.8
1CD8C95F	0.8	1	0.4	0.6	1
31E0E5B3	0.8	1	1	0.8	0.8
64BB680B	1	1	0.8	1	0.8
196479DF	0.6	0.4	0.8	0.6	0.8
141B370A	0.4	0.8	0.6	0.4	0.8

Graphics





Appendix B-3

96-Hour Surface Water Toxicity Tests for *Artemia salina* (Preliminary Results)

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:25 (p 1 of 1)
Test Code: 12-0918-2683/4812A9DB

Artemia 96-h Acute Toxicity Test — **S&J Environmental Toxicology Laboratory**

Start Date:	16 Sep-10 15:30	**Species:**	Artemia salina	**Sample Code:**	407B753C
End Date:	20 Sep-10 13:30	**Protocol:**	EPA/821/R-02-014 (2002)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	30 Aug-10 12:09	**Material:**	Surface Water	**Sample Station:**	EWSW-01

Batch Note: 1st Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival *	96h Survival	Notes
0	N	1	9	20	20	20	18	18	
0	N	2	20	20	20	20	13	0	
0	N	3	13	20	20	20	16	0	
0	N	4	8	20	20	20	11	0	
0	N	5	18	20	20	20	17	3	
6.25		1	27	20	20	20	18	2	
6.25		2	10	20	20	20	20	3	
6.25		3	19	20	20	20	20	1	
6.25		4	3	20	20	20	17	0	
6.25		5	5	20	20	20	20	4	
12.5		1	30	20	20	20	18	3	
12.5		2	22	20	20	20	20	2	
12.5		3	16	20	20	20	16	0	
12.5		4	7	20	20	20	19	0	
12.5		5	4	20	18	18	18	6	
25		1	15	20	18	18	18	6	
25		2	28	20	20	20	20	3	
25		3	21	20	20	20	19	4	
25		4	1	20	19	19	19	3	
25		5	23	20	19	19	19	4	
50		1	6	20	20	20	20	8	
50		2	25	20	20	20	20	8	
50		3	17	20	20	20	19	7	
50		4	2	20	20	20	20	6	
50		5	11	20	20	20	20	14	
100		1	29	20	20	20	20	17	
100		2	12	20	17	17	17	14	
100		3	14	20	20	20	20	12	
100		4	26	20	20	20	20	16	
100		5	24	20	20	20	20	16	

* Control failure @ 72h

> 85% survival in all concentration @ 48h; ∴, not toxic

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:24 (p 1 of 1)
Test Code: 17-7646-6978/69E2BC22

Artemia 96-h Acute Toxicity Test — **S&J Environmental Toxicology Laboratory**

Start Date:	21 Sep-10 15:30	**Species:**	Artemia salina	**Sample Code:**	6B8A3656
End Date:	25 Sep-10 14:30	**Protocol:**	EPA/821/R-02-014 (2002)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	30 Aug-10 13:35	**Material:**	Surface Water	**Sample Station:**	EWSW-01

Batch Note: 2nd Run

Sample Note: 2nd Run *

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	N	1	22	10	10	1	0	0	
0	N	2	24	10	10	2	1	0	
0	N	3	13	10	9	1	0	0	
0	N	4	9	10	10	2	0	0	
0	N	5	20	10	10	3	2	2	
6.25		1	26	10	10	4	4	4	
6.25		2	21	10	8	3	3	3	
6.25		3	1	10	10	8	6	7	
6.25		4	10	10	10	4	3	2	
6.25		5	23	10	9	7	7	6	
12.5		1	30	10	10	5	5	5	
12.5		2	28	10	9	4	3	3	
12.5		3	15	10	10	3	3	3	
12.5		4	16	10	10	6	5	4	
12.5		5	8	10	10	7	7	7	
25		1	6	10	10	6	6	6	
25		2	2	10	10	7	7	6	
25		3	29	10	9	4	4	4	
25		4	7	10	10	5	5	5	
25		5	19	10	10	4	3	3	
50		1	5	10	10	9	8	6	
50		2	11	10	9	5	4	4	
50		3	25	10	9	5	5	5	
50		4	14	10	9	5	5	5	
50		5	17	10	10	5	4	4	
100		1	4	10	10	6	6	6	
100		2	27	10	10	7	7	7	
100		3	18	10	9	7	7	7	
100		4	12	10	9	6	5	5	
100		5	3	10	10	6	5	5	

* control failure @ 48hr

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:30 (p 1 of 1)
Test Code: 17-1232-1508/660FF3E4

Artemia 96-h Acute Toxicity Test — **S&J Environmental Toxicology Laboratory**

Start Date:	29 Sep-10 13:30	**Species:**	Artemia salina	**Sample Code:**	428D663
End Date:	03 Oct-10 13:00	**Protocol:**	EPA/821/R-02-014 (2002)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	01 Aug-10 13:35	**Material:**	Surface Water	**Sample Station:**	EWSW-01

Batch Note: 3rd Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival *	Notes
0	N	1	1	10	10	9	9	6	
0	N	2	28	10	10	9	9	4	
0	N	3	30	10	10	9	9	5	
0	N	4	12	10	10	8	8	3	
0	N	5	20	10	10	10	10	8	
6.25		1	27	10	10	8	8	8	
6.25		2	13	10	10	9	9	8	
6.25		3	29	10	10	10	10	7	
6.25		4	11	10	10	9	9	5	
6.25		5	2	10	9	7	7	3	
12.5		1	21	10	10	10	9	9	
12.5		2	16	10	10	10	10	9	
12.5		3	19	10	10	7	7	7	
12.5		4	4	10	10	8	8	8	
12.5		5	24	10	10	8	8	7	
25		1	26	10	10	8	8	8	
25		2	8	10	10	8	8	8	
25		3	3	10	10	9	9	9	
25		4	15	10	9	8	8	8	
25		5	23	10	10	8	8	8	
50		1	25	10	10	9	9	9	
50		2	14	10	10	10	10	10	
50		3	7	10	10	9	9	7	
50		4	22	10	10	1	10	10	
50		5	9	10	10	10	10	9	
100		1	5	10	10	9	9	9	
100		2	17	10	10	6	6	6	
100		3	18	10	10	7	7	7	
100		4	6	10	10	8	8	8	
100		5	10	10	10	10	10	10	

* Control failure @ 96h

80% average survival @ 96-h in undiluted EWSW-01; ∴ not toxic

CETIS Test Data Worksheet

Report Date: 03 Oct-10 14:29 (p 1 of 1)
Test Code: 04-3359-6331/19D827AB

Artemia 96-h Acute Toxicity Test — S&J Environmental Toxicology Laboratory

Start Date:	16 Sep-10 15:30	Species:	Artemia salina	Sample Code:	44524B8F
End Date:	20 Sep-10 14:00	Protocol:	EPA/821/R-02-014 (2002)	Sample Source:	Gulfco Marine - BERA
Sample Date:	14 Sep-10 12:00	Material:	Surface Water	Sample Station:	EWSW-03

Batch Note: 1st Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival *	96h Survival	Notes
0	N	1	27	20	20	20	17	0	
0	N	2	22	20	20	20	13	0	
0	N	3	10	20	20	20	16	0	
0	N	4	14	20	20	20	17	1	
0	N	5	9	20	20	20	18	0	
6.25		1	19	20	20	20	19	4	
6.25		2	4	20	20	20	20	3	
6.25		3	5	20	20	20	20	4	
6.25		4	8	20	20	20	20	4	
6.25		5	18	20	20	20	19	8	
12.5		1	15	20	20	20	20	7	
12.5		2	21	20	20	20	20	7	
12.5		3	25	20	20	20	20	8	
12.5		4	23	20	20	20	20	3	
12.5		5	28	20	20	20	20	8	
25		1	3	20	20	20	20	10	
25		2	12	20	20	20	20	8	
25		3	24	20	20	20	20	12	
25		4	13	20	20	20	20	11	
25		5	6	20	20	20	20	11	
50		1	29	20	20	20	20	18	
50		2	17	20	20	20	20	16	
50		3	16	20	20	20	20	15	
50		4	7	20	18	18	18	15	
50		5	11	20	20	20	20	19	
100		1	20	20	20	20	18	18	
100		2	1	20	20	20	20	20	
100		3	30	20	20	20	20	20	
100		4	26	20	20	20	20	19	
100		5	2	20	20	20	20	17	

* control failure @ 72h

94% survival in undiluted EWSW-03 at 96h; ∴, not toxic

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:41 (p 1 of 1)
Test Code: 10-3186-8966/3D811226

Artemia 96-h Acute Toxicity Test — **S&J Environmental Toxicology Laboratory**

Start Date:	21 Sep-10 15:30	**Species:**	Artemia salina	**Sample Code:**	6F6F24E1
End Date:	25 Sep-10 14:30	**Protocol:**	EPA/821/R-02-014 (2002)	**Sample Source:**	Gulfco Marine - BERA
Sample Date:	14 Sep-10 12:00	**Material:**	Surface Water	**Sample Station:**	EWSW-03

Batch Note: 2nd Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival *	72h Survival	96h Survival	Notes
0	N	1	1	10	9	3	2	2	
0	N	2	14	10	9	4	4	4	
0	N	3	27	10	10	4	0	0	
0	N	4	29	10	9	3	3	3	
0	N	5	28	10	10	3	3	3	
6.25		1	20	10	9	5	4	4	
6.25		2	17	10	10	6	5	4	
6.25		3	16	10	9	4	4	4	
6.25		4	25	10	10	8	8	8	
6.25		5	22	10	10	6	5	5	
12.5		1	18	10	8	6	5	5	
12.5		2	10	10	10	7	6	6	
12.5		3	30	10	10	6	5	5	
12.5		4	2	10	8	3	2	2	
12.5		5	8	10	8	5	5	5	
25		1	13	10	7	4	4	4	
25		2	6	10	8	4	3	3	
25		3	15	10	8	4	4	4	
25		4	24	10	7	6	5	5	
25		5	21	10	10	6	6	6	
50		1	11	10	7	5	5	5	
50		2	7	10	8	2	2	2	
50		3	19	10	9	8	8	8	
50		4	4	10	10	7	6	6	
50		5	3	10	7	6	6	6	
100		1	9	10	8	1	1	1	
100		2	23	10	7	0	0	0	
100		3	12	10	8	2	2	2	
100		4	26	10	10	3	1	1	
100		5	5	10	8	3	0	0	

* control failure @ 48h

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:41 (p 1 of 1)
Test Code: 20-3371-1232/7937F880

Artemia 96-h Acute Toxicity Test — S&J Environmental Toxicology Laboratory

Start Date:	29 Sep-10 14:00	Species:	Artemia salina	Sample Code:	5B842AB1
End Date:	03 Oct-10 13:30	Protocol:	EPA/821/R-02-014 (2002)	Sample Source:	Gulfco Marine - BERA
Sample Date:	14 Sep-10 12:00	Material:	Surface Water	Sample Station:	EWSW-03

Batch Note: 3rd Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	N	1	10	10	10	9	9	9	
0	N	2	4	10	10	9	8	7	
0	N	3	25	10	10	10	10	9	
0	N	4	11	10	10	10	10	8	
0	N	5	18	10	10	9	9	9	
6.25		1	1	10	10	8	4	0	
6.25		2	23	10	10	6	6	1	
6.25		3	2	10	10	8	5	0	
6.25		4	7	10	10	6	5	2	
6.25		5	8	10	10	5	3	1	
12.5		1	5	10	10	6	1	0	
12.5		2	16	10	10	6	0	0	
12.5		3	19	10	8	3	0	0	
12.5		4	9	10	6	2	1	0	
12.5		5	24	10	8	3	0	0	
25		1	6	10	3	0	0	0	
25		2	15	10	5	4	0	0	
25		3	13	10	5	0	0	0	
25		4	30	10	2	0	0	0	
25		5	3	10	6	1	0	0	
50		1	28	10	2	0	0	0	
50		2	14	10	7	1	0	0	
50		3	21	10	5	1	0	0	
50		4	26	10	3	1	0	0	
50		5	17	10	5	1	0	0	
100		1	29	10	4	0	0	0	
100		2	12	10	2	0	0	0	
100		3	27	10	2	0	0	0	
100		4	20	10	1	0	0	0	
100		5	22	10	1	0	0	0	

control failure @ 96h

24h LC50 = 30.7 %

48h LC50 = 10.6 %

72h LC50 = 5.0 %

CETIS Analytical Report

Report Date: 03 Oct-10 15:37 (p 1 of 3)
Test Code: 7937F880 | 20-3371-1232

Artemia 96-h Acute Toxicity Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	03-0580-8707	**Endpoint:**	24h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 15:37	**Analysis:**	Trimmed Spearman-Kärber	**Official Results:**	Yes

Batch ID:	09-9853-6186	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	29 Sep-10 14:00	**Protocol:**	EPA/821/R-02-014 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	03 Oct-10 13:30	**Species:**	Artemia salina	**Brine:**	HW-Marinemix
Duration:	95h	**Source:**	PBS&J	**Age:**	

Sample ID:	15-3538-8337	**Code:**	5B842AB1	**Client:**	URS Corp
Sample Date:	14 Sep-10 12:00	**Material:**	Surface Water	**Project:**	100016848
Receive Date:	14 Sep-10 15:20	**Source:**	Gulfco Marine - BERA		
Sample Age:	15d 2h	**Station:**	EWSW-03		

Batch Note: 3rd Run

Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0	20.00%	1.487	0.05263	30.71	24.1	39.13

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Control Trend	Mann-Kendall Trend	10		1.0000	Non-significant Trend in Controls

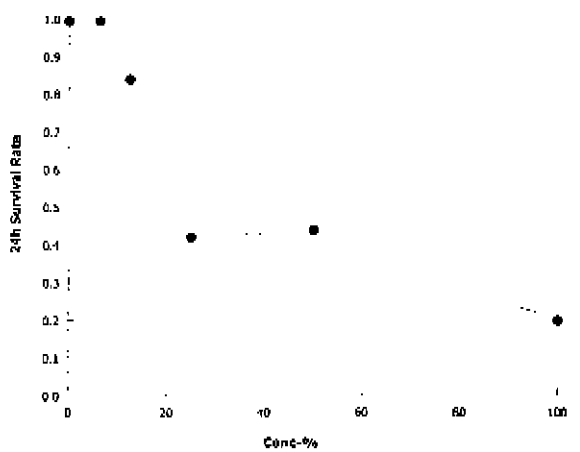
24h Survival Rate Summary — Calculated Variate(A/B)

Conc-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	1	1	1	0	0	0.0%	0.0%	50	50
6.25		5	1	1	1	0	0	0.0%	0.0%	50	50
12.5		5	0.84	0.6	1	0.07483	0.1673	19.92%	16.0%	42	50
25		5	0.42	0.2	0.6	0.07348	0.1643	39.12%	58.0%	21	50
50		5	0.44	0.2	0.7	0.08718	0.1949	44.3%	56.0%	22	50
100		5	0.2	0.1	0.4	0.05477	0.1225	61.24%	80.0%	10	50

24h Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
6.25		1	1	1	1	1
12.5		1	1	0.8	0.6	0.8
25		0.3	0.5	0.5	0.2	0.6
50		0.2	0.7	0.5	0.3	0.5
100		0.4	0.2	0.2	0.1	0.1

Graphics



Artemia 96-h Acute Toxicity Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	03-1338-8588	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 15:37	**Analysis:**	Trimmed Spearman-Kärber	**Official Results:**	Yes

Batch ID:	09-9853-6186	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	29 Sep-10 14:00	**Protocol:**	EPA/821/R-02-014 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	03 Oct-10 13:30	**Species:**	Artemia salina	**Brine:**	HW-Marinemix
Duration:	95h	**Source:**	PBS&J	**Age:**	

Sample ID:	15-3536-8337	**Code:**	5B842AB1	**Client:**	URS Corp
Sample Date:	14 Sep-10 12:00	**Material:**	Surface Water	**Project:**	100016848
Receive Date:	14 Sep-10 15:20	**Source:**	Gulfco Marine - BERA		
Sample Age:	15d 2h	**Station:**	EWSW-03		

Batch Note: 3rd Run

Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.06	25.53%	1.027	0.04293	10.63	8.726	12.96

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Control Trend	Mann-Kendall Trend	6		0.4034	Non-significant Trend in Controls

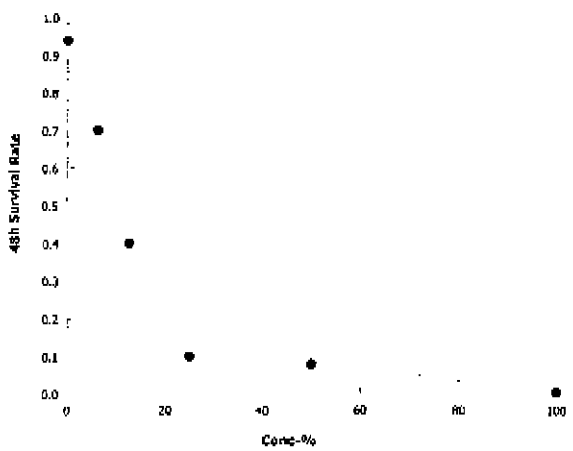
48h Survival Rate Summary

				Calculated Variate(A/B)							
Conc-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	0.94	0.9	1	0.02449	0.05477	5.83%	0.0%	47	50
6.25		5	0.7	0.5	0.8	0.06325	0.1414	20.2%	25.53%	35	50
12.5		5	0.4	0.2	0.6	0.08367	0.1871	46.77%	57.45%	20	50
25		5	0.1	0	0.4	0.07746	0.1732	173.2%	89.36%	5	50
50		5	0.08	0	0.1	0.02	0.04472	55.9%	91.49%	4	50
100		5	0	0	0	0	0		100.0%	0	50

48h Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9	0.9	1	1	0.9
6.25		0.8	0.8	0.8	0.6	0.5
12.5		0.6	0.6	0.3	0.2	0.3
25		0	0.4	0	0	0.1
50		0	0.1	0.1	0.1	0.1
100		0	0	0	0	0

Graphics



Artemia 96-h Acute Toxicity Test — **PBS&J Environmental Toxicology Laboratory**

Analysis ID:	04-7248-5157	**Endpoint:**	72h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	03 Oct-10 15:37	**Analysis:**	Trimmed Spearman-Kärber	**Official Results:**	Yes

Batch ID:	09-9853-6186	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	29 Sep-10 14:00	**Protocol:**	EPA/821/R-02-014 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	03 Oct-10 13:30	**Species:**	Artemia salina	**Brine:**	HW-Marinemix
Duration:	95h	**Source:**	PBS&J	**Age:**	

Sample ID:	15-3538-8337	**Code:**	5B842AB1	**Client:**	URS Corp
Sample Date:	14 Sep-10 12:00	**Material:**	Surface Water	**Project:**	100016848
Receive Date:	14 Sep-10 15:20	**Source:**	Gulfco Marine - BERA		
Sample Age:	15d 2h	**Station:**	EWSW-03		

Batch Note: 3rd Run

Trimmed Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.08	50.00%	0.7959	0.04663	6.25	5.042	7.747

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Control Trend	Mann-Kendall Trend	4		0.5042	Non-significant Trend in Controls

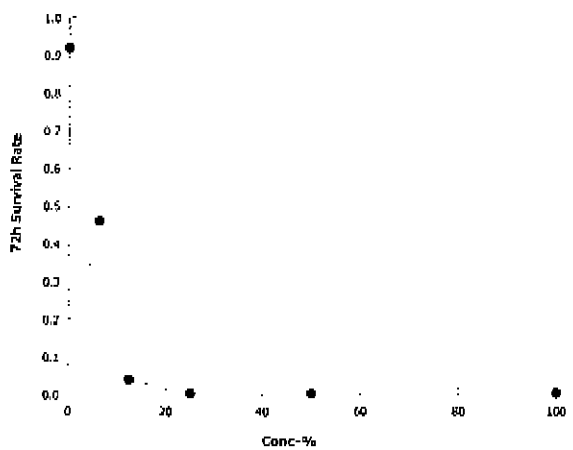
72h Survival Rate Summary

										Calculated Variate(A/B)	
Conc-%	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**	**A**	**B**
0	Negative Control	5	0.92	0.8	1	0.03742	0.08367	9.09%	0.0%	46	50
6.25		5	0.46	0.3	0.6	0.05099	0.114	24.79%	50.0%	23	50
12.5		5	0.04	0	0.1	0.02449	0.05477	136.9%	95.65%	2	50
25		5	0	0	0	0	0		100.0%	0	50
50		5	0	0	0	0	0		100.0%	0	50
100		5	0	0	0	0	0		100.0%	0	50

72h Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9	0.8	1	1	0.9
6.25		0.4	0.6	0.5	0.5	0.3
12.5		0.1	0	0	0.1	0
25		0	0	0	0	0
50		0	0	0	0	0
100		0	0	0	0	0

Graphics



CETIS Test Data Worksheet

Report Date: 03 Oct-10 14:35 (p 1 of 1)
Test Code: 08-1513-6691/3095FFB3

Artemia 96-h Acute Toxicity Test — **S&J Environmental Toxicology Laboratory**

Start Date:	16 Sep-10 15:30	Species:	Artemia salina	Sample Code:	34B2CE21
End Date:	20 Sep-10 14:30	Protocol:	EPA/821/R-02-014 (2002)	Sample Source:	Gulfco Marine - BERA
Sample Date:	30 Aug-10 13:35	Material:	Surface Water	Sample Station:	EWSW-04

Batch Note: 1st Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival *	Notes
0	N	1	14	20	20	20	20	3	
0	N	2	19	20	19	19	19	3	
0	N	3	25	20	20	20	17	1	
0	N	4	8	20	20	20	15	1	
0	N	5	26	20	20	20	18	2	
6.25		1	6	20	20	20	19	5	
6.25		2	23	20	20	20	16	2	
6.25		3	17	20	20	20	18	1	
6.25		4	9	20	18	18	15	2	
6.25		5	30	20	20	20	17	5	
12.5		1	2	20	20	20	20	6	
12.5		2	28	20	20	20	20	1	
12.5		3	10	20	20	20	19	1	
12.5		4	3	20	20	20	20	2	
12.5		5	29	20	20	20	20	7	
25		1	24	20	20	20	20	10	
25		2	27	20	20	20	20	7	
25		3	7	20	20	20	20	6	
25		4	22	20	19	19	19	5	
25		5	1	20	20	20	20	7	
50		1	18	20	19	19	19	16	
50		2	15	20	20	20	20	16	
50		3	11	20	20	20	20	9	
50		4	4	20	20	20	20	14	
50		5	13	20	20	20	20	18	
100		1	12	20	19	19	19	19	
100		2	21	20	20	20	20	19	
100		3	16	20	20	20	20	18	
100		4	5	20	20	20	20	16	
100		5	20	20	20	20	20		datum not recorded @ 96h

* Control failure @ 96h
minimum 90% survival in undiluted EWSW-04 at 96h; ∴, not toxic

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:15 (p 1 of 1)
Test Code: 03-4794-9582/14BD4A0E

Artemia 96-h Acute Toxicity Test — S&J Environmental Toxicology Laboratory

Start Date:	21 Sep-10 15:30	Species:	Artemia salina	Sample Code:	533D4776
End Date:	24 Sep-10 14:30	Protocol:	EPA/821/R-02-014 (2002)	Sample Source:	Gulfco Marine - BERA
Sample Date:	30 Aug-10 13:35	Material:	Surface Water	Sample Station:	EWSW-04

Batch Note: 2nd Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival *	72h Survival	96h Survival	Notes
0	N	1	16	10	9	4	4	4	
0	N	2	13	10	9	4	3	3	
0	N	3	19	10	10	4	3	3	
0	N	4	11	10	10	3	1	1	
0	N	5	7	10	10	5	5	4	
6.25		1	24	10	9	7	7	6	
6.25		2	1	10	10	4	3	2	
6.25		3	27	10	9	5	4	4	
6.25		4	20	10	9	6	4	4	
6.25		5	2	10	9	6	6	6	
12.5		1	30	10	8	5	5	5	
12.5		2	4	10	8	8	8	8	
12.5		3	15	10	9	8	7	7	
12.5		4	18	10	7	4	3	3	
12.5		5	10	10	9	7	6	6	
25		1	21	10	8	7	7	6	
25		2	14	10	10	4	4	4	
25		3	8	10	9	7	7	6	
25		4	23	10	9	7	7	6	
25		5	26	10	9	6	6	6	
50		1	9	10	9	9	8	6	
50		2	12	10	9	8	8	8	
50		3	6	10	7	5	5	5	
50		4	28	10	8	8	8	8	
50		5	22	10	9	7	6	6	
100		1	17	10	10	6	6	6	
100		2	29	10	9	7	6	6	
100		3	5	10	9	7	6	6	
100		4	25	10	6	5	5	5	
100		5	3	10	8	7	7	7	

* control failure @ 48h

CETIS Test Data Worksheet

Report Date: 03 Oct-10 15:20 (p 1 of 1)
Test Code: 03-7156-8627/1625AFF3

Artemia 96-h Acute Toxicity Test — S&J Environmental Toxicology Laboratory

Start Date:	29 Sep-10 14:30	Species:	Artemia salina	Sample Code:	82C476D
End Date:	03 Oct-10 13:30	Protocol:	EPA/821/R-02-014 (2002)	Sample Source:	Gulfco Marine - BERA
Sample Date:	30 Aug-10 13:35	Material:	Surface Water	Sample Station:	EWSW-04

Batch Note: 3rd Run

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival *	Notes
0	N	1	5	10	10	10	7	1	
0	N	2	23	10	10	10	8	2	
0	N	3	25	10	10	7	7	3	
0	N	4	18	10	10	6	6	2	
0	N	5	3	10	10	10	9	9	
6.25		1	17	10	10	10	10	10	
6.25		2	13	10	10	9	9	8	
6.25		3	27	10	10	10	10	10	
6.25		4	7	10	10	10	9	7	
6.25		5	26	10	10	10	10	7	
12.5		1	15	10	10	8	8	8	
12.5		2	19	10	10	6	6	5	
12.5		3	21	10	10	10	10	9	
12.5		4	29	10	10	8	8	8	
12.5		5	20	10	10	9	9	9	
25		1	12	10	10	9	9	8	
25		2	30	10	10	8	8	7	
25		3	4	10	10	10	10	9	
25		4	6	10	10	8	8	7	
25		5	24	10	10	10	10	7	
50		1	14	10	10	10	6	9	
50		2	11	10	10	9	9	7	
50		3	8	10	10	10	10	9	
50		4	2	10	10	8	8	8	
50		5	10	10	10	10	10	10	
100		1	1	10	10	9	9	9	
100		2	16	10	10	10	10	10	
100		3	22	10	10	10	10	8	
100		4	28	10	10	10	10	10	
100		5	9	10	10	9	9	9	

* control failure @ 96h

96% survival in undiluted EWSW-04 at 96h; ∴, not toxic

Appendix C

Data Usability Summary, Analytical Summary Data Tables, and Data Validation Checklists

URS

Data Usability Summary

To:	David Lingle	**Date:**	September 25, 2010
From:	Brenda Basile	**File:**	Gulfco DUS 0810.doc
RE:	Usability of Soil, Surface Water, Pore Water and Sediment Data for Samples Collected August 2010 at the Gulfco Site	**cc:**	Margaret Roy

URS reviewed nine data packages from Columbia Analytical Services (Kelso, Washington) (CAS) reporting the analyses of soil, surface water, pore water, and sediment samples collected August 12 through September 10, 2010 at the Gulfco Marine Maintenance Superfund Site (Gulfco) in Freeport, Brazoria County, Texas. CAS holds Texas laboratory accreditation T104704427-09-1. The packages were reviewed for conformance to the requirements of American Society for Testing and Materials (ASTM), *SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846), and *Methods for the Chemical Analysis of Water and Wastes (MCAWW*). The purpose of this sampling event was to provide current data on concentrations of potential chemicals of concern (COCs) in soil, surface water, pore water, and sediments at the site for use in an ecological risk assessment.

Sediment, soil. pore water and surface water samples were analyzed using:

- MCAWW 200.8 – Determination Of Trace Elements In Waters And Wastes By Inductively Coupled Plasma - Mass Spectrometry
- SW-846 8081A – Organochlorine Pesticides by Gas Chromatography
- SW-846 8082 – Polychlorinated Biphenyls (PCBs) by Gas Chromatography
- SW-846 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Soil and sediment samples were analyzed using

- ASTM D4129-82M – Standard Test Method for Total and Organic Carbon in Water by High Temperature Oxidation and by Coulometric Detection.

Sediment samples were analyzed using:

- ASTM D422 Modified – Test Method for Particle Size Analysis of Soils

Data were reviewed using the guidance in the Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Inorganic Superfund Data Review (January 2010), the CLP NFG Guidelines for Superfund Organic Methods Data Review (June 2008), and the acceptance criteria in the Final Baseline Ecological Risk Assessment Work Plan and Sampling and Analysis Plan (SAP) (June 22, 2010).

Introduction

Sediment, surface water, pore water, soil and associated quality control samples were analyzed for parameters listed as listed in Table 1. Table 1 lists the sample identifications cross-referenced to laboratory

identifications and the analyses performed for each sample. Data qualified due to quality control exceedances are listed in Table 2.

Data Review Results

PRESERVATION AND HOLDING TIMES

One set of samples (NAS07EB, NAS07, NAS08, and NAS09) was received by the laboratory at a temperature greater than 6°C. The analyses for these samples were cancelled and the samples recollected. Analyzed samples were received in the laboratory at temperatures less than 6°C. Samples were analyzed within the holding times specified in the individual methods.

INSTRUMENT PERFORMANCE AND CALIBRATIONS

Instrument performance analyses met method requirements. Initial calibration data met method requirements. Continuing calibration data outside method requirements are listed in Table 4. Data are qualified as listed in Tables 2 and 4.

BLANKS

Analytes detected in field and laboratory blanks are listed in Table 3. Data are qualified as nondetect (U) if sample concentrations are less than five times the blank concentration (except for phthalate esters which are qualified if sample concentrations are less than ten times the blank concentration). Data are qualified as shown in Tables 2 and 3.

Metals data for equipment blanks and laboratory blanks were reported in units of ug/L while the associated soil and sediment data were reported in units of mg/kg. In order to determine if metals solid data should be qualified on the basis of detections in the associated aqueous blanks, the following conversion was used for the aqueous data:

(5 ug/L * 0.050 L)/(0.001 kg*1000 ug/mg) = 0.1 mg/kg

Based on this calculation, the minimum detected concentration evaluated for qualification in equipment and laboratory associated with solid samples was 5 ug/L. Aqueous blank concentrations less than 5 ug/L were not recorded in this DUS.

PAH data for equipment blanks were reported in units of ug/L while the associated soil and sediment data were reported in units of ug/kg. In order to determine if PAH solid data should be qualified on the basis of detections in the associated aqueous blanks, the following conversion was used for the aqueous data:

(0.002 ug/L * 1.0 L*0.010 L)/(0.010 kg*0.005 L) = 0.4 ug/kg

Based on this calculation, the minimum detected concentration evaluated for qualification in equipment and laboratory blanks associated with solid samples was 0.002 ug/L. Aqueous blank concentrations less than 0.002 ug/L were not recorded in this DUS. A conversion factor of 200 was used to convert aqueous blank results to solid results

SURROGATE RECOVERIES AND INTERNAL STANDARD AREAS

Surrogate recoveries outside the SAP acceptance criterion are listed in Table 4. Data are qualified as shown in Tables 2 and 4. Internal standard areas were within +100% and -50% of the average initial calibration area.

LABORATORY CONTROL SAMPLES

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries (%R) (if analyzed) were within the SAP acceptance criteria. Precision was within the SAP acceptance criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Batch, or non-project, matrix spike/matrix spike duplicate (MS/MSD) data were not evaluated. Precision and recoveries outside the SAP acceptance criteria are listed in Table 4. Data are qualified as shown in Tables 2 and 4.

PESTICIDE CONFIRMATION

Pesticide primary and confirmation results were evaluated using 40 RPD as the criteria between the two columns. Results greater than 40 RPD are listed in Table 4 and data are qualified as shown in Tables 2 and 4.

FIELD PRECISION

Field duplicate precision is summarized in Table 5. Field duplicate precision for aqueous samples is acceptable using criteria of 30 RPD for concentrations greater than the method quantitation limit (MQL) or ± one times the MQL for concentrations less than the MQL. Field duplicate precision for sediment samples is acceptable using criteria of 50 RPD for concentrations greater than the method quantitation limit (MQL) or ± two times the MQL for concentrations less than the MQL.

SUMMARY

Analytical data are usable for determining current COC concentrations in sediment, soil surface water and pore water at the site.

Table 1

Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	200.8 Metals	Pest 8081	PCB 8082	PAHs 8270	Other	Comment
EWSED09	K1008729-01	X	X		X	GS TOC	Metals MS/D
EWSED08	K1008729-02	X	X		X	GS TOC	
EWSED03	K1008729-03	X	X		X	GS TOC	
EWSED04	K1008729-04	X			X	GS TOC	
EWSED07	K1008729-05	X			X	GS TOC	
NAS01	K1008729-06	X				TOC	
NAS01EB	K1008729-07	X					Equipment blank
EWSED05	K1008729-08	X	X		X	GS TOC	
EWSED06	K1008729-09	X	X		X	GS TOC	
EWSED01	K1008729-10	X	X		X	GS TOC	
EWSED02	K1008729-11	X	X		X	GS TOC	Pest/PAH MS/MSD
EWSED02EB	K1008729-12	X	X		X		Equipment Blank
EWSED02FD	K1008729-13	X	X		X		Field duplicate of EWSED02
NAS02EB	K1008824-01	X	X	X			Equipment Blank
NAS02	K1008824-02	X	X	X		TOC	Pest/PCB MS/MSD, Metals MS
NAS02FD	K1008824-03	X	X	X			Field duplicate of NAS02
NAS03	K1008824-04	X	X			TOC	
NAS05	K1008824-05	X	X			TOC	
NAS04	K1008824-06	X		X		TOC	
NAS06	K1008824-07	X				TOC	
NAS07EB	K1008824-08						Cancelled
NAS07	K1008824-09						Cancelled
NAS08	K1008824-10						Cancelled
NAS09	K1008824-11						Cancelled
EIWSED03EB	K1008968-01		X		X		Equipment blank
EIWSED03	K1008968-02		X		X	TOC	Pesticide/PAH MS/MSD
EIWSED03FD	K1008968-03		X		X	TOC	Field duplicate of EIWSED03
EIWSED02	K1008968-04		X		X	TOC	
EIWSED01	K1008968-05		X		X	TOC	
EIWSED04	K1008968-06		X		X	TOC	Hexachlorobenzene
EIWSED05	K1008968-07		X		X	TOC	
EIWSED06	K1008968-08		X		X	TOC	Hexachlorobenzene
EIWSED07	K1008968-09		X		X	TOC	Hexachlorobenzene
EIWSED06PWEB	K1009025-01		X		X		Equipment blank

Table 1

Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	200.8 Metals	Pest 8081	PCB 8082	PAHs 8270	Other	Comment
EIWSED06PW	K1009025-02		X		X		
EIWSED05PWEB	K1009025-03		X				Equipment blank
EIWSED05PW	K1009025-04		X				
EIWSED05PWFD	K1009025-05		X				Field duplicate of EIWSED05PW
EISED04PW	K1009025-06		X				
EIWSED01PWEB	K1009025-07		X				Equipment blank
EIWSED01PW	K1009025-08		X				
EIWSED02PW	K1009025-09		X				
EIWSED03PW	K1009025-10		X				MS/MSD
NAS07EB	K1009025-11	X	X				Equipment blank
NAS07	K1009025-12	X				TOC	Metals MS
NAS08	K1009025-13	X	X			TOC	
NAS09	K1009025-14	X	X			TOC	
EWSED04	K1009102-01					AVS/SEM	
EWSED07	K1009102-02					AVS/SEM	
EWSED03	K1009102-03					AVS/SEM	
EWSED06	K1009102-04					AVS/SEM	
EWSED02	K1009102-05					AVS/SEM	
EWSED01	K1009102-06					AVS/SEM	
EWSED09	K1009102-07					AVS/SEM	
EWSED08	K1009102-08					AVS/SEM	
EWSED05	K1009102-09					AVS/SEM	MS/MSD
EIWSED07EB	K1009275-01	X					Equipment blank
EIWSED07PW	K1009275-02	X					
EWSED08PWEB	K1009275-03	X	X		X		Equipment blank
EWSED08PW	K1009275-04	X	X		X		
EWSED04PWEB	K1009275-05	X			X		Equipment blank
EWSED04PW	K1009275-06	X					
EWSED07PWEB	K1009275-07	X			X		Metals MS/ Equipment blank
EWSED07PW	K1009275-08	X			X		
EWSED02PWEB	K1009285-01	X	X		X		Equipment blank
EWSED02PW	K1009285-02	X	X		X		
EWSED01PW	K1009285-03	X	X		X		
EWSED06PWEB	K1009433-01	X	X		X		Equipment blank
EWSED06PW	K1009433-02	X	X		X		

Table 1

Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Laboratory Identification	200.8 Metals	Pest 8081	PCB 8082	PAHs 8270	Other	Comment
EIWSED07PWEB	K1009433-03		X		X		Pesticide MS/MSD; Hexachlorobenzene, equipment blank
EIWSED07PW	K1009433-04		X		X		Hexachlorobenzene
EWSW01EB	K1009433-05	X				VOCs	Equipment blank
EWSW01FD	K1009433-06	X				VOCs	Field duplicate of EWSW01
EWSW01	K1009433-07	X				VOCs	Metals MS; Acrolein MS/MSD
EWSW04	K1009433-08	X					
EWSW01FB	K1009433-09					VOCs	Field blank
EWSED09PWEB	K1009899-01	X	X		X		Equipment Blank
EWSED09PW	K1009899-02	X	X		X		
EWSED03PWEB	K1009899-03	X	X		X		Equipment Blank
EWSED09PW	K1009899-04	X	X		X		

AVS/SEM – Acid Volatile Sulfide/Simultaneously Extracted Metals

GS – Grain Size

MS – Matrix Spike

MSD – Matrix Spike Duplicate

PAH – Polycyclic Aromatic Hydrocarbons

PCB – Polychlorinated Biphenyl

TOC – Total Organic Carbon

VOC – Volatile Organic Carbon

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Comment
EIWSED01	4,4'-DDT	J	Confirmation column precision
EIWSED01PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED02	Naphthalene	U	Analyte detected in quality control blank
EIWSED02PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED03	2-Methylnaphthalene	U	Analyte detected in quality control blank
EIWSED03	Naphthalene	U	Analyte detected in quality control blank
EIWSED03PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED04PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EIWSED04PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED05	2-Methylnaphthalene	U	Analyte detected in quality control blank
EIWSED05	Naphthalene	U	Analyte detected in quality control blank
EIWSED05PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED05PWFD	Naphthalene	U	Analyte detected in quality control blank
EIWSED06	Hexachlorobenzene	JL	Surrogate recovery less than control limits
EIWSED06	PAHs	JL	Surrogate recovery less than control limits
EIWSED06PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EIWSED06PW	Naphthalene	U	Analyte detected in quality control blank
EIWSED07	Hexachlorobenzene	JL	Surrogate recovery less than control limits
EIWSED07	PAHs	JL	Surrogate recovery less than control limits
EIWSED07PW	Naphthalene	U	Analyte detected in quality control blank
EWSED01	Naphthalene	U	Analyte detected in quality control blank
EWSED01PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED01PW	Lead	U	Analyte detected in quality control blank
EWSED01PW	Naphthalene	U	Analyte detected in quality control blank
EWSED02	Naphthalene	U	Analyte detected in quality control blank
EWSED02FD	Naphthalene	U	Analyte detected in quality control blank
EWSED02PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED02PW	Copper	U	Analyte detected in quality control blank
EWSED02PW	Endrin aldehyde	J	Confirmation column precision
EWSED02PW	Lead	U	Analyte detected in quality control blank
EWSED02PW	Naphthalene	U	Analyte detected in quality control blank
EWSED02PW	Zinc	U	Analyte detected in quality control blank
EWSED03	Endrin aldehyde	J	Confirmation column precision
EWSED03	Naphthalene	U	Analyte detected in quality control blank
EWSED03PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED03PW	Endrin ketone	J	Confirmation column precision

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Comment
EWSED03PW	Lead	U	Analyte detected in quality control blank
EWSED03PW	Naphthalene	U	Analyte detected in quality control blank
EWSED03PW	Nickel	U	Analyte detected in quality control blank
EWSED03PW	Phenanthrene	U	Analyte detected in quality control blank
EWSED04	Naphthalene	U	Analyte detected in quality control blank
EWSED04PW	Lead	U	Analyte detected in quality control blank
EWSED05	Endrin aldehyde	J	Confirmation column precision
EWSED06	gamma-chlordane	J	Confirmation column precision
EWSED06	Naphthalene	U	Analyte detected in quality control blank
EWSED06PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED06PW	Benz(a)anthracene	U	Analyte detected in quality control blank
EWSED06PW	Lead	U	Analyte detected in quality control blank
EWSED06PW	Naphthalene	U	Analyte detected in quality control blank
EWSED06PW	Chrysene	U	Analyte detected in quality control blank
EWSED06PW	Benzo(b)fluoranthene	U	Analyte detected in quality control blank
EWSED06PW	Benzo(k)fluoranthene	U	Analyte detected in quality control blank
EWSED06PW	Benzo(a)pyrene	U	Analyte detected in quality control blank
EWSED06PW	Indeno(123-cd)pyrene	U	Analyte detected in quality control blank
EWSED06PW	Dibenz(ah)anthracene	U	Analyte detected in quality control blank
EWSED06PW	Benzo(ghi)perylene	U	Analyte detected in quality control blank
EWSED07	Naphthalene	U	Analyte detected in quality control blank
EWSED07PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED07PW	Naphthalene	U	Analyte detected in quality control blank
EWSED08	Naphthalene	U	Analyte detected in quality control blank
EWSED08PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED08PW	Lead	U	Analyte detected in quality control blank
EWSED08PW	Naphthalene	U	Analyte detected in quality control blank
EWSED09	Naphthalene	U	Analyte detected in quality control blank
EWSED09PW	2-Methylnaphthalene	U	Analyte detected in quality control blank
EWSED09PW	Copper	U	Analyte detected in quality control blank
EWSED09PW	Lead	U	Analyte detected in quality control blank
EWSED09PW	Naphthalene	U	Analyte detected in quality control blank
EWSED09PW	Zinc	U	Analyte detected in quality control blank
EWSW01	Copper	J	Serial Dilution %Difference exceeds criteria
EWSW01	Zinc	J	Serial Dilution %Difference exceeds criteria
NAS02	4,4'-DDT	J	Field duplicate precision
NAS02	Aroclor 1254	J	Field duplicate precision

Table 2

Qualified Analytical Data

Field Identification	Analyte	Qualification	Comment
NAS02	Zinc	JH	MS recovery greater than acceptance criteria
NAS02FD	4,4'-DDT	J	Field duplicate precision
NAS02FD	Aroclor 1254	J	Field duplicate precision

H – Bias high
J – Data are estimated due to exceedance of one or more quality control criteria
U – Analyte not detected at associated concentration.
L – Bias low
MS – Matrix spike
PAH – Polycyclic Aromatic Hydrocarbons

Table 3

Concentrations of Target Analytes in Blanks

Field or Laboratory ID	Analyte	Concentration	Qualified Concentration	Comments
EIWSED01PWEB	2-Methylnaphthalene	0.0085 ug/L	0.043 ug/L	
EIWSED01PWEB	Naphthalene	0.19 ug/L	0.95 ug/L	
EIWSED03EB	2-Methylnaphthalene	0.018 ug/L	3.6 ug/kg	
EIWSED03EB	Naphthalene	0.27 ug/L	54 ug/kg	
EIWSED05PWEB	2-Methylnaphthalene	0.0052 ug/L	0.026 ug/L	
EIWSED05PWEB	Benz(a)anthracene	0.0027 ug/L	0.014 ug/L	
EIWSED05PWEB	Naphthalene	0.065 ug/L	0.32 ug/L	
EIWSED06PWEB	2-Methylnaphthalene	0.007 ug/L	0.035 ug/L	
EIWSED06PWEB	Naphthalene	0.057 ug/L	0.28 ug/L	
EIWSED07PWEB	Naphthalene	0.042 ug/L	0.21 ug/L	
EWSED02EB	2-Methylnaphthalene	0.0029 ug/L	0.58 ug/Kg	
EWSED02EB	Copper	0.23 ug/L	1.2 ug/L	
EWSED02EB	Lead	0.026 ug/L	0.13 ug/L	
EWSED02EB	Naphthalene	0.051 ug/L	10 ug/kg	
EWSED02EB	Nickel	0.08 ug/L	0.40 ug/L	
EWSED02EB	Zinc	0.63 ug/L	3.2 ug/L	
EWSED02PWEB	2-Methylnaphthalene	0.0059 ug/L	0.030 ug/L	
EWSED02PWEB	Arsenic	0.10 ug/L	0.50 ug/L	
EWSED02PWEB	Copper	0.121 ug/L	0.61 ug/L	
EWSED02PWEB	Lead	0.592 ug/L	3.0 ug/L	
EWSED02PWEB	Naphthalene	0.10 ug/L	0.50 ug/L	
EWSED02PWEB	Nickel	0.15 ug/L	0.75 ug/L	
EWSED02PWEB	Zinc	0.94 ug/L	4.7 ug/L	
EWSED03PWEB	Arsenic	0.06 ug/L	0.30 ug/L	
EWSED03PWEB	Copper	0.815 ug/L	4.1 ug/L	
EWSED03PWEB	Lead	0.111 ug/L	0.56 ug/L	
EWSED03PWEB	Naphthalene	0.29 ug/L	1.5 ug/L	
EWSED03PWEB	Nickel	1.70 ug/L	8.5 ug/L	
EWSED03PWEB	Zinc	1.90 ug/L	9.5 ug/L	
EWSED04PWEB	2-Methylnaphthalene	0.0051 ug/L	0.026 ug/L	
EWSED04PWEB	Copper	0.074 ug/L	0.37 ug/L	
EWSED04PWEB	Lead	0.237 ug/L	1.2 ug/L	
EWSED04PWEB	Naphthalene	0.045 ug/L	0.23 ug/L	
EWSED04PWEB	Nickel	0.48 ug/L	2.4 ug/L	
EWSED04PWEB	Phenanthrene	0.0054 ug/L	0.027 ug/L	

Table 3

Concentrations of Target Analytes in Blanks

Field or Laboratory ID	Analyte	Concentration	Qualified Concentration	Comments
EWSED04PWEB	Zinc	1.14 ug/L	5.7 ug/L	
EWSED06PWEB	2-Methylnaphthalene	0.0052 ug/L	0.026 ug/L	
EWSED06PWEB	Benz(a)anthracene	0.0034 ug/L	0.017 ug/L	
EWSED06PWEB	Benzo(b)fluoranthene	0.0024 ug/L	0.012 ug/L	
EWSED06PWEB	Benzo(g,h,i)perylene	0.0030 ug/L	0.015 ug/L	
EWSED06PWEB	Copper	0.132 ug/L	0.66 ug/L	
EWSED06PWEB	Lead	0.145 ug/L	0.73 ug/L	
EWSED06PWEB	Naphthalene	0.051 ug/L	0.26 ug/L	
EWSED06PWEB	Nickel	0.81 ug/L	4.1 ug/L	
EWSED06PWEB	Zinc	1.34 ug/L	6.7 ug/L	
EWSED07PWEB	2-Methylnaphthalene	0.0039 ug/L	0.020 ug/L	
EWSED07PWEB	Copper	0.047 ug/L	0.24 ug/L	
EWSED07PWEB	Lead	0.015 ug/L	0.08 ug/L	
EWSED07PWEB	Naphthalene	0.059 ug/L	0.30 ug/L	
EWSED07PWEB	Nickel	0.13 ug/L	0.65 ug/L	
EWSED07PWEB	Zinc	0.59 ug/L	3.0 ug/L	
EWSED08PWEB	2-Methylnaphthalene	0.0056 ug/L	0.028 ug/L	
EWSED08PWEB	Copper	0.233 ug/L	1.2 ug/L	
EWSED08PWEB	Lead	0.554 ug/L	2.8 ug/L	
EWSED08PWEB	Naphthalene	0.082 ug/L	0.41 ug/L	
EWSED08PWEB	Nickel	0.36 ug/L	1.8 ug/L	
EWSED08PWEB	Zinc	1.03 ug/L	5.2 ug/L	
EWSED09PWEB	2-Methylnaphthalene	0.10 ug/L	0.50 ug/L	
EWSED09PWEB	2-Methylnaphthalene	0.12 ug/L	0.60 ug/L	
EWSED09PWEB	Arsenic	0.05 ug/L	0.25 ug/L	
EWSED09PWEB	Copper	1.33 ug/L	6.7 ug/L	
EWSED09PWEB	Dibenzofuran	0.0058 ug/L	0.029 ug/L	
EWSED09PWEB	Dibenzofuran	0.0074 ug/L	0.037 ug/L	
EWSED09PWEB	Fluorene	0.0056 ug/L	0.028 ug/L	
EWSED09PWEB	Fluorene	0.0070 ug/L	0.035 ug/L	
EWSED09PWEB	Lead	0.174 ug/L	0.87 ug/L	
EWSED09PWEB	Naphthalene	0.25 ug/L	1.2 ug/L	
EWSED09PWEB	Nickel	0.48 ug/L	2.4 ug/L	
EWSED09PWEB	Phenanthrene	0.020 ug/L	0.10 ug/L	
EWSED09PWEB	Phenanthrene	0.021 ug/L	0.11 ug/L	
EWSED09PWEB	Zinc	1.89 ug/L	9.5 ug/L	

Table 3

Concentrations of Target Analytes in Blanks

Field or Laboratory ID	Analyte	Concentration	Qualified Concentration	Comments
EWSW01EB	Copper	0.039 ug/L	0.20 ug/L	
EWSW01EB	Nickel	0.15 ug/L	0.75 ug/L	
EWSW01EB	Zinc	1.03 ug/L	5.2 ug/L	
K1008729-MB	Barium	0.01 mg/kg	0.05 mg/kg	
K1008729-MB	Chromium	0.08 mg/kg	0.4 mg/kg	
K1008729-MB	Naphthalene	0.71 ug/kg	3.6 ug/kg	
K1008729-MB	Nickel	0.05 mg/kg	0.25 mg/kg	
K1008729-MB	Zinc	0.4 mg/kg	2.0 mg/kg	
K1008824-MB	Barium	0.01 ug/L	0.05 ug/L	
K1008824-MB	Chromium	0.08 ug/L	0.4 ug/L	
K1008824-MB	Zinc	0.4 ug/L	2.0 ug/L	
K1009025-ICB	Copper	0.02 ug/L	0.1 ug/L	
K1009025-MB	Barium	0.040 ug/L	0.20 ug/L	
K1009025-MB	Chromium	0.09 ug/L	0.45 ug/L	
K1009102-MB	Zinc	0.028 umol/g	0.14 umol/g	
K1009275-MB	Copper	0.006 ug/L	0.03 ug/L	
K1009275-MB	Lead	0.022 ug/L	0.11 ug/L	
K1009275-MB (8/31)	Benz(a)anthracene	0.0032 ug/L	0.016 ug/L	
K1009275-MB (9/2)	Benz(a)anthracene	0.0092 ug/L	0.046 ug/L	
K1009275-MB (9/2)	Benzo(a)pyrene	0.0073 ug/L	0.037 ug/L	
K1009275-MB (9/2)	Benzo(b)fluoranthene	0.014 ug/L	0.070 ug/L	
K1009275-MB (9/2)	Benzo(ghi)perylene	0.019 ug/L	0.095 ug/L	
K1009275-MB (9/2)	Benzo(k)fluoranthene	0.011 ug/L	0.055 ug/L	
K1009275-MB (9/2)	Chrysene	0.0098 ug/L	0.049 ug/L	
K1009275-MB (9/2)	Dibenz(ah)anthracene	0.013 ug/L	0.065 ug/L	
K1009275-MB (9/2)	Indeno(123-cd)pyrene	0.011 ug/L	0.055 ug/L	
K1009285-MB	Benz(a)anthracene	0.0032 ug/L	0.016 ug/L	
K1009285-MB	Copper	0.006 ug/L	0.03 ug/L	
K1009285-MB	Lead	0.022 ug/L	0.11 ug/L	
K1009433-MB	Benz(a)anthracene	0.0092 ug/L	0.030 ug/L	
K1009433-MB	Benzo(a)pyrene	0.0073 ug/L	0.055 ug/L	
K1009433-MB	Benzo(b)fluoranthene	0.014 ug/L	0.049 ug/L	
K1009433-MB	Benzo(ghi)perylene	0.019 ug/L	0.065 ug/L	
K1009433-MB	Benzo(k)fluoranthene	0.011 ug/L	0.070 ug/L	
K1009433-MB	Chrysene	0.0098 ug/L	0.046 ug/L	
K1009433-MB	Copper	0.006 ug/L	0.030 ug/L	

Table 3

Concentrations of Target Analytes in Blanks

Field or Laboratory ID	Analyte	Concentration	Qualified Concentration	Comments
K1009433-MB	Dibenz(ah)anthracene	0.013 ug/L	0.055 ug/L	
K1009433-MB	Indeno(123-cd)pyrene	0.011 ug/L	0.037 ug/L	
K1009433-MB	Lead	0.022 ug/L	0.11 ug/L	
K1009433-MB	Naphthalene	0.006 ug/L	0.03 ug/L	
K1009899-MB	Copper	0.006 ug/L	0.030 ug/L	
K1009899-MB	Lead	0.022 ug/L	0.11 ug/L	
NAS01 EB	Barium	0.70 ug/L	3.5 ug/L	
NAS01 EB	Chromium	0.14 ug/L	0.70 ug/L	
NAS01 EB	Copper	0.14 ug/L	0.70 ug/L	
NAS01 EB	Zinc	1.17 ug/L	5.8 ug/L	
NAS07EB	Barium	0.16 ug/L	0.8 ug/L	
NAS07EB	Chromium	0.11 ug/L	0.55 ug/L	
NAS07EB	Copper	0.06 ug/L	0.3 ug/L	
NAS07EB	Zinc	0.31 ug/L	1.6 ug/L	

Table 4

Precision and Recovery Exceedances

Sample	Analyte	Spike Recovery	Spike Duplicate Recovery	Precision	Qualification
CCV 082510	Indeno(123-cd)pyrene	NA	NA	24	None; analyte not detected
CCV 090310	Fluorene	NA	NA	21	None; analyte not detected
CCV 090710	4,4'-DDT	NA	NA	22	
CCV 091510	Endrin ketone	NA	NA	21	J detections
EIWSED01	4,4'-DDT	NA	NA	77	J
EIWSED03	4,4'-DDT	101	59	51	J
EIWSED06	2-Fluorobiphenyl	20	NA	NA	JL
EIWSED06	Nitrobenzene-d5	18	NA	NA	JL
EIWSED07	2-Fluorobiphenyl	11	NA	NA	JL
EIWSED07	Nitrobenzene-d5	13	NA	NA	JL
EWSED02PW	Endrin aldehyde	NA	NA	41.4	J
EWSED03	Endrin aldehyde	NA	NA	69.9	J
EWSED05	Endrin aldehyde	NA	NA	63.4	J
EWSED06	gamma-chlordane	NA	NA	55.1	J
EWSED06PW	Decachlorobiphenyl	19	NA	NA	None; only one low
EWSW01	Arsenic	46.8	NA	NA	None; not target analyte
EWSW01	Copper (Serial Dilution)	NA	NA	11	J
EWSW01	Zinc (Serial Dilution)	NA	NA	12	J
K1008968 LCS	Acenaphthene	40	42	4	JL
K1008968 LCS	Acenaphthene	55	51	7	JL
K1008968 LCS	Fluorene	41	47	12	JL
K1008968 LCS	Phenanthrene	46	50	9	None; average greater than QAPP criteria
NAS02	Zinc	144.3	NA	NA	JH
NAS07	Zinc	22.4	NA	NA	None; sample greater than 4x spike

Table 5

Field Precision

Field Identification	Analyte	Sample Result (SR)	Duplicate Result (DR)	RPD[a]	Qualification
EWSED02 / EWSED02FD	Total Organic Carbon	2.41	3.05	23	A
	Arsenic	2.4	2.51	4.5	A
	Copper	13.3	14.6	9.3	A
	Lead	12	14.7	20	A
	Nickel	15.6	17.3	10	A
	Zinc	70.1	86.1	20	A
	4,4'-DDT	< 0.00017	< 0.00017	NA	A
	Endrin aldehyde	< 0.00012	< 0.001	NA	A
	Endrin ketone	< 0.00093	< 0.0011	NA	A
	gamma-Chlordane	< 0.00090	< 0.00009	NA	A
	Naphthalene	0.89 U	2.6 U	NA	A
	2-Methylnaphthalene	2	2.6	26	A
	Acenaphthylene	41	30	31	A
	Acenaphthene	1.8	1.3	32	A
	Fluorene	13	11	17	A
	Dibenzofuran	0.98	0.64	42	A
	Phenanthrene	16	14	13	A
	Anthracene	32	24	29	A
	Fluoranthene	23	19	19	A
	Pyrene	140	110	24	A
	Benzo(b)fluoranthene	250	200	22	A
	Benzo(k)fluoranthene	31	27	14	A
	Benz(a)anthracene	< 43	< 0.72	NA	A
	Chrysene	620	490	23	A
	Benzo(a)pyrene	120	97	21	A
	Indeno(123-cd)pyrene	190	160	17	A
	Dibenz(ah)anthracene	110	94	16	A
	Benzo(ghi)perylene	460	380	19	A
NAS02 / NAS02FD	Total Organic Carbon	0.895	1.03	14	A
	Barium	163	261	46	A
	Chromium	27.2	23.1	16	A
	Copper	26	24.9	4.3	A
	Zinc	296	307	3.6	A
	4,4'-DDT	7.5	13	54	J
	Aroclor 1254	93	160	53	J

Table 5

Field Precision

Field Identification	Analyte	Sample Result (SR)	Duplicate Result (DR)	RPD[a]	Qualification
EIWSED03 / EIWSED03FD	Total Organic Carbon	0.632	0.668	5.5	A
	4,4'-DDT	0.32	0.89	94	A*
	Naphthalene	5.4 U	< 0.63	NA	A
	2-Methylnaphthalene	3.3 U	< 0.48	NA	A
	Acenaphthylene	2.6	3.1	18	A
	Acenaphthene	5.2	2.2	81	A*
	Fluorene	6.7	3.2	71	A*
	Dibenzofuran	3.7	1.6	79	A*
	Phenanthrene	71	43	49	A
	Anthracene	10	7.1	34	A
	Fluoranthene	120	94	24	A
	Pyrene	100	110	10	A
	Benzo(b)fluoranthene	100	100	0.0	A
	Benzo(k)fluoranthene	38	35	8.2	A
	Benz(a)anthracene	52	48	NA	A
	Chrysene	70	67	4.4	A
	Benzo(a)pyrene	72	68	5.7	A
	Indeno(123-cd)pyrene	76	81	6.4	A
	Dibenz(ah)anthracene	15	14	6.9	A
	Benzo(ghi)perylene	66	74	11	A
EIWSED05PW / EIWSED05PWFD	2-Methylnaphthalene	0.047	0.05	6.2	A
	Acenaphthene	0.027	0.031	14	A
	Fluorene	0.058	0.062	6.7	A
	Dibenzofuran	0.023	0.026	12	A
	Phenanthrene	0.015	0.015	0.00	A
EWSW01 / EWSW01FD	Copper	3.38	3.31	2.1	A
	Nickel	6.16	6.01	2.5	A
	Silver	0.02	0.021	4.9	A
	Zinc	29	27.9	3.9	A

[a] RPD = ((SR - DR)*200)/(SR + DR)
A - Acceptable Data
A* - Acceptable; concentrations less than method reporting limit and difference less than method reporting limit
NA – Not applicable
< or U – Analyte not detected

Intracoastal Waterway Sediment
Gulfco Marine Maintenance Superfund Site

		Location	EIWSED01	EIWSED02	EIWSED03	EIWSED03	EIWSED04	EIWSED05	EIWSED06	EIWSED07
		Sample Date	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010
		Sample ID	EIWSED01	EIWSED02	EIWSED03	EIWSED03FD	EIWSED04	EIWSED05	EIWSED06	EIWSED07
Analyte	**CAS No.**	**Units**								
Total Organic Carbon	7440-44-0	%	**0.413**	**0.72**	**0.632**	**0.668**	**0.548**	**0.682**	**0.606**	**0.509**
4,4'-DDT	50-29-3	mg/kg	**0.00023 J**	**0.0019**	**0.00032 J**	**0.00089 J**	---	**0.00029 J**	*< 0.00017*	*< 0.00017*
Acenaphthene	83-32-9	mg/kg	**0.0071**	**0.023**	**0.0052**	**0.0022 J**	**0.0029 J**	**0.0046 J**	*< 0.0014 JL*	*< 0.0014 JL*
Benz(a)anthracene	56-55-3	mg/kg	**0.03**	**0.24**	**0.052**	**0.048**	**0.032**	**0.042**	*< 0.0017 JL*	*< 0.0017 JL*
Chrysene	218-01-9	mg/kg	**0.046**	**0.31**	**0.07**	**0.067**	**0.054**	**0.059**	**0.0019 JL**	*< 0.0015 JL*
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.0046**	**0.063**	**0.015**	**0.014**	**0.0087 J**	**0.01**	*< 0.0015 JL*	*< 0.0015 JL*
Fluoranthene	206-44-0	mg/kg	**0.12**	**0.52**	**0.12**	**0.094**	**0.074**	**0.1**	**0.0019 JL**	**0.0018 JL**
Fluorene	86-73-7	mg/kg	**0.019**	**0.02**	**0.0067**	**0.0032 J**	**0.0031 J**	**0.0045 J**	*< 0.0011 JL*	*< 0.0011 JL*
Hexachlorobenzene	118-74-1	mg/kg	---	---	---	---	*< 0.0012*	---	*< 0.0012 JL*	*< 0.0012 JL*
Phenanthrene	85-01-8	mg/kg	**0.15**	**0.24**	**0.071**	**0.043**	**0.028**	**0.051**	*< 0.0014 JL*	*< 0.0014 JL*
Pyrene	129-00-0	mg/kg	**0.081**	**0.47**	**0.1**	**0.11**	**0.073**	**0.084**	**0.0025 JL**	**0.0018 JL**

Notes:
Sediment results are reported on a dry weight basis.
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
L – Bias low
< or U - Analyte not detected

Intracoastal Waterway Sediment Pore Water
Gulfco Marine Maintenance Superfund Site

		Location	EIWSED01	EIWSED02	EIWSED03	EIWSED04	EIWSED05	EIWSED05	EIWSED06	EIWSED07
		Sample Date	8/20/2010	8/20/2010	8/20/2010	8/21/2010	8/21/2010	8/21/2010	8/22/2010	8/30/2010
		Sample ID	EIWSED01PW	EIWSED02PW	EIWSED03PW	EIWSED04PW	EIWSED05PW	EIWSED05PWFD	EIWSED06PW	EIWSED07PW
Analyte	**CAS No.**	**Units**								
4,4'-DDT	50-29-3	mg/l	*< 0.0000035 J*	*< 0.00000098 J*	*< 0.0000013 J*	*< 0.00000076 J*	*< 0.0000013 J*	*< 0.0000016 J*	*< 0.000001 J*	*< 0.00000058*
Hexachlorobenzene	118-74-1	mg/l	*< 0.00000035*	*< 0.00000031*	*< 0.00000039*	*< 0.00000037*	*< 0.00000037*	*< 0.00000044*	*< 0.00000039*	*< 0.000022*
Acenaphthene	83-32-9	mg/l	**0.000052**	**0.000037**	**0.000024**	*< 0.0000088*	**0.000027**	**0.000031**	*< 0.0000088*	*< 0.000026*
Benz(a)anthracene	56-55-3	mg/l	*< 0.0000035*	*< 0.0000028*	*< 0.0000026*	*< 0.0000052*	*< 0.0000034*	*< 0.0000028*	*< 0.0000052*	*< 0.000018*
Chrysene	218-01-9	mg/l	*< 0.0000046*	*< 0.0000037*	*< 0.0000034*	*< 0.0000068*	*< 0.0000044*	*< 0.0000036*	*< 0.0000068*	*< 0.000028*
Dibenz(a,h)anthracene	53-70-3	mg/l	*< 0.0000034*	*< 0.0000027*	*< 0.0000025*	*< 0.000005*	*< 0.0000033*	*< 0.0000027*	*< 0.000005*	*< 0.000017*
Fluoranthene	206-44-0	mg/l	*< 0.0000059*	*< 0.0000048*	*< 0.0000044*	*< 0.0000088*	*< 0.0000057*	*< 0.0000047*	*< 0.0000088*	*< 0.00002*
Fluorene	86-73-7	mg/l	**0.000043**	**0.000029**	**0.00002 J**	*< 0.0000076*	**0.000023 J**	**0.000026**	*< 0.0000076*	*< 0.000027*
Phenanthrene	85-01-8	mg/l	**0.000031**	**0.000022 J**	**0.000012 J**	*< 0.00001*	**0.000015 J**	**0.000015 J**	*< 0.00001*	*< 0.000022*
Pyrene	129-00-0	mg/l	*< 0.0000047*	*< 0.0000038*	*< 0.0000035*	*< 0.000007*	*< 0.0000045*	*< 0.0000037*	*< 0.000007*	*< 0.000019*

Notes:
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
< or U - Analyte not detected

Marsh Sediment
Gulfco Marine Maintenance Superfund Site

		Location	EWSED01	EWSED02	EWSED02	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
		Sample Date	8/12/2010	8/12/2010	8/13/2010	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	EWSED02FD	EWSED03	EWSED04	EWSED05	EWSED06	EWSED07	EWSED08	EWSED09
Analyte	**CAS No.**	**Units**										
Clay	CL	%	21.2	10.8	---	1.7	0.6	27.5	61.7	38.2	14.6	48.5
Gravel, Fine	GF	%	3.49	5.66	---	7.73	2.19	2.64	0.87	3.68	12.1	2.31
Gravel, Medium	GM	%	2.52	53.7	---	47.9	0.57	0.34	18.7	0.16	12.7	1.97
Sand, Coarse	SC	%	2.82	1.77	---	3.01	3.18	4.49	0.41	3.76	3.92	0.54
Sand, Fine	SF	%	2.12	2.29	---	1.93	7.02	8.91	2.06	7.84	2.62	1.87
Sand, Medium	SM	%	1.8	1.15	---	1.75	2.98	4.93	0.27	3.47	1.93	0.4
Sand, Very Coarse	SVC	%	5.58	2.91	---	4.83	2.88	2.83	0.67	5.02	8.04	1.35
Sand, Very Fine	SVF	%	2.42	1.64	---	0.93	4.59	6.96	1.24	1.15	2.51	5.24
Silt	SI	%	61.6	13.7	---	29.2	81.4	38.7	21.6	39.8	44.3	40.4
Total Organic Carbon	7440-44-0	%	**5.94**	**2.41**	**3.05**	**1.82**	**1.67**	**1.81**	**2.15**	**2.39**	**4.68**	**1.12**
Acid-Volatile Sulfide	18496-25-8	uMole/g	**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	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**
Arsenic	7440-38-2	mg/kg	**2.97**	**2.4**	**2.51**	**5.36**	**4.35**	**3.06**	**3.23**	**5.94**	**2.92**	**2.58**
Copper	7440-50-8	mg/kg	**20.6**	**13.3**	**14.6**	**25**	**20.3**	**28.9**	**28.1**	**30.7**	**15.8**	**11.7**
Lead	7439-92-1	mg/kg	**17.2**	**12**	**14.7**	**48.4**	**37.4**	**76.1**	**32.9**	**32.7**	**19.8**	**17.4**
Nickel	7440-02-0	mg/kg	**18.9**	**15.6**	**17.3**	**21.7**	**16.9**	**14.4**	**22.5**	**20.1**	**16.3**	**16.5**
Zinc	7440-66-6	mg/kg	**115**	**70.1**	**86.1**	**585**	**417**	**595**	**959**	**318**	**94.3**	**68.3**
4,4'-DDT	50-29-3	mg/kg	*< 0.001 J*	*< 0.00017*	*< 0.00017*	**0.0028**	---	*< 0.019 J*	**0.0012**	---	**0.0014**	**0.0016**
Endrin Aldehyde	7421-93-4	mg/kg	**0.0007 J**	*< 0.00012*	*< 0.001 J*	**0.00027 J**	---	**0.0014 J**	*< 0.00012*	---	**0.00052 J**	*< 0.00012*
Endrin Ketone	53494-70-5	mg/kg	*< 0.000093*	*< 0.000093*	*< 0.0011 J*	*< 0.00011 J*	---	*< 0.001 J*	*< 0.000093*	---	*< 0.00012*	*< 0.000093*
gamma-Chlordane	5103-74-2	mg/kg	*< 0.00009*	*< 0.00009*	*< 0.00009*	*< 0.00009*	---	*< 0.00009*	**0.00025 J**	---	*< 0.00012 J*	*< 0.00023 J*
2-Methylnaphthalene	91-57-6	mg/kg	**0.0038 J**	**0.002 J**	**0.0026 J**	**0.0068**	**0.0037 J**	**0.02**	**0.0016 J**	**0.0053**	**0.001 J**	**0.00061 J**
Acenaphthene	83-32-9	mg/kg	**0.0046 J**	**0.0018 J**	**0.0013 J**	**0.0043 J**	**0.0026 J**	**0.075**	**0.0013 J**	**0.009**	*< 0.00088*	*< 0.00076*
Acenaphthylene	208-96-8	mg/kg	**0.057**	**0.041**	**0.03**	**0.0032 J**	**0.0069**	**0.018**	**0.0008 J**	**0.0091**	*< 0.00069*	*< 0.00059*
Anthracene	120-12-7	mg/kg	**0.043**	**0.032**	**0.024**	**0.005**	**0.006**	**0.078**	**0.0011 J**	**0.027**	**0.001 J**	*< 0.00058*
Benz(a)anthracene	56-55-3	mg/kg	*< 0.066 J*	*< 0.043 J*	*< 0.00072*	**0.024**	**0.031**	**0.55**	**0.0069**	**0.09**	**0.011**	**0.0024 J**
Benzo(a)pyrene	50-32-8	mg/kg	**0.24**	**0.12**	**0.097**	**0.028**	**0.04**	**0.79**	**0.01**	**0.087**	**0.014**	**0.0027 J**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**0.63**	**0.46**	**0.38**	**0.058**	**0.076**	**0.68**	**0.019**	**0.1**	**0.017**	**0.0032 J**
Chrysene	218-01-9	mg/kg	**0.39**	**0.62**	**0.49**	**0.064**	**0.05**	**0.77**	**0.014**	**0.14**	**0.017**	**0.004 J**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.17**	**0.11**	**0.094**	**0.0074**	**0.01**	**0.14**	**0.0026 J**	**0.019**	**0.003 J**	*< 0.0008*
Fluoranthene	206-44-0	mg/kg	**0.038**	**0.023**	**0.019**	**0.052**	**0.076**	**1.3**	**0.02**	**0.26**	**0.031**	**0.0055**
Fluorene	86-73-7	mg/kg	**0.019**	**0.013**	**0.011**	**0.0048**	**0.0032 J**	**0.065**	**0.001 J**	**0.016**	**0.00092 J**	*< 0.00061*
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	**0.22**	**0.19**	**0.16**	**0.034**	**0.064**	**0.79**	**0.019**	**0.1**	**0.019**	**0.0032 J**
Phenanthrene	85-01-8	mg/kg	**0.032**	**0.016**	**0.014**	**0.049**	**0.041**	**0.78**	**0.013**	**0.15**	**0.015**	**0.0024 J**
Pyrene	129-00-0	mg/kg	**0.091**	**0.14**	**0.11**	**0.069**	**0.075**	**1.1**	**0.021**	**0.19**	**0.027**	**0.0044 J**

Notes:
Sediment results are reported on a dry weight basis.
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
< or U - Analyte not detected

Marsh Sediment Pore Water
Gulfco Marine Maintenance Pore Water

		Location	EWSED01	EWSED02	EWSED03	EWSED04	EWSED06	EWSED07	EWSED08	EWSED09
		Sample Date	8/26/2010	8/26/2010	9/9/2010	8/27/2010	8/31/2010	8/28/2010	8/25/2010	9/10/2010
		Sample ID	EWSED01PW	EWSED02PW	EWSED03PW	EWSED04PW	EWSED06PW	EWSED07PW	EWSED08PW	EWSED09PW
Analyte	**CAS No.**	**Units**								
Arsenic	7440-38-2	mg/l	**0.0037 J**	**0.0041 J**	**0.0019 J**	**0.00072 J**	**0.00177 J**	**0.00063 J**	**0.00576 J**	**0.00171 J**
Copper	7440-50-8	mg/l	**0.000922**	*0.000342 U*	**0.00456**	**0.00426**	**0.00702**	**0.00303**	**0.00137**	*0.000761 U*
Lead	7439-92-1	mg/l	*0.000115 U*	*0.000113 U*	*0.000425 U*	*0.00015 U*	*0.000443 U*	**0.000184**	*0.00128 U*	*0.000236 U*
Nickel	7440-02-0	mg/l	**0.00944**	**0.00486**	*0.00749 U*	**0.0114**	**0.00915**	**0.00917**	**0.0142**	**0.00669**
Zinc	7440-66-6	mg/l	**0.0101**	*0.00135 U*	**0.0413**	**0.101**	**0.626**	**0.0599**	**0.039**	*0.00124 U*
4,4'-DDT	50-29-3	mg/l	*< 0.000012 J*	*< 0.0000047 J*	*< 0.000016 J*	---	*< 0.00000058*	---	**0.000003 J**	*< 0.0000014 J*
Endrin Aldehyde	7421-93-4	mg/l	**0.000013**	**0.0000067 J**	**0.000015 J**	---	*< 0.00000046*	---	**0.0000026 J**	*< 0.0000033 J*
Endrin Ketone	53494-70-5	mg/l	*< 0.00000078*	*< 0.0000013 J*	**0.000007 J**	---	*< 0.00000066*	---	*< 0.0000007*	*< 0.0000011*
gamma-Chlordane	5103-74-2	mg/l	*< 0.00000038*	*< 0.0000013 J*	*< 0.000016 J*	---	*< 0.00000032*	---	**0.0000033 J**	*< 0.000016 J*
2-Methylnaphthalene	91-57-6	mg/l	*0.000018 U*	*0.000026 U*	*0.000022 U*	---	*0.000019 U*	*0.000013 U*	*0.0000083 U*	*0.000018 U*
Acenaphthene	83-32-9	mg/l	*< 0.0000052*	*< 0.0000044*	*< 0.0000047*	---	**0.0000091 J**	*< 0.000012*	*< 0.000005*	*< 0.0000044*
Acenaphthylene	208-96-8	mg/l	**0.000024**	*< 0.0000034*	*< 0.0000036*	---	*< 0.0000035*	**0.000032 J**	*< 0.0000039*	*< 0.0000034*
Anthracene	120-12-7	mg/l	**0.000067**	*< 0.0000036*	**0.000013 J**	---	*< 0.0000037*	**0.000066**	*< 0.0000041*	*< 0.0000036*
Benz(a)anthracene	56-55-3	mg/l	*< 0.0000031*	*< 0.0000026*	*< 0.0000028*	---	*0.0000095 U*	*< 0.0000067*	*< 0.000003*	*< 0.0000026*
Benzo(a)pyrene	50-32-8	mg/l	*< 0.0000051*	*< 0.0000043*	*< 0.0000046*	---	*0.0000097 U*	*< 0.000012*	*< 0.0000049*	*< 0.0000043*
Benzo(g,h,i)perylene	191-24-2	mg/l	**0.000012 J**	**0.000012 J**	*< 0.0000031*	---	*0.000023 U*	*< 0.0000075*	*< 0.0000033*	*< 0.0000029*
Chrysene	218-01-9	mg/l	*< 0.000004*	**0.000049**	*< 0.0000036*	---	*0.0000096 U*	*< 0.0000088*	*< 0.0000039*	*< 0.0000034*
Dibenz(a,h)anthracene	53-70-3	mg/l	*< 0.000003*	**0.0000034 J**	*< 0.0000027*	---	*0.000015 U*	*< 0.0000065*	*< 0.0000029*	*< 0.0000025*
Fluoranthene	206-44-0	mg/l	*< 0.0000052*	*< 0.0000044*	*< 0.0000047*	---	*< 0.0000045*	*< 0.000012*	*< 0.000005*	*< 0.0000044*
Fluorene	86-73-7	mg/l	**0.000013 J**	*< 0.0000038*	*< 0.000004*	---	**0.0000091 J**	*< 0.0000098*	*< 0.0000044*	*< 0.0000038*
Indeno(1,2,3-cd)pyrene	193-39-5	mg/l	**0.0000051 J**	**0.0000062 J**	*< 0.0000028*	---	*0.000014 U*	*< 0.0000067*	*< 0.000003*	*< 0.0000026*
Phenanthrene	85-01-8	mg/l	**0.000012 J**	*< 0.000005*	*0.0000053 U*	---	**0.0000068 J**	*< 0.000013*	*< 0.0000057*	*< 0.000005*
Pyrene	129-00-0	mg/l	*< 0.0000042*	*< 0.0000035*	*< 0.0000037*	---	*< 0.0000036*	*< 0.000009*	*< 0.000004*	*< 0.0000035*

Notes:
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
< or U - Analyte not detected

Soils Data
Gulfco Marine Maintenance Superfund Site

		Location	NAS01	NAS02	NAS02	NAS03	NAS04	NAS05	NAS06	NAS07	NAS08	NAS09
		Sample Date	8/13/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/17/2010	8/17/2010	8/17/2010
		Sample ID	NAS01	NAS02	NAS02FD	NAS03	NAS04	NAS05	NAS06	NAS07	NAS08	NAS09
Analyte	**CAS No.**	**Units**										
Barium	7440-39-3	mg/kg	**272**	**163**	**261**	**190**	**502**	**198**	**52.2**	**340**	**182**	**172**
Chromium	7440-47-3	mg/kg	**97.3**	**27.2**	**23.1**	**15.4**	**7.86**	**30.9**	**13.4**	**12.4**	**13.6**	**13.3**
Copper	7440-50-8	mg/kg	**221**	**26**	**24.9**	**22.9**	**10.8**	**27.4**	**10.8**	**10.1**	**12.6**	**11**
Zinc	7440-66-6	mg/kg	**5770**	**296 JH**	**307 J**	**307 J**	**321 J**	**309 J**	**62.3 J**	**501**	**182**	**63.1**
4,4'-DDT	50-29-3	mg/kg	---	**0.0075 J**	**0.015 J**	**0.0078**	---	**0.008**	---	*< 0.00022*	*< 0.00023*	*< 0.00023*
Aroclor 1254	11097-69-1	mg/kg	---	**0.093 J**	**0.16 J**	---	**0.01**	---	---	*< 0.0027*	**0.004 J**	*< 0.0028*

Notes:
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
H - Bias High
< or U - Analyte not detected

Surface Water Data
Gulfco Marine Maintenance Superfund Site

		Location	EWSW01	EWSW01	EWSW04
		Sample Date	8/30/2010	8/30/2010	8/30/2010
		Sample ID	EWSW01	EWSW01FD	EWSW04
Analyte	**CAS No.**	**Units**			
Acrolein	107-02-8	mg/l	*< 0.00096*	*< 0.00096*	---
Copper	7440-50-8	mg/l	**0.00338 J**	**0.00331**	**0.00154**
Silver	7440-22-4	mg/l	**0.00002 J**	**0.000021 J**	**0.000011 J**

Notes:
Bolded values indicate detections above the reporting detection limit.
--- Not Analyzed
J - Data are estimated
< or U - Analyte not detected

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Coastco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No. K1008729			
Reviewer: Brenda Basile	Date Checked: 9/25/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓			
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?	✓			
24. MDLs reasonable per DCS?	✓ BB		✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓ BB	✓		①
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1008729

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

① Analyte not reported

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1008824			
Reviewer: Brenda Basile	Date Checked: 9/25/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓			
20. Method references included?	✓		BAB	
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?	✓			
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	BAB	✓		1
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	BAB	✓		2
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K100882 4

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

① Zinc MS exceeds recovery limits

② DDT field duplicate precision exceeds control limits

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 415 68745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1008948			
Reviewer: Brenda Basile	Date Checked: 9/25/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?			✓	
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?	✓			
24. MDLs reasonable per DCS?	✓ AB		✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	BPB	✓		①
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1008968

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

Dibenzo(123-cd)pyrene associated with equipment blank; analyte not detected

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1009025			
Reviewer: Brenda Basile	Date Checked: 9/25/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?		✓		
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓			
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?	✓			
24. MDLs reasonable per DCS?		✓		
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓BPB	✓		1
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1009025

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary data 10/1/2010 for qualified data.

(1) Zinc MS (NA502) outside limits; spike concentration 1/2 sample concentration.

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: ~~K1009102~~ RDB 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1009102			
Reviewer: Brenda Basile	Date Checked: 9/28/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?			✓	
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?			✓	
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1009102

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: K1009275			
Laboratory: Columbia Analytical Services	Laboratory Job No.: Lingle			
Reviewer: Brenda Basile	Date Checked: 9/28/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓			
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?			✓	
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1009275

39. Completeness percentage within project limits?	X			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1009285			
Reviewer: Brenda Basile	Date Checked: 9/28/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓			
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?			✓	
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1009285

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 4156745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K1009433			
Reviewer: Brenda Basile	Date Checked: 9/30/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?		✓		
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?	✓			COCs
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?	✓		✓	
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?			✓	
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

K1009433

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

DATA VALIDATION CHECKLIST (Level III and Level IV)				
Client Name: Gulfco Marine Superfund Site	Project Number: 41568745			
Property Location: Freeport TX	Project Manager: Lingle			
Laboratory: Columbia Analytical Services	Laboratory Job No.: K0049899			
Reviewer: Brenda Basile	Date Checked: 9/30/2010			
ITEM	**Yes**	**No**	**NA**	**Comment Number**
Chain of Custody (COC) and Sample Receipt at Lab				
1. Signed COCs included and seals used?	✓			
2. Date and time of sample collection included?	✓			
3. All samples listed on the COC analyzed for in accordance with the RI/FS Work Plan?	✓			
4. Field QC sample frequency met project requirements?	✓			
5. Sample receipt temperature 2-6°C?	✓			
6. Samples preserved appropriately?	✓			
7. Samples received within 2 days of collection?	✓			
8. Any problems noted?			✓	
Laboratory Report and Data Package				
9. Signed Case Narrative included?	✓			
10. Analytical discrepancies noted in case narrative?	✓			
11. Field sample IDs included?	✓			
12. Laboratory sample IDs included?	✓			
13. Date of analysis included?	✓			
14. Date of sample preparation included?	✓			
15. Samples prepared within holding time?	✓			
16. Samples analyzed within holding time?	✓			
17. Detection limit and quantitation limit included?	✓			
18. Project target limits achieved?	✓			
19. Elevated reporting limits justified?			✓	
20. Method references included?	✓			
21. Sample matrix included?	✓			
22. Sample result units reported correctly?	✓			
23. Soil/ sediment results corrected for dry-weight?			✓	
24. MDLs reasonable per DCS?			✓	
25. Calibration data acceptable?	✓			
26. ICV and CCV recoveries within project control limits?	✓			
27. ICB and CCB results <RL?	✓			
28. Method blank results <RL?	✓			
29. Equipment and Trip blank results <RL?	✓			
30. All COIs included in LCS?	✓			
31. LCS recovery within project control limits?	✓			
32. MS/MSD recoveries within project control limits?	✓			
33. LCS/LCSD RPDs within project control limits?	✓			
34. MS/MSD RPDs within project control limits?	✓			
35. Laboratory duplicate RPDs within project control limits?	✓			
36. Field duplicate RPDs within project control limits?	✓			
37. Surrogate recoveries within project control limits?	✓			
38. Internal standard areas within project control limits?	✓			

K1604899

FIGURE SOP 16-1. DATA VALIDATION CHECKLIST

39. Completeness percentage within project limits?	✓			
Definitions: **CCB** – Continuing Calibration Blank; **CCV** – Continuing Calibration Verification; **COI** – Compounds of Interest; **DCS** – Detectability Check Sample; **ICB** – Initial Calibration Blank; **ICV** – Initial Calibration Verification; **LCS** – Laboratory Control Sample; **LCSD** – Laboratory Control Sample Duplicate; **MDL** – Method Detection Limit; **MS/MSD** – Matrix Spike/Matrix Spike Duplicate; **RL** – Reporting Limit; **RPD** – Relative Percent Difference				

COMMENTS

See Data Usability Summary dated 10/1/2010 for qualified data.