

Effluent Quality Assessment

Gulf Power Company – Lansing Smith Power Plant

Bay County

NPDES #FL0002267

Sampled February 21, 23, and 25, 2011

June 2011

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Gulf Power Company – Lansing Smith Power Plant, 2300 Bay County Road, Southport, Bay County, Florida, 32409. NPDES# FL0002267. Effluent composite samples for bioassay and grab samples for chemical and biological analyses for this facility were collected on February 21, 2011. Additional composite samples for bioassays were collected on February 23 and 25, 2011.

Introduction

Gulf Power Company – Lansing Smith Power Plant is a fossil–fuel electric power generation plant which discharges cooling water and overflow from an ash pond. (See Appendix F for detailed facility information provided by Kim Allen and Nathan Mulkey of FDEP Northwest District.)

Methods

Samples were collected from the EFF-2 NPDES sampling point for Outfall D-001 for bioassays and chemical analyses. Additional samples for chemical analyses were collected from the EFF- 4 NPDES sampling point for Internal Outfall I-01C and the Intake Cooling Water sampling point by Rick Abad, Corinna Clanton, and Nathan Mulkey (FDEP Northwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/bars/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The 7-day chronic screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_015, TA07_09, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Results and Discussion

- **Toxicity Test Results**
  Tests were performed February 22 – March 1, 2011.

Americamysis bahia 7 - day chronic screening bioassay –	NOEC (survival): 100% NOEC (growth): > 100% IC25 (growth): > 100%
Menidia beryllina 7 - day chronic screening bioassay –	NOEC (survival): 100% NOEC (growth): > 100% IC25 (growth): > 100%

  The bioassay samples were not chronically toxic to the test organisms.

  See Appendix B for bioassay bench sheets. See Appendix C* for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

  *The concurrent *Americamysis bahia* SRT was invalidated due to not meeting the minimum required mean organism dried wt for the control (0.2 mg dry wt/organism required; SRT control dry wt/organism was 0.197 mg). The follow-up SRT was initiated on March 15, 2011.

- **Algal Growth Potential**
  The effluent Algal Growth Potential (AGP) was 3.0 AU (A - Value reported is the mean of two or more determinations, U - Material was analyzed for but not detected; the value reported is the minimum detection limit) mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The ratio (4.4:1) of inorganic nitrogen to

orthophosphate suggests that the effluent is nitrogen–limited; whereas, the ratio (15.6:1) of total nitrogen to total phosphorus suggests that the effluent is co-limited by both nitrogen and phosphorus. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test should be performed (Maloney et al. 1978).

See Table 1 for AGP results.

- **Chemistry Results for Surface Waters (D-001)**
  Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.01 U mg N/L. Due to the non-detection of ammonia; unionized ammonia could not be calculated.

  Total suspended solids (TSS) were detected in the D-001 effluent sample. Aluminum, arsenic, iron, and carbonaceous biochemical oxygen demand (CBOD) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Fecal Coliforms (3060 BJ CFU/100 ml) exceeded the Class II criteria for marine water (62-302.500 (6), F.A.C.).

  See Table 2 for results of analytes detected in the D-001 effluent and corresponding limits.

- **Chemistry Results for Ash Pond (I-01C)**
  The total ammonia concentration in the grab sample collected and preserved for chemical analysis from the ash pond was 0.03 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was ≤ 0.02 mg/L.

  Arsenic, cadmium, chromium – III, iron, nickel, selenium, and radium 226 were detected in the effluent at levels that comply with Class II marine water quality criteria (62-302.530, F.A.C.), or permit conditions (NPDES# FL0002267). Copper and TSS were detected between the laboratory MDL and PQL. Radium 226 was also detected in the field blank.

  See Table 3 for results of analytes detected in the I-01C effluent and corresponding limits.

- **Chemistry Results for Intake Cooling Water**
  Iron was detected in the effluent at levels that comply with Class II marine water quality criteria (62-302.530, F.A.C.) Nickel was detected between the laboratory MDL and PQL.

  See Table 3 for results of analytes detected in the intake cooling water and corresponding limits. See Appendix E for a complete list of chemical analyses performed. See Appendix B for bioassay lab equipment.

Conclusion

The effluent sample collected from the EFF-2 NPDES sampling point for Outfall D-001 for this facility on February 21, 23, and 25, 2011, was not chronically toxic to either test species during the 7-day chronic screening bioassays. The effluent AGP result was less than the "problem” threshold for marine receiving waters. Effluent water quality samples collected on February 21, 2011, exceeded applicable water quality standards for fecal coliforms.

Samples from the ash pond (I-01C) and intake cooling water did not exceed any applicable water quality standards or permit limits.

Literature Cited

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

Table 1. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collceted from the Gulf Power Co. - Lansing Smith Power Plant Outfall D-001 on February 21, 2011.

Gulf Power Co. - Lansing Smith Power Plant NPDES# FL0002267			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	3.0 AU	4.4	15.6

A - Value reported is the mean of two or more determinations

U - Material analyzed for but not detected; value reported is the method detection limit

Table 2. Effluent limits, Class II Criteria for predominantly marine waters and chemical and microbiological data for samples collected from the Gulf Power Company - Lansing Smith Power Plant Outfall D-001 on February 21, 2011.

Gulf Power Co. - Lansing Smith Power Plant NPDES# FL0002267	Class II Criteria	Effluent Limits	Effluent	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1,500	-	250	I
Arsenic	≤ 50	-	0.98	I
Cadmium	≤ 8.8	-	0.15	U
Calcium (mg/L)	-	-	336	
Chromium-III	-	-	0.9	U
Copper	≤ 3.7	≤ 3.7 d†	1.5	U
Iron	≤ 300	≤ 300 d†	130	I
Lead	≤ 8.5	≤ 8.5 d†	0.6	U
Magnesium (mg/L)	-	-	1020	
Nickel	≤ 8.3	≤ 8.3 d†	0.75	U
Selenium	≤ 71	-	0.6	U
Silver	≤ 2.3	-	0.075	U
Zinc	≤ 86	-	15	U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.008	U
Total Phosphorus	-	-	0.017	I
Total Ammonia	-	-	0.01	U
Un-ionized Ammonia	-	-	≤ 0.02	c
Nitrate and Nitrite	-	-	0.025	U
Total Kjeldahl Nitrogen	-	-	0.24	I
Organic Nitrogen	-	-	0.19	c
Total Nitrogen	-	-	0.253	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	-	7.1	
pH (SU)	6.5 - 8.5	6.5 - 8.5	7.5	
Conductivity (µmhos/cm)	-	-	41,115	
Temperature (°C)	-	-	26.3	
Salinity	-	-	25.6	c
Total Residual Chlorine (mg/L)	≤ 0.01	-	≤ 0.03	QU£
Chlorophyll *a* (µg/L) - Corrected	-	-	0.58	U
Phaeophytin (µg/L)	-	-	0.42	U
Total Suspended Solids (mg/L)	-	-	17	
CBOD, 5 day (mg/L), N - inhibited	-	-	1.4	IJ
Oils and Greases (mg/L)	≤ 5.0	≤ 5.0 d	1.4	U
Flow (MGD)	-	≤ 273.6 d	226.93	a*
Hardness (mg $CaCO_3$)	-	-	5,039.35	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 800 d	-	3,060	BJ

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
d - Daily maximum
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Fecal coliform analysis performed by the University of West Florida (UWF) lab, Pensacola.
£ - measurement taken in the FDEP laboratory
* - Mean flow from 3/10 to 2/11
† - 8 - hour Time Proportional Composite

Table 3. Effluent limits, Class II Criteria for predominantly marine waters and chemical data for samples collected from the Gulf Power Company - Lansing Smith Power Plant Ash Pond and Intake Cooling Water on February 21, 2011.

Gulf Power Co. - Lansing Smith Power Plant NPDES# FL0002267	Class II Criteria	EFF- 4 Limits	Ash Pond		Intake Cooling Water	
Metals (µg/L unless otherwise noted)						
Arsenic	≤ 50	Report ‡	28.3		-	
Cadmium	≤ 8.8	Report ‡	0.25		-	
Chromium-III	-	Report ‡	5.7		-	
Copper	≤ 3.7	Report ‡	0.9	I	0.5	U
Iron	≤ 300	Report ‡	150		150	
Lead	≤ 8.5	Report ‡	0.2	U	0.6	U
Nickel	≤ 8.3	Report ‡	4.36		0.33	I
Selenium	≤ 71	Report ‡	7.6		-	
Zinc	≤ 86	Report ‡	5	U	-	
Nutrients (mg/L)						
Total Ammonia	-	Report	0.03			
Un-ionized Ammonia	-	-	≤ 0.02	c		
Nitrate and Nitrite	-	Report	0.014			
Total Kjeldahl Nitrogen	-	Report	0.45			
Organic Nitrogen	-	-	0.42	c		
Total Nitrogen	-	Report	0.464	c		
General Physical and Chemical Parameters						
Dissolved Oxygen (mg/L)	≥ 4.0	-	8.5			
pH (SU)	6.5 - 8.5	6.0 - 9.0	7.6			
Conductivity (µmhos/cm)	-	-	6,153			
Temperature (°C)	-	-	19.6			
Salinity	-	-	3.8	c		
Total Suspended Solids (mg/L)	-	≤ 100.0 d	9	I		
Oils and Greases (mg/L)	≤ 5.0	≤ 20.0 d	1.4	U		
Radium 226 (pCi/L)	-	-	0.9	F		
Radium 226-Counting Error (pCi/L)	-	-	0.3	F		
Radium 228 (pCi/L)	-	-	0.8	U		
Radium 228-Counting Error (pCi/L)	-	-	0.5	F		
Radium 226 + 228 (pCi/L)	≤ 5	Report	0.9	cF		

Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated

d - Daily maximum

F - Analyte was detected in both sample and field blank

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

U - Material analyzed for but not detected; value reported is the method detection limit

‡ - 24 - hour Time Proportional Composite

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2011-02-21-15
Gulf Power Smith Steam FYI3

Requester: Cari Butler
Field Report Prepared By: N. Milby
Collected By: Nathan Milby / Rick Abel
Send Final Report To: Toni Edwards
Sampling Agency: FDEP

Customer: NW-DIST
Project ID: FYI3
PMAS: 1143

Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Collection (begin)	Collection (end)	Bottle Group(s)**
	Location: Gulf Power Smith Field ID: D-001 Matrix: (Salt), Fresh, etc Temp (C): 26.27 pH: 7.50 Latitude: 30.27348 ☑ dd ☐ dms Longitude: 85.72091 ☑ dd ☐ dms	☐ Comp ☑ Grab Date 2/21/11 Time 1120 Eastern (Central) Tot Res Chlorine (mg/L) Diss Oxygen (mg/L): 7.07 Sample Depth ☑ m ☐ ft: .25 Salinity (PPTh) ☑ Sp Conductance (umho/cm): 41115 Storet Station Number NPDES Number Comments: Effluent	Date Time Eastern (Central)	A
	Location: Gulf Power Smith Field ID: I-01C Matrix: Salt, Fresh, etc Temp (C): 19.64 pH: 7.56 Latitude: 30.27031 ☑ dd ☐ dms Longitude: 85.69804 ☑ dd ☐ dms	☐ Comp ☑ Grab Date 2/21/11 Time 1235 Eastern (Central) Tot Res Chlorine (mg/L) Diss Oxygen (mg/L): 8.53 Sample Depth ☑ m ☐ ft: 0.5 Salinity (PPTh) ☑ Sp Conductance (umho/cm): 6153 Storet Station Number NPDES Number Comments: Ash Pond overflow *not overflowing during sampling	Date Time Eastern (Central)	B
	Location: Gulf Power Smith Field ID: Intake Cooling Water Matrix: Salt, Fresh, etc Temp (C) pH Latitude: 30.26835 ☐ dd ☐ dms Longitude: 85.70084 ☐ dd ☐ dms	☐ Comp ☑ Grab Date 2/21/11 Time 1220 Eastern (Central) Tot Res Chlorine (mg/L) Diss Oxygen (mg/L) Sample Depth ☐ m ☐ ft Salinity (PPTh) ☐ Sp Conductance (umho/cm) Storet Station Number NPDES Number Comments	Date Time Eastern (Central)	C
	Location: Gulf Power Smith Field ID: TOX Matrix: (Salt), Fresh, etc Temp (C) pH Latitude: Same as D-001 ☐ dd ☐ dms Longitude ☐ dd ☐ dms	☑ Comp ☐ Grab Date 2/20/11 Time 1230 Eastern (Central) Tot Res Chlorine (mg/L) Diss Oxygen (mg/L) Sample Depth ☐ m ☐ ft Salinity (PPTh) ☐ Sp Conductance (umho/cm) Storet Station Number NPDES Number Comments: 23 hr composite sample	Date 2/21/11 Time 1130 Eastern (Central)	A

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	2/21/11	Fed Ex			2.5 ionassy	2.22.11	BA 10:16	2/22/11 0804

* Shaded Areas for Lab use only.

last revised October 1, 2003

** Please see reverse side for Bottle Group information.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-[redacted]

~~Choctawhatchee Bay~~ 2011-02-21-15 Requester: ~~[redacted]~~ Field Report Prepared By: _____

Customer: NW-DIST Collected By: Nathan Kelly Send Final Report To ~~[redacted]~~

Project ID: ~~[redacted]~~ Sampling Agency: FDEP

PMAS: 1306

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Gulf Power Smith				
	Field ID: Blank	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	D
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " .	Longitude o ' " .	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " .	Longitude o ' " .	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " .	Longitude o ' " .	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " .	Longitude o ' " .	Comments		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
							CRC	2/22/11 930

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ 2011-02-21-15

FYI inspection for Gulf Power Smith

Event ID *

Requester: Cari Butler

Field Report Prepared By:

Customer: NW-DIST

Collected By: Corinna Clanton

Send Final Report To: Toni Edwards

Project ID: FYI13

PMAS: 1143

Sampling Agency: FDEP

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Gulf Power Smith	☑ Comp ☐ Grab	Date 2/22/11 Time 1:12 Central	Date 2/23/11 Time 12:12 Central	A
	Field ID: TOX 2	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Salt	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: Diss. Oxy. field on Tue by D.D 10 73 2.24.11	

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
Corinna Clanton	2/23/11 12:51	Fed Ex						2-24-11 9:10a

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ 2011-02-2175 Gulf Power South

Event ID *

Requester: ~~Cheryl Bunch~~ Field Report Prepared By:

Customer: NW-DIST Collected By: Corina Clanton Send Final Report To: ~~Cheryl Bunch~~

Project ID: ~~BISCRTNARY~~ FY13 Sampling Agency: FDEP

PMAS: ~~4306~~ 1143

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern	Collection (end) Eastern	Bottle Group(s)**
	Gulf Power South	☒ Comp ☐ Grab	Date 2/24/11 Time 1234 Central	Date 2/25/11 Time 1134 Central	A
	Field ID: TOX 3	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Salt	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	NPDES Number				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern	Collection (end) Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Central	Date Time Central	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	NPDES Number				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern	Collection (end) Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Central	Date Time Central	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	NPDES Number				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern	Collection (end) Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Central	Date Time Central	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	NPDES Number				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Relinquished By:	Date/Time	Shipping Method	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Corina Clanton	2/25 12:08	Fed Ex	M. Faircloth	2/26/11 0940			(ASP)	3-3-11 0840

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information

Richard Rotteder. last revised October 1, 2003

Temp 1.1 / 1.8 Blue

Page 1 of 2

Paperwork only.

Appendix B. Bench Sheets

FDEP Biology Laboratory - Chronic ~~Definitive~~ MR Bioassay Bench Sheet

Americamysis bahia

SOP#: TA07_15 EPA-821-R-02-014 Method 1007.0

Facility: Gulf Power
Address: Bay County Rd. 2300, Southport, FL 32409
County: Bay
NPDES Permit #: FL 0002267
Contact/District: Kim Allen / NWD

Start Date: 2.22.11 Time: 1310
End Date: 3.1.11 Time: 1310

Organism age : 7 days
Feeding Prior to Test and Daily
Artemia Lot # : 23613
Chamber size : 400 ml
Test volume : 250 ml

KC

Artemia Batch #			
Day 0	34-11	Day 3	37-11
Day 1	35-11	Day 4	38-11
Day 2	36-11	Day 5	39-11
		Day 6	40-11

Diluent/ Batch:
ASW 12.21.11 Test Days Used: 0-1
ASW ~~12.23.11~~ Test Days Used: ~~2-3~~ KC
~~ASW 12.25.11~~ ~~4-6~~

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2011-02-22-84	1331969	02.21.11 1220	2.22.11 0930
Test Day 2	2	TLH2011-02-24-48	1333117	02.23.11 1312	2.24.11 0910
Test Day 4	3	TLH-2011-02-26-38 MF 66	1334688	02.25.11 1234	2.26.11 0940

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	not measured		not measured	<0.03	<0.03	<0.03	113	110	106	not measured		
Diluent/Control:				<0.03	<0.03	<0.03	200	200	200			
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	KC	KC	KC	KC	KC	KC	—	—	—
Verified by:	KC	KC	MF	KC	KC	KC	KC	KC	KC	KC	KC	KC

	Conductivity (circle one) (µmhos-cm / mmhos-cm)			Ammonia (mg/L)			Salinity (original sample) (ppth)			Salinity (adjusted sample) (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	43.2	43.3	39.4	<0.051	<0.051	<0.051	28.3	27.7	25.0			
Diluent/Control:	44.3	44.8	38.6	<0.034	<0.034	<0.034	28.9	28.6	24.7			
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler	Mettler	Mettler	Mettler
Measured by:	JD	KC	KC	BA/MF	BA	BA/MF	JD	KC	KC			
Verified by:	KC	KC	KC	KC	KC	KC	KC	KC	KC			

Parameters are for original sample except as noted.

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (all samples) (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min 26.4 max 27.7 mean ____
Water bath # ____ min. ____ max. ____ mean ____
Room B246 min. 21.3 max 25.6 mean ____

Results	
Growth NOEC:	100%
Growth LOEC:	>100%
Growth IC_{20}:	>100%
Growth IC_{25}:	>100%
Ctrl % CV:	9.39%
Dunnetts PMSD:	15.7%
Survival NOEC:	100%
Survival LOEC:	>100%

Investigators' signatures	Initials
James Danish	JD
Marshall Faircloth	MF
Kara Cox	KC
Brec Ardeler	BA
Liz Mellon	

REVIEWER

Comments: Lims upload 3-3-11 MF
Verification 3.8.11 BA

Test Page 1 of 8

PAGE 9

revised 2/201/11 MF

Appendix B. (continued)

Chronic Survival Benchsheet

A. bahia SOP TA07_15

Loaded by (0 hour): JD Verified by (0 hour): KC LIMS Sample #: 133909 D = dead M = missing

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
	A	5	5	5	5	5	5	5	5
Control	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
%	D	5	4 ID	4	4	4	4	4	4
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	Checked by		JD	JD	JD	JD	JD	JD	KC

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	Checked by								

Comments:

revised 2/20/11 MF

Test Page 2 of 8

Page 10

Appendix B. (continued)

A. bahia Chronic Parameters Benchsheet
SOP TA07_15

LIMS #: 1331969 Organism: *A. bahia*

Test Day		Before Renewal						Test Start and After Renewal					
↓	Conc	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)
Day 0	Control							A	8.1	24.8	6.4	44.3	28.9
	100%							A	8.0	25.4	6.4	43.2	28.3
								A					
								A					
								A					
								A					
								A					
	Measured by:								JD	JD	JD	JD	JD
	Recorded by:								JD	JD	JD	JD	JD
		Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 1	Control	B	8.2	25.0	6.8	44.4	29.0	B	8.3	24.0	5.6	45.0	29.1
	100%	B	8.0	25.1	6.7	43.4	28.3	B	8.1	25.3	6.3	44.0	28.2
		B						B					
		B						B					
		B						B					
		B						B					
		B						B					
	Measured by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 2	Control	C	8.2	24.8	6.6	44.5	28.4	C	8.2	24.3	6.7	44.8	28.6
	100%	C	7.9	25.0	5.9	43.2	27.8	C	7.9	24.0	6.6	43.3	27.7
		C						C					
		C						C					
		C						C					
		C						C					
		C						C					
	Measured by:		KC		KC	KC	KC		KC	JD	KC	KC	KC
	Recorded by:		KC		KC	KC	KC		KC	JD	KC	KC	KC
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 3	Control	D	8.2	25.2	5.8	44.8	28.6	D	8.2	24.9	6.6	43.7	28.4
	100%	D	7.8	25.6	5.8	43.2	27.8	D	7.9	24.5	7.2	42.8	27.4
		D						D					
		D						D					
		D						D					
		D						D					
		D						D					
	Measured by:		JD	JD	JD	JD	JD		KC	JD	KC	KC	KC
	Recorded by:		JD	JD	JD	JD	JD		KC	JD	KC	KC	KC

conc = concentration rep = replicate cond = conductivity Sal = salinity

Comments:

revised 2/20/11 MF

Test Page 3 of 8 PAGE 11

Appendix B. (continued)

A. bahia Chronic Parameters Benchsheet
SOP TA07_15

LIMS #: 1331969 Organism: *A. bahia*

Test Day		Before Renewal						Test Start and After Renewal					
	Conc	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)
Day 4	Control	E	8.2	25.1	7.0	45.1	28.6	E	8.2	24.7	6.5	38.6	24.7
	100%	E	7.9	25.9	7.0	43.2	27.8	E	7.8	25.0	7.1	39.4	25.0
		E						E					
		E						E					
		E						E					
		E						E					
		E						E					
Measured by:			JD	JD	JD	JD	JD		KC	MF	KC	KC	KC
Recorded by:			JD	JD	JD	JD	JD		KC	MF	KC	KC	KC
		Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 5	Control	F	8.1	25.1	5.9	41.0	25.2	F	8.2	25.8	7.0	38.4	23.9
	100%	F	7.8	25.1	5.7	40.0	25.6	F	7.9	25.1	6.7	38.5	24.5
		F						F					
		F						F					
		F						F					
		F						F					
		F						F					
Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 6	Control	G	8.1	25.8	5.8	38.7	24.3	G	8.1	25.8	6.8	38.5	~~38.6~~ 29.5
	100%	G	7.9	25.8	5.9	39.0	24.7	G	7.8	25.9	7.1	38.9	~~39~~ 24.7
		G						G					
		G						G					
		G						G					
		G						G					
		G						G					
Measured by:			KC	JD	KC	KC	KC		JD	JD	JD	JD	JD
Recorded by:			KC	JD	KC	KC	KC		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 7	Control	H	8.0	24.5	5.9	38.2	24.1						
	100%	H	7.7	24.6	5.8	39.0	24.8						
		H											
		H											
		H											
		H											
		H											
Measured by:			KC	KC	KC	KC	KC						
Recorded by:			KC	KC	KC	KC	KC						

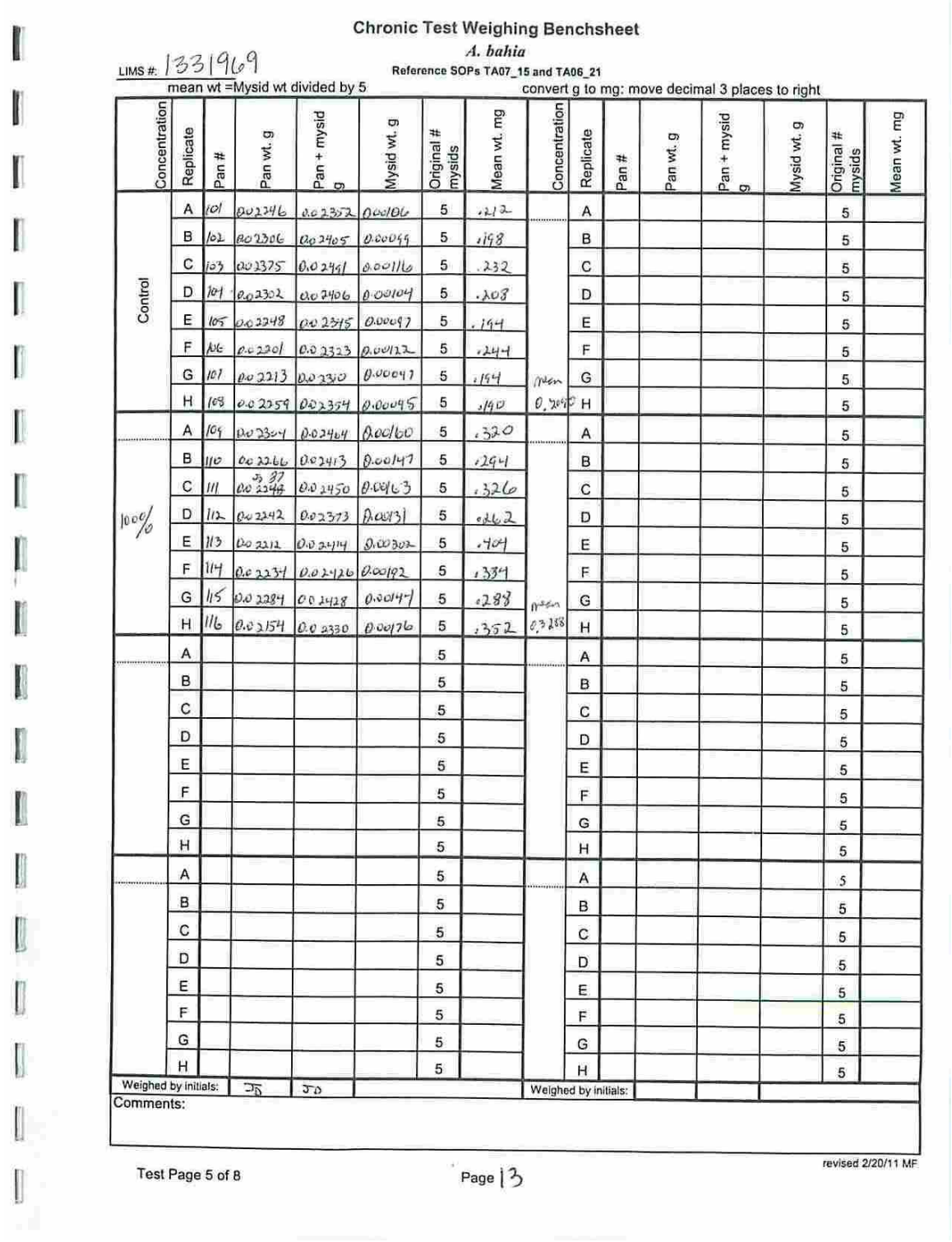
conc = concentration rep = replicate cond = conductivity Sal = salinity

Comments:

revised 2/20/11 MF

Test Page 4 of 8 PAGE 12

Appendix B. (continued)



Chronic Test Weighing Benchsheet

A. bahia

LIMS #: 1331969

Reference SOPs TA07_15 and TA06_21

mean wt = Mysid wt divided by 5 — convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. g	Pan + mysid g	Mysid wt. g	Original # mysids	Mean wt. mg	Concentration	Replicate	Pan #	Pan wt. g	Pan + mysid g	Mysid wt. g	Original # mysids	Mean wt. mg
Control	A	101	0.02346	0.02352	0.00106	5	.212		A					5	
	B	102	0.02306	0.02405	0.00099	5	.198		B					5	
	C	103	0.02375	0.02491	0.00116	5	.232		C					5	
	D	104	0.02302	0.02406	0.00104	5	.208		D					5	
	E	105	0.02348	0.02345	0.00097	5	.194		E					5	
	F	106	0.02301	0.02323	0.00122	5	.244		F					5	
	G	107	0.02213	0.02330	0.00047	5	.194	mean	G					5	
	H	108	0.02359	0.02354	0.00095	5	.190	0.2065	H					5	
	A	109	0.02304	0.02464	0.00160	5	.320		A					5	
	B	110	0.02266	0.02413	0.00147	5	.294		B					5	
	C	111	0.02348	0.02450	0.00163	5	.326		C					5	
100%	D	112	0.02242	0.02373	0.00131	5	.262		D					5	
	E	113	0.02212	0.02414	0.00202	5	.404		E					5	
	F	114	0.02234	0.02426	0.00192	5	.334		F					5	
	G	115	0.02284	0.02428	0.00147	5	.288	mean	G					5	
	H	116	0.02154	0.02330	0.00176	5	.352	0.3288	H					5	
	A					5			A					5	
	B					5			B					5	
	C					5			C					5	
	D					5			D					5	
	E					5			E					5	
	F					5			F					5	
	G					5			G					5	
	H					5			H					5	
	A					5			A					5	
	B					5			B					5	
	C					5			C					5	
	D					5			D					5	
	E					5			E					5	
	F					5			F					5	
	G					5			G					5	
	H					5			H					5	
Weighed by initials:			JS	JD				Weighed by initials:							

Comments:

revised 2/20/11 MF

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Appendix B. (continued)

Chronic Test Weighing Benchsheet
Quality Control

A. bahia

SOPs TA07_15 and TA06_21

LIMS: 1331969

Empty Pan Weights Date: 2.28.11 By: JD

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02247	@ 0.02246
after Pan 10	0.02248	@ 0.02246
after Pan 15	0.02247	@ 0.02246
after Pan 20	0.02247	@ 0.02246
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.01001	@ 0.01
	0.03003	@ 0.03

S-Weights: BIO-S-WEIGHTS-01
Balance: Ohaus 250D
Ser# 1125481084

Fish + Pan Weights Date: 3.3.11 By: JD

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02352	@ 0.02352
after Pan 10	0.02353	@ 0.02352
after Pan 15	0.02353	@ 0.02352
after Pan 20	0.02352	@ 0.02352
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.01	@ 0.01
	0.05004	@ 0.05

Drying Oven ID: VWR 2
Temperature °C: 95
Drying Hours: 8

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

revised 2/20/11 MF

Test Page 6 of 8

PAGE 14

Page 7 of 8, A. bahia Chronic Fecundity, was not used for this bioassay

Appendix B. (continued)

Test ID: Gulf Power CS A.bahia Dates: 2.22.11 – 3.1.11

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Metller-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5 SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #5
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.

Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Entered By: BA

V 1.2 2/20/11 MF/jd

Teat Page 8 of 8 PAGE 16

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Gulf River
Address: Bay County Road 2300, Southport, FL 32409
County: Bay
NPDES Permit #: FL 0002267
Contact/District: Kim Allen / Northwest

Test Species (circle one)
P. promelas SOP#: TA07_09 EPA-821-R-02-013 Method 1000.0
(M. beryllina) SOP#: TA07_14 EPA-821-R-02-014 Method 1006.0

Start Date: 2.22.11 Time: 1330
End Date: 3.1.11 Time: ~~1330~~ 1115 KC

Diluent/ Batch:
MHW / _____ Test Days Used: _____
MHW / _____ Test Days Used: _____
ASW / 2.21.11 Test Days Used: D-7
ASW / _____ Test Days Used: _____

Organism Batch # : 2.22.11
Feeding Prior to Test and Daily
Artemia Lot # : 23613
Chamber size : 1000 ml
Test volume : 400 ml

Organism age : 10 days

Artemia Batch #			
Day 0	3-7-11	Day 3	3-1-11
Day 1	3-5-11	Day 4	3-8-11
Day 2	3-6-11	Day 5	3-9-11
		Day 6	3-10-11

LIMS:	Date	Initials
Entry:	3-8-11	MF
Verification:	3-8-11	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2011-02-22-84	1331969	02.21.11/1220	2.22.11/0930
Test Day 2	2	TLH-2011-02-24-48	1333117	02.23.11/1312	2.24.11/0910
Test Day 4	3	TLH-2011-03-03-01	1334688	02.25.11/1234	2.26.11/0940

Water Quality Parameters	Batch # 2.21.11		NA	NA	NA		Measured by:	Verified by:
	☐ MHW ☑ ASW	☐ MHW ☐ ASW	Sample 1	Sample 2	Sample 3	Other:		
Field Total Residual Cl_2 (mg/L):	NA	NA	not measured				NA	KC
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	<0.03	<0.03		KC	KC
Alkalinity (mg/L as $CaCO_3$):	200		113	110	106		KC	KC
Hardness (mg/L as $CaCO_3$):	—		—	—	—		—	—
Total Ammonia (mg/L as N):	<0.034		<0.051	<0.051	<0.051		BA	KC
Conductivity: µmhos ~~mmhos~~:	44.1		43.2	43.2	39.2		JD	KC
Salinity (ppth):	28.10		28.3	27.8	24.9		JD	KC

Temperature Shipped ≤8° C (all samples) (yes) no
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark

Temperature Range °C: (if used)
Incubator # 2 min. 26.4 max 27.7 mean ____
Water bath # ____ min. ____ max. ____ mean ____
Room B246 min 21.3 max 25.6 mean ____

Test Incubated in: ☐ Incubator #: ____ ☐ Waterbath #: ____

Investigators' signatures
Tamara Daniel
Kara Cook
Marshall Faircloth
Bruce Boerlin

REVIEWER Kim Allen

Statistics	
Control %cv:	6.72%
Dunnetts PMSD:	13.8%
Survival NOEC:	100%
Survival LOEC:	>100%
Growth NOEC:	100%
Growth LOEC:	>100%

IC_{20} = >100%
IC_{25} = >100%

Comments:

revised 7/15/08 MF

Appendix B. (continued)

Chronic Bioassay Survival Benchsheet

Facility: Gulf Power

LIMS Sample Number: 1331969
(for Lab Sample # 1)

Department of Environmental Protection
Biology Laboratory Chronic Screening Bioassay
***P. promelas* SOP TA07_09 *M. beryllina* SOP TA07_14**

Organism: *P. promelas* *M.beryllina* (circle one)

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 100% %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	9 10	9	9	9
	C	10	10	10	10	10	10	10	10
	D	10	8 20	8	8	8	8	8	8
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD	AA
Verified by: BA									

Comments:

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Appendix B. (continued)

Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg. 1

Sample Source: Gulf Pour — Start Date: 2.22.11 — End Date: 3.1.11

LIMS Sample #: 133969 (for Lab sample #1) — Start Time: 8:11 KC 1200 — End Time: 11:15

conc = concentration — rep = replicate — circle umhos or mmhos

Test Day ↓		Conc.	New Sample Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	Old Sample Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 0	sample:	Control	A	8.1	24.9	6.3	44.1	28.6						
	1	100%	A	8.0	25.9	6.6	43.2	28.3						
	1		A											
	1		A											
	1		A											
	1		A											
	1		A											
	Measured by:			JD	JD	JD	JD	JD						
	Recorded by:			JD	JD	JD	JD	JD						
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	8.2	24.0	6.1	44.7	28.9	B	8.1	25.3	6.2	44.1	28.6
	1	100%	B	8.1	25.2	6.2	44.3	28.3	B	8.0	25.9	6.6	43.3	27.8
	1		B						B					
	1		B						B					
	1		B						B					
	1		B						B					
	1		B						B					
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	8.2	24.1	6.8	44.8	28.5	C	8.2	24.7	6.3	44.6	28.6
	2	100%	C	8.0	24.0	6.8	43.2	27.8	C	8.0	25.0	6.3	43.3	27.8
	2		C						C					
	2		C						C					
	2		C						C					
	2		C						C					
	2		C						C					
	Measured by:			KC	JD	KC	KC	KC		KC	JD	KC	KC	KC
	Recorded by:			KC	JD	KC	KC	KC		KC	JD	KC	KC	KC
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	8.2	24.9	6.7	43.9	28.4	D	8.1	25.1	5.3	44.3	27.8
	2	100%	D	7.9	24.2	7.1	42.1	27.4	D	7.9	25.2	5.4	42.9	27.6
	2		D						D					
	2		D						D					
	2		D						D					
	2		D						D					
	2		D						D					
	Measured by:			KC	JD	KC	KC	KC		JD	JD	JD	JD	JD
	Recorded by:			KC	JD	KC	KC	KC		JD	JD	JD	JD	JD

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional.

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Appendix B. (continued)

Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg. 2

Sample Source: Gulf Power — Start Date: 2.22.11 — End Date: 3.1.11

LIMS Sample #: 393969 (for Lab sample #1) — Start Time: 1330 — End Time: 1115

conc = concentration — rep = replicate

Test Day			New Sample							Old Sample						
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/cm	Salinity ppth		Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/cm	Salinity ppth
Day 4	sample:	Control	A	8.2	24.6	6.2	38.8	24.9		A	8.2	25.9	7.7	45.3	29.1
	3	100%	A	7.9	25.0	7.6	39.2	24.9		A	8.0	25.8	7.5	43.3	27.8
	3		A							A					
	3		A							A					
	3		A							A					
	3		A							A					
	3		A							A					
	Measured by:			KC	MF	KC	KC	KC			JD	JD	JD	JD	JD
	Recorded by:			KC	MF	KC	KC	KC			JD	JD	JD	JD	JD
			Rep	pH	Temp	DO	Conductivity	Salinity		Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	8.2	25.6	6.6	37.8	24.1		B	8.1	25.9	5.6	40.6	25.0
	3	100%	B	7.9	25.2	6.6	38.7	24.6		B	7.8	25.9	5.0	40.1	25.6
	3		B							B					
	3		B							B					
	3		B							B					
	3		B							B					
	3		B							B					
	Measured by:			JD	JD	JD	JD	JD			JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD			JD	JD	JD	JD	JD
			Rep	pH	Temp	DO	Conductivity	Salinity		Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	8.2	25.6	7.2	38.6	24.5		C	8.2	25.6	5.8	38.6	24.7
	3	100%	C	7.8	25.7	7.1	38.7	24.6		C	7.8	25.8	5.8	38.7	24.5
	3		C							C					
	3		C							C					
	3		C							C					
	3		C							C					
	3		C							C					
	Measured by:			JD	JD	JD	JD	JD			KC	JD	KC	KC	KC
	Recorded by:			JD	JD	JD	JD	JD			KC	JD	KC	KC	KC
			Rep	pH	Temp	DO	Conductivity	Salinity		Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control								D	8.1	25.6	5.3	38.4	24.4
	3	100%								D	7.8	26.0	5.3	38.7	24.5
	3									D					
	3									D					
	3									D					
	3									D					
	3									D					
	Measured by:										BA	BA	BA	BA	BA
	Recorded by:										BA	BA	BA	BA	BA

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional

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Appendix B. (continued)

Chronic Definitive Bioassay Weighing Benchsheet

Facility: Gulf Breeze Smith

LIMS Sample Number: 1331969

(for Lab Sample # 1)

***P. promelas* and *M. beryllina* Bench Sheet**
SOP TA06_21

Concentration	Replicate	Pan #	Pan wt. g (mean wt = fish wt divided by 10; convert g to mg: move decimal 3 places to right)	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg
Control	A	93	0.02281	0.03005	0.00724	10	.724
	B	94	0.02180	0.02993	0.00813	10	.813
	C	95	0.02241	0.02938	0.00697	10	.697
	D	96	0.02333	0.03095	0.00762	10	.762
sample 100%	A	97	0.02213	0.03164	0.00951	10	.951
	B	98	0.02406	0.03311	0.00905	10	.905
	C	99	0.02284	0.03052	0.00768	10	.768
	D	100	0.02268	0.03043	0.00775	10	.775
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		JD	JD		revised 7/16/08 mf	

mean 0.749

mean 0.8485

Comments:

Balance: Ohaus 250D Ser# 1125481084
S-Weights: BIO-S-Weights-01

Note: Pan number (#) refers to actual Pan number.

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Appendix B. (continued)

Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Gulf Power

LIMS Sample Number: 1331969 (for Lab Sample # 1)

P. promelas and M. beryllina Bench sheet

SOPs TA07_09, TA07_14 and TA06_21

Drying Oven ID:	VWR2	Tare weighed by:	JD
Temperature °C:	95	Final weighed by:	JB
Hours:	8		

Tare Weighing Date: 2.28.11 Final Weighing Date:

				Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02283	@	0.02281	S-weights	0.0001	@ 0.01
Tare Pan 1 after Pan 10 (g)	0.02283	@	0.02281	at tare	0.03003	@ 0.03
Tare Pan 1 after Pan 15 (g)		@		S-weights	0.01	@ 0.01
Tare Pan 1 after Pan 20 (g)		@		at final	0.05004	@ 0.05
Tare Pan 1 after Pan 25 (g)		@				
Tare Pan 1 after Pan 30 (g)		@		Balance: Ohaus 250D Ser# 1125481084		
Tare Pan 1 after Pan 35 (g)		@		S-Weights: BIO-S-Weights-01		
Tare Pan 1 after Pan 40 (g)		@				
Tare Pan 1 after Pan 45 (g)		@				
Tare Pan 1 after Pan 48 (g)		@				
Final Pan 1 after Pan 5 (g)	0.03003	@	0.03005			
Final Pan 1 after Pan 10 (g)	0.03003	@	0.03005			
Final Pan 1 after Pan 15 (g)		@				
Final Pan 1 after Pan 20 (g)		@				
Final Pan 1 after Pan 25 (g)		@				
Final Pan 1 after Pan 30 (g)		@				
Final Pan 1 after Pan 35 (g)		@				
Final Pan 1 after Pan 40 (g)		@				
Final Pan 1 after Pan 45 (g)		@				
Final Pan 1 after Pan 48 (g)		@				

Note: Pan numbers (5, 10, etc.) for Tare and Final refers to sequence of weighing as actual Pan #s may differ.

Comments:

revised 7/16/08 MF

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Appendix B. (continued)

Test ID: Gulf Power CS M.Bengtson Dates: 2.22–3.1.2011

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5 SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #5
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓

SM-2530B modified to allow use of electronic and non-mercury filled thermometers. BA

Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT–Chronic SRT)

V1.1 9/21/10 MF/jd

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Appendix C. SRT Bench Sheets and Statistical Analysis

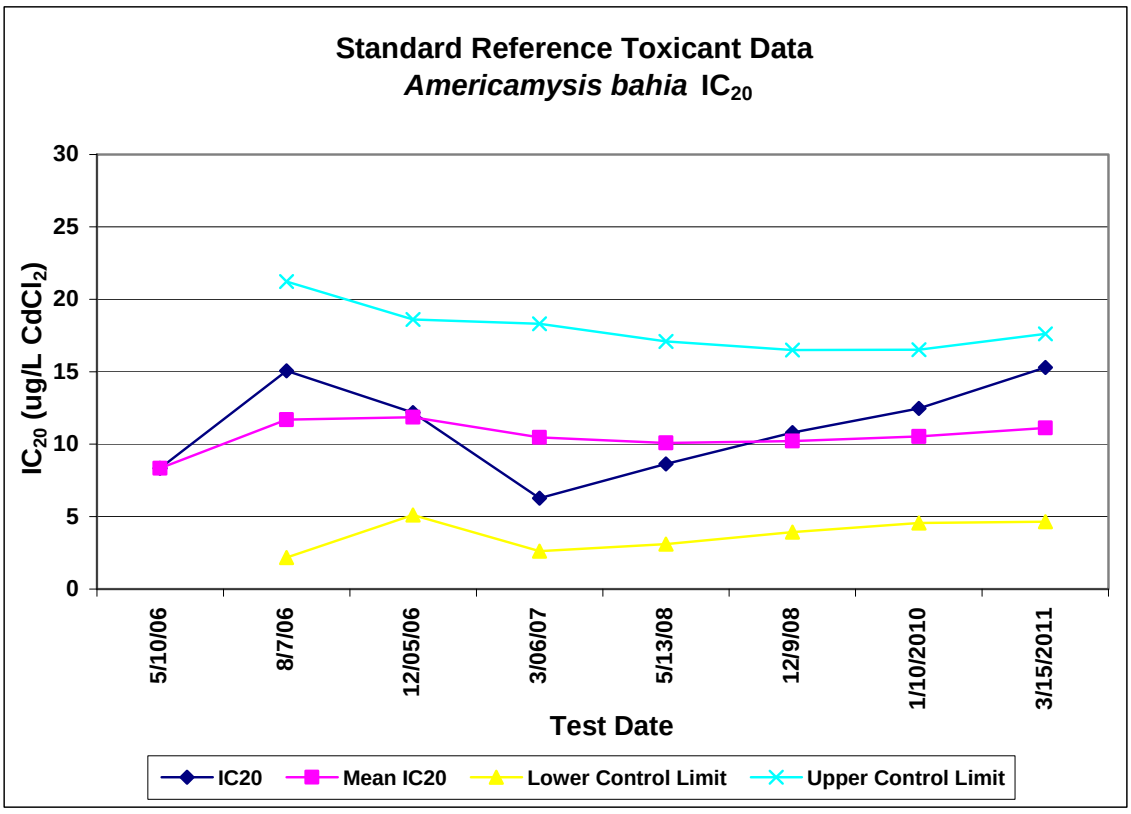
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity

Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
5/10/06	8.3284	8.33			
8/7/06	15.064	11.70	4.76	2.17	21.22
12/05/06	12.168	11.85	3.38	5.10	18.61
3/06/07	6.27	10.46	3.92	2.61	18.31
5/13/08	8.63	10.09	3.50	3.10	17.08
12/9/08	10.8	10.21	3.14	3.93	16.49
1/10/2010	12.46	10.53	2.99	4.55	16.51
3/15/2011	15.3	11.13	3.24	4.65	17.61

Fewer than 20 chronic SRTs (cadmium) have been performed for this species.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev
EPA %CV 75th percentile = 32%
Lab %CV = 29.1%



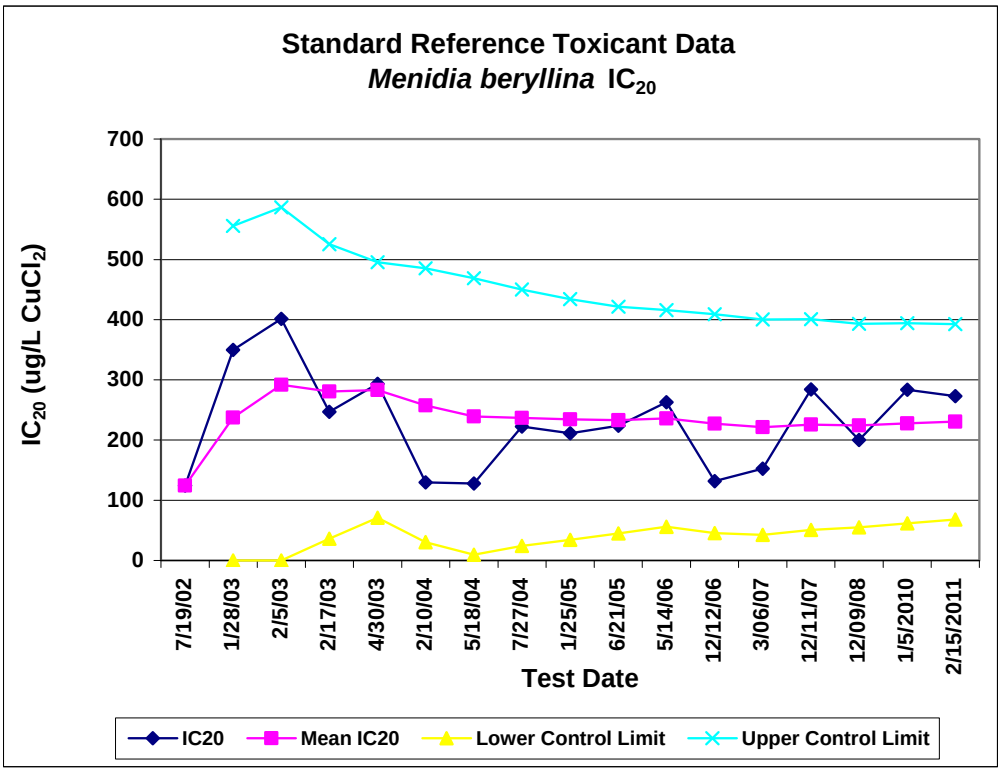
Appendix C. (continued)

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Menidia beryllina (inland silverside) - Copper Chloride ($CuCl_2$)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
7/19/02	124.6	124.6			
1/28/03	349.9	237.2	159.3	0.0	555.9
2/5/03	401.6	292.0	147.3	0.0	586.6
2/17/03	246.8	280.7	122.4	36.0	525.5
4/30/03	293.2	283.2	106.1	71.0	495.5
2/10/04	129.8	257.6	113.7	30.2	485.1
5/18/04	128.0	239.1	114.8	9.5	468.7
7/27/04	222.6	237.1	106.4	24.2	449.9
1/25/05	211.5	234.2	99.9	34.4	434.1
6/21/05	223.7	233.2	94.3	44.6	421.7
5/14/06	262.9	235.9	89.9	56.1	415.6
12/12/06	131.5	227.2	90.8	45.5	408.9
3/06/07	152.6	221.4	89.4	42.6	400.2
12/11/07	284.0	225.9	87.5	50.9	400.9
12/09/08	200.0	224.2	84.6	55.0	393.4
1/5/2010	283.9	227.9	83.1	61.8	394.1
2/15/2011	273.0	230.6	81.2	68.2	392.9

Fewer than 20 chronic SRTs have been performed for this species.
Lower Confidence Limit = mean - 2 * Std Dev EPA CV 75th percentile - 43%
Upper Confidence Limit = mean + 2 * Std Dev Lab %CV = 35.2



Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet
Americamysis bahia

SOP#: TA07_15 EPA 821-R-02-014 Method 1007.0

Diluent/ Batch: ASW #3.14.11 Test Days Used: 0-7 (KC 7-12) Test Duration: 7 days
Diluent/ Batch: ASW #3.17.11 Test Days Used: 8-7 Organism Batch # : 3.15.11
Toxicant/ Batch # :$CdCl_2$ / #3.14.11 (KC 3) Organism Age: 7 days
Artemia Lot # : 23613

Artemia Batch #	Day 2 47-11
Day 0 45-11	Day 3 48-11
Day 1 46-11	Day 4 49-11
Feeding: 2 X Daily	Day 5 50-11
150 artemia/mysid (total)	Day 6 51-11

Start Date: 3.15.11 Time: 1340
End Date: 3.22.11 Time: 0800

Chamber size : 400 mL (400 recommended)
Sample volume : 350 mL (minimum 150 ml)

Water Quality Parameters	Diluent 3.14.11	Diluent 3.(or other).11	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	<0.03	KC	KC
Alkalinity (mg/L as $CaCO_3$):	160	175	KC	KC
Hardness (mg/L as $CaCO_3$):	—	—	—	KC
Total Ammonia (mg/L as N):	<0.034	<0.034	MF	KC
Conductivity mmhos-cm:	~~20.0325~~	31.8	JD	KC
Salinity ppth:	20.0	20.0	JD	KC

√ one ☐ Waterbath: #____
Test incubated in: ☒ Incubator: # 3

Results	
Growth NOEC:	10 mg/L
Growth LOEC:	20 mg/L
Growth IC_{20}:	15.3 mg/L
Growth IC_{25}:	16.8 mg/L
Ctrl % CV	11.8 %
Dunnetts PMSD:	13.5 %
Survival NOEC:	10 mg/L
Survival LOEC:	20 mg/L

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
(if used) Incubator # 3 (JD) min. 25.6 max. 26.7 mean —
(if used) Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 23.7 max. 24.5 mean —

PMSD Bounds for Growth
Lower: 11
Upper: 37

Comments:

Investigators' signatures	Initials
Kara Coy	KC
Brad Alfieri	BA
James Janes	JD
Marshall Faircloth	MF
Liz Nelson	LM

REVIEWER

revised 2/20/11 MF

Test Page 1 of 8

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Appendix C. (continued)

Chronic SRT Survival Benchsheet

A. bahia SOP TA07_15

Loaded by (0 hour): JD Verified by (0 hour): KC Concentration: µg/L D = dead M = missing

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
Control	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
5	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	4 1D	4	3 1D	3
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	4 1D	4	4	4	4
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	4 1D	4
10	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
20	A	5	5	5	5	5	5	5	4 1D
	B	5	5	5	5	5	5	3 2D	3
	C	5	5	5	5	5	4 1D	2 2D	2
	D	5	5	5	5	5	5	3 2D	2 1D
	E	5	5	5	5	5	5	4 0	3 1D
	F	5	5	5	5	5	4 1D	3 1D	3
	G	5	4 1D	4	4	4	4	4	2 2D
	H	5	5	5	5	5	5	5	4 1D
	Checked by:		KC	JD	JD	JD	BA	JD	JD

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
40	A	5	5	5	2 3D	1 1D	0 1D	—	
	B	5	5	4 1D	3 1D	0 3D	—	—	
	C	5	5	5	4 1D	3 1D	0 3D	—	
	D	5	5	5	3 2D	1 2D	0 1D	—	
	E	5	5	5	1 4D	0 1D	—	—	
	F	5	5	5	4 1D	3 1D	1 2D	0 1D	
	G	5	5	5	4 1D	2 2D	0 2D	—	
	H	5	5	4 1D	2 2D	0 2D	—	—	
80	A	5	5	2 3D	0 2D	—			
	B	5	5	1 4D	0 1D	—			
	C	5	5	2 3D	0 2D	—			
	D	5	5	1 4D	0 1D	—			
	E	5	5	1 4D	0 1D	—			
	F	5	5	3 2D	0 3D	—			
	G	5	5	1 4D	0 1D	—			
	H	5	5	4 1D	1 3D JD	0 1D			
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
	Checked by:		KC	JD	JD	JD	BA	JD	

Comments:

revised 2/20/11 MF

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Appendix C. (continued)

A. bahia Chronic SRT Parameters Benchsheet

SOP TA07_15

Start Date: 3.15.11 Time: 1340
End Date: 3.22.11 Time: 0800

Organism: *A. bahia*
Concentration: µg/L

Test Day		Before Renewal						Test Start and After Renewal					
↓	Conc	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)
Day 0	Control							A	8.1	25.4	5.9	32.5	20.0
	JD ~~6.25~~							A	8.1	24.2	6.6	31.8	19.6
	10							A	8.1	24.3	6.8	31.8	19.6
	20							A	8.1	24.4	6.9	31.9	19.7
	40							A	8.1	24.7	7.1	32.0	19.8
	80							A	8.2	25.9	6.9	33.0	~~15~~ JD 20.4
								A					
	Measured by:								JD	JD	JD	JD	JD
	Recorded by:								JD	JD	JD	JD	JD
		Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 1	Control	B	8.1	24.0	6.8	31.8	20.1	B	8.1	24.0	7.0	30.3	19.1
	JD ~~6.5~~ 5	B	8.1	24.0	6.2	32.3	20.1	B	8.1	24.0	7.0	30.9	19.7
	10	B	8.1	24.0	6.7	32.8	20.5	B	8.1	24.1	7.1	31.1	19.8
	20	B	8.1	24.0	6.9	32.5	20.3	B	8.1	24.1	7.1	31.1	19.8
	40	B	8.1	24.0	7.0	32.1	20.1	B	8.1	24.3	7.0	31.2	19.7
	80	B	8.1	24.0	6.9	32.1	20.1	B	8.1	24.7	6.9	31.5	19.9
		B						B					
	Measured by:		JD	JD	JD	JD	JD		KC	JD	KC	KC	KC
	Recorded by:		JD	JD	JD	JD	JD		KC	KC	KC	KC	KC
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 2	Control	C	8.1	24.6	6.3	32.0	20.1	C	8.1	24.0	6.3	31.6	19.9
	5	C	8.1	24.6	6.7	31.9	20.3	C	8.2	24.0	6.4	31.9	20.1
	10	C	8.0	25.2	6.3	32.0	~~30~~ 20.3	C	8.1	24.0	6.4	32.0	20.2
	20	C	8.0	24.9	6.4	32.5	20.6	C	8.1	24.0	6.5	32.1	20.3
	40	C	8.0	24.7	6.4	32.9	20.9	C	8.1	24.0	6.3	32.5	20.5
	80	C	8.0	24.8	6.4	33.2	21.1	C	8.1	24.0	6.6	33.6	21.2
		C						C					
	Measured by:		KC	JD	KC	KC	KC		JD	KC	JD	JD	JD
	Recorded by:		KC	JD	KC	KC	KC		JD	KC	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 3	Control	D	8.0	24.6	5.7	32.6	20.3	D	8.1	24.0	6.2	31.8	20.0
	5	D	8.1	24.8	5.9	33.1	20.8	D	8.1	24.0	6.3	32.8	20.7
	10	D	8.0	25.0	6.1	32.6	20.3	D	8.1	24.5	6.3	33.0	20.7
	20	D	8.0	25.0	6.0	33.1	20.8	D	8.1	24.0	6.2	32.5	20.3
	40	D	8.1	25.3	6.0	32.4	20.2	D	8.2	24.0	6.5	32.4	20.3
	80	D	8.1	24.7	6.1	32.3	20.1	pH	8.3	25.0	6.8	33.2	20.7
		D						D					
	Measured by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD

conc = concentration rep = replicate cond = conductivity Sal = salinity

Comments:

revised 2/20/11 MF

Appendix C. (continued)

A. bahia Chronic SRT Parameters Benchsheet
SOP TA07_15

Start Date: 3.15.11 Time: 1340
End Date: 3.22.11 Time: 0800

Organism: *A. bahia*
Concentration: µg/L

Test Day		Before Renewal						Test Start and After Renewal					
↓	Conc	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)	Test Rep	pH (su)	Temp (°C)	DO (mg/L)	Cond (mmhos-cm)	Sal (ppth)
Day 4	Control	E	8.0	~~24.6~~ (B)	6.0	33.2	~~20.3~~ (A)	E	8.1	25.4	6.4	32.5	20.0
	5	E	8.0	25.0	5.6	33.2	20.3	E	8.1	25.7	6.3	32.9	20.2
	10	E	8.0	24.5	5.6	33.2	20.3	E	8.1	25.6	6.1	32.7	20.1
	20	E	8.0	24.6	6.6	32.7	20.0	E	8.1	25.6	6.1	32.5	19.9
	40	E	8.1	24.8	6.5	33.4	20.5	E	8.1	25.6	6.3	33.0	20.3
	80	~~50~~ gH	8.2	24.9	6.6	33.3	20.4	E					
		E						E					
	Measured by:		KC	JD	KC	KC	KC		KC	KC	KC	KC	KC
	Recorded by:		KC	JD	KC	KC	KC		KC	KC	KC	KC	KC
		Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 5	Control	F	7.9	25.0	5.1	34.5	21.8	F	8.1	25.3	5.7	33.3	20.7
	5	F	8.0	24.9	5.4	34.5	21.6	F	8.2	25.1	6.0	32.8	20.5
	10	F	8.0	25.0	5.0	34.7	21.8	F	8.2	25.2	6.2	32.9	20.5
	20	F	8.0	24.9	5.3	34.9	21.9	F	8.2	25.2	6.1	33.0	20.6
	40	F	8.1	25.0	5.6	34.9	21.9	F	8.2	25.4	6.3	33.3	20.8
		F						F					
		F						F					
	Measured by:		BA	MF	BA	BA	BA		BA	BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 6	Control	G	8.0	24.0	6.2	35.7	22.8	G	8.1	25.0	6.4	34.1	21.5
	5	G	8.1	24.2	6.3	33.8	22.2	G	8.1	24.4	6.2	33.3	21.0
	10	G	8.1	24.5	6.4	33.8	22.2	G	8.1	24.7	6.3	33.2	20.9
	20	G	8.1	24.8	6.4	33.9	21.2	G	8.1	24.4	6.2	33.0	20.8
	40	Fg	8.1	24.8	6.4	33.9	21.2	G					
		G						G					
		G						G					
	Measured by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 7	Control	H	7.9	24.2	4.4	35.7	22.5						
	5	H	8.0	24.1	4.6	35.5	22.4						
	10	H	8.0	25.1	4.4	35.4	22.2						
	20	H	8.0	25.4	4.7	34.4	21.6						
	~~40~~	H											
		H											
		H											
	Measured by:		BA	BA	BA	BA	BA						
	Recorded by:		BA	BA	BA	BA	BA						

conc = concentration rep = replicate cond = conductivity Sal = salinity

Comments: (A) 20.3 - KC - (B) - 24.6, Day 4 ctrl Temp - JD.

revised 2/20/11 MF

Test Page 4 of 8

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Appendix C. (continued)

Chronic SRT Test Weighing Benchsheet

A. bahia

Reference SOPs TA07_15 and TA06_21

mean wt =Mysid wt divided by 5 — convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. g	Pan + mysid g	Mysid wt. g	Original # mysids	Mean wt. mg	Concentration	Replicate	Pan #	Pan wt. g	Pan + mysid g	Mysid wt. g	Original # mysids	Mean wt. mg
Control	A	58	0.02365	0.02503	0.00138	5	.276		A					5	
	B	59	0.02169	0.02274	0.00105	5	.210		B					5	
	C	60	0.02314	0.02446	0.00132	5	.264		C					5	
	D	61	0.02333	0.02464	0.00131	5	.262		D					5	
	E	62	0.02198	0.02325	0.00127	5	.254		E					5	
	F	63	0.02405	0.02542	0.00137	5	.274		F					5	
	G	64	0.02235	0.02366	0.00131	5	.262		G					5	
	H	65	0.02157	0.02319	0.00162	5	.324		H					5	
	A	66	0.02129	0.02283	0.00154	5	.308		A					5	
5	B	67	0.02237	0.02372	0.00135	5	.270		B					5	
	C	68	JB 0.02279 ~~0.02366~~	0.02361	0.00082	5	.164		C					5	
	D	69	0.02268	0.02400	0.00132	5	.264		D					5	
	E	70	0.02264	0.02402	0.00138	5	.276		E					5	
	F	71	0.02311	0.02430	0.00119	5	.238		F					5	
	G	72	0.02357	0.02472	0.00115	5	.230		G					5	
	H	73	0.02312	0.02428	0.00116	5	.232		H					5	
	A	74	0.02404	0.02535	0.00131	5	.262		A					5	
10	B	75	0.02233	0.02365	0.00132	5	.264		B					5	
	C	76	0.02322	0.02467	0.00145	5	.290		C					5	
	D	77	0.02247	0.02391	0.00144	5	.288		D					5	
	E	78	0.02339	0.02477	0.00078	5	.156		E					5	
	F	79	0.02236	0.02378	0.00142	5	.284		F					5	
	G	80	0.02392	0.02532	0.00140	5	.280		G					5	
	H	81	0.02239	0.02361	0.00122	5	.244		H					5	
	A	82	0.02356	0.02466	0.00110	5	.220		A					5	
20	B	83	0.02319	0.02408	0.00089	5	.178		B					5	
	C	84	0.02221	0.02287	0.00066	5	.132		C					5	
	D	85	0.02339	0.02404	0.00065	5	.130		D					5	
	E	86	0.02202	0.02288	0.00086	5	.172		E					5	
	F	87	0.02395	0.02484	0.00089	5	.178		F					5	
	G	88	0.02224	0.02290	0.00066	5	.132		G					5	
	H	89	0.02347	0.02456	0.00109	5	.218		H					5	
Weighed by initials:			JB	JB				Weighed by initials:							

Comments:

revised 2/20/11 MF

Test Page 5 of 8

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Appendix C. (continued)

Chronic SRT Test Weighing Benchsheet
Quality Control

A. bahia

SOPs TA07_15 and TA06_21

Empty Pan Weights Date: 3.21.11 By: JD

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02363	@ 0.02365
after Pan 10	0.02366	@ 0.02365
after Pan 15	0.02365	@ 0.02365
after Pan 20	0.02364	@ 0.02365
after Pan 25	0.02364	@ 0.02365
after Pan 30	0.02366	@ 0.02365
after Pan 35	0.02370	@ 0.02365
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.0001	@ 0.01
	0.03004	@ 0.03

S-Weights: BIO-S-WEIGHTS-01
Balance: Ohaus 250D
Ser# 1125481084

Fish + Pan Weights Date: 3.24.11 By: JD

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02501	@ 0.02503
after Pan 10	0.02500	@ 0.02503
after Pan 15	0.02500	@ 0.02503
after Pan 20	0.02500	@ 0.02503
after Pan 25	0.02505	@ 0.02503
after Pan 30	0.02501	@ 0.02503
after Pan 35	0.02500	@ 0.02503
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.01	@ 0.01
	0.05007	@ 0.05

Drying Oven ID: ER03400
Temperature °C: 100
Drying Hours: 8

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

revised 2/20/11 MF

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Test page 7 of 8, A. bahia Chronic Fecundity, was not used for this bioassay

Appendix C. (continued)

Test ID: A. kahia Chronic SRT Dates: 3.15.11 – 3.22.11

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Metller-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN1101686412 #2-SN2212965527 #3-SN2401160 20 #4-SN80361795 #5 SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ ✓ #5
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓ ✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓ ✓
					✓

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Entered By: Kara Cox

V 1.2 2/20/11 MF/jd

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

P. promelas	SOP#: TA07_09	EPA-821-R-02-013	Method 1000.0
(*M. beryllina*)	SOP#: TA07_14	EPA-821-R-02-014	Method 1006.0

Diluent/ Batch: ASW/2.21.11 Test Days Used: 0-1

Diluent/ Batch: ASW/2.23.11 Test Days Used: 2-3(A)

Toxicant/ Batch # : CuCl2/2.21.11

Artemia Lot # : 23613

Start Date: 2.22.11 Time: 1310

End Date: 3.1.11 Time: 13:30

Organism Batch #/ Age: #2.22.11/10 days

Artemia Batch #				Chamber size : 1000 ml
Day 0 34-11	Day 2 36-11	Day 5 39-11		Test volume : 500 ml
Day1 35-11	Day 3 37-11	Day 6 40-11		
	Day 4 38-11			

Feeding: *P. promelas* 0.15 g wet wt. 2X day 6 hour interval

M. beryllina 0.10 g wet wt days 0-2 0.15g wet wt. days 3-7

Water Quality Parameters	Diluent 2.21.11	Diluent 2.23.11 (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	~~<0.03~~ KC not measured	HACH	KC	KC
Alkalinity (mg/L as $CaCO_3$):	KC 20017	not measured	HACH	KC	KC
Hardness (mg/L as $CaCO_3$):	—	—	HACH	—	—
Total Ammonia (mg/L as N):	<0.034	<0.034	DENVER	BA	KC
Conductivity µmhos-cm ~~mmhos-cm~~:	32.0	32.1	METTLER	JD	KC

Statistics	
Growth NOEC:	250 mg/L
Growth LOEC:	500 mg/L
Growth IC_{20}:	375 mg/L
Growth IC_{25}:	287 mg/L
Ctrl % CV:	11.8%
Dunnetts PMSD:	19.4%
Survival NOEC:	~~125~~ ~~67.5~~ mf
Survival LOEC:	~~250~~ ~~135~~ 67.5 mf

Test incubated in : ☒ Incubator # 5

☐ Waterbath #_____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 5 min. 23.7 max. 26.0 mean_____

Water bath # ____ min._____ max._____ mean_____

Room B246 min. 21.3 max. 25.6 mean_____

P. promelas PMSD Bounds for Growth: Lower 12 Upper 30

M. beryllina PMSD Bounds for Growth: Lower 11 Upper 28

Investigators' signatures

James Daniel

Kara Cox

Marshall Faircloth

Becca Adkins

Liz Miller

REVIEWER

Comments: (A) ASW #2.25.11 was used days 4-6. -KC-

TRC = <0.03 mg/L

Alk = 173 mg/L as $CaCO_3$

Ammonia = <0.034 mg/L as N

Cond. = 33.4 mmhos-cm

*All of the above measured by & verified by are the same as Diluent #2.21.11 & #2.23.11 - except ammonia, which was measured by MF.

*TRC & alkalinity for Diluent #2.23.11 was not measured due to lab error. -KC.

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revised 7/16/08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

Organism: *P. promelas* (*M.beryllina*) (circle one) D = dead M = missing

Concentration: µg/L g/L (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	C1	10	10	10	10	10	10	10	10
	B	C2	10	10	10	10	10	10	10	10
	C	C3	10	10	10	10	10	10	10	10
	D	C4	10	10	10	10	10	10	10	10
67.5	A	C5	10	9 1D	9	9	9	9	9	9
	B	C6	10	10	10	10	10	9 1D	9	9
	C	C7	10	8 2D	8	8	8	8	8	8
	D	C8	10	10	9 1D	9	8 1D	8	8	7 1D
125	A	C9	10	9 1D	9	9	9	9	9	9
	B	C10	10	9 1D	8 1D	8	7 1D	7	7	7
	C	C11	10	10	10	10	10	10	10	10
	D	C12	10	9 1D	9	8 1D	8	8	8	6 2D
250	A	C13	10	10	9 1D	9	9	9	9	9
	B	C14	10	7 3D	7	7	7	6 1D	6	6
	C	C15	10	7 3D 3D	7	6 1D	6	6	6	6
	D	C16	10	8 2D	7 1D	7	7	7	7	7
500	A	C17	10	4 6D	0 4D	—	—	—	—	—
	B	C18	10	3 7D	0 3D	—	—	—	—	—
	C	C19	10	4 6D	0 4D	—	—	—	—	—
	D	C20	10	5 5D	2 3D	2	1 1D	1	1	1
1000	A	C21	10	0 10D						
	B	C22	10	0 10D						
	C	C23	10	0 10D						
	D	C24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JB		Checked by:		JB	JB	JB	JB	JB	JB	BA
Verified by (0 hr): KO										
Concentrations prepared by:				JB	JB	JB	JB	JB	JB	—

Comments:

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 2.22.11 Time: 1310

End Date: 3.1.11 Time: 1330

Organism: *P. promelas* (*M.beryllina*) (circle one)

Concentration: µg/L g/L (circle one)

circle µmhos or mmhos

Test Day		Before Renewal						Test Start and After Renewal					
	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos		Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	
Day 0	Control							A	8.2	25.2 32.3	5.7	32.2	20.0
	67.5							A	8.2	24.7	6.6	32.4	20.2
	125							A	8.2	24.8	7.0	32.5	20.3
	250							A	8.2	24.9	7.0	32.6	20.4
	500							A	8.2	25.1	7.1	32.6	20.4
	1000							A	8.2	25.2	7.1	33.3	20.2
								A					
	Measured by:								JD	NF	JD	JD	JD
	Recorded by:								JO	JD	JO	JO	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
Day 1	Control	B	8.2	25.8	6.3	32.7 / 20.4		B	8.2	24.1	6.4	32.0 / 20.0	
	67.5 ~~67.5~~ JD	B	8.2	25.4	6.5	32.7 / 20.4		B	8.2	24.1	6.6	32.3 / 20.1	
	125	B	8.2	25.4	6.6	32.8 / 20.5		B	8.2	24.2	6.6	32.4 / 20.2	
	250	B	8.2	25.6	6.7	33.2 / 20.1		B	8.2	24.2	6.7	32.8 / 20.4	
	500	B	8.2	25.7	6.8	33.3 / 20.2		B	8.2	24.2	6.7	32.8 / 20.5	
	1000	B	8.2	25.6	6.8	33.5 / 30.3		B					
		B						B					
	Measured by:		JD	JD	JD	JD / JD			KC	KC	KC	KC / KC	
	Recorded by:		JD	JD	JD	JD / JD			KC	KC	KC	KC / KC	
	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
Day 2	Control	C	8.0	24.8	5.5	32.2 / 19.8		C	8.1	24.0	6.6	32.1 / 20.1	
	67.5	C	8.2	24.4	6.0	32.2 / 19.8		C	8.1	24.0	6.7	32.3 / 20.1	
	125	C	8.2	24.6	6.3	32.6 / 20.3		C	8.1	24.1	6.4	32.7 / 20.3	
	250	C	8.2	24.3	6.3	32.5 / 20.3		C	8.1	24.1	6.6	32.4 / 20.4	
	500	C	8.2	24.4	6.4	32.4 / 20.1		C	8.2	24.0	6.7	32.8 / 20.4	
		C						C					
		C						C					
	Measured by:		KC		KC	KC / KC			JD	JD	JD	JD / JD	
	Recorded by:		KC		KC	KC / KC			JD	JD	JD	JD / JD	
	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
Day 3	Control	D	8.1	25.2	6.9	32.7 / 20.4		D	8.2	24.0	6.6	32.3 / 20.0	
	67.5	D	8.2	25.1	6.4	32.7 / 20.4		D	8.2	24.0	6.6	32.6 / 20.3	
	125	D	8.2	25.3	6.4	32.6 / 20.3		D	8.2	24.0	6.6	32.3 / 20.2	
	250	D	8.2	25.6	6.6	32.4 / 20.1		D	8.2	24.0	6.7	32.2 / 20.1	
	500	D	8.2	25.4	6.7	32.7 / 20.4		D	8.2	24.0	6.7	32.2 / 20.1	
		D						D					
		D						D					
	Measured by:		JD	JD	JD	JD / JD			KC	JD	KC	KC / KC	
	Recorded by:		JD	JD	JD	JD / JD			KC	JD	KC	KC / KC	

Sc /

Comments:

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Organism: *P. promelas* (*M.beryllina*) (circle one)

Concentration: µg/L g/L (circle one)

circle µmhos or mmhos

Test Day		Before Renewal						After Renewal					
	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)		Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)	
Day 4	Control	A	8.1	24.6	6.6	33.0	20.6	A	8.2	24.8	6.9	33.4	20.7
	67.5	A	8.1	25.5	6.4	33.1	20.7	A	8.2	24.4	6.6	32.9	20.4
	125	A	8.2	24.8	6.3	33.1	20.7	A	8.2	24.0	6.7	32.9	20.4
	250	A	8.2	25.3	6.4	32.6	20.3	A	8.2	24.0	6.5	32.3	20.4
	500	~~A~~ D	8.1	25.2	6.5	33.0	20.6	A	8.2	24.0	6.5	32.3	20.0
		A						A					
		A						A					
	Measured by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 5	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
	Control	B	8.1	24.9	5.4	33.3	20.6	B	8.2	24.3	6.8	32.8	20.4
	67.5	B	8.1	25.5	5.9	33.2	20.6	B	8.2	24.2	6.5	33.1	20.6
	125	B	8.1	25.1	5.9	32.8	20.4	B	8.2	24.2	6.4	33.0	20.5
	250	B	8.1	24.5	5.7	32.9	20.4	B	8.2	24.4	6.5	32.6	20.1
	500	~~B~~ D	8.1	25.6	5.8	33.1	20.5	B	8.2	24.0	6.9	32.5	20.0
		B						B					
		B						B					
	Measured by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 6	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
	Control	C	8.1	25.7	6.1	33.1	20.5	C	8.2	25.2	6.5	33.0	20.6
	67.5	C	8.1	25.1	6.2	33.1	20.7	C	8.2	24.8	6.0	33.0	20.6
	125	C	8.1	25.9	6.2	33.3	20.8	C	8.2	24.8	6.0	33.1	20.7
	250	C	8.1	25.5	6.3	32.7	20.4	C	8.2	24.7	6.1	32.9	20.2
	500	~~C~~ D	8.2	25.9	6.3	33.2	20.8	D	8.2	24.0	6.2	32.7	20.1
		C						C					
		C						C					
	Measured by:		KC	JD	KC	KC	KC		JD	JD	JD	JD	JD
	Recorded by:		KC	JD	KC	KC	KC		JD	JD	JD	JD	JD
Day 7	Concentration	Replicate	pH	Temp	DO	Conductivity		Replicate	pH	Temp	DO	Conductivity	
	Control	D	8.1	25.6	5.5	32.6	20.3	D					
	67.5	D	8.1	25.2	5.7	32.8	20.4	D					
	125	D	8.1	25.0	6.1	32.9	20.5	D					
	250	D	8.1	24.9	6.2	32.7	20.4	D					
	500	D	8.2	25.4	6.3	32.8	20.5	D					
		D						D					
		D						D					
	Measured by:		BA	BA	BA	BA							
	Recorded by:		BA	BA	BA	BA							

Comments:

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

Organism: *P. promelas* *M.beryllina* (circle one)

Concentration: µg/L g/L (circle one)

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)	
Control	A	117	0.0 2192	0.0 3063	0.00871	10	.871	
	B	118	0.0 2236	0.0 3143	0.00907	10	.907	
	C	119	0.0 2225	0.0 3355	0.0113	10	1.13	
	D	120	0.0 2308	0.0 3290	0.00982	10	.982	0.9725
675	A	121	0.0 2264	0.0 3093	0.00829	10	.829	
	B	122	0.0 2146	0.0 3035	0.00889	10	.889	
	C	123	0.0 2270	0.0 3140	0.00870	10	.870	
	D	124	0.0 2335	0.0 3058	0.00723	10	.723	0.8274
125	A	125	0.0 2179	0.0 3124	0.00945	10	.945	
	B	126	0.0 2248	0.0 3029	0.00781	10	.781	
	C	127	0.0 2273	0.0 3314	0.01041	10	1.041	
	D	128	0.0 2225	0.0 2910	0.00685	10	.685	0.8693 38 MF
250	A	129	0.0 2244	0.0 3174	0.00930	10	.930	
	B	130	0.0 2219	0.0 2960	0.00741	10	.741	
	C	131	0.0 2201	0.0 2982	0.00781	10	.781	
	D	132	0.0 2258	0.0 3283	0.01025	10	1.025	0.8693
500	D AMF	133	0.0 2597	0.0 2691	0.00094	10	.094	0.0235
	B	134	0.0	0.0		10		
	C	135	0.0	0.0		10		
	D	136	0.0	0.0		10		
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
		Weighed by:	JS	JD				

Comments:

Note: Pan number (#) refers to actual Pan number.

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 2.28.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02190	@ 0.02192
after Pan 10	0.02190	@ 0.02192
after Pan 15	0.02190	@ 0.02192
after Pan 20	0.02191	@ 0.02193
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01001	@ 0.01
	0.03003	@ 0.03

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 3.4.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.03066	@ 0.03063
after Pan 10	0.03065	@ 0.03063
after Pan 15	0.03067	@ 0.03063
after Pan 20	0.03067	@ 0.03063
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01001	@ 0.01
	0.05004	@ 0.05

Drying Oven ID: VWR 2

Temperature °C: 95

Drying Hours: 8

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

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Appendix C. (continued)

Test ID: M. bezpillus Chronic SRT Dates: 2.22.11 – 3.4.11

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Metller-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5 SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #5
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓
					✓

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.

Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT–Chronic SRT)

J.D. 3.4.11

V 1.1 9/21/10 MF/jd

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Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 2/21/11

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	100 ac	4 DAYS	MS 110217	25	8.0	20
	750 CH	6 DAYS	MS 110215	25	8.0	20
Menidia beryllina	100 ac	12 DAYS	SS 110209	25	8.0	20
	750 CH	9 DAYS	SS 110212	25	8.0	20
						Hardness mg/L
Cyprinella leedsi	100 ac	12 DAYS	CL 110209	25	7.8	80
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: Pack the chronic mysids + menidia into two bags each (375/b

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 3/14/11

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	~~400~~ 400 CH	6 DAYS	MS110308	25	8.0	20
Menidia beryllina	~~500~~ 400 CH	9 DAYS	SS110305	25	8.0	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	250	<24HRS	FM110313-1650	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix E. Chemical Analyses performed on the effluent from the gulf Power Company – Lansing Smith Power Plant Outfall D-001 and I-01C, sampled on February 21, 2011.

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 12:20	Effluent	AGP/LN	Algal Growth Potential	3	AU	mg DryWt/L	3	3
2/21/2011 12:20	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.42	U	ug/L	0.42	1.3
2/21/2011 12:20	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.58	U	ug/L	0.58	1.8
2/21/2011 12:20	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.4	IJ	mg/L	0.2	2
2/21/2011 12:20	Effluent	Overflow	Fecal Coliforms-Membrane Filter	3060	BJ	cfu/100 mL	1	
2/21/2011 12:20	Effluent	Toxicology	Bioassay-Chronic-Scrn-SW-Fish, NOEC	100		NOEC		
2/21/2011 12:20	Effluent	Toxicology	Bioassay-Chronic-Scrn-SW-Mysid, NOEC	100		NOEC		
2/21/2011 12:20	Effluent	Metals	Magnesium	1020		mg/L	2	8
2/21/2011 12:20	Effluent	Metals	Lead	0.6	U	ug/L	0.6	2.4
2/21/2011 12:20	Effluent	Metals	Chromium	0.9	U	ug/L	0.9	3.6
2/21/2011 12:20	Effluent	Metals	Cadmium	0.15	U	ug/L	0.15	0.6
2/21/2011 12:20	Effluent	Metals	Arsenic	0.98	I	ug/L	0.75	3
2/21/2011 12:20	Effluent	Metals	Nickel	0.75	U	ug/L	0.75	3
2/21/2011 12:20	Effluent	Metals	Zinc	15	U	ug/L	15	60
2/21/2011 12:20	Effluent	Metals	Calcium	336		mg/L	3.7	15
2/21/2011 12:20	Effluent	Metals	Selenium	0.6	U	ug/L	0.6	2.4
2/21/2011 12:20	Effluent	Metals	Copper	1.5	U	ug/L	1.5	3
2/21/2011 12:20	Effluent	Metals	Aluminum	250	I	ug/L	180	720
2/21/2011 12:20	Effluent	Metals	Iron	130	I	ug/L	90	360
2/21/2011 12:20	Effluent	Metals	Silver	0.075	U	ug/L	0.075	0.3
2/21/2011 12:20	Effluent	Metals	Sodium	8500		mg/L	25	100
2/21/2011 12:20	Effluent	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
2/21/2011 12:20	Effluent	Nutrients	NO2NO3-N	0.025	U	mg N/L	0.025	0.05
2/21/2011 12:20	Effluent	Nutrients	Kjeldahl Nitrogen	0.24	I	mg N/L	0.16	0.4
2/21/2011 12:20	Effluent	Nutrients	TSS	17		mg/L	4	16
2/21/2011 12:20	Effluent	Nutrients	Total-P	0.017	I	mg P/L	0.008	0.02
2/21/2011 12:20	Effluent	Nutrients	O-Phosphate-P	0.008	U	mg P/L	0.008	0.02
2/21/2011 12:20	Effluent	Overflow	Oil and Grease	1.4	U	mg/L	1.4	5
2/21/2011 12:20	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 12:20	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
2/21/2011 12:20	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Alachlor	0.61	U	ug/L	0.61	2.4
2/21/2011 12:20	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
2/21/2011 12:20	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	Naled	0.81	U	ug/L	0.81	3.2
2/21/2011 12:20	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
2/21/2011 12:20	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
2/21/2011 12:20	Effluent	Pesticides	Endrin	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
2/21/2011 12:20	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
2/21/2011 12:20	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	Chlorpyrifos Ethyl	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
2/21/2011 12:20	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
2/21/2011 12:20	Effluent	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
2/21/2011 12:20	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
2/21/2011 12:20	Effluent	Pesticides	Toxaphene	0.76	U	ug/L	0.76	3
2/21/2011 12:20	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Methoxychlor	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Ametryn	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
2/21/2011 12:20	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
2/21/2011 12:20	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 12:20	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Pesticides	Atrazine	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Diazinon	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Ethion	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
2/21/2011 12:20	Effluent	Pesticides	Metolachlor	0.51	U	ug/L	0.51	2
2/21/2011 12:20	Effluent	Pesticides	Phorate	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	Simazine	0.051	U	ug/L	0.051	0.2
2/21/2011 12:20	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.1
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.81

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.1
2/21/2011 12:20	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.1
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
2/21/2011 12:20	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.1
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	UJ	ug/L	40	160
2/21/2011 12:20	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
2/21/2011 12:20	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.81
2/21/2011 12:20	Effluent	Field Parameter	pH	7.5				
2/21/2011 12:20	Effluent	Field Parameter	Temperature	26.27		C		
2/21/2011 12:20	Effluent	Field Parameter	Specific Conductance	41115		umhos/cm		
2/21/2011 12:20	Effluent	Field Parameter	Dissolved Oxygen	7.09		mg/L		
2/21/2011 12:20	Effluent	Field Parameter	Sample Depth	0.15		m		
2/21/2011 13:35	Ash Pond	Metals	Arsenic	28.3		ug/L	0.25	1

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 13:35	Ash Pond	Metals	Copper	0.9	I	ug/L	0.5	1
2/21/2011 13:35	Ash Pond	Metals	Zinc	5	U	ug/L	5	20
2/21/2011 13:35	Ash Pond	Metals	Nickel	4.36		ug/L	0.25	1
2/21/2011 13:35	Ash Pond	Metals	Chromium	5.7		ug/L	0.3	1.2
2/21/2011 13:35	Ash Pond	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/21/2011 13:35	Ash Pond	Metals	Iron	150		ug/L	30	120
2/21/2011 13:35	Ash Pond	Metals	Selenium	7.6		ug/L	0.2	0.8
2/21/2011 13:35	Ash Pond	Metals	Cadmium	0.25		ug/L	0.05	0.2
2/21/2011 13:35	Ash Pond	Nutrients	Kjeldahl Nitrogen	0.45		mg N/L	0.16	0.4
2/21/2011 13:35	Ash Pond	Nutrients	Ammonia-N	0.03		mg N/L	0.01	0.02
2/21/2011 13:35	Ash Pond	Nutrients	TSS	9	I	mg/L	4	16
2/21/2011 13:35	Ash Pond	Nutrients	NO2NO3-N	0.014		mg N/L	0.005	0.01
2/21/2011 13:35	Ash Pond	Overflow	Oil and Grease	1.4	U	mg/L	1.4	5
2/21/2011 13:35	Ash Pond	Overflow	Radium 226-Counting Error	0.3		pCi/L		
2/21/2011 13:35	Ash Pond	Overflow	Radium 226	0.9		pCi/L		
2/21/2011 13:35	Ash Pond	Overflow	Radium 228	0.8	U	pCi/L		
2/21/2011 13:35	Ash Pond	Overflow	Radium 228-Counting Error	0.5		pCi/L		
2/21/2011 13:35	Ash Pond	Field Parameter	Specific Conductance	6153		umhos/cm		
2/21/2011 13:35	Ash Pond	Field Parameter	Temperature	19.64		C		
2/21/2011 13:35	Ash Pond	Field Parameter	Dissolved Oxygen	8.53		mg/L		
2/21/2011 13:35	Ash Pond	Field Parameter	pH	7.56				
2/21/2011 13:35	Ash Pond	Field Parameter	Sample Depth	0.15		m		
2/21/2011 13:20	ICW	Metals	Nickel	0.33	I	ug/L	0.25	1
2/21/2011 13:20	ICW	Metals	Iron	150		ug/L	30	120
2/21/2011 13:20	ICW	Metals	Copper	0.5	U	ug/L	0.5	1
2/21/2011 13:20	ICW	Metals	Lead	0.6	U	ug/L	0.6	2.4
2/21/2011 13:45	Blank	Metals	Zinc	5	U	ug/L	5	20
2/21/2011 13:45	Blank	Metals	Aluminum	60	U	ug/L	60	240
2/21/2011 13:45	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/21/2011 13:45	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
2/21/2011 13:45	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
2/21/2011 13:45	Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
2/21/2011 13:45	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
2/21/2011 13:45	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 13:45	Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
2/21/2011 13:45	Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/21/2011 13:45	Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
2/21/2011 13:45	Blank	Metals	Copper	0.5	U	ug/L	0.5	1
2/21/2011 13:45	Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
2/21/2011 13:45	Blank	Metals	Iron	30	U	ug/L	30	120
2/21/2011 13:45	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
2/21/2011 13:45	Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
2/21/2011 13:45	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
2/21/2011 13:45	Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
2/21/2011 13:45	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
2/21/2011 13:45	Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
2/21/2011 13:45	Blank	Overflow	Radium 228-Counting Error	0.5		pCi/L		
2/21/2011 13:45	Blank	Overflow	Oil and Grease	1.4	U	mg/L	1.4	5
2/21/2011 13:45	Blank	Overflow	Radium 228	0.8	U	pCi/L		
2/21/2011 13:45	Blank	Overflow	Radium 226	0.5		pCi/L		
2/21/2011 13:45	Blank	Overflow	Radium 226-Counting Error	0.2		pCi/L		
2/21/2011 13:45	Blank	Pesticides	Chlorpyrifos Ethyl	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Chlorpyrifos Methyl	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Endosulfan I	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Simazine	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Alpha-BHC	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	Heptachlor Epoxide	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Azinphos Methyl	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Bromacil	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Hexazinone	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Mevinphos	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Phorate	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Chlordane	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Delta-BHC	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	Endosulfan Sulfate	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Ethoprop	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Malathion	0.16	U	ug/L	0.16	0.64
2/21/2011 13:45	Blank	Pesticides	Naled	0.86	U	ug/L	0.86	3.4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 13:45	Blank	Pesticides	Aldrin	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	DDD-p,p'	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Ametryn	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Butylate	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Metribuzin	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Endosulfan II	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Endrin	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Heptachlor	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	Atrazine	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Fenamiphos	0.21	U	ug/L	0.21	0.84
2/21/2011 13:45	Blank	Pesticides	Parathion Ethyl	0.16	U	ug/L	0.16	0.64
2/21/2011 13:45	Blank	Pesticides	Parathion Methyl	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Prometryn	0.16	U	ug/L	0.16	0.64
2/21/2011 13:45	Blank	Pesticides	Beta-BHC	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	Dieldrin	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Gamma-BHC	0.011	U	ug/L	0.011	0.044
2/21/2011 13:45	Blank	Pesticides	Alachlor	0.64	U	ug/L	0.64	2.6
2/21/2011 13:45	Blank	Pesticides	Ethion	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Metalaxyl	0.27	U	ug/L	0.27	1.1
2/21/2011 13:45	Blank	Pesticides	Norflurazon	0.16	U	ug/L	0.16	0.64
2/21/2011 13:45	Blank	Pesticides	DDT-p,p'	0.032	U	ug/L	0.032	0.13
2/21/2011 13:45	Blank	Pesticides	Endrin Aldehyde	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Methoxychlor	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Diazinon	0.054	U	ug/L	0.054	0.22
2/21/2011 13:45	Blank	Pesticides	Fonofos	0.11	U	ug/L	0.11	0.44
2/21/2011 13:45	Blank	Pesticides	Metolachlor	0.54	U	ug/L	0.54	2.2
2/21/2011 13:45	Blank	Pesticides	DDE-p,p'	0.021	U	ug/L	0.021	0.084
2/21/2011 13:45	Blank	Pesticides	Toxaphene	0.8	U	ug/L	0.8	3.2
2/21/2011 13:45	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.2	U	ug/L	2.2	9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.5

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 13:45	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Pyrene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Hexachloroethane	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Fluorene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2	U	ug/L	2.2	9
2/21/2011 13:45	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	Naphthalene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Nitrobenzene	2.2	U	ug/L	2.2	9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Pentachlorophenol	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	17	U	ug/L	17	67
2/21/2011 13:45	Blank	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Acenaphthylene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzidine	110	U	ug/L	110	450
2/21/2011 13:45	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	5.6	U	ug/L	5.6	22
2/21/2011 13:45	Blank	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	4-Nitrophenol	17	U	ug/L	17	67
2/21/2011 13:45	Blank	Priority Organic Pollutants	Acenaphthene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	Fluoranthene	0.22	U	ug/L	0.22	0.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/21/2011 13:45	Blank	Priority Organic Pollutants	Phenanthrene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	45	UJ	ug/L	45	180
2/21/2011 13:45	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.5
2/21/2011 13:45	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.4	U	ug/L	3.4	13
2/21/2011 13:45	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.2	U	ug/L	2.2	9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Anthracene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	17	U	ug/L	17	67
2/21/2011 13:45	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	5.6	U	ug/L	5.6	22
2/21/2011 13:45	Blank	Priority Organic Pollutants	Chrysene	0.22	U	ug/L	0.22	0.9
2/21/2011 13:45	Blank	Priority Organic Pollutants	Dimethyl phthalate	11	U	ug/L	11	45
2/21/2011 13:45	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	45

Appendix F. Facility Summary, Effluent Limits, and Permit Violations Recorded on Discharge Monitoring Report

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen	**Contact Number:** x10553
Facility Name (as it appears on permit): Gulf Power Company – Lansing Smith Power Plant	**Former Names:**
NPDES Permit Number: FL0002267	**Permit Expiration Date:** 12/1/14
Physical Address: Bay County Road 2300, Southport, FL 32409	
District: NWD	**County:** Bay
Function of Facility: Electric Generating Plant	
Facility Type: Power Plant	**Permitted Capacity (MGD):** 273.6 mgd daily max
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): **226.93 mgd (3/11-2/11)**	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

Appendix F. (continued)

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

EFF-2 (for D-001): immediately downstream of the center of the second roadway embankment across the discharge canal downstream of the discharge structure.

OTH-1 (for D-001): The difference between the temperature at the once-through cooling water condenser inlet and once-through cooling water discharge structure

INT-2 (for D-001): Once-through cooling water circulator pumps logs

EFF-5 (for D-00D): The main yard sump at the nearest accessible point prior to discharge

EFF-3 (for I-015): Discharge from metal cleaning waste treatment pond prior to discharge to the ash pond

EFF-4 (for I-01C): Ash pond discharge parshall flume.

EFF-7 (for I-017): The end of the discharge structure leading from the cooling tower exit and prior to being discharged to the discharge canal.

Description of Permitted Outfall(s):

Surface Water Discharge D-001: An existing 273.6 MGD Daily Maximum Flow permitted discharge to Warren Bayou, Class II Waters (WBID 1061A). The point of discharge is located approximately at latitude 30°16' 24" N, longitude 85°43' 15" W.

Surface Water Discharge D-00D: An existing 0.01 MGD Daily Maximum Flow permitted discharge to Alligator Bayou, Class III Marine Waters (WBID 1026). The point of discharge is located approximately at latitude 30°16' 04" N, longitude 85°42'03" W.

Internal Outfall I-015: An existing permitted discharge to the ash pond.

Internal Outfall I-017: An existing permitted discharge to the discharge canal, thence to Warren Bayou.

Internal Outfall I-01C: An existing permitted discharge to the discharge canal leading to Outfall D-001.

Internal Outfall I-01A: An existing 0.0075 MGD Annual Average Daily Flow permitted discharge to ash pond.

Appendix F. (continued)

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

WASTEWATER TREATMENT:
Once-through cooling water (OTCW), cooling tower blowdown, and overflow from the ash pond discharge to the discharge canal. OTCW discharges without treatment. Wastewater streams that are routed to the cooling tower basin and thus discharged via cooling tower blowdown to the discharge canal are (1) evaporative cooler blowdown; and (2) clean drain effluent from the turbine/boiler building. The cooling tower blowdown valve will be closed during chlorination until chlorine residual concentration decreases to an acceptable concentration.

All other wastewaters from the operation of Units 1 and 2 are discharged to the ash pond. Wastewater streams that discharge to the ash pond include boiler blowdown, water treatment filter backwash, air preheater wash, ash and pyrite sluice, coal pile runoff, yard runoff, treated metal cleaning waste, treated demineralizer regeneration waste, treated domestic wastewater, and other minor process and non-process waste streams. Demineralizer regeneration waste is neutralized and allowed to settle in a retention pond prior to discharge to the ash pond. Metal cleaning waste is neutralized in pipe and is chemically precipitated and allowed to settle in a retention pond prior to discharge to the ash pond. Domestic wastewater receives secondary treatment in an extended aeration package treatment plant prior to on-site recycling at the ash pond. Demineralizer waste composed of (1) green sand filter backwash; (2) multimedia filter backwash; and (3) reverse osmosis concentrate will be routed to an existing stormwater sump to be discharged to the existing ash ponds.

Boiler blowdown from the two heat recovery steam generators (HRSGs) is routed to the main yard sump to be discharged to the existing ash ponds. Gas turbine and equipment waste are drained to the oil-water separator, from which wastewater will

be drained to the site wastewater sump before being pumped to the existing ash ponds. Transformer enclosure drains are used to drain and release collected stormwater to the site run-off water system. Chemical cleaning waste streams are diverted to the existing on-site metals cleaning pond for disposal.

Appendix F. (continued)

PART I: Continued
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge **Once-Through Non-Contact Cooling Water, Ash Pond Overflow, and Cooling Tower Blowdown** from **Outfall D-001** to Warren Bayou. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3.:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/ Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow	MGD	Max Max	Report Report	Daily Maximum Monthly Average	Hourly	Pump Logs	INT-2	
Temp. Diff. between Intake and Discharge	Deg F	Max Max	Report 18	Daily Maximum Monthly Average	4/Day	Calculated	OTH-1	April-Sept See I.A.4
		Max Max	Report 20	Daily Maximum Monthly Average				Oct.-March See I.A.4
pH	s.u.	Min Max	6.5 8.5	Daily Minimum Daily Maximum	Weekly	Grab	EFF-2	
Oxidants, Total Residual	mg/L	Max	0.01 0.01	Daily Maximum Monthly Average	Weekly	Grab	EFF-2	See I.A.6
Oil and Grease	mg/L	Max	5.0 5.0	Daily Maximum Monthly Average	Monthly	Grab	EFF-2	
Copper, Total Recoverable	ug/L	Max	3.7 3.7	Daily Maximum Monthly Average	Annually	8-hr TPC	EFF-2	See I.A.7
Iron, Total Recoverable	mg/L	Max	0.3 0.3	Daily Maximum Monthly Average	Annually	8-hr TPC	EFF-2	See I.A.7
Lead, Total Recoverable	ug/L	Max	8.5 8.5	Daily Maximum Monthly Average	Annually	8-hr TPC	EFF-2	See I.A.7
Nickel, Total Recoverable	ug/L	Max	8.3 8.3	Daily Maximum Monthly Average	Annually	8-hr TPC	EFF-2	See I.A.7
Chronic Whole Effluent Toxicity, 7-Day IC25 (Americamysis bahia)	percent	Min	100	Single Sample	Quarterly	24-hr TPC[1]	EFF-2	See I.A.10
Chronic Whole Effluent Toxicity, 7-Day IC25 (Menidia beryllina)	percent	Min	100	Single Sample	Quarterly	24-hr TPC[1]	EFF-2	See I.A.10

Appendix F. (continued)

12. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge **Ash Pond Overflow** from **I-01C** to the Discharge Canal leading to Outfall D-001. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3.:

Parameter	Units	Effluent Limitations			Monitoring Requirements			
		Max/ Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow	MGD	Max Max	Report Report	Monthly Average Daily Maximum	Daily	Meter[4]	EFF-4	
pH	s.u.	Min Max	6.0 9.0	Daily Minimum Daily Maximum	Weekly	Grab	EFF-4	
Solids, Total Suspended	mg/L	Max Max	30.0 100.0	Monthly Average Daily Maximum	Weekly	Grab	EFF-4	
Oil and Grease	mg/L	Min Max	15.0 20.0	Monthly Average Daily Maximum	Weekly	Grab	EFF-4	
Arsenic, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Cadmium, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Chromium, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	See I.B.15
Copper, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Iron, Total Recoverable	mg/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Lead, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Mercury, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Nickel, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Selenium, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Zinc, Total Recoverable	ug/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Radium 226 + Radium 228, Total	pCi/L	Max	Report	Daily Maximum	Semi-Annually[5]	24-hr TPC	EFF-4	
Nitrite plus Nitrate, Total (as N)	mg/L	Max	Report	Monthly Average	Monthly	Grab	EFF-4	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Monthly Average	Monthly	Grab	EFF-4	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	Report	Monthly Average	Monthly	Grab	EFF-4	
Nitrogen, Total	mg/L	Max	Report	Monthly Average	Monthly	Grab	EFF-4	

Appendix F. (continued)

PART I: Continued	
Receiving Waters: Warren Bayou	**Classification (indicate whether fresh or marine):** Class II Marine

11. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

    a. Effluent Limitation
    (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. *[62-302.530(61) and (1)(b), F.A.C.]*
    (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. *[62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]*

c. Sampling Requirements
    (1) For each routine test or additional follow-up test conducted, a total of three 24-hour composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
    (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
    (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements
    (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%, 50%, 25%, 12.5%,** and **6.25%** final effluent.
    (2) The permittee shall conduct 7-day survival and growth chronic toxicity tests with a mysid shrimp, **Americamysis (Mysidopsis) bahia,** Method 1007.0, and an inland silverside, **Menidia beryllina,** Method 1006.0, concurrently.
    (3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms**, 3rd Edition, EPA-821-R-02-014. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
    (4) The control water and dilution water used shall be artificial sea salts as described in EPA-821-R-02-014, Section 7.2. The test salinity shall be determined as follows:
        (a) For the **Americamysis bahia** bioassays, the effluent shall be adjusted to a salinity of 20 parts per thousand (ppt) with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 20 ppt. If the salinity of the effluent is greater than 20 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.
        (b) For the **Menidia beryllina** bioassays, if the effluent salinity is less than 5ppt, the salinity shall be adjusted to 5 ppt with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 5 ppt. If the salinity of the effluent is greater than 5 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.
        (c) If the salinity of the effluent requires adjustment, a salinity adjustment control should be prepared and included with each bioassay. The salinity adjustment control is intended to identify toxicity resulting from adjusting the effluent salinity with artificial sea salts. To prepare the salinity adjustment control, dilute the control/dilution water to the salinity of the effluent and adjust the salinity of the salinity adjustment control at the same time and to the same salinity that the salinity of the effluent is adjusted using the same artificial sea salts.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):

N/A

Facility Mixing Zone Details (if applicable):
N/A

Appendix F. (continued)

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:			
Date	Parameter and Units	Limit	Result
6/10	**Routine Chronic toxicity– mysid shrimp**	≥100%	92.4%
6/10	**Additional Chronic toxicity – mysid shrimp**	≥100%	44.2%
6/10	**Additional Chronic toxicity – mysid shrimp**	≥100%	49.7%

Describe previous FYI and WQBEL study:

See Attached Fact Sheet for WQBEL discussion.

Describe previous or current Enforcement Actions (including WLs):

Describe any violations or problems noted in previous inspection:

Discuss whether DMR trends within previous five years are improving or declining:

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

PART II: Sampling Event Information

Date(s) sample collected: 2/21/2011	**Sampler(s):** Nathan Mulkey, Rick Abad
Temperature (Deg C): 26.27	**pH (SU):** 7.50
Dissolved Oxygen (mg/L): 7.09	**Conductivity (umhos/cm):** 41115

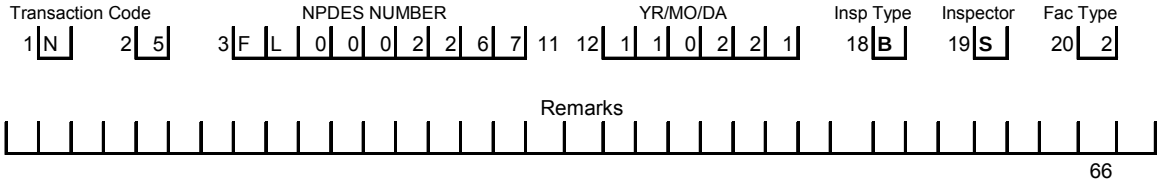
Appendix F. (continued)

Total Residual Chlorine (mg/L):	**Total Residual Chlorine - after Disinfection (mg/L):**
Method of Chlorination:	**Method of De-chlorination:**
Flow During Sample Collection for each outfall(MGD): 194.4	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here: Units #'s 1 & 2 were up and running on this day while unit #3 was down. The ash pond was sampled on this day however there was no overflow.	

Appendix G. EPA End Sheet

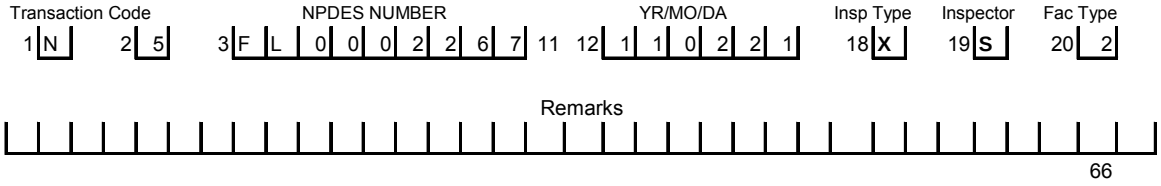
The Bioassay of Gulf Power Company - Lansing Smith Power Plant effluent sampled on February 21, 23, and 25, 2011. NPDES #FL0002267.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



The Priority Pollutants Analysis of Gulf Power Company - Lansing Smith Power Plant effluent sampled on February 21, 2011. NPDES #FL0002267.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



Biological Analyses of Gulf Power Company - Lansing Smith Power Plant effluent sampled on February 21, 2011. NPDES #FL0002267.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

