

Effluent Quality Assessment

Siesta Key AWWTF

Sarasota County

NPDES #FL0025755

Sampled June 18, 20, and 22, 2012

September 2012

Revised September 28, 2012
to Reflect IC25 Permit Limit

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Siesta Key Advanced Wastewater Treatment Facility (AWWTF), 5200 Oakmont Place, Siesta Key, Sarasota County, Florida, 34242. NPDES #FL0025755. Effluent grab samples for bioassays were collected on June 18, 20, and 22, 2012, and effluent composite and grab samples for biological and chemical analyses for this facility were collected on June 18, 2012.

Introduction

Siesta Key AWWTF is a Type 1 advanced wastewater treatment facility which treats domestic wastewater. (See Appendix F for detailed facility information provided by Pete Wenner of FDEP Southwest District. See Appendix G for pages 1-4 of NPDES permit FL0025755 for additional facility information.)

Methods

Samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Peter Wenner (FDEP Southwest 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 definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_14, TA07_15, 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.

Aliquots of bioassay samples 1436196, 1437029, and 1437832 were salinity-adjusted from apparent salinities of approximately 1.81, 1.99, and 2.24 parts per thousand (ppth), respectively, to a salinity of approximately 20 ppth for both the *Americamysis bahia* and the *Menidia beryllina* tests. Forty Fathoms® marine mix artificial sea salts was used for the salinity adjustments. The salinity adjustments were performed to ensure that the minimum salinity of the bioassay samples based on known seawater-ion content met the salinity requirements of the test species (6 ppth for *Americamysis bahia* and 1 ppth for *Menidia beryllina*) and the toxicity requirements outlined in the permit. The salt control used for each test was prepared by diluting 20 ppth salinity artificial seawater (ASW) with well water to a salinity of approximately 2.0 ppth then salting this solution with artificial sea salts to match the salinity of the appropriate test solution. The purpose of the salt controls was to confirm that there was no effect of adding artificial sea salts to the sample. There was no mortality in the salt controls of the *Americamysis bahia* test and 27.5% mortality in the salt controls of the *Menidia beryllina* test.

The algal growth potential (AGP) sample was salinity-adjusted with artificial sea salts from an apparent salinity of approximately 1.5 parts per thousand (ppth) to a salinity of approximately 7.2 ppth.

Results and Discussion

- **Toxicity Test Results**

  Tests were performed June 19 - 26, 2012.

  Americamysis bahia 7-day chronic definitive bioassay – IC25: > 100%

  Menidia beryllina 7-day chronic definitive bioassay – IC25: > 100%

  The bioassay samples were not chronically toxic to the *Americamysis bahia* nor the *Menidia beryllina* test organisms based on the permitted limit of IC25 ≥ 100% sample.

See Appendix B for bioassay bench sheets. See Appendix C for results of the 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.

- **Algal Growth Potential**
  The salinity-adjusted effluent Algal Growth Potential (AGP) was 4.78 A 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 (2.4:1) of total nitrogen to total phosphorus suggests that the effluent is nitrogen-limited (Maloney et al. 1978).

  See Table 1 for AGP results and qualifiers.

- **Chemistry Results**
  Total residual chlorine was not detected in any of the three bioassay samples in the bioassay laboratory. Total ammonia (0.0285 mg N/L) was detected in the bioassay laboratory in the sample collected on June 20, 2012, but not in the samples collected on June 18 and 22, 2012. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.064 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.

  Aluminum, bromodichloromethane and dibromochloromethane were detected in the effluent at levels that comply with Class III marine water quality criteria (62-302.530, F.A.C.) and/or permitted limits. Carbonaceous biological oxygen demand (CBOD), total phosphorus and total nitrogen were detected at levels that were in compliance with permitted limits. Total suspended solids (TSS) and cyanide were detected between the MDL and PQL and complied with permit limits. Arsenic, nickel, and zinc were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

  See Table 2 for results of analytes detected in the effluent, corresponding limits, and qualifiers. See Appendix E for a complete list of chemical analyses performed. See Appendix B for bioassay lab equipment.

Conclusion

The effluent samples collected from the EFD-01 NPDES sampling point for this facility on June 18, 20, and 22, 2012, were not chronically toxic to the *Americamysis bahia* nor the Menidia beryllina test organisms during the 7-day chronic definitive bioassays. Effluent water quality samples collected on June 18, 2012, did not exceed any applicable water quality standards or violate any permit conditions.

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 collected from the Siesta Key AWWTF on June 18, 2012.

Siesta Key AWWTF NPDES# FL0025755			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent*	4.78 A	1.0	2.4

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

* - sample salinity adjusted to 7ppt

Table 2. Effluent limits, Class III Criteria for predominantly marine waters, microbiological and chemical data, and qualifiers for samples collected from the Siesta Key AWWTF on June 18, 2012.

Siesta Key AWWTF NPDES# FL0025755	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
Bromodichloromethane	≤ 22 a	≤ 35 †	33	
Dibromochloromethane	≤ 34 a	≤ 85 †	100	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	86	
Arsenic	≤ 50	-	2.2	I
Cadmium	≤ 8.8	-	0.15	U
Calcium (mg/L)	-	-	110	
Chromium-III	-	-	0.9	U
Copper	≤ 3.7	-	1.5	U
Iron	≤ 300	-	30	U
Lead	≤ 8.5	-	0.6	U
Magnesium (mg/L)	-	-	90.9	
Nickel	≤ 8.3	-	1.3	I
Selenium	≤ 71	-	0.6	U
Silver	≤ 2.3	-	0.075	U
Zinc	≤ 86	-	14	I
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.64	p
Total Phosphorus	-	≤ 2.0 q	0.71	
Total Ammonia	-	-	0.064	
Un-ionized Ammonia	-	-	≤ 0.02	c
Nitrate and Nitrite	-	-	0.59	
Total Kjeldahl Nitrogen	-	-	1.1	
Organic Nitrogen	-	-	1.036	c
Total Nitrogen	-	≤ 6.0 q	1.69	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 5.0	6.8	
pH (SU)	6.5 - 8.5	6.5 - 8.5	7.5	
Conductivity (µmhos/cm)	-	-	3481	
Temperature (°C)	-	-	30.0	
Salinity	-	-	≤ 1.65	c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	≤ 0.03	
Chlorophyll *a* (µg/L) - Corrected	-	-	0.62	U
Phaeophytin (µg/L)	-	-	0.45	U
Total Suspended Solids (mg/L)	-	≤ 10.0 q	4	I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10.0 q	4.3	AJ
Cyanide (µg/L)	≤ 1.0	≤ 1.0	0.007	I
Flow (MGD)	-	2.7	1.27	a*
Hardness (mg $CaCO_3$)	-	-	649.00	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	25 s	5	B¥

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
p - 24 hour flow proportioned composite
q - 16 hour flow proportioned composite
s - Single sample
A - Value reported is the mean of two or more determinations
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
U - Material analyzed for but not detected; value reported is the method detection limit
* - Based on PCS Data Retrievals from 6-30-2011 - 5-31-2012
† - Limits based on Consent Order OGC File No. 10-2682, revised October 24, 2011.
# - If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
¥ - Fecal coliform analysis performed by Advanced Environmental Overflow Laboratories

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-06-18-16
FYI3 Siesta Key Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: PETE WENNER

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

Collected By: PETE WENNER
Sampling Agency: SWD - FDEP
Send Final Report To: Joe Squiteri [redacted]

Lab ID *	Location / Field ID	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude / Longitude	Collection (comp begin or grab) Eastern / Central	Composite end Eastern / Central	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth	Salinity (PPTh)	Sp Conductance (umho/cm)	NPDES Number	Comments	Bottle Group(s)**
40010	EFD-01	FRESH - EFFLUENT	29.95	7.49	dd / dms	☐ Comp ☑ Grab Date 6/18/12 Time 1010		0.03	6.80		☐ m ☐ ft		☑ 3481			A
40011	EFD-01	FRESH - EFFLUENT			dd / dms	☑ Comp ☐ Grab Date 6/17/12 Time 0800	Date 6/18/12 Time 0800				☐ m ☐ ft				SAMPLES BOTTLED @ 1000 HOURS	A
40012	EFD-01	FRESH - EFFLUENT			dd / dms	☐ Comp ☑ Grab Date 6/18/12 Time 1050					☐ m ☐ ft				SAMPLE COLLECTED BEFORE DECHLOR	F
40013	FIELD BLANKS	DI H2O			dd / dms	☐ Comp ☑ Grab Date 6/18/12 Time 1100					☐ m ☐ ft				4 bionasay Reed in TOX by J.d. 6/19/12 10:26	B

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	6/8/12 1630	FEDEX	ARD	6/19/12 10:10				

* 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

Event ID *

Request Number: RQ-2012-06-18-16
FYI3 Siesta Key Sampling Inspection

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

Requester: Michelle Fish
Collected By:
Sampling Agency:

Field Report Prepared By: Amzad Shaik
Send Final Report To: Joe Squiteri/ Ilia Balcom

Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date 6/18/12 Time 10:10 Central		Composite end Date Time	Eastern Central	Bottle Group(s)**
	Field ID TRIP-Blank			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc) T-BLK	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 (comp begin or grab) Eastern Date Time Central		Composite 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 ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date Time Central		Composite 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 ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date Time Central		Composite 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 ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			ABP	6/19/12 10:10				

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last revised October 1, 2003

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Event ID *

Request Number: RQ-2012-06-18-16
FYI3 Siesta Key Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: PETE WENNER

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

Collected By: PETE WENNER
Send Final Report To: Joe Squiteri/ Ilia Balcom

Sampling Agency: SWD - FDEP

Lab ID *	Location / Field ID / Matrix / Latitude / Longitude	Collection (comp begin or grab) / Composite end	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Storet Station Number	Sample Depth / Salinity (PPTh) / Sp Conductance (umho/cm) / NPDES Number	Bottle Group(s)**
	Location: EFD-01 Field ID: 40015 Matrix: WWTP EFFLUENT (FRESH) Temp (C): pH: Latitude: ☐ dd ☐ dms Longitude: ☐ dd ☐ dms	☐ Comp ☒ Grab (Eastern) Date 6/22/12 Time 1050 Central Composite end Date Time Eastern Central Comments: DAY 5 RENEWAL SOLUTION FOR CHRONIC TOX TEST			A
	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude / Comments	☐ Comp ☐ Grab Collection (comp begin or grab) Eastern Central: Date Time Composite end Date Time Eastern Central	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Storet Station Number	Sample Depth ☐ m ☐ ft / ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) / NPDES Number	Bottle Group(s)**
	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude / Comments	☐ Comp ☐ Grab Collection (comp begin or grab) Eastern Central: Date Time Composite end Date Time Eastern Central	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Storet Station Number	Sample Depth ☐ m ☐ ft / ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) / NPDES Number	Bottle Group(s)**
	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude / Comments	☐ Comp ☐ Grab Collection (comp begin or grab) Eastern Central: Date Time Composite end Date Time Eastern Central	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Storet Station Number	Sample Depth ☐ m ☐ ft / ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) / NPDES Number	Bottle Group(s)**

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/22/12 1630	FEDEX	M. Faircloth	6/23/12 0907			ARB	06/25/12 10:50

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

6 Jugs 3 coolers
Temps 1.2, 0.8, 2.6

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Project ID: FYI3
PMAS: 1143

Requester: Michelle Fish
Collected By: PETE WENNER
Sampling Agency: SWD FDEP

Field Report Prepared By: PETE WENNER
Send Final Report To: ~~Joe Squires Ellie Balcom~~ PETE WENNER, JOE SQUIRES

Lab ID *	Location / Field ID	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Collection (comp begin or grab)	Composite end	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Bottle Group(s)**	Comments
40014	EFD-01	WWTP EFFLUENT			☐ dd ☐ dms	☐ dd ☐ dms	☑ Grab Eastern Date 6/20/12 Time 1050 Central	☐ Comp Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		A	DAY 3 TOX SAMPLES
					☐ dd ☐ dms	☐ dd ☐ dms	☐ Grab Eastern Date Time Central	☐ Comp Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			
					☐ dd ☐ dms	☐ dd ☐ dms	☐ Grab Eastern Date Time Central	☐ Comp Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			
					☐ dd ☐ dms	☐ dd ☐ dms	☐ Grab Eastern Date Time Central	☐ Comp Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	6/20/12: 1630	FEDEX	ABJ	06/21/12 10.00	10.20	6.21.12	B. Alexander	46.09 55 45

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group Information.

last revised October 1, 2003

Appendix B. Bench Sheets

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

Americamysis bahia

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

Facility: Siesta Key
Address: 5200 Oakmont Place, Siesta Key
County: Sarasota, FL 34242
NPDES Permit #: FL 0025755
Contact/District: Pete Wenner / Southwest

Start Date: 6-19-12 Time: 14:00
End Date: 6-26-12 Time: 9:00 AM

Organism age : 7 days
Feeding Prior to Test and Daily
Artemia Lot # : 0881Z
Chamber size : 400 ml
Test volume : 250 ml

Artemia Batch #		Day 3	89-12
Day 0	86-12	Day 4	90-12
Day 1	87-12	Day 5	91-12
Day 2	88-12	Day 6	92-12

Diluent/ Batch:
ASW / 6.18.12 Test Days Used: 0-6
ASW / _____ Test Days Used: _____

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time PF	Received Date/Time
Test Day 0	1	TLH-2012-06-19-19	1436196	18 June 12 0845 18 JUN	19 June 12 1010
Test Day 2	2	TLH-2012-06-21-37	1437029	20 June 12 1050	21 June 12 1000
Test Day 4	3	TLH-2012-06-25-11	1438832	22 June 12 1050	23 June 12 0907

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:	0.03	not measured	not measured	<0.03	<0.03	<0.03	254	242	243	—	—	—
Diluent/Control:				<0.03	<0.03	<0.03	157	157	157	—		
Method:				Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	Penner			AP	AP	BA	AP	AP	BA			
Verified by:	MF			BA	JD	AP	BA	JD	AP			
	Conductivity (circle one) (umhos-cm / mmhos-cm)			Ammonia (mg/L)			Salinity (original sample) (ppth)			Salinity (adjusted sample) (ppth)		
Lab Sample#:	1	2	3	1/17 MF	2	3	1	2	3	1	2	3
Sample:	32.0	33.7	33.0	~~<0.034~~	0.0285	<0.017	~~19.7~~	20.1 MF	20.7	19.7	21.2	20.5
Diluent/Control:	30.1 2LMF			<0.034	<0.034	<0.034	18.9	20.0 MF	20.2			
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler	Mettler	Mettler	Mettler
Measured by:	JD	AP	BA	BA	MF	MF	JD	BA	JD	JD	JD	BA
Verified by:	AP	JD	AP	AP	AP	AP	AP	JD	BA	MF	JD	AP

Parameters are for original sample except as noted.

Lims Entry: 6-28-12 MF
Entry Verification: 7.2.12 JD

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 # 32 JD min. 23.9 max. 26.0 mean —
Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 24.6 max. 25.1 mean —

Results	
Growth NOEC:	50%
Growth LOEC:	100%
Growth IC_{20}:	>100%
Growth IC_{25}:	>100%
Ctrl % CV:	11.04%
Dunnetts PMSD:	10.7%
Survival NOEC:	100%
Survival LOEC:	>100%

Investigators' signatures	Initials
Adriem Pemgton	AP
Marshall Frankett	MF
James Dinsa	JD
[illegible]	BA
Lisa Miller	LM

REVIEWER

Comments: The NOEC calculated with the Diluent control is 50% sample. ~~Due to the reduction in growth in the Salt Water Control, the 50% sample NOEC is considered to be 100% sample. The salt addition appeared to have an effect on growth in the salt control at the 100% sample.~~ MF 6-28-12 MF

Test Page 1 of 8

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revised 2/201/11 MF

Appendix B. (continued)

Chronic Survival Benchsheet

A. bahia SOP TA07_15

Loaded by (0 hour): AP Verified by (0 hour): BA LIMS Sample #: 143696 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	4 D	4	4	4	4
	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
6.25%	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
12.5%	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	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
25%	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	4 D	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
Checked by:		JD	JD	JD	JD	JD	JD	JD	

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
50%	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
100%	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
Salt Ctrl	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
	A	5							
	B	5							
	C	5							
	D	5							
	E	5							
	F	5							
	G	5							
	H	5							
Checked by:		JD	JD	JD	JD	JD	JD	JD	

Comments:

revised 2/20/11 MF

Test Page 2 of 8

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Appendix B. (continued)

A. bahia Chronic Parameters Benchsheet
SOP TA07_15

LIMS #: 1436196 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	8.2	24.3	7.2	32.1	20.0
	6.25%							A	8.2	24.2	7.1	32.1	20.1
	12.5%							A	8.2	24.2	6.9	32.1	20.1
	25%							A	8.2	24.2	6.9	32.1	20.0
	50%							A	8.3	24.4	6.9	32.1	19.9
	100%							A	8.3	24.5	7.0	32.0	19.7
	Salt Ctrl							A	8.3	24.7	7.0	32.1	20.1
	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	25.8	6.5	33.5	20.7	B	8.2	24.0	6.1	32.4	20.2
	6.25%	B	8.2	25.7	6.5	34.1	21.0	B	8.2	24.2	6.0	32.3	20.1
	12.5%	B	8.2	25.2	6.3	34.0	20.9	B	8.2	24.2	6.1	32.3	20.3
	25%	B	8.2	25.2	6.3	33.7	20.7	B	8.2	24.4	6.4	32.3	20.2
	50%	B	8.2	25.4	6.2	33.5	20.5	B	8.3	24.5	6.2	32.8	20.4
	100%	B	8.3	25.5	5.0	32.9	20.2	B	8.3	24.8	6.1	32.2	20.1
	Salt Ctrl	B	8.4	25.0	6.1	33.4	20.6	B	8.4	25.2	6.0	33.6	20.9
	Measured by:		AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
	Recorded by:		AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 2	Control	C	7.9	25.3	5.7	32.4	20.4	C	8.2	24.0	6.0	32.3	20.2
	6.25%	C	7.8	25.7	4.9	32.6	20.6	C	8.1	24.2	6.0	32.1	20.0
	12.5%	C	7.8	25.5	4.7	32.2	20.4	C	8.1	24.0	6.0	32.6	20.3
	25%	C	8.0	24.6	4.8	31.8	20.1	C	8.2	24.0	6.0	31.6	19.6
	50%	C	8.1	24.5	5.2	32.2	20.3	C	8.2	24.4	6.3	32.4	20.2 → 20.1 BA
	100%	C	8.2	24.6	5.3	31.7	20.0	C	8.2	24.6	6.2	32.3	20.1
	Salt Ctrl	C	8.1	25.1	5.9	33.7	21.2	C	8.2	24.5	6.2	32.8	20.5
	Measured by:		AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
	Recorded by:		AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 3	Control	D	8.0	24.0	6.3	32.2	20.4	D	8.1	24.1	5.8	32.3	20.1
	6.25%	D	7.9	24.3	4.8	31.8	20.1	D	8.1	24.5	5.9	32.7	20.4
	12.5%	D	8.0	24.9	5.7	32.2	20.4	D	8.1	24.2	5.9	32.9	20.6
	25%	D	~~8.0~~ 8.0	25.9	5.3	33.1	20.8	D	8.2	24.5	5.9	32.5	20.3
	50%	D	8.1	25.2	4.9	32.8	20.5	D	8.2	24.8	6.0	32.5	20.3
	100%	D	8.2	25.9	4.7	33.0	20.6	D	8.2	24.9	6.0	32.8	20.5
	Salt Ctrl	D	8.1	24.6	5.4	33.0	20.6	D	8.3	24.3	5.7	32.4	20.2
	Measured by:		JD	JD	JD	JD	JD		BA	JD	BA	BA	BA
	Recorded by:		JD	JD	JD	JD	JD		BA	JD	BA	BA	BA

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

Comments:

revised 2/20/11 MF

Appendix B. (continued)

A. bahia Chronic Parameters Benchsheet
SOP TA07_15

LIMS #: 1436196 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	8.0	24.9	5.3	33.3	20.7	E	8.1	25.0	5.8	31.4	19.3
	6.25%	E	7.9	24.4	5.3	33.4	20.8	E	8.1	24.3	5.9	32.4	20.3
	12.5%	E	7.9	25.7	5.3	33.7	21.2	E	8.1	24.2	6.3	32.3	20.2
	25%	E	8.0	25.2	5.3	33.3	20.7	E	8.1	24.0	6.2	32.5	20.3
	50%	E	8.0	25.2	5.0	33.2	20.6	E	8.2	24.0	6.2	32.1	20.0
	100%	E	8.1	24.9	5.0	33.3	20.7	E	8.2	24.0	6.3	32.7	20.4
	SC	E	8.2	24.0	5.9	33.2	20.6	E	8.2	25.1	6.0	32.2	19.9
	Measured by:		JD	BA	JD	JD	JD		BA/JD	BA/JD	BA/JD	BA/JD	BA/JD
	Recorded by:		JD	BA	JD	JD	JD		BA/JD	BA/JD	BA/JD	BA/JD	BA/JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 5	Control	F	7.9	25.2	6.4	31.8	19.7	F	8.1	25.3	6.2	31.2	19.6
	6.25%	F	7.9	25.9	5.3	32.9	20.6	F	8.1	24.9	6.2	31.7	19.7
	12.5%	F	8.0	25.9	5.5	33.2	20.8	F	8.2	24.6	6.5	31.8	19.8
	25%	F	8.1	25.6	5.5	33.6	21.0	F	8.2	24.5	6.7	32.3	20.0
	50%	F	8.1	25.3	5.7	32.5	21.6	F	8.2	24.1	6.9	31.9	19.9
	100%	F	8.2	25.4	5.8	33.0	20.6	F	8.2	24.1	7.0	32.8	20.5
	Salt Control	F	8.2	25.4	5.8	33.3	20.8	F	8.2	24.0	7.0	33.0	20.6
	Measured by:		BA	JD	BA	BA	BA		BA	BA	BA	BA	BA
	Recorded by:		BA	JD	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	32.9	20.1	G	8.1	25.2	6.5	30.5	18.8
	6.25%	G	8.1	24.0	6.2	32.6	19.8	G	8.1	24.7	6.5	30.7	19.1
	12.5%	G	8.1	24.8	6.1	32.8	19.8	G	8.1	24.8	6.5	30.6	18.9
	25%	G	8.1	24.9	5.8	33.2	20.2	G	8.1	24.7	6.6	30.9	19.2
	50%	G	8.2	25.9	5.8	33.9	20.8	G	8.2	24.6	6.7	31.0	19.3
	100%	G	8.2	25.4	5.8	34.0	20.8	G	8.2	24.5	6.7	31.4	19.5
	salt control	G	8.2	25.8	5.9	34.1	21.0	G	8.2	24.4	6.6	31.9	19.9
	Measured by:		AP	JD	AP	AP	AP		BA	BA	BA	BA	BA
	Recorded by:		AP	JD	AP	AP	AP		BA	BA	BA	BA	BA
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 7	Control	H	8.0	23.8	6.8	30.2	20.4						
	6.25%	H	8.0	24.0	6.4	31.4	19.8						
	12.5%	H	8.0	23.8	6.2	31.2	19.8						
	25%	H	8.1	23.7	6.2	31.6	19.9						
	50%	H	8.1	23.6	6.2	31.3	19.7						
	100%	H	8.2	24.2	6.2	31.7	20.0						
	SC	H	8.1	24.1	6.2	32.7	20.7						
	Measured by:		AP	AP	AP	AP	AP						
	Recorded by:		AP	AP	AP	AP	AP						

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

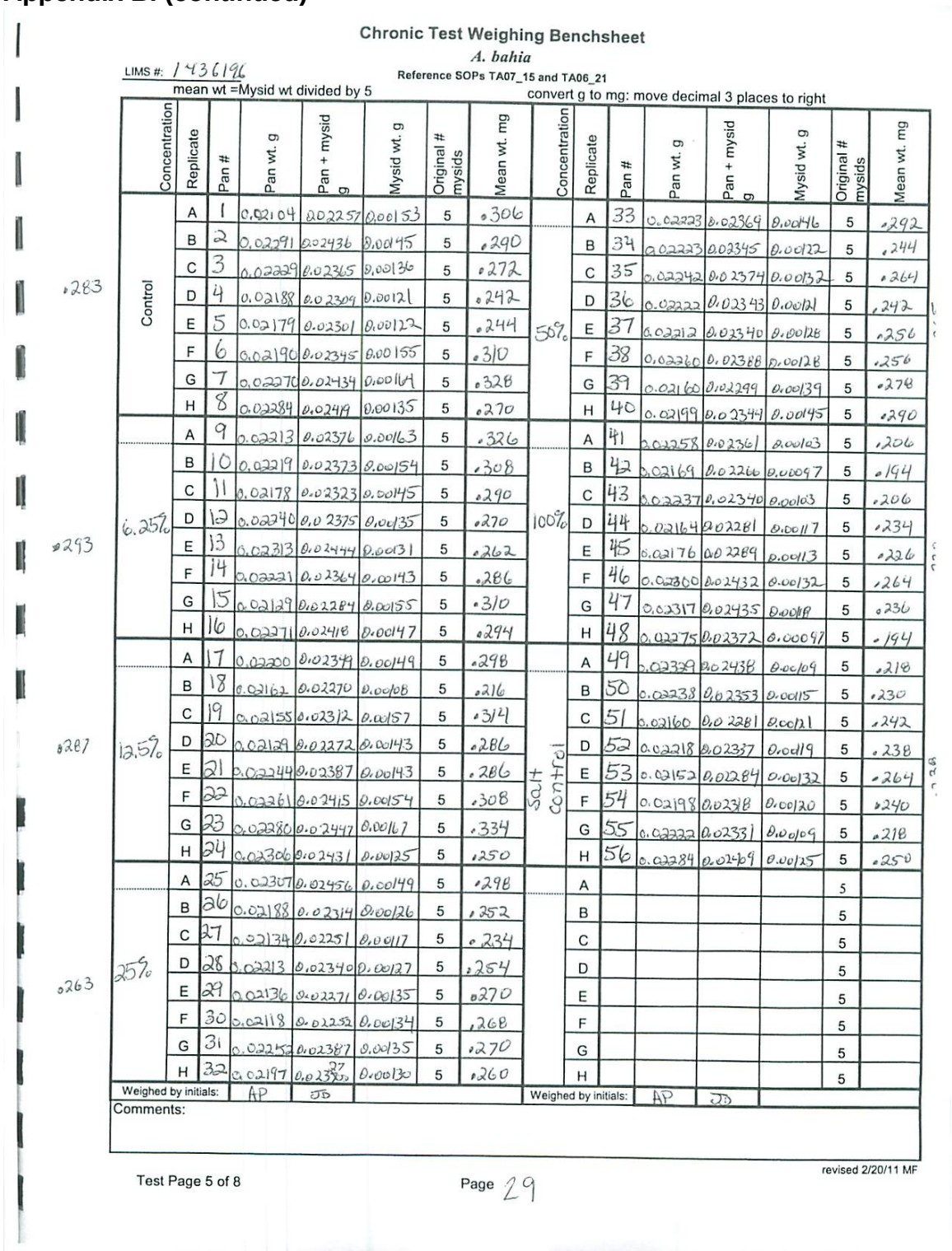
Comments:

revised 2/20/11 MF

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Appendix B. (continued)



Chronic Test Weighing Benchsheet

A. bahia

LIMS #: 143696 — 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	1	0.02104	0.02257	0.00153	5	.306		A	33	0.02223	0.02369	0.00146	5	.292
	B	2	0.02291	0.02436	0.00145	5	.290		B	34	0.02223	0.02345	0.00122	5	.244
	C	3	0.02229	0.02365	0.00136	5	.272		C	35	0.02242	0.02374	0.00132	5	.264
	D	4	0.02188	0.02309	0.00121	5	.242		D	36	0.02222	0.02343	0.00121	5	.242
	E	5	0.02179	0.02301	0.00122	5	.244	50%	E	37	0.02212	0.02340	0.00128	5	.256
	F	6	0.02190	0.02345	0.00155	5	.310		F	38	0.02260	0.02388	0.00128	5	.256
	G	7	0.02270	0.02434	0.00164	5	.328		G	39	0.02160	0.02299	0.00139	5	.278
	H	8	0.02284	0.02419	0.00135	5	.270		H	40	0.02199	0.02344	0.00145	5	.290
	A	9	0.02213	0.02376	0.00163	5	.326		A	41	0.02258	0.02361	0.00103	5	.206
6.25%	B	10	0.02219	0.02373	0.00154	5	.308		B	42	0.02169	0.02266	0.00097	5	.194
	C	11	0.02178	0.02323	0.00145	5	.290		C	43	0.02237	0.02340	0.00103	5	.206
	D	12	0.02240	0.02375	0.00135	5	.270	100%	D	44	0.02164	0.02281	0.00117	5	.234
	E	13	0.02313	0.02444	0.00131	5	.262		E	45	0.02176	0.02289	0.00113	5	.226
	F	14	0.02231	0.02364	0.00133	5	.286		F	46	0.02300	0.02432	0.00132	5	.264
	G	15	0.02129	0.02284	0.00155	5	.310		G	47	0.02317	0.02435	0.00118	5	.236
	H	16	0.02271	0.02418	0.00147	5	.294		H	48	0.02275	0.02372	0.00097	5	.194
	A	17	0.02200	0.02349	0.00149	5	.298		A	49	0.02339	0.02438	0.00109	5	.218
12.5%	B	18	0.02162	0.02270	0.00108	5	.216		B	50	0.02238	0.02353	0.00115	5	.230
	C	19	0.02155	0.02312	0.00157	5	.314		C	51	0.02160	0.02281	0.00121	5	.242
	D	20	0.02129	0.02272	0.00143	5	.286		D	52	0.02218	0.02337	0.00119	5	.238
	E	21	0.02244	0.02387	0.00143	5	.286	salt control	E	53	0.02152	0.02284	0.00132	5	.264
	F	22	0.02261	0.02415	0.00154	5	.308		F	54	0.02198	0.02318	0.00120	5	.240
	G	23	0.02280	0.02447	0.00167	5	.334		G	55	0.02322	0.02331	0.00109	5	.218
	H	24	0.02306	0.02431	0.00125	5	.250		H	56	0.02284	0.02469	0.00125	5	.250
	A	25	0.02307	0.02456	0.00149	5	.298		A					5	
25%	B	26	0.02188	0.02314	0.00126	5	.252		B					5	
	C	27	0.02134	0.02251	0.00117	5	.234		C					5	
	D	28	0.02213	0.02340	0.00127	5	.254		D					5	
	E	29	0.02136	0.02271	0.00135	5	.270		E					5	
	F	30	0.02118	0.02252	0.00134	5	.268		F					5	
	G	31	0.02252	0.02387	0.00135	5	.270		G					5	
	H	32	0.02197	0.02327	0.00130	5	.260		H					5	
Weighed by initials:			AP	JD				Weighed by initials:			AP	JD			

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: 1436196

Empty Pan Weights Date: 6.25.12 By: AP

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02108	@ 0.02104
after Pan 10	0.02107	@ 0.02104
after Pan 15	0.02107	@ 0.02104
after Pan 20	0.02108	@ 0.02104
after Pan 25	0.02108	@ 0.02104
after Pan 30	0.02107	@ 0.02104
after Pan 35	0.02108	@ 0.02104
after Pan 40	0.02107	@ 0.02104
after Pan 45	0.02107	@ 0.02104
after Pan 48	0.02108	@ 0.02104

	Measured Value (g)	S-weight Value (g)
S-weights	0.01001	@ 0.01
	0.03005	@ 0.03

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

	Pan 1 wt.	Pan 1 initial wt
After pan 55	0.02105	0.02104
After pan 56	0.02108	0.02104

Fish + Pan Weights Date: 6.27.12 By: JD

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02259	@ 0.02257
after Pan 10	0.02260	@ 0.02257
after Pan 15	0.02262	@ 0.02257
after Pan 20	0.02261	@ 0.02257
after Pan 25	0.02259	@ 0.02257
after Pan 30	0.02259	@ ~~JD~~ 0.02257
after Pan 35	0.02259	@ 0.02257
after Pan 40	0.02261	@ 0.02257
after Pan 45	0.02261	@ 0.02257
after Pan 48 ~~50~~	0.02259	@ 0.02257
After Pan 55	0.02256	
After Pan 60	0.02260	

	Measured Value (g)	S-weight Value (g)
S-weights	0.01g	@ 0.01g
	0.05005	@ 0.05g

Drying Oven ID: ERO 34000
Temperature °C: 100
Drying Hours: 8

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

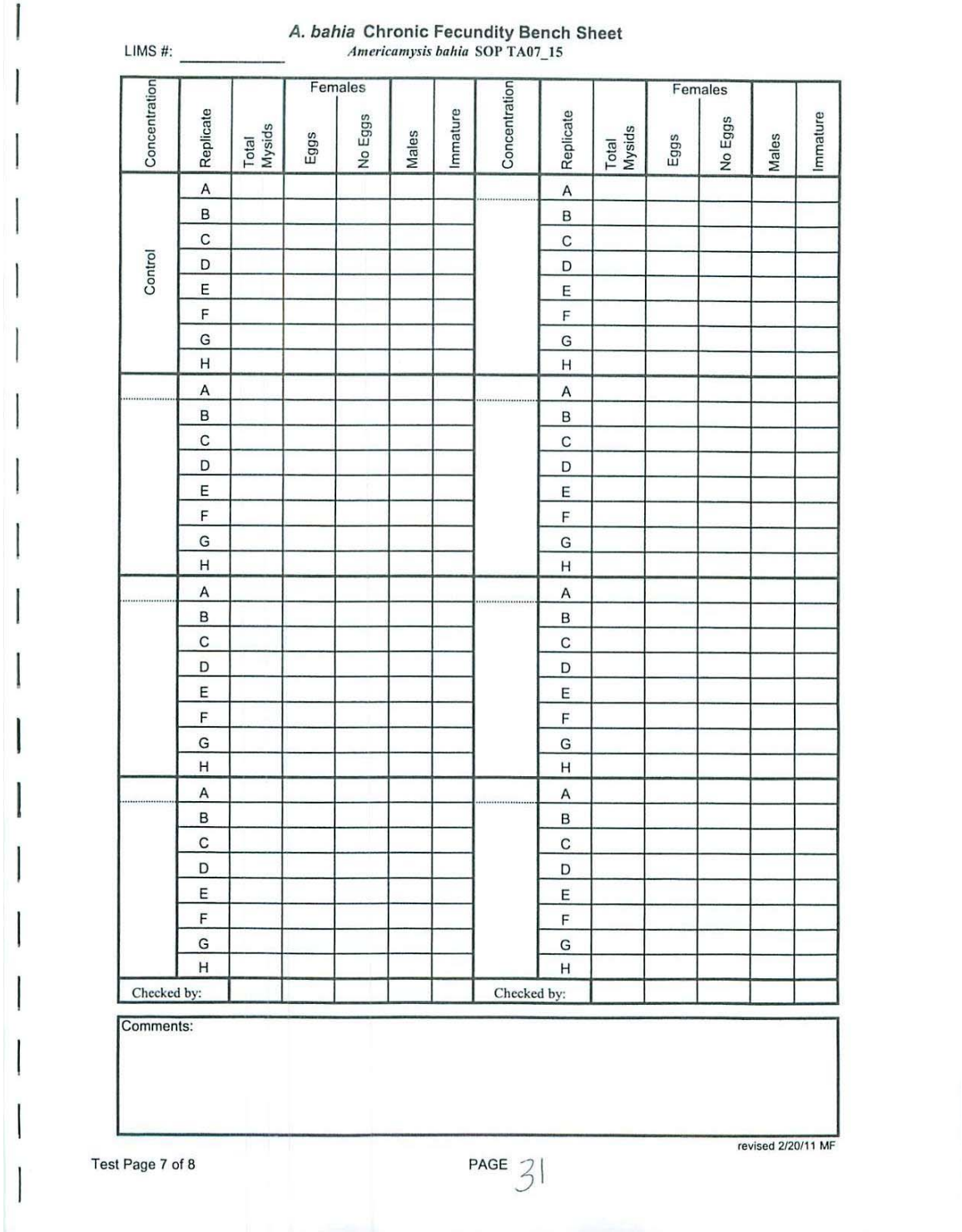
Comments:

revised 2/20/11 MF

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Appendix B. (continued)



***A. bahia* Chronic Fecundity Bench Sheet**

LIMS #: _____ *Americamysis bahia* SOP TA07_15

Concentration	Replicate	Total Mysids	Females		Males	Immature	Concentration	Replicate	Total Mysids	Females		Males	Immature
			Eggs	No Eggs						Eggs	No Eggs		
Control	A							A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
	A							A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
	A							A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
	A							A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
Checked by:							Checked by:						

Comments:

revised 2/20/11 MF

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Appendix B. (continued)

Test ID: Siesta Key Utilities Dates: 6/19/12 - 6/26/12

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+	✓
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 #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:

6-26-12 AP

V 1.2 2/20/11 MF/jd

Teat Page 8 of 8 PAGE 32

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas (or *Menidia beryllina*)

Facility: Siesta Key
Address: 5200 Oakmont place, Siesta key, Sarasota
County: Sarasota 34242
NPDES Permit #: FL 0025755
Contact/District: Pete Wenner / Southwest

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: 6.19.12 Time: 13:30
End Date: 6.26.12 Time: 11:00

Diluent/ Batch:
MHW / 6.15.12 Test Days Used: 0-6
MHW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____
ASW / 6.18.12 Test Days Used: _____

Organism age : 10 days
Feeding Prior to Test and Daily
Artemia Lot # : 08812
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #		Day 3	89-12
Day 0	86-12	Day 4	90-12
Day 1	87-12	Day 5	91-12
Day 2	88-12	Day 6	92-12

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2012-06-19-19	1436196	18 June 12 ~~1050~~ 1045	19 JUNE 12 1010
Test Day 2	2	TLH- 2012-06-21-37	1437029	20 June 12 1050	21 JUNE 12 1000
Test Day 4	3	TLH- 2012-06-~~28~~ 27-11	1437832	22 June 12 1050	23 JUNE 12 0907

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:	0.03	Not measured	Not measured	<0.03	<0.03	<0.03	254	242	243	—	—	—
Diluent/Control:				<0.03	<0.03	<0.03	157	157	157	—		
Method:	---			Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	PWENNER	—	—	AP	AP	BA	AP	AP	BA			
Verified by:	MF	MF	MF	BA	JD	AP	BA	JD	AP			

	Conductivity (circle one) (umhos-cm / mmhos-cm)			Ammonia (mg/L)			Salinity as tested (ppth) MF		
Lab Sample#:	1	2	3	1 ~~MF~~	2	3	1	2	3
Sample:	32.0	31.5	32.7	<0.017 ~~0.017~~	0.0285	<0.017	19.7	19.4	20.4
Diluent/Control:	32.1	A		<0.034	<0.034	<0.034	20.0	20.0	20.0
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	AP	BA	BA	MF	MF	JD	BA	BA
Verified by:	BA	JD	AP	AP	AP	AP	BA	AP	AP

Lims Entay: 6.28.12 MF
Entay verification: 7.2.12 JD

Statistics	
Growth NOEC:	100%
Growth LOEC:	>100%
Growth IC_{20}:	>100%
Growth IC_{25}:	>100%
Ctrl % CV:	3.95%
Dunnetts PMSD:	17.7%
Survival NOEC:	100%
Survival LOEC:	>100%

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min. 23.8 max. 26.4 mean —
Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 24.6 max. 25.1 mean —

Investigators' signatures
Adrienne Pennington
Bruce Allen
Marshall Faircloth
James Daniels

REVIEWER

Comments:

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revised 08/24/06 MF/SP

Appendix B. (continued)

Chronic Bioassay Survival Benchsheet

Facility: Siesta Key

LIMS Sample Number: 1436196
(for Lab Sample # 1)

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

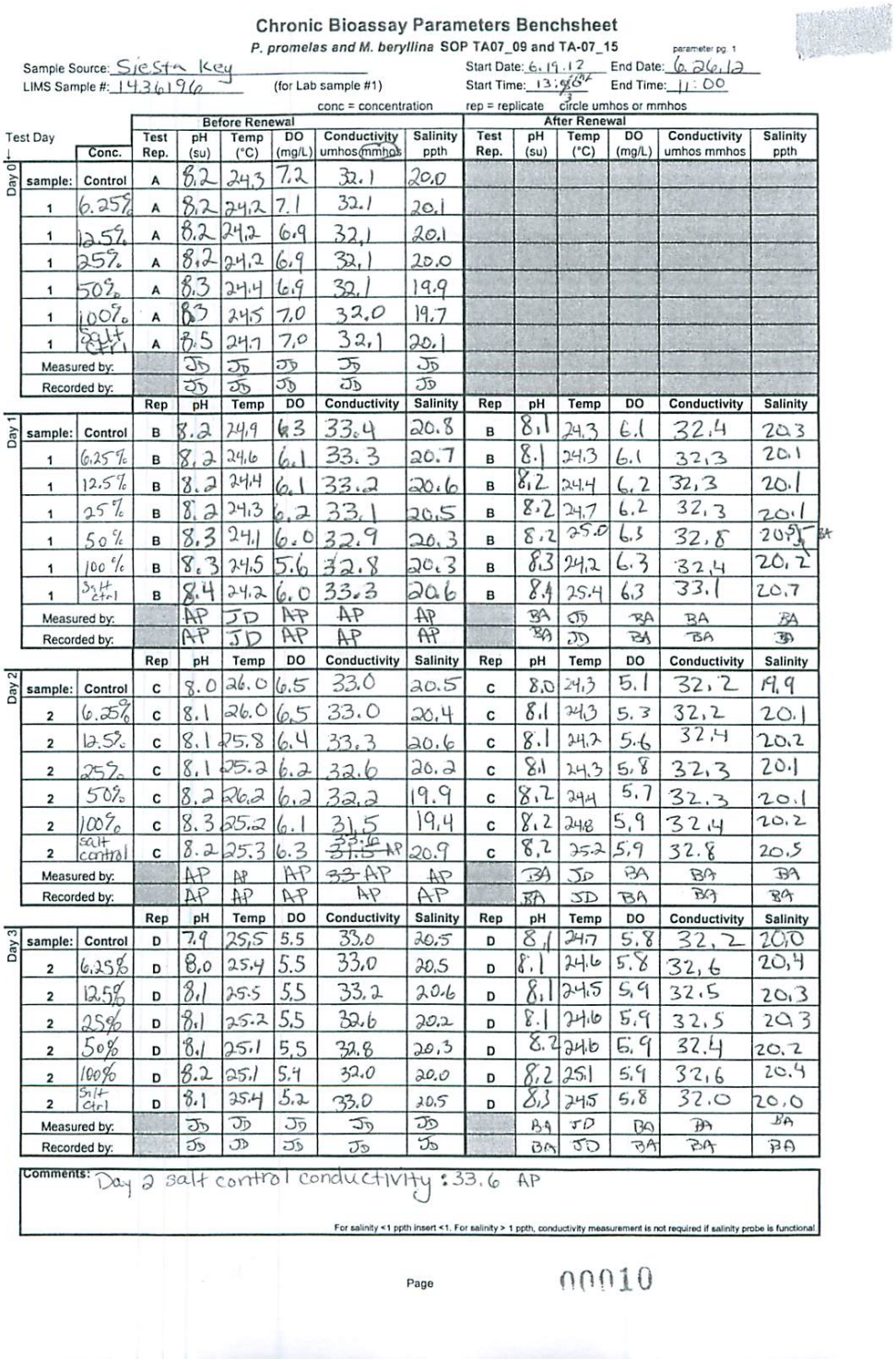
Organism: *P. promelas* (*M.beryllina*) (circle one)

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	9 1D	9	9	9	9	9	9
	B	10	9 1D	9	9	9	9	9	9
	C	10	10	8 2D	8	8	8	8	8
	D	10	10	10	10	10	10	10	10
Sample 6.25 %	A	10	9 1D	9	9	8 1D	8	8	8
	B	10	9 1D	9	9	9	9	9	9
	C	10	10	10	10	10	10	10	10
	D	10	8 2D	8	8	8	8	8	8
Sample 12.5 %	A	10	10	10	10	10	10	10	10
	B	10	10	9 1D	9	9	9	9	9
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 25 %	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 50 %	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 1D	10	10	10	10	10	10
	B	10	10	9 1D	9	9	9	9	9
	C	10	9 1D	9	9	9	9	9	9
	D	10	10	10	10	10	10	10	10
Sample % Salt Control	A	10	8 2D	7 1D	7	7	7	7	7
	B	10	10	9 1D	9	9	9	9	9
	C	10	10	6 4D	6	6	6	6	6
	D	10	10	7 3D	7	7	7	7	7
Loaded by: BA	Checked by:		JD	JD	AP	JD	JD	JD	BA
Verified by:									

Comments: Salt control failed @ day 2. MF 6-28-12

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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: Siesta Key
LIMS Sample #: 14361962 (for Lab sample #1)
Start Date: 6.19.12 End Date: 6.26.12
Start Time: 13:~~45~~ 15 End Time: 11:00
conc = concentration rep = replicate circle umhos or mmhos

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	sample:	Control	A	8.2	24.3	7.2	32.1	20.0						
	1	6.25%	A	8.2	24.2	7.1	32.1	20.1						
	1	12.5%	A	8.2	24.2	6.9	32.1	20.1						
	1	25%	A	8.2	24.2	6.9	32.1	20.0						
	1	50%	A	8.3	24.4	6.9	32.1	19.9						
	1	100%	A	8.3	24.5	7.0	32.0	19.7						
	1	Salt ctrl	A	8.5	24.7	7.0	32.1	20.1						
	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	24.9	6.3	33.4	20.8	B	8.1	24.3	6.1	32.4	20.3
	1	6.25%	B	8.2	24.6	6.1	33.3	20.7	B	8.1	24.3	6.1	32.3	20.1
	1	12.5%	B	8.2	24.4	6.1	33.2	20.6	B	8.2	24.4	6.2	32.3	20.1
	1	25%	B	8.2	24.3	6.2	33.1	20.5	B	8.2	24.7	6.2	32.3	20.1
	1	50%	B	8.3	24.1	6.0	32.9	20.3	B	8.2	25.0	6.3	32.8	20.5 BA
	1	100%	B	8.3	24.5	5.6	32.8	20.3	B	8.3	24.2	6.3	32.4	20.2
	1	Salt ctrl	B	8.4	24.2	6.0	33.3	20.6	B	8.4	25.4	6.3	33.1	20.7
	Measured by:			AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
	Recorded by:			AP	JD	AP	AP	AP		BA	JD	BA	BA	BA
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	8.0	26.0	6.5	33.0	20.5	C	8.0	24.3	5.1	32.2	19.9
	2	6.25%	C	8.1	26.0	6.5	33.0	20.4	C	8.1	24.3	5.3	32.2	20.1
	2	12.5%	C	8.1	25.8	6.4	33.3	20.6	C	8.1	24.2	5.6	32.4	20.2
	2	25%	C	8.1	25.2	6.2	32.6	20.2	C	8.1	24.3	5.8	32.3	20.1
	2	50%	C	8.2	26.2	6.2	32.2	19.9	C	8.2	24.4	5.7	32.3	20.1
	2	100%	C	8.3	25.2	6.1	31.5	19.4	C	8.2	24.8	5.9	32.4	20.2
	2	salt control	C	8.2	25.3	6.3	~~33.6~~ ~~31.5~~ AP	20.9	C	8.2	25.2	5.9	32.8	20.5
	Measured by:			AP	AP	AP	~~33~~ AP	AP		BA	JD	BA	BA	BA
	Recorded by:			AP	AP	AP	AP	AP		BA	JD	BA	BA	BA
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.9	25.5	5.5	33.0	20.5	D	8.1	24.7	5.8	32.2	20.0
	2	6.25%	D	8.0	25.4	5.5	33.0	20.5	D	8.1	24.6	5.8	32.6	20.4
	2	12.5%	D	8.1	25.5	5.5	33.2	20.6	D	8.1	24.5	5.9	32.5	20.3
	2	25%	D	8.1	25.2	5.5	32.6	20.2	D	8.1	24.6	5.9	32.5	20.3
	2	50%	D	8.1	25.1	5.5	32.8	20.3	D	8.2	24.6	5.9	32.4	20.2
	2	100%	D	8.2	25.1	5.4	32.0	20.0	D	8.2	25.1	5.9	32.6	20.4
	2	Salt ctrl	D	8.1	25.4	5.2	33.0	20.5	D	8.3	24.5	5.8	32.0	20.0
	Measured by:			JD	JD	JD	JD	JD		BA	JD	BA	BA	BA
	Recorded by:			JD	JD	JD	JD	JD		BA	JD	BA	BA	BA

Comments: Day 2 salt control conductivity: 33.6 AP

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: Siesta Key
LIMS Sample #: 14361961 (for Lab sample #1)

Start Date: 6.19.12 End Date: 6.26.12
Start Time: 13:30 End Time: 11:00

conc = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4 sample:	Control	A	8.0	25.5	5.4	33.2	20.6	A	8.2	25.0	6.2	32.0	19.7
3	6.25%	A	8.0	26.2	5.8	33.3	20.7	A	8.1	24.0	6.6	33.1	20.5
3	12.5%	A	8.1	25.8	5.8	33.2	20.6	A	8.2	24.0	6.4	32.6	20.3
3	25%	A	8.1	25.2	5.9	33.0	20.4	A	8.2	24.0	6.3	32.5	20.3
3	50%	A	8.1	25.1	5.9	33.0	20.4	A	8.2	24.0	5.7	32.1	20.0
3	100%	A	8.2	24.5	5.8	33.0	20.5	A	8.2	24.0	5.7	32.8	20.5
3	SC	A	8.2	25.3	6.0	33.2	20.6	A	8.2	25.1	6.1	32.3	20.1
Measured by:			JD	BA	JD	JD	JD		BA/JD	BA/JD	BA/JD	BA/JD	BA/JD
Recorded by:			JD	BA	JD	JD	JD		BA/JD	BA/JD	BA/JD	BA/JD	BA/JD
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5 sample:	Control	B	8.0	25.6	5.7	BA 32.6	20.3	B	8.2	24.0	6.4	32.2	20.6
3	6.25%	B	8.1	25.7	5.7	33.5	20.3	B	8.2	24.0	6.5	32.3	20.1
3	12.5%	B	8.1	25.7	5.7	33.1	20.8	B	8.2	24.0	6.5	32.2	20.1
3	25%	B	8.1	25.8	5.6	32.9	20.5	B	8.2	24.1	6.6	32.2	20.1
3	50%	B	8.2	25.2	5.8	32.6	20.3	B	8.2	24.2	6.6	31.9	19.9
3	100%	B	8.2	25.3	5.7	33.5	21.0	B	8.2	24.2	6.7	32.7	20.4
3	SC	B	8.3	25.4	5.6	33.6	20.6	B	8.3	24.3	6.7	32.4	20.2
Measured by:			BA	JD	BA	BA	BA		BA	BA	BA	BA	BA
Recorded by:			BA	JD	BA	BA	BA		BA	BA	BA	BA	BA
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6 sample:	Control	C	8.1	25.9	6.0	32.9	20.4	C	8.3	24.4	6.5	30.8	19.1
3	6.25%	C	8.1	25.5	5.9	33.0	20.4	C	8.2	24.2	6.5	30.9	19.2
3	12.5%	C	8.1	25.3	5.5	33.0	20.4	C	8.2	24.2	6.7	31.0	19.2
3	25%	C	8.1	25.3	5.6	32.9	20.4	C	8.2	24.2	6.7	30.9	19.2
3	50%	C	8.2	25.2	5.6	32.6	20.1	C	8.2	24.4	6.8	30.9	19.1
3	100%	C	8.2	25.3	5.6	33.6	20.8	C	8.2	24.6	6.8	30.9	19.2
3	salt control	C	8.2	25.6	5.5	34.1	21.3	C	8.2	24.7	6.6	31.7	19.8
Measured by:			AP	JD	AP	AP	AP		BA	BA	BA	BA	BA
Recorded by:			AP (A)	JD	AP	AP	AP		BA	BA	BA	BA	BA
		Rep	pH (A) Temp		DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7 sample:	Control	D	25.3	8.0	6.4	31.2	19.9	D					
3	6.25%	D	25.1	8.1	6.3	31.2	20.1	D					
3	12.5%	D	24.9	8.1	6.3	31.2	20.0	D					
3	25%	D	24.9	8.1	6.2	31.2	20.0	D					
3	50%	D	25.4	8.1	6.3	31.2	19.9	D					
3	100%	D	25.5	8.2	6.1	31.5	20.1	D					
3	SC	D	25.3	8.2	6.1	32.8	21.0	D					
Measured by:			AP	AP	AP	AP	AP						
Recorded by:			AP	AP	AP	AP	AP						

Comments:
(A) Day 7; switch pH & temperature values AP

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

Page

Appendix B. (continued)

Chronic Bioassay Weighing Benchsheet

Facility: Siesta Key

LIMS Sample Number: 1436196
(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	Avg
Control	A	57	0.02277	0.03246	0.00969	10	0.969	
	B	58	0.02185	0.03108	0.00923	10	0.923	0.922
	C	59	0.02209	0.03089	0.00880	10	0.880	
	D	60	0.02213	0.03131	0.00918	10	0.918	
sample 6.25%	A	61	0.02222	0.03022	0.00800	10	0.800	
	B	62	0.02184	0.02965	0.00781	10	0.781	0.838
	C	63	0.02176	0.03125	0.00949	10	0.949	
	D	64	0.02269	0.03050	0.00781	10	0.781	
sample 12.5 %	A	65	0.02217	0.02998	0.00781	10	0.781	
	B	66	0.02201	0.02974	0.00773	10	0.773	
	C	67	0.03158	0.03245	0.01087	10	1.087	0.87
	D	68	0.02179	0.03046	0.00867	10	0.867	
sample 25 %	A	69	0.02118	0.03035	0.00917	10	0.917	
	B	70	0.02218	0.03001	0.00783	10	0.783	
	C	71	0.02241	0.03250	0.01009	10	1.009	0.881
	D	72	0.02216	0.03029	0.00813	10	0.813	
sample 50 %	A	73	0.02226	0.03170	0.00944	10	0.944	
	B	74	0.02286	0.03098	0.00812	10	0.812	0.839
	C	75	0.02314	0.03084	0.00770	10	0.770	
	D	76	0.02153	0.02981	0.00828	10	0.828	
sample 100 %	A	77	0.02236	0.03071	0.00835	10	0.835	
	B	78	0.02190	0.03039	0.00849	10	0.849	0.903
	C	79	0.02253	0.03300	0.01047	10	1.047	
	D	80	0.02252	0.03134	0.00882	10	0.882	
sample %	A	81	0.02318	0.03200	0.00882	10	0.882	
Salt Control	B	82	0.02335	0.03067	0.00732	10	0.732	0.75
	C	83	0.02220	0.02875	0.00655	10	0.655	
	D	84	0.02216	0.02975	0.00759	10	0.759	
	Weighed by initials:		AP	AP		revised 7/16/08 mf		

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: Siesta Key

LIMS Sample Number: 1436196
(for Lab Sample # 1)

***P. promelas and M. beryllina* Bench sheet**
SOPs TA07_09, TA07_14 and TA06_21

Drying Oven ID:	ER034000	Tare weighed by:	AP
Temperature °C:	100	Final weighed by:	AP
Hours:	8		
Tare Weighing Date:		Final Weighing Date:	

			Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02274	@0.02277	S-weights	@	0.01
Tare Pan 1 after Pan 10 (g)	0.02280	@ 0.02277	at tare	@	0.03
Tare Pan 1 after Pan 15 (g)	0.02275	@ 0.02277	S-weights	@	0.01
Tare Pan 1 after Pan 20 (g)	0.02277	@ 0.02277	at final	@	0.05
Tare Pan 1 after Pan 25 (g)	0.02278	@ 0.02277			
Tare Pan 1 after Pan 30 (g)	0.02275	@ 0.02277			
Tare Pan 1 after Pan 35 (g)		@			
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)	0.03248	@ 0.03246			
Final Pan 1 after Pan 10 (g)	0.03246	@ 0.03246			
Final Pan 1 after Pan 15 (g)	0.03248	@ 0.03246			
Final Pan 1 after Pan 20 (g)	0.03245	@ 0.03246			
Final Pan 1 after Pan 25 (g)	0.03247	@ 0.03246			
Final Pan 1 after Pan 30 (g)	0.03245	@ 0.03246			
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)		@			

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

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

Page

Appendix B. (continued)

Test ID: Siesta Key Utilities Dates: 6/19/12 - 6/26/12

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-SN1016864 12 #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)

6-26-12 AP

V 1.1 9/21/10 MF/jd

00014

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
6/19/2012	15.4	11.60	3.24	4.65	17.61

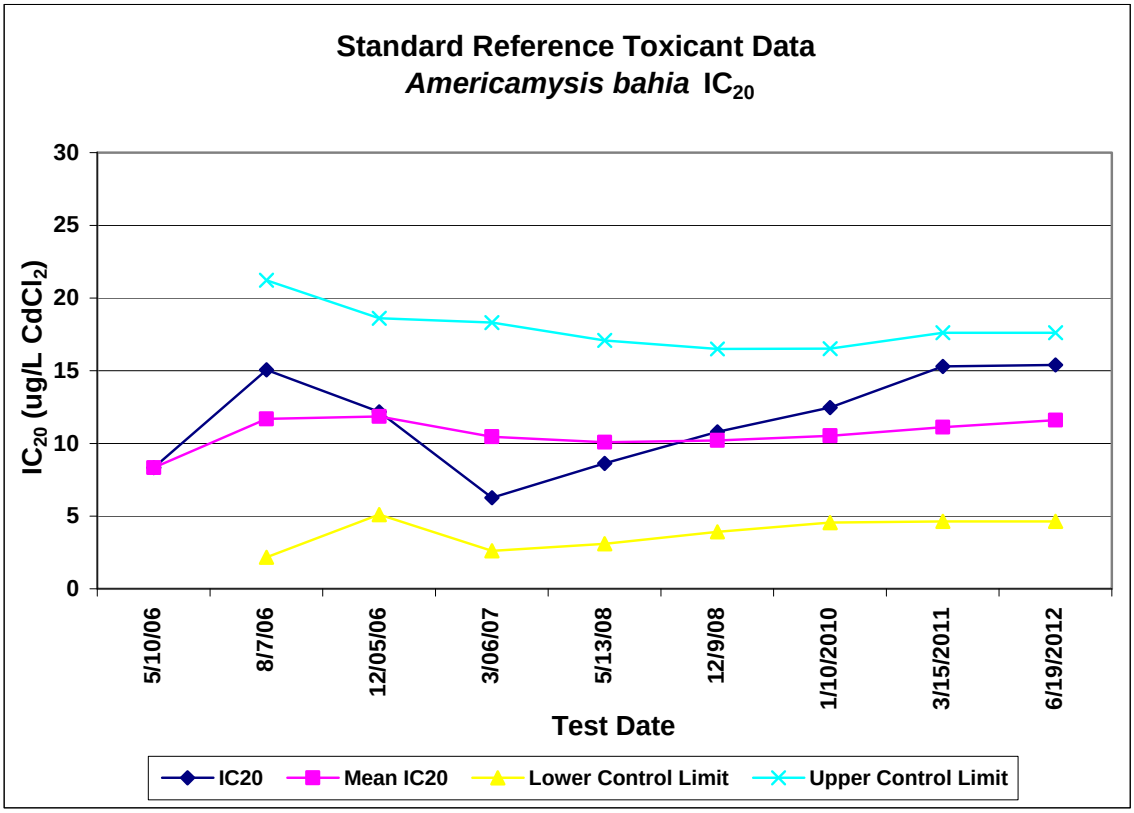
Fewer than 20 chronic SRTs (cadmium) have been performed for this species.

Lower Confidence Limit = mean - 2 * Std Dev

Upper Confidence Limit = mean + 2 * Std Dev

EPA %CV 75th percentile = 32%

Lab %CV = 27.9%



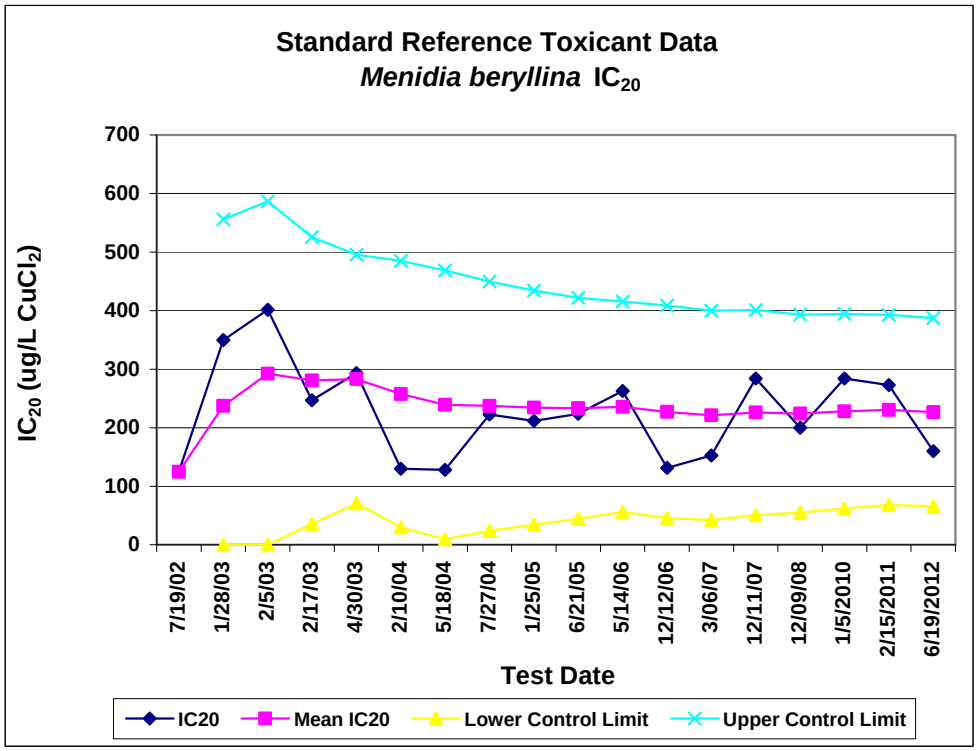
Appendix C. (continued)

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
6/19/2012	160.0	226.6	80.5	65.7	387.6

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 = 35.3



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 6.18.12 Test Days Used: 0– 6 Test Duration: 7 days
Diluent/ Batch: _____ Test Days Used: _____ Organism Batch # : 6.19.12
Toxicant/ Batch # : CdCl2 /6.18.12 Organism Age: 7 days
Artemia Lot # : 08812

Artemia Batch #	Day 2 88-12	Start Date: 6.19.12 Time: 13:30
Day 0 86-12	Day 3 89-12	End Date: 6.26.12 Time: 10:30
Day 1 87-12	Day 4 90-12	
Feeding: 2 X Daily	Day 5 91-12	Chamber size : 700 mL (400 recommended)
150 artemia/mysid (total)	Day 6 92-12	Sample volume : 350 mL (minimum 150 ml)

Water Quality Parameters	Diluent	Diluent (or other)	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		AP	JD
Alkalinity (mg/L as $CaCO_3$):	157		AP	JD
Hardness (mg/L as $CaCO_3$):	—		—	—
Total Ammonia (mg/L as N):	<0.034		BA	AP
Conductivity mmhos-cm:	30.1		JD	AP
Salinity ppth:	18.9		JD	AP

Results	
Growth NOEC:	10 us/L
Growth LOEC:	20 us/L
Growth IC_{20}:	15.4 us/L
Growth IC_{25}:	17.7 us/L
Ctrl % CV	13.8%
Dunnetts PMSD:	12.2%
Survival NOEC:	20 us/L
Survival LOEC:	40 us/L

PMSD Bounds for Growth
Lower: 11
Upper: 37

√ one Waterbath: #____
Test incubated in: [X] Incubator: # 2

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
(if used) Incubator # 2 min. 23.9 max. 26.0 mean —
(if used) Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 24.6 max. 25.1 mean —

Comments:

Investigators' signatures	Initials
Adrienne Pennington	AP
James Daniels	JD
Marshall Faircloth	MF
Bruce Atchison	BA
Liz Miller	LM

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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): AP 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~~ 5 AP
	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	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
10	A	5	5	5	5	5	5	5	5
	B	5	5	5	4 1D	4	4	4	4
	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	5
	B	5	5	5	5	5	5	4 1D	4
	C	5	5	5	5	5	5	4 1D	4
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	4 1D
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	4 1D	4	4	4	4
	Checked by:		JD	JD	JD	JD	BA	JD	AP

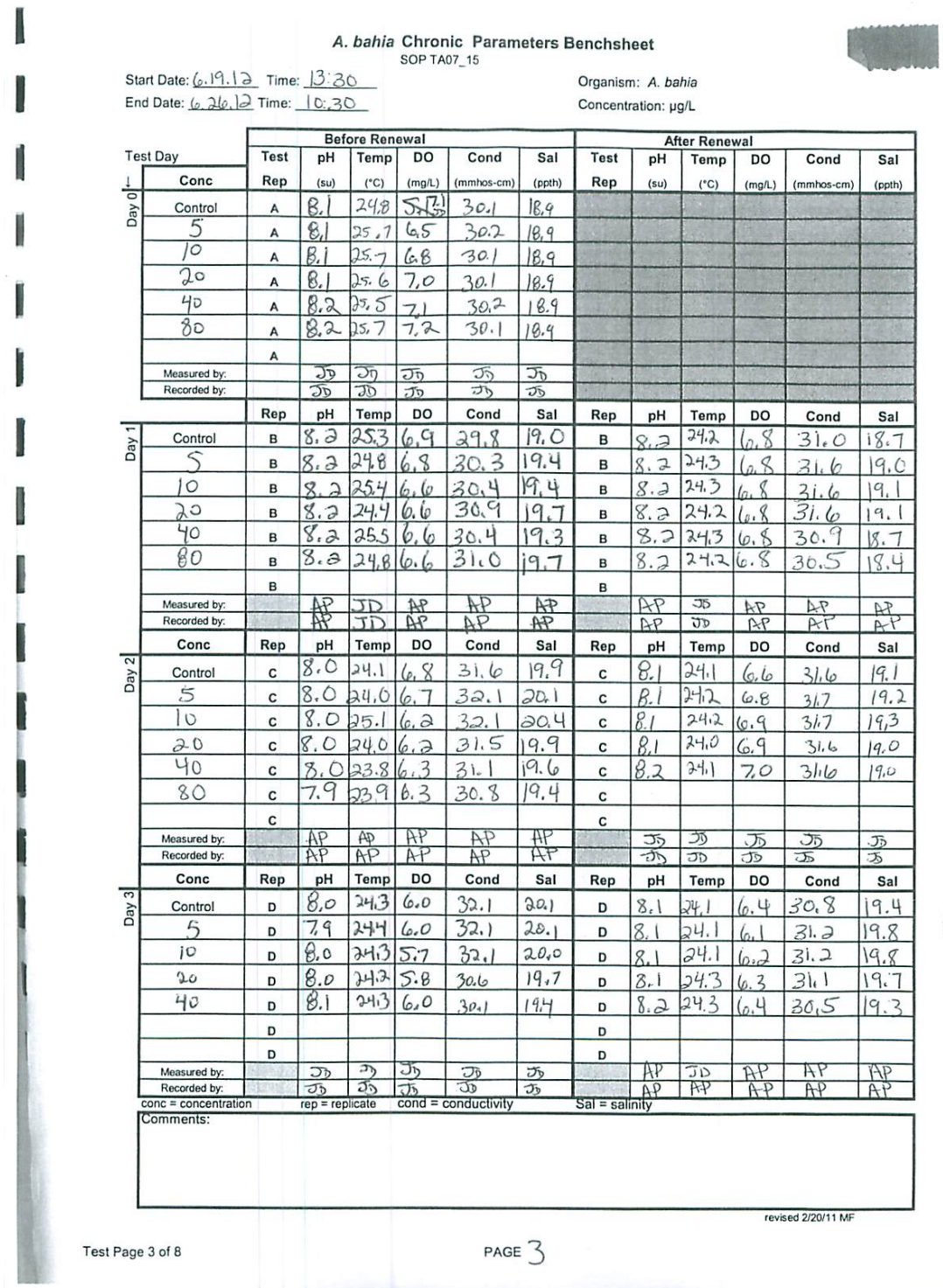
Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
40	A	5	5	2 3D	1 1D	0 1D	—	—	—
	B	5	5	0 5D	—	—	—	—	—
	C	5	5	1 4D	1	1	1	1	0 1D
	D	5	4 1D	3 1D	2 1D	1 1D	0 1P	—	—
	E	5	4 1D	1 3D	0 1D	—	—	—	—
	F	5	5	0 5D	—	—	—	—	—
	G	5	5	2 3D	2	1 1D	0 1P	—	—
	H	5	4 1D	3 1D	2 1D	0 2D	—	—	—
80	A	5	4 1D	0 4D					
	B	5	3 2D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

Comments:

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Test Page 2 of 8 Page 2

Appendix C. (continued)



A. bahia Chronic Parameters Benchsheet
SOP TA07_15

Start Date: 6.19.12 Time: 13:30
End Date: 6.26.12 Time: 10:30

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

Test Day		Before Renewal						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	5.7	30.1	18.9						
	5	A	8.1	25.7	6.5	30.2	18.9						
	10	A	8.1	25.7	6.8	30.1	18.9						
	20	A	8.1	25.6	7.0	30.1	18.9						
	40	A	8.2	25.5	7.1	30.2	18.9						
	80	A	8.2	25.7	7.2	30.1	18.9						
		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	25.3	6.9	29.8	19.0	B	8.2	24.2	6.8	31.0	18.7
	5	B	8.2	24.8	6.8	30.3	19.4	B	8.2	24.3	6.8	31.6	19.0
	10	B	8.2	25.4	6.6	30.4	19.4	B	8.2	24.3	6.8	31.6	19.1
	20	B	8.2	24.4	6.6	30.9	19.7	B	8.2	24.2	6.8	31.6	19.1
	40	B	8.2	25.5	6.6	30.4	19.3	B	8.2	24.3	6.8	30.9	18.7
	80	B	8.2	24.8	6.6	31.0	19.7	B	8.2	24.2	6.8	30.5	18.4
		B						B					
	Measured by:		AP	JD	AP	AP	AP		AP	JD	AP	AP	AP
	Recorded by:		AP	JD	AP	AP	AP		AP	JD	AP	AP	AP
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 2	Control	C	8.0	24.1	6.8	31.6	19.9	C	8.1	24.1	6.6	31.6	19.1
	5	C	8.0	24.0	6.7	32.1	20.1	C	8.1	24.2	6.8	31.7	19.2
	10	C	8.0	25.1	6.2	32.1	20.4	C	8.1	24.2	6.9	31.7	19.3
	20	C	8.0	24.0	6.2	31.5	19.9	C	8.1	24.0	6.9	31.6	19.0
	40	C	8.0	23.8	6.3	31.1	19.6	C	8.2	24.1	7.0	31.6	19.0
	80	C	7.9	23.9	6.3	30.8	19.4	C					
		C						C					
	Measured by:		AP	AP	AP	AP	AP		JD	JD	JD	JD	JD
	Recorded by:		AP	AP	AP	AP	AP		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 3	Control	D	8.0	24.3	6.0	32.1	20.1	D	8.1	24.1	6.4	30.8	19.4
	5	D	7.9	24.4	6.0	32.1	20.1	D	8.1	24.1	6.1	31.2	19.8
	10	D	8.0	24.3	5.7	32.1	20.0	D	8.1	24.1	6.2	31.2	19.8
	20	D	8.0	24.2	5.8	30.6	19.7	D	8.1	24.3	6.3	31.1	19.7
	40	D	8.1	24.3	6.0	30.1	19.4	D	8.2	24.3	6.4	30.5	19.3
		D						D					
		D						D					
	Measured by:		JD	JD	JD	JD	JD		AP	JD	AP	AP	AP
	Recorded by:		JD	JD	JD	JD	JD		AP	AP	AP	AP	AP

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

Comments:

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Test Page 3 of 8

PAGE 3

Appendix C. (continued)

A. bahia Chronic Parameters Benchsheet

SOP TA07_15

Start Date: 6.19.12 Time: 13:30 Organism: *A. bahia*

End Date: 6.26.12 Time: 10:30 Concentration: µg/L

Test Day		Before Renewal						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	8.1	24.6	4.9	32.6	20.2	E	8.1	25.0	6.2	31.0	19.2
	5 µg/L	E	8.0	24.4	5.6	32.7	20.4	E	8.1	25.0	6.3	32.7	~~31.0~~ 20.3
	10	E	8.0	24.2	5.6	32.6	20.2	E	8.1	24.7	6.4	32.6	20.2
	20	E	8.0	24.1	5.8	32.0	19.9	E	8.1	24.6	6.4	32.5	20.1
	40	JD ED	8.1	24.0	6.0	31.5	19.5	E	8.1	24.5	6.3	30.8	19.0
		E						E					
		E						E					
	Measured by:		JD	JD/BA	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:		JD	JD/BA	JD	JD	JD		JD	JD	JD	JD	JD
	Conc	Rep	pH	Temp	DO	Cond	Sal	Rep	pH	Temp	DO	Cond	Sal
Day 5	Control	F	8.0	25.0	6.8	~~31.9~~ 32.0	19.9	F	8.1	24.6	5.9	31.1	19.3
	5	F	8.0	25.0	6.8	32.7	20.0	F	8.0	24.8	6.3	32.0	20.6
	10	F	8.0	25.0	6.3	32.7	20.4	F	8.1	24.8	6.4	32.3	20.1
	20	F	8.0	25.3	6.5	32.7	20.3	F	8.1	24.9	6.4	32.1	20.0
	40	JD ~~F~~ G	8.1	25.0	~~6.3~~ 6.3	~~19.7~~ 31.7	~~19.7~~ 19.7 ~~31.7~~ JD	FC	8.2	24.9	6.4	30.6	18.9
		F				31.7↑		F					
		F						F					
	Measured by:		JD	JD	JD	JD	JD		BA	BA	BA	BA	BA
	Recorded by:		JD	JD	JD	JD	JD		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	6.3	31.1	19.6	G	8.2	24.1	6.7	30.6	18.9
	5	G	8.0	24.1	6.2	32.7	20.7	G	8.2	24.3	6.9	31.1	19.3
	10	G	8.0	24.9	6.2	32.9	21.1	G	8.2	24.1	7.0	32.4	18.7
	20	G	8.0	24.7	6.1	32.8	20.9	G	8.2	24.3	7.2	31.1	19.2
	40	C JD	8.1	24.0	6.2	31.6	19.9	G	8.2	24.2	7.3	30.2	18.5
		G						G					
		G						G					
	Measured by:		AP	JD	AP	AP	AP		JD	JD	JD	JD	JD
	Recorded by:		AP	JD	AP	AP	AP		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	6.2	30.7	18.7						
	5	H	7.9	24.3	6.1	32.1	19.7						
	10	H	7.9	24.9	6.0	32.9	20.3						
	20	H	8.0	24.7	6.1	32.3	19.9						
	40	JD MC	8.1	25.0	6.8	31.5	19.3						
		H											
		H											
	Measured by:		AP	AP	AP	AP	AP						
	Recorded by:		AP	AP	AP	AP	AP						

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

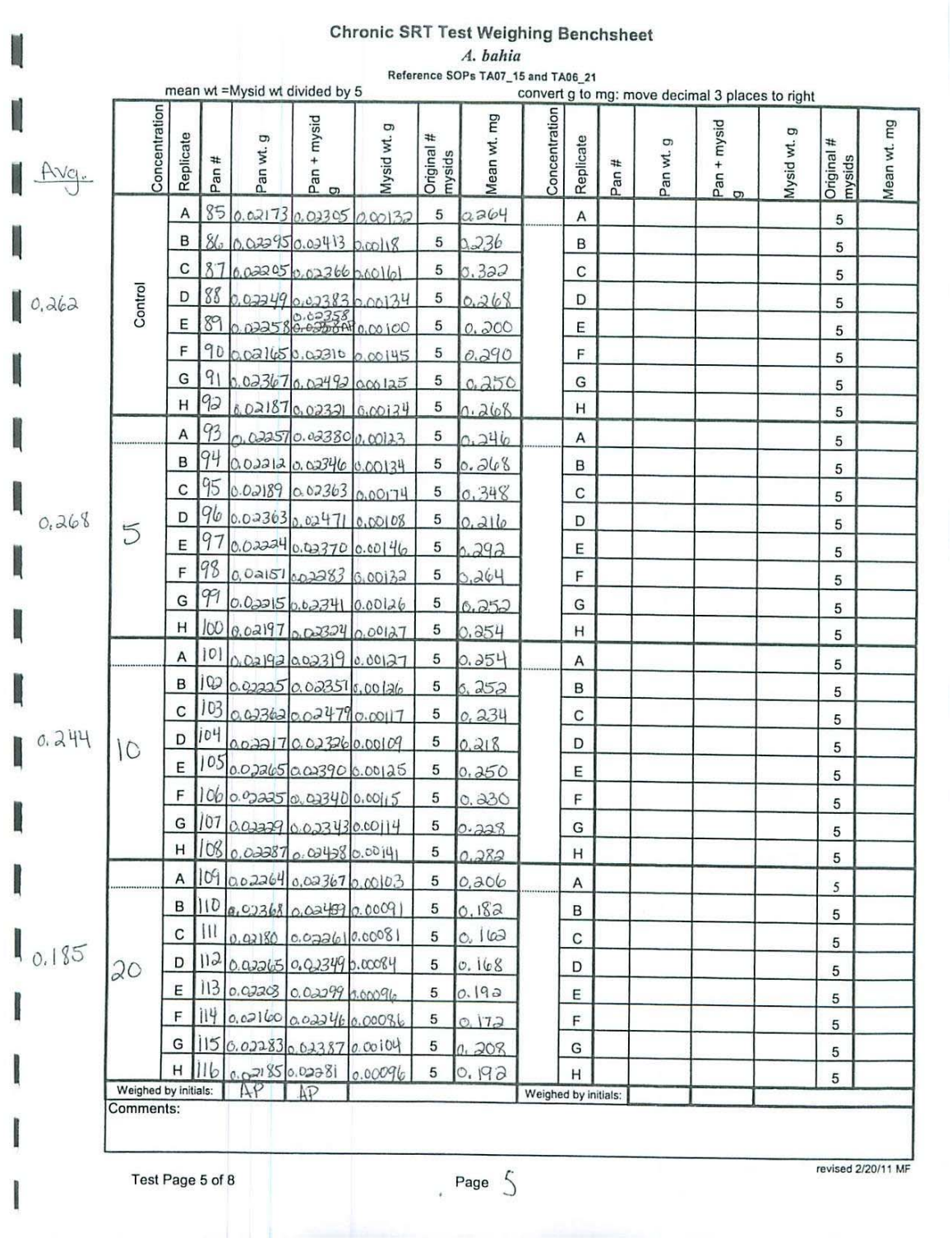
Comments:

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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
Avg.															
Control	A	85	0.02173	0.02305	0.00132	5	0.264		A					5	
0.262	B	86	0.02295	0.02413	0.00118	5	0.236		B					5	
	C	87	0.02205	0.02366	0.00161	5	0.322		C					5	
	D	88	0.02249	0.02383	0.00134	5	0.268		D					5	
	E	89	0.02258	0.02358	0.00100	5	0.200		E					5	
	F	90	0.02165	0.02310	0.00145	5	0.290		F					5	
	G	91	0.02367	0.02492	0.00125	5	0.250		G					5	
	H	92	0.02187	0.02321	0.00134	5	0.268		H					5	
	A	93	0.02257	0.02380	0.00123	5	0.246		A					5	
5	B	94	0.02212	0.02346	0.00134	5	0.268		B					5	
	C	95	0.02189	0.02363	0.00174	5	0.348		C					5	
0.268	D	96	0.02363	0.02471	0.00108	5	0.216		D					5	
	E	97	0.02224	0.02370	0.00146	5	0.292		E					5	
	F	98	0.02151	0.02283	0.00132	5	0.264		F					5	
	G	99	0.02215	0.02341	0.00126	5	0.252		G					5	
	H	100	0.02197	0.02324	0.00127	5	0.254		H					5	
	A	101	0.02192	0.02319	0.00127	5	0.254		A					5	
10	B	102	0.02225	0.02351	0.00126	5	0.252		B					5	
	C	103	0.02362	0.02479	0.00117	5	0.234		C					5	
0.244	D	104	0.02217	0.02326	0.00109	5	0.218		D					5	
	E	105	0.02265	0.02390	0.00125	5	0.250		E					5	
	F	106	0.02225	0.02340	0.00115	5	0.230		F					5	
	G	107	0.02229	0.02343	0.00114	5	0.228		G					5	
	H	108	0.02287	0.02428	0.00141	5	0.282		H					5	
	A	109	0.02264	0.02367	0.00103	5	0.206		A					5	
20	B	110	0.02368	0.02459	0.00091	5	0.182		B					5	
	C	111	0.02180	0.02261	0.00081	5	0.162		C					5	
0.185	D	112	0.02265	0.02349	0.00084	5	0.168		D					5	
	E	113	0.02203	0.02299	0.00096	5	0.192		E					5	
	F	114	0.02160	0.02246	0.00086	5	0.172		F					5	
	G	115	0.02283	0.02387	0.00104	5	0.208		G					5	
	H	116	0.02185	0.02281	0.00096	5	0.192		H					5	
Weighed by initials:			AP	AP				Weighed by initials:							

Comments:

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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: 6.25.12 By: AP

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02170	@ 0.02173
after Pan 10	0.02171	@ 0.02173
after Pan 15	0.02174	@ 0.02173
after Pan 20	0.02175	@ 0.02173
after Pan 25	0.02172	@ 0.02173
after Pan 30	0.02173	@ 0.02173
after Pan 35	0.02173	@ 0.02173
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.01001	@ 0.01
	0.03005	@ 0.03

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

Fish + Pan Weights Date: 6.28.12 By: AP

Weights in grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02306	@ 0.02305
after Pan 10	0.02306	@ 0.02305
after Pan 15	0.02306	@ 0.02305
after Pan 20	0.02305	@ 0.02305
after Pan 25	0.02307	@ 0.02305
after Pan 30	0.02305	@ 0.02305
after Pan 35	0.02305	@ 0.02305
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value (g)	S-weight Value (g)
S-weights	0.01001	@ 0.01
	0.05002	@ 0.05

Drying Oven ID: ER034000
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

Test Page 6 of 8

PAGE 6

Appendix C. (continued)

A. bahia Chronic SRT Fecundity Bench Sheet

Americamysis bahia SOP TA07_15

Concentration	Replicate	Total Mysids	Females: Eggs	Females: No Eggs	Males	Immature	Concentration	Replicate	Total Mysids	Females: Eggs	Females: No Eggs	Males	Immature
Control	A							A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
.....	A						.....	A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
.....	A						.....	A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
.....	A						.....	A					
	B							B					
	C							C					
	D							D					
	E							E					
	F							F					
	G							G					
	H							H					
Checked by:							Checked by:						

Comments:

revised 2/20/11 MF

Test Page 7 of 8

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Appendix C. (continued)

Test ID: A. Bahia Chronic SRT Dates: 6/9/12-6/26/12

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.

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

6-26-12 AP

V 1.1 9/21/10 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 6.18.12 Test Days Used: 0-6
Diluent/ Batch: _____ Test Days Used: _____
Toxicant/ Batch # : CuCl2 / 6.18.12
Artemia Lot # : 0881Z

Start Date: 6.19.12 Time: 1300
End Date: 6.26.12 Time: 11:30
Organism Batch #/ Age: 6.19.12 / 10days

Artemia Batch #		Day 2	88-12	Day 5	91-12
Day 0	86-12	Day 3	89-12	Day 6	92-12
Day1	87-12	Day 4	90-12		

Chamber size : 1000 ml
Test volume : 500 ml

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	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		HACH	AP	JD
Alkalinity (mg/L as $CaCO_3$):	157		HACH	AP	JD
Hardness (mg/L as $CaCO_3$):	—		HACH	—	—
Total Ammonia (mg/L as N):	<0.034		DENVER	BA	AP
Conductivity µmhos-cm ~~mmhos-cm~~:	30.1		METTLER	JD	AP

Statistics	
Growth NOEC:	125 ug/L
Growth LOEC:	250 ug/L
Growth IC_{20}:	160 ug/L
Growth IC_{25}:	169 ug/L
Ctrl % CV:	11.2%
Dunnetts PMSD:	18.8%
Survival NOEC:	125
Survival LOEC:	250

Test incubated in : ☒ Incubator # 3
☐ Waterbath #____
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min. 23.8 max. 26.4 mean —
Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 24.6 max. 25.1 mean —

P. promelas PMSD Bounds for Growth: Lower 12 Upper 30
M. beryllina PMSD Bounds for Growth: Lower 11 Upper 28

Investigators' signatures
James Daniels
Adrienne Pemyton
Brian Bleco
Marshall Faircloth

Liz Miller
REVIEWER

Comments:

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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	D1	10	10	10	10	10	10	10	10
	B	D2	10	10	10	10	9 1D	9	9	9
	C	D3	10	~~9 1D~~ 8 2D	8	8	8	8	8	8
	D	D4	10	~~9 1D 8 2D~~ 10	10	10	10	10	10	10
625	A	D5	10	8 2D	8	8	8	8	8	8
	B	D6	10	9 1D	8 1D	8	8	8	8	8
	C	D7	10	10	10	10	10	10	10	10
	D	D8	10	9 1D	9	9	9	9	9	9
125	A	D9	10	7 3D	7	7	7	7	7	7
	B	D10	10	10	9 1D	9	9	9	9	9
	C	D11	10	10	10	10	10	10	10	10
	D	D12	10	9 1D	9	9	9	9	9	9
250	A	D13	10	3 7D	2 1D	2	2	2	2	2
	B	D14	10	6 4D	4 2D	4	4	4	4	4
	C	D15	10	3 7D	2 1D	2	2	2	2	2
	D	D16	10	3 7D	2 1D	2	2	2	2	2
500	A	D17	10	2 8D	0 2D	—	—	—		
	B	D18	10	1 9D	1	1	1	0 1D		
	C	D19	10	0 10D	—	—	—	—		
	D	D20	10	0 10D	—	—	—	—		
1000	A	D21	10	0 10D	—					
	B	D22	10	1 9D	0 1D					
	C	D23	10	0 10D	—					
	D	D24	10	0 10D	—					
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): BA		Checked by:		JD	BA	BA	BA	JD	JD	JD
Verified by (0 hr): JD										
Concentrations prepared by:				JD	~~JD BA~~	~~BA JD~~	JD	JD	JD	

Comments:

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Appendix C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 6.19.12 End Date: 6.26.12

Start Time: 13:00 End Time: 11:30

conc = concentration rep = replicate circle umhos or mmhos

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos (mmhos)	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos (mmhos)	Salinity ppth
Day 0	Control	A	8.2	24.8	7.0	30.1	18.9						
	62.5	A	8.2	24.9	7.0	30.2	18.9						
	125	A	8.1	24.9	7.1	30.1	18.9						
	250	A	8.1	24.9	7.1	30.2	18.9						
	500	A	8.1	24.9	7.1	30.2	18.9						
	1000	A	8.1	24.9	7.1	30.2	18.9						
		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	Control	B	8.2	25.6	6.6	31.2	19.5	B	8.1	24.5	6.4	30.2	19.0
	62.5	B	8.2	25.7	6.6	31.3	19.6	B	8.2	24.4	6.5	30.2	19.0
	125	B	8.2	25.8	6.5	31.3	19.7	B	8.2	24.4	6.6	30.2	19.1
	250	B	8.1	25.7	6.4	31.2	19.6	B	8.2	24.4	6.6	30.2	19.0
	500	B	8.1	25.4	6.4	31.1	19.6	B	8.2	24.3	6.7	30.2	19.0
	1000	B	8.1	25.8	6.4	31.5	19.8	B	8.2	24.4	6.8	30.2	19.0
		B						B					
	Measured by		AP	JD	AP	AP	AP		JD	JD	JD	JD	JD
	Recorded by		AP	JD	AP	AP	AP		JD	JD	JD	JD	JD
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	7.9	24.1	6.4	32.0	19.9	C	8.1	24.0	5.9	31.2	19.6
	62.5	C	8.0	24.1	6.3	32.6	20.2	C	8.1	24.5	6.1	32.1	20.1
	125	C	8.0	24.1	6.2	32.6	20.2	C	8.1	24.0	6.1	32.4	20.2
	250	C	8.0	24.6	6.4	32.5	20.1	C	8.1	24.0	6.3	32.1	20.0
	500	B~~C~~	8.1	24.2	6.5	32.2	19.9	B~~C~~	8.1	24.1	6.4	31.3	19.4
	1000	B~~C~~	8.1	24.4	6.5	31.5	19.5	B~~C~~					
		C						C					
	Measured by		AP	AP	AP	AP	AP		BA	BA	BA	BA	BA
	Recorded by		AP	AP	AP	AP	AP		BA	BA	BA	BA	BA
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	Control	D	7.9	25.0	5.8	32.5	20.1	D	8.1	24.4	7.2	30.1	19.0
	62.5	D	7.9	24.6	5.5	32.1	20.0	D	8.1	24.8	7.0	32.2	19.7
	125	D	7.9	24.5	5.5	32.1	19.9	D	8.1	24.9	7.0	~~32.3~~ ~~32.3~~	19.8
	250	D	8.0	24.3	5.6	32.0	19.8	D	8.1	24.9	7.0	32.2	19.7
	500	B~~D~~	8.1	24.1	6.6	32.0	19.8	D	8.2	24.4	7.0	31.2	19.1
		D						D					
		D						D					
	Measured by		JD	JD	JD	JD	JD		AP	BA	AP	AP	AP
	Recorded by		JD	JD	JD	JD	JD		AP	AP	AP	AP	AP

Comments: Day 3, After renewal, 125 conductivity = 32.3 AP

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 C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 6.19.12 End Date: 6.26.12

Start Time: 13:00 End Time: 11:30

conc = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
1 Day 4	Control	A	8.0	24.5	5.10	32.6	20.2	A	8.1	25.0	5.7	31.2	19.3
	~~6.25~~ (62.5 ~~125~~ BA 9g/L)	A	8.0	25.1	5.7	32.7	20.4	A	8.1	24.8	5.9	33.0	20.7
	125	A	8.0	24.4	5.8	32.6	20.2	A	8.1	24.7	5.8	32.9	20.4
	250	A	8.0	24.5	5.8	32.1	20.1	A	8.1	24.3	5.9	32.9	20.5
	500	A	8.1	24.1	6.1	32.0	19.9	A	8.1	24.5	5.9	31.4	19.5
		A						A					
		A						A					
	Measured by		JD	BA	JD	JD	JD		BA	BA	BA	BA	BA
	Recorded by		JD	BA	JD	JD	JD		BA	BA	BA	BA	BA
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
2 Day 5	Control	B	8.1	~~24.0~~	6.2	32.0	19.9	B	8.1	25.1	6.5	32.0	19.9
	~~6.25~~ 62.5	B	8.1	24.9	6.3	33.2	20.8	B	8.1	25.0	6.4	33.2	20.8
	125	B	8.1	24.4	6.2	32.9	20.5	B	8.1	24.8	6.4	32.9	20.5
	250	B	8.1	25.1	6.5	33.0	20.6	B	8.2	24.9	6.6	33.0	20.6
	500	B	8.1	24.5	6.5	31.8	19.8	B				~~31.8~~ JD	~~19.8~~ JD
		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
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
3 Day 6	Control	C	8.1	24.5	6.1	31.6	19.9	C	8.2	24.3	7.3	30.4	18.7
	62.5	C	8.0	24.8	6.0	33.7	21.5	C	8.2	24.6	7.2	32.7	20.4
	125	C	8.0	24.7	6.0	33.6	21.4	C	8.2	24.6	7.2	32.3	20.1
	250	C	8.1	25.2	6.1	33.5	21.2	C	8.2	24.7	7.2	32.3	20.1
	~~500~~ JD	C						C					
		C						C					
		C						C					
	Measured by		AP	JD	AP	AP	AP		JD	JD	JD	JD	JD
	Recorded by		AP	JD	AP	AP	AP		JD	JD	JD	JD	JD
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
4 Day 7	Control	D	8.1	25.7	6.6	31.3	19.6	D					
	62.5	D	8.0	26.0	5.9	33.6	20.9	D					
	125	D	8.0	26.1	6.0	33.5	21.0	D					
	250	D	8.0	25.9	6.3	33.0	20.6	D					
		D						D					
		D						D					
		D						D					
	Measured by		AP	AP	AP	AP	AP						
	Recorded by		AP	AP	AP	AP	AP						

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 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)	Avg.
Control	A	119	0.02209	0.03156	0.00947	10	0.947	
	B	120	0.02289	0.03157	0.00868	10	0.868	
	C	121	0.02155	0.02876	0.00721	10	0.721	0.858
	D	122	0.02168	0.03052	0.00884	10	0.884	
62.5	A	123	0.02116	0.02903	0.00787	10	0.787	
	B	124	0.02155	0.03018	0.00863	10	0.863	
	C	125	0.02271	0.03410	0.01139	10	1.139	0.957
	D	126	0.02293	0.03331	0.01038	10	1.038	
125	A	127	0.02163	0.03041	0.00878	10	0.878	
	B	128	0.02257	0.03143	0.00886	10	0.886	
	C	129	0.02277	0.03194	0.00917	10	0.917	0.904
	D	130	0.02128	0.03061	0.00933	10	0.933	
250	A	131	0.02323	0.02558	0.00235	10	0.235	
	B	132	0.02183	0.02543	0.00360	10	0.360	
	C	133	0.02273	0.02513	0.00240	10	0.240	0.267
	D	134	0.02164	0.02395	0.00231	10	0.231	
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by:		AP	AP				

Comments:

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

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revised 8/24/06 MF/SP

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: 6.25.12 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02210	@0.02209
after Pan 10	0.02209	@ 0.02209
after Pan 15	0.02209	@ 0.02209
after Pan 20	0.02210	@ 0.02209
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
	0.03005	@ 0.03

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 6.28.12 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.03155	@0.03156
after Pan 10	0.03154	@ 0.03156
after Pan 15	0.03154	@ 0.03156
after Pan 20	0.03155	@ 0.03156
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
	0.05002	@ 0.05

Drying Oven ID: ER034000

Temperature °C: 100

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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revised 7/16/08 MF

Appendix C. (continued)

Test ID: Mallory Chronic SRT Dates: 6.19.12 - 6.26.12

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.

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

6-27-12 AP

V 1.1 9/21/10 MF/jd

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Appendix D. Test Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 6/18/12

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	600	6 DAYS	MS120612	25	7.9	20
Menidia beryllina	600 CH	9 DAYS	SS120609	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas						
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 Siesta Key AWWTF Outfall D-001, sampled on June 18, 2012.

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 10:10	EFD-01	AGP/LN	Algal Growth Potential	4.78	A	mg DryWt/L	3	3
6/18/2012 10:10	EFD-01	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.45	U	ug/L	0.45	1.4
6/18/2012 10:10	EFD-01	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.62	U	ug/L	0.62	1.9
6/18/2012 10:10	EFD-01	Overflow	Fecal Coliforms-Membrane Filter	5	B	cfu/100 mL	1	
6/18/2012 10:10	EFD-01	Nutrients	O-Phosphate-P	0.64		mg P/L	0.16	0.4
6/18/2012 10:10	EFD-01	Nutrients	Cyanide	0.007	I	mg CN/L	0.005	0.02
6/18/2012 10:10	EFD-01	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
6/18/2012 10:10	EFD-01	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
6/18/2012 10:10	EFD-01	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
6/18/2012 10:10	EFD-01	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
6/18/2012 10:10	EFD-01	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
6/18/2012 10:10	EFD-01	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
6/18/2012 10:10	EFD-01	Pesticides	Diazinon	0.05	UJ	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
6/18/2012 10:10	EFD-01	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
6/18/2012 10:10	EFD-01	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
6/18/2012 10:10	EFD-01	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
6/18/2012 10:10	EFD-01	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
6/18/2012 10:10	EFD-01	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
6/18/2012 10:10	EFD-01	Pesticides	Naled	0.2	UJ	ug/L	0.2	0.8
6/18/2012 10:10	EFD-01	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
6/18/2012 10:10	EFD-01	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 10:10	EFD-01	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Dibromochloromethane	100		ug/L	0.2	1
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzidine	97	UJ	ug/L	97	390
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L	9.7	39
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.78

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Bromodichloromethane	33		ug/L	0.2	1
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
6/18/2012 10:10	EFD-01	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.78
6/18/2012 10:10	EFD-01	Field Parameter	Specific Conductance	3481		umhos/cm		
6/18/2012 10:10	EFD-01	Field Parameter	Total Residual Chlorine	0.03		mg/L		
6/18/2012 10:10	EFD-01	Field Parameter	Dissolved Oxygen	6.8		mg/L		
6/18/2012 10:10	EFD-01	Field Parameter	pH	7.49				
6/18/2012 10:10	EFD-01	Field Parameter	Temperature	29.95		C		
6/18/2012 8:00	EFD-01	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	4.3	AJ	mg/L	0.2	2
6/18/2012 8:00	EFD-01	Toxicology	Bioassay-Chron-Def-SW-Mysid, NOEC	50		NOEC		
6/18/2012 8:00	EFD-01	Toxicology	Bioassay-Chron-Def-SW-Fish, NOEC	100		NOEC		
6/18/2012 8:00	EFD-01	Toxicology	Bioassay-Chron-Def-SW-Fish, IC25	100	L	IC25		
6/18/2012 8:00	EFD-01	Toxicology	Bioassay-Chron-Def-SW-Mysid, IC25	100	L	IC25		
6/18/2012 8:00	EFD-01	Metals	Calcium	110		mg/L	0.075	0.3
6/18/2012 8:00	EFD-01	Metals	Copper	1.5	U	ug/L	1.5	3

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 8:00	EFD-01	Metals	Iron	30	U	ug/L	30	120
6/18/2012 8:00	EFD-01	Metals	Lead	0.6	U	ug/L	0.6	2.4
6/18/2012 8:00	EFD-01	Metals	Selenium	0.6	U	ug/L	0.6	2.4
6/18/2012 8:00	EFD-01	Metals	Chromium	0.9	U	ug/L	0.9	3.6
6/18/2012 8:00	EFD-01	Metals	Antimony	0.75	U	ug/L	0.75	3
6/18/2012 8:00	EFD-01	Metals	Zinc	14	I	ug/L	5	20
6/18/2012 8:00	EFD-01	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
6/18/2012 8:00	EFD-01	Metals	Aluminum	86		ug/L	15	60
6/18/2012 8:00	EFD-01	Metals	Silver	0.075	U	ug/L	0.075	0.3
6/18/2012 8:00	EFD-01	Metals	Nickel	1.3	I	ug/L	0.75	3
6/18/2012 8:00	EFD-01	Metals	Magnesium	90.9		mg/L	0.04	0.16
6/18/2012 8:00	EFD-01	Metals	Arsenic	2.2	I	ug/L	0.75	3
6/18/2012 8:00	EFD-01	Metals	Cadmium	0.15	U	ug/L	0.15	0.6
6/18/2012 8:00	EFD-01	Nutrients	Organic Carbon	9.1	A	mg C/L	1	5
6/18/2012 8:00	EFD-01	Nutrients	Total-P	0.71		mg P/L	0.005	0.05
6/18/2012 8:00	EFD-01	Nutrients	Ammonia-N	0.064		mg N/L	0.01	0.02
6/18/2012 8:00	EFD-01	Nutrients	TSS	4	I	mg/L	2	10
6/18/2012 8:00	EFD-01	Nutrients	Kjeldahl Nitrogen	1.1		mg N/L	0.16	0.4
6/18/2012 8:00	EFD-01	Nutrients	NO2NO3-N	0.59		mg N/L	0.04	0.1
6/18/2012 10:50	EFB-01	Nutrients	TSS	4	I	mg/L	2	10
6/18/2012 11:00	FIELD BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/18/2012 11:00	FIELD BLANK	Metals	Aluminum	5	U	ug/L	5	20
6/18/2012 11:00	FIELD BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
6/18/2012 11:00	FIELD BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
6/18/2012 11:00	FIELD BLANK	Metals	Antimony	0.25	U	ug/L	0.25	1
6/18/2012 11:00	FIELD BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
6/18/2012 11:00	FIELD BLANK	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
6/18/2012 11:00	FIELD BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
6/18/2012 11:00	FIELD BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
6/18/2012 11:00	FIELD BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/18/2012 11:00	FIELD BLANK	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
6/18/2012 11:00	FIELD BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Metals	Iron	30	U	ug/L	30	120

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 11:00	FIELD BLANK	Metals	Zinc	5	U	ug/L	5	20
6/18/2012 11:00	FIELD BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
6/18/2012 11:00	FIELD BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
6/18/2012 11:00	FIELD BLANK	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
6/18/2012 11:00	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
6/18/2012 11:00	FIELD BLANK	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
6/18/2012 11:00	FIELD BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
6/18/2012 11:00	FIELD BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.59
6/18/2012 11:00	FIELD BLANK	Pesticides	Parathion Methyl	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.59
6/18/2012 11:00	FIELD BLANK	Pesticides	Naled	0.2	UJ	ug/L	0.2	0.78
6/18/2012 11:00	FIELD BLANK	Pesticides	Alachlor	0.29	U	ug/L	0.29	1.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.78
6/18/2012 11:00	FIELD BLANK	Pesticides	Prometryn	0.098	U	ug/L	0.098	0.39
6/18/2012 11:00	FIELD BLANK	Pesticides	Azinphos Methyl	0.098	U	ug/L	0.098	0.39
6/18/2012 11:00	FIELD BLANK	Pesticides	Fonofos	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.78
6/18/2012 11:00	FIELD BLANK	Pesticides	Diazinon	0.049	UJ	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Parathion Ethyl	0.098	U	ug/L	0.098	0.39
6/18/2012 11:00	FIELD BLANK	Pesticides	Butylate	0.098	U	ug/L	0.098	0.39
6/18/2012 11:00	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Malathion	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.59
6/18/2012 11:00	FIELD BLANK	Pesticides	Metolachlor	0.29	U	ug/L	0.29	1.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Phorate	0.024	U	ug/L	0.024	0.098
6/18/2012 11:00	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Ethoprop	0.024	U	ug/L	0.024	0.098
6/18/2012 11:00	FIELD BLANK	Pesticides	Metribuzin	0.098	U	ug/L	0.098	0.39
6/18/2012 11:00	FIELD BLANK	Pesticides	Mevinphos	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	1.3	I	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Results	Remarks	Units	MDL	PQL
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Bromodichloromethane	0.2	U	ug/L	0.2	1
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
6/18/2012 11:00	FIELD BLANK	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1
6/18/2012 10:10	TRIP BLANK	Priority Organic Pollutants	Bromodichloromethane	0.2	U	ug/L	0.2	1
6/18/2012 10:10	TRIP BLANK	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1

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: Pete Wenner	Contact Number: 813-632-7600 x442
Facility Name (as it appears on permit): Siesta Key AWWTF	Former Names:
NPDES Permit Number: FL0025755	Permit Expiration Date: June 19, 2013
Physical Address: 5200 Oakmont Place, Siesta Key, FL 34242	
District: Southwest	County: Sarasota
Function of Facility: Domestic Wastewater Treatment	
Facility Type: DW (major)	Permitted Capacity (MGD): 2.7 MGD (3MADF)
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 01 April 2011-31 March 2012: 1.20 MGD	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

Page 1 of 5 v3.0 07/07/08

Appendix F. (continued)

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

Monitoring Location	Description of Monitoring Location
EFA-01	After chlorine contact chamber
EFB-01	After filters before disinfection
EFD-01	At sample box prior to discharge to outfall
FLW-01	After CCC using a rectangular weir with a flow meter

Description of Permitted Outfall(s):

EFFLUENT DISPOSAL:

Surface Water Discharge: An existing 2.7 mgd annual average daily flow (AADF) permitted discharge to Grand Canal at Discharge Location (D-001), thence to Roberts Bay (Class III marine waters). The outfall consists of a 24 inch reinforced concrete pipe discharging through the seawall at a depth of approximately 3 feet. The point of discharge is located approximately at latitude 27° 16' 32" N, longitude 82° 33' 06" W.

TREATMENT FACILITIES:

Operation of an existing 2.7 mgd three month average daily flow (3MADF) Type I conventional contact stabilization advanced domestic wastewater treatment plant consisting of the following units: a headworks with two Parshall flumes, a mechanically cleaned bar screen, with manually cleaned backup screen, and two de-gritting chambers; a flow equalization basin of 390,000 gallons capacity; a biological process system with one contact tank of 210,000 gallons, and a single re-aeration basin of 450,000 gallons capacity; dual clarifiers of 189,000 gallons and 365,000 gallons, providing a total settling capacity of 554,000 gallons; a nitrification tank of 197,000 gallons; a 135,000 gallon holding basin; three de-nitrification towers, providing a total of 309 ft^2 of surface area; a single intermediate reactor clarifier of 1,963 ft^2 surface area; two rotating disk filters, each providing 323 ft^2 of surface area for a total surface area of 646 ft^2; a single chlorine contact chamber of 64,500 gallons capacity, using a liquid hypochlorite solution chlorination system including a 6,000 gallon hypochlorite storage tank with containment, two 300 gallon day tanks, and associated pumpage and piping; the residuals processing system is comprised of a single three cell structure containing two digesters and a sludge holding basin with a total capacity of 441,874 gallons, a dissolved air flotation (DAF) sludge thickener is used between the two digester units and the final holding tank for residuals concentration, a de-chlorination system using sulphur dioxide, and an effluent sampling box, immediately prior to pipe leading to discharge outfall. This facility is operated to provide advanced wastewater treatment (AWT) with high-level disinfected water to D-001.

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)

In addition to the permit limits below, Consent Order OGC File No. 10-2682, effective on January 21, 2011, and amended on October 24, 2011, provides interim limits for cyanide and dibromochloromethane until December 31, 2016.

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	MGD	Maximum	2.7	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.5
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour FPC	EFD-01	
Solids, Total Suspended (For Disinfection)	MG/L	Maximum	-	-	-	5.0	7 Days/Week	Grab	EFB-01	
Nitrogen, Total as N	MG/L	Maximum	3.0	3.75	4.5	6.0	Weekly	16-hour FPC	EFD-01	
Phosphorus, Total as P	MG/L	Maximum	1.0	1.25	1.5	2.0	Weekly	16-hour FPC	EFD-01	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-01	See Cond.I.A.4
Coliform, Fecal, % less than detection	PERCENT	Minimum	-	75	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.6
Coliform, Fecal	#/100ML	Maximum	-	-	-	25	7 Days/Week	Grab	EFA-01	See Cond.I.A.6
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	Continuous	Meter	EFA-01	See Cond.I.A.4, 7
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	7 Days/Week	Grab	EFD-01	
Cyanide	ug/L	Maximum	-	-	-	1.0	Monthly	Grab	EFD-01	See AO-118-SW
Chlorodibromomethane	ug/L	Maximum	34.0	Report	-	-	Monthly	Grab	EFD-01	See AO-118-SW
Dichlorobromomethane	ug/L	Maximum	22.0	Report	-	-	Monthly	Grab	EFD-01	See AO-118-SW
Dissolved Oxygen	MG/L	Minimum	-	-	-	5.0	7 Days/Week	Grab	EFA-01	
Whole Effluent Toxicity (Chronic)	NOEC	Minimum				100	Every Three Months	24-hour FPC	EFD-01	See Cond.I.A.7

Appendix F. (continued)

PART I: Continued	
Receiving Waters: **Discharge to Grand Canal and thence to Roberts Bay.**	**Classification (indicate whether fresh or marine):** **Class III Marine**
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): **See attached document: Siesta Key Toxicity Language**	
Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): **Administrative Order: AO-118-SW: see attached document: AO Revised March 10, 2008.** **Consent Order OGC File No. 10-2682, effective January 21 and revised October 24, 2011.**	
Facility Mixing Zone Details (if applicable):	
List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year: **See attached document: Siesta Key AWWTF permit exceedances (01-01-2007 TO 12-31-2011)**	
Describe previous FYI and WQBEL study: **See attached document: 2007 FYI3 Report for Siesta Key AWWTF**	
Describe previous or current Enforcement Actions (including WLs): The facility is currently the subject of Consent Order OGC File No. 10-2682 for effluent limit exceedances.	
Describe any violations or problems noted in previous inspection: The facility was rated non-compliant for operation/maintenance issues, record keeping and effluent limit exceedances.	
Discuss whether DMR trends within previous five years are improving or declining: Overall, effluent quality appears to be declining slightly. In addition to the cyanide and DBCM exceedances, the effluent exceeded the permit limits for total nitrogen monthly average and maximum limits three times, the monthly average and maximum limits for CBOD four times, failed to meet the minimum chlorine residual concentration needed for high level disinfection	

Appendix F. (continued)

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

Appendix G. NPDES Permit FL0025755 Pages 1 - 4

Florida Department of
Environmental Protection
Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:

Sarasota County Environmental Services - Utilities

RESPONSIBLE AUTHORITY:

Verne E. Hall
Utilities Facilities Manager
1001 Sarasota Center Boulevard
Sarasota, FL 34240
Vehall@scgov.net
(941) 232-6239

PERMIT NUMBER:	FL0025755 (Major)
PA FILE NUMBER:	FL0025755-010-DW1P/NR
ISSUANCE DATE:	June 20, 2008
PA FILE NUMBER:	FL0025755-012-DW1/MR
REVISION DATE:	March 18, 2011
EXPIRATION DATE:	June 19, 2013

FACILITY:

Siesta Key AWWTF
5200 Oakmont Place
Siesta Key, FL 34242
Sarasota County
Latitude: 27° 16' 36" N Longitude: 82° 33' 03" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit is accompanied by an Administrative Order, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Administrative Order, AO-118-SW is a specific requirement of this permit. The above named permittee is hereby authorized to operate the facilities shown on the application and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TREATMENT FACILITIES:

Operation of an existing 2.7 mgd three month average daily flow (3MADF) Type I conventional contact stabilization advanced domestic wastewater treatment plant consisting of the following units: a headworks with two Parshall flumes, a mechanically cleaned bar screen, with manually cleaned backup screen, and two de-gritting chambers; a flow equalization basin of 390,000 gallons capacity; a biological process system with one contact tank of 210,000 gallons, and a single re-aeration basin of 450,000 gallons capacity; dual clarifiers of 189,000 gallons and 365,000 gallons, providing a total settling capacity of 554,000 gallons; a nitrification tank of 197,000 gallons; a 135,000 gallon holding basin; three de-nitrification towers, providing a total of 309 ft^2 of surface area; a single intermediate reactor clarifier of 1,963 ft^2 surface area; two rotating disk filters, each providing 323 ft^2 of surface area for a total surface area of 646 ft^2; a single chlorine contact chamber of 64,500 gallons capacity, using a liquid hypochlorite solution chlorination system including a 6,000 gallon hypochlorite storage tank with containment, two 300 gallon day tanks, and associated pumpage and piping; the residuals processing system is comprised of a single three cell structure containing two digesters and a sludge holding basin with a total capacity of 441,874 gallons, a dissolved air flotation (DAF) sludge thickener is used between the two digester units and the final holding tank for residuals concentration, a de-chlorination system using sulphur dioxide, and an effluent sampling box, immediately prior to pipe leading to discharge outfall. This facility is operated to provide advanced wastewater treatment (AWT) with high-level disinfected water to D-001.

Appendix G. (continued)

FACILITY: Siesta Key AWWTF PERMIT NUMBER: FL0025755
PERMITTEE: Sarasota County Environmental Services - Utilities

EFFLUENT DISPOSAL:

Surface Water Discharge: An existing 2.7 mgd annual average daily flow (AADF) permitted discharge to Grand Canal at Discharge Location (D-001), thence to Roberts Bay (Class III marine waters). The outfall consists of a 24 inch reinforced concrete pipe discharging through the seawall at a depth of approximately 3 feet. The point of discharge is located approximately at latitude 27° 16' 32" N, longitude 82° 33' 06" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions set forth in Pages 1 through 19 of this permit.

Appendix G. (continued)

FACILITY: Siesta Key AWWTF PERMIT NUMBER: FL0025755
PERMITTEE: Sarasota County Environmental Services - Utilities

I. RECLAIMED WATER AND 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 effluent from Outfall D-001 to Grand Canal thence to Roberts Bay. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.9:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	MGD	Maximum	2.7	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.5
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour FPC	EFD-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour FPC	EFD-01	
Solids, Total Suspended (For Disinfection)	MG/L	Maximum	-	-	-	5.0	Weekly	Grab	EFB-01	
Nitrogen, Total as N	MG/L	Maximum	3.0	3.75	4.5	6.0	Weekly	16-hour FPC	EFD-01	
Phosphorus, Total as P	MG/L	Maximum	1.0	1.25	1.5	2.0	Weekly	16-hour FPC	EFD-01	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-01	See Cond.I.A.4
Coliform, Fecal, % less than detection	PERCENT	Minimum	-	75	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.6
Coliform, Fecal	#/100ML	Maximum	-	-	-	25	Weekly	Grab	EFA-01	See Cond.I.A.6
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	Continuous	Meter	EFA-01	See Cond.I.A.4, 7
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	7 Days/Week	Grab	EFD-01	
Cyanide	ug/L	Maximum	-	-	-	1.0	Monthly	Grab	EFD-01	See AO-118-SW
Chlorodibromomethane	ug/L	Maximum	34.0	Report	-	-	Monthly	Grab	EFD-01	See AO-118-SW
Dichlorobromomethane	ug/L	Maximum	22.0	Report	-	-	Monthly	Grab	EFD-01	See AO-118-SW
Dissolved Oxygen	MG/L	Minimum	-	-	-	5.0	7 Days/Week	Grab	EFA-01	
Chronic Whole Effluent Toxicity	Percent	Minimum				100	Every Three Months	24-hour FPC	EFD-01	See Cond.I.A.7.

PA File No. FL0025755-012-DW1/MR 3

Appendix G. (continued)

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I. A. 1. and as described below:

Monitoring Location	Description of Monitoring Location
EFA-01	After chlorine contact chamber
EFB-01	After filters before disinfection
EFD-01	At sample box prior to discharge to outfall
FLW-01	After CCC using a rectangular weir with a flow meter

3. Hourly measurement of pH and total residual chlorine for disinfection during the period of required operator attendance may be substituted for continuous measurement. *[Chapter 62-601, Figure 2]*

4. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-601.200(17) and .500(6)]*

5. Over a 30-day period, at least 75 percent of the fecal coliform values shall be below the detection limits. No sample shall exceed 25 fecal coliforms per 100 mL. No sample shall exceed 5.0 mg/L of total suspended solids (TSS) at a point before the application of the disinfectant. Note: To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). *[62-600.440(5)(f)]*

6. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(b) and (6)(b)]*

7. Chronic Whole Effluent Toxicity Testing

   The permittee shall comply with the following whole effluent toxicity testing requirements and initiate the series of tests described below within 60 days of permit issuance, unless otherwise directed by the Department in writing, to evaluate chronic whole effluent toxicity of the discharge from outfall D-001 to Grand Canal.

   a. Effluent Limitation
      1. Whole effluent chronic toxicity shall not exceed a 25 percent inhibition concentration (IC25) of less than 100% effluent in any test. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      2. In the chronic toxicity test, the effluent cannot be acutely toxic, in accordance with Rules 62-4.241(1)(a), 62-302.200(1) and 62-302.500(1)(a)(4) F.A.C.

   b. Monitoring Frequency
      1. Routine toxicity tests shall be conducted once every three months.

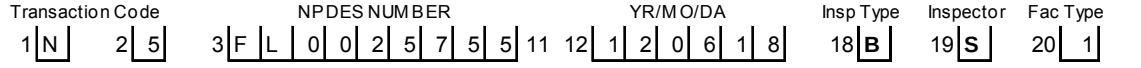
   c. Sampling Requirements
      1. For each routine test or additional follow-up test conducted, a total of three 24-hr flow proportioned composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-014, Section 8, or the most current edition.
      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.

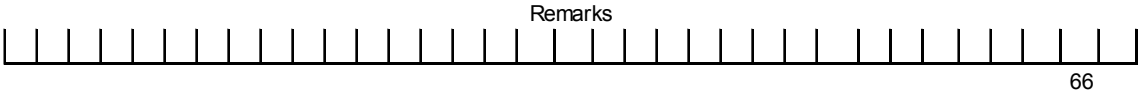
   d. Test Requirements
      1. Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%, 50%, 25%, 12.5%**, and **6.25%** final effluent.
      2. The permittee shall conduct 7-day survival and growth chronic toxicity tests with a mysid shrimp, **Americamysis (Mysidopsis) bahia**, Survival, Growth and Fecundity Test, and an inland silverside, **Menidia beryllina**, Larval Survival and Growth Test, 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 Saltwater Organisms**, 4th ed., EPA-821-R-02-014, or the most current edition. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.
      4. The control water and dilution water used shall be artificial sea salts as described in EPA-821-R-02-014, Section 7.2, or the most current edition. 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). The salinity of the control/dilution water (0% effluent) shall be 20 ppt. If the salinity of the effluent

Appendix H. EPA End Sheet

The Bioassay of Siesta Key AWWTF effluent sampled on June 18, 20, and 22, 2012. NPDES #FL0025755.

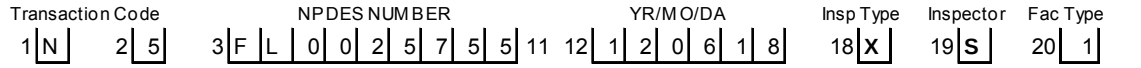
Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

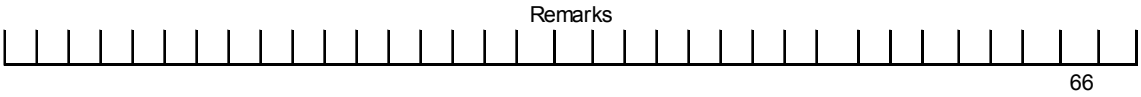




The Priority Pollutants Analysis of Siesta Key AWWTF effluent sampled on June 18, 2012. NPDES #FL0025755.

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





Biological Analyses of Siesta Key AWWTF effluent sampled on June 18, 2012. NPDES #FL0025755.

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

