

Effluent Quality Assessment

Iron Bridge Regional WRF

Seminole County

NPDES #FL0037966

Sampled December 12, 2011

March 2012

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Iron Bridge Regional Water Reclamation Facility (WRF), 601 Iron Bridge Circle, Oviedo, Seminole County, Florida, 32765-8283. NPDES #FL0037966. Effluent grab samples for biological and chemical analyses for this facility were collected on December 12, 2011.

Introduction

Iron Bridge Regional WRF is a domestic wastewater treatment plant which uses a 5-stage Bardenpho process to treat domestic wastewater. (See Appendix F for detailed facility information provided by Blake Vahlsing of FDEP Central District.)

Methods

Samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Blake Vahlsing, Phil Kane, and Steve Kent (FDEP Central 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 96-hour acute definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Results and Discussion

- **Toxicity Test Results**
  Tests were performed December 13 - 17, 2011.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

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

  *NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1) (a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

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

- **Algal Growth Potential**
  The effluent Algal Growth Potential (AGP) was 86.1 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is phosphorus -limited. (Table 1; Miller et al. 1978).

  See Table 1 for AGP results and qualifiers.

- **Chemistry**
  Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.033 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.

  Copper and nickel were detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Aluminum, iron, and zinc were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

  Total phosphorus, total kjeldahl nitrogen (TKN), and total nitrogen were detected in the effluent at levels that comply with permit limits. Total suspended solids (TSS) and carbonaceous biochemical oxygen demand (CBOD) were detected between the laboratory MDL and 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 sample collected from the EFD-1 NPDES sampling point for this facility on December 12, 2011, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on December 12, 2011, did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

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.

Table 1. Measured and predicted algal growth potential (AGP; mg dry weight/L) for orthophosphate (OP) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus for samples collected from the Iron Bridge Regional WRF on December 12, 2011.

Iron Bridge Regional WRF
NPDES# FL0037966

Location	AGP (measured)	Predicted AGP (OP) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	86.1	34.0 ± 6.8	55.9 ± 11.2	27.0	23.1

Table 2. Effluent limits, Class III Freshwater Criteria, chemical data, and qualifiers for samples collected from the Iron Bridge Regional WRF on December 12, 2011.

Iron Bridge Regional WRF NPDES# FL0037966	Class III Criteria	Effluent Limits	Effluent	
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	10	I
Arsenic	≤ 50	-	0.25	U
Cadmium	≤ 0.3 b	-	0.05	U
Calcium (mg/L)	-	-	40.5	A
Chromium-III	≤ 110.3 b	-	0.3	U
Copper	≤ 12.1 b	-	2.17	A
Iron	≤ 1,000	-	100	I
Lead	≤ 4.7 b	-	0.2	U
Magnesium (mg/L)	-	-	8.27	A
Nickel	≤ 67.3 b	-	1.34	
Selenium	≤ 5.0	-	0.2	U
Silver	≤ 0.07	-	0.025	U
Zinc	≤ 154.7 b	-	14	I
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.079	
Total Phosphorus	-	≤ 1.88	0.13	
Total Ammonia	-	-	0.033	
Un-ionized Ammonia	≤ 0.02 s	-	≤ 0.02	c
Nitrate and Nitrite	-	-	2.1	
Total Kjeldahl Nitrogen	-	≤ 4.28	0.9	
Organic Nitrogen	-	-	0.867	c
Total Nitrogen	-	≤ 6.16	3	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	-	7.4	
pH (SU)	6.0 - 8.5	-	7.6	
Conductivity (µmhos/cm)	≤ 1,275	-	585	
Temperature (°C)	-	-	25.3	
Salinity	-	-	≤ 0.28	c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	< 0.03	QU£
Chlorophyll *a* (µg/L) - Corrected	-	-	1.3	I
Phaeophytin (µg/L)	-	-	0.4	U
Total Suspended Solids (mg/L)	-	≤ 34.4	3	I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 8.56	0.92	IJ
Flow (MGD)	-	40 a	4.08	a*
Hardness (mg $CaCO_3$)	-	-	135.18	c

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
b - Value is calculated based on hardness
c - Value is calculated
s - Single sample
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
£ - measurement taken in the FDEP laboratory
* - D-001, measured from November 2010 - October 2011

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2011-12-12-30
FYI3 Orlando/Iron Bridge Regional WRF Sampling

Requester: Michelle Fish
Field Report Prepared By: PHIL KANE
Send Final Report To: ~~Gary Miller~~ PK Phil Kane

Customer: CEN-DIST
Project ID: FYI3
PMAS: 1143
Collected By: KANE, KENT, VAHLSING
Sampling Agency: FDEP CENTRAL DISTRICT

Lab ID *	Location: IRON BRIDGE 601 IRON REGIONAL WRF 601 IRON BRIDGE CIRCLE OVIEDO, FL. 32765			☐ Comp ☑ Grab	Collection (begin) Date PK Time Eastern Central		Collection (end) Date 12/12/11 Time 8:27AM Eastern Central		Bottle Group(s)**
	Field ID: IRON			Tot Res Chlorine (mg/L): 0.0 mg/l.	Diss Oxygen (mg/L): 7.44		Storet Station Number		A
	Matrix (include type e.g. Salt, Fresh, etc): EFFLUENT	Temp (C): 25.25	pH: 7.56	Sample Depth ☐ m ☐ ft: 585	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)		NPDES Number: FL0037966		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: THEIR CL METER					
Lab ID *	Location: IRON BRIDGE WRF REGIONAL 601 IRON BRIDGE CIRCLE OVIEDO, FL. 32765			☐ Comp ☑ Grab	Collection (begin) Date PK Time Eastern Central		Collection (end) Date 12/12/11 Time 8:27AM Eastern Central		Bottle Group(s)**
	Field ID: IRON			Tot Res Chlorine (mg/L): 0.0 mg/l.	Diss Oxygen (mg/L): 7.44		Storet Station Number		A
	Matrix (include type e.g. Salt, Fresh, etc): EFFLUENT BIOASSAY	Temp (C): 25.25	pH: 7.56	Sample Depth ☐ m ☐ ft: 585	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)		NPDES Number: FL0037966		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: BIOASSAY THEIR CL METER					
Lab ID *	Location: IRON BRIDGE REGIONAL WRF 601 IRON BRIDGE CIRCLE OVIEDO, FL. 32765			☐ Comp ☑ Grab	Collection (begin) Date PK Time Eastern Central		Collection (end) Date 12/12/11 Time 8:40AM Eastern Central		Bottle Group(s)**
	Field ID: IRON			Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):		Storet Station Number		B
	Matrix (include type e.g. Salt, Fresh, etc): BLANK	Temp (C):	pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number: FL0037966		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: BLANK					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):		Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C):	pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: 4 bottles Rec'd in Box by ID 10:42 12/13/11					

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
KANE	12/12/11	FEDEX	ATP	12/13/11				

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information

last revised October 1, 2003

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: Indian River County - Iron Bridge

Address : 601 Iron Bridge Circle

City: Oviedo **County:** Seminole

Contact/District: Phil Kane / DMF Central

NPDES Permit #: FL 0037966

LIMS Job #: TLH-2011-12-13-45 **LIMS Sample #:** 1396954

Lims Data Entry: 12-28-11 MF Data Entry Verification: BA 12.28.11

Sample Collection: Date: 12/12/11 Time: 0827

Hold Time Start: Date: 12/12/11 Time: 0827

Comments:

Initial sample handling:

Instructions: Check yes or no. If yes is checked, complete blanks

PH adjustment : ☐ yes ☑ no Initial pH: ____ NaOH ____ N HCl ____ N ____ Drops mL Final pH: ____

Aeration : ☐ yes ☑ no Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min

Salinity adjusted (Test 1): ☐ yes ☑ no Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): ☐ yes ☑ no Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: ☐ yes ☑ no ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Sample Validation:

Instructions: Check yes or no. Fill in temperatures.

Temperature: Shipped ≤ 6°C ☑ Yes ☐ No — IF Hand Delivered: Cooling ☐ Yes ☐ No (received ____°C collected____°C)

Holding Time: ≤ 36 Hours ☑ Yes ☐ No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures:	Initials:
Marshall Faircloth	MF
Bree Alexander	BA
James Danish	JD
REVIEWER: Liz Miller	

Diluent/Control Batch#:	12.8.11		12.12.11						
Water Quality Parameters	20% DMW	Well Water	Moderately Hard Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	0.0	facility meter	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03				<0.03	JD	MF
Alkalinity (mg/L as $CaCO_3$):	87		78				129	BA	JD
Hardness (mg/L as $CaCO_3$):	84		94				155	BA	JD
Total Ammonia (mg/L as N):	<0.017		<0.017				<0.017	MF	JD
Conductivity: ☒ µmhos ☐ mmhos	190		338				605	JD/BA	/JD
Salinity (ppth):	—		—				—		

V 1.8 1/13/10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1396954 SOP#: TA 07_01 Test # 1 of 2

Test Species:
Batch #: 12-13-11 Age: <24hrs
- [x] *Ceriodaphnia dubia*
- [ ] *Cyprinella leedsi*
- [ ] *Pimephales promelas*
- [ ] *Menidia beryllina*
- [ ] *Americamysis bahia*
- [ ] Other:_____

Test Validation
Control Survival ≥ 90%: [x] Yes [ ] No
Temperature Range ≤ 3° C: [x] Yes [ ] No

Diluent (Batch # 12-8-11)
- [ ] ASW
- [x] 20% DMW
- [ ] MHW
- [ ] Well

Test Type: [x] Acute [x] Definitive [ ] Static [x] Static Renewal [ ] Flow-Through

Test Duration:
- [ ] 48 hr
- [x] 96 hr
- [ ] ___hr

Test Started: Date 12-13-11 Time 1230

Test Ended: Date 12,17,11 Time 1000

Chamber Size 30 ml
Test Volume: 20 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A1	5	5	5	5	5	5
	B	B1	5	5	5	5	5	5
	C	C1	5	5	5	5	5	5
	D	D1	5	5	5	5	5	5
6.25%	A	A2	5	5	5	5	5	5
	B	B2	5	5	5	5	5	5
	C	C2	5	5	5	5	5	5
	D	D2	5	5	5	5	5	5
12.5%	A	A3	5	5	5	5	5	5
	B	B3	5	5	5	5	5	5
	C	C3	5	5	5	5	5	5
	D	D3	5	5	5	5	5	5
25%	A	A4	5	5	5	5	5	5
	B	B4	5	5	5	5	5	5
	C	C4	5	5	5	5	5	5
	D	D4	5	5	5	5	5	5
50%	A	A5	5	5	5	5	5	5
	B	B5	5	5	5	5	5	5
	C	C5	5	5	5	5	5	5
	D	D5	5	5	5	5	5	4 1D
100%	A	A6 mf	5	5	5	5	5	5
	B	B6	5	5	5	5	5	5
	C	mf C6	5	5	5	5	5	5
	D	D6	5	5	5	5	5	5
Checked or Verified by:			BA	JD	BA	JD	JD	JD

Food
- [x] YCT Batch# 8-26-11
- [x] P. subcapitata Batch# 8-4-11
- [ ] Artemia Lot#_____

Feeding and Artemia Batch #
- [x] 0 hr_____ [x] Prior to Test
- [ ] 24 hr_____
- [x] 48 hr_____ [x] Prior to Renewal
- [ ] 72 hr_____

Temperature Range (°C)
Incubator # 3
min. 24.7 max. 27.3 mean ___
Incubator #___
min.____max.____mean____
Waterbath #___
min.____max.____mean____
Room B246
min. 24.8 max. 25.5 mean ___
Light intensity (ft. candles): 50-100
Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: MH BA
m = missing, d = dead, BR/AR Before/ After Renewal

Test Results:
Screening Tests: Report LC50 as ≥100%, =100%, or <100%.
% mortality in 100% sample: 0% LC50: >100%
Calculated LC50 (Definitive) 95% CI_____ Method_____

Comments:

V. 2.5 1-13-10

Substitute highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration)

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Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1396954 SOP#: TA 07-02 Test # 2 of 2

Test Species:
Batch #: 12.13.11 Age: 8 days
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☒ *Pimephales promelas*
- ☐ *Menidia beryllina*
- ☐ *Americamysis bahia*
- ☐ Other:_____

Test Validation
Control Survival ≥ 90%: ☒ Yes ☐ No
Temperature Range ≤ 3° C: ☒ Yes ☐ No

Diluent (Batch # 12.12.11)
☐ ASW ☐ 20% DMW ☒ MHW ☐ Well

Test Type: ☒ Acute ☒ Definitive ☐ Static ☒ Static Renewal ☐ Flow-Through

Test Duration: ☐ 48 hr ☒ 96 hr ☐ ___hr

Test Started: Date 12.13.11 Time 1300

Test Ended: Date 12.17.11 Time 1000

Chamber Size 1000 ml
Test Volume: 400 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	B17	10	10	10	10	10	10
	B	B18	10	10	10	10	10	10
6.25%	A	B19	10	10	10	10	10	10
	B	B20	10	10	10	10	10	10
12.5%	A	B21	10	10	10	10	10	10
	B	B22	10	10	10	10	10	10
25%	A	B23	10	10	10	10	10	10
	B	B24	10	10	10	10	10	10
50%	A	E1	10	10	10	10	10	10
	B	E2	10	10	10	10	10	10
100%	A	E3	10	10	10	10	10	10
	B	E4	10	10	10	10	10	10
		Checked or Verified by:	BA	JD	JD	JD	JD	JD

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☒ Artemia Lot# 23613

Feeding and Artemia Batch #
- ☒ 0 hr 203-11 ☑ Prior to Test
- ☐ 24 hr____
- ☒ 48 hr 205-11 ☑ Prior to Renewal
- ☐ 72 hr____

Temperature Range (°C)
Incubator # 3
min. 24.5 max. 26.2 mean ___

Incubator #___
min.____max.____mean____

Waterbath #___
min.____max.____mean____

Room B246
min. 24.8 max. 25.5 mean ___

Light Intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: JD / BA
m = missing, d = dead, BR/AR Before/ After Renewal

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 0% LC50: >100%
Calculated LC50 (Definitive) 95% CI_____ Method_____

Comments:

V. 2.5 1-13-10

Substitute highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration)

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Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1396954 Test # 1 of 2

Test Species:

☑ *Ceriodaphnia dubia* ☐ *Pimephales promelas* ☐ *Americamysis bahia*
☐ *Cyprinella leedsi* ☐ *Menidia beryllina* ☐ Other:_____

Test aerated: (if DO is < 4.0 mg/L)
☐ Yes ☑ No

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☑ µmhos ☐ mmhos	Salinity* (ppth)
Control	MF M	0 hr	7.9	25.1	7.9	190	
	BMF	24 hr	—	—	—	—	
		48 hr BR	7,8	25.3	7.1	220	
	M	48 hr AR	7.8	25.4	7.2	191	
		72 hr					
	M	96 hr	7.9	24.2	7.7	204	
6.25%	M	0 hr	8.2	25.1	7.6	219	
	—	24 hr	—	—	—	—	
		48 hr BR	8.0	25.1	7.1	245	
	M	48 hr AR	7.8	25.4	7.1	219	
		72 hr					
	M	96 hr	8.0	24.1	7.9	230	
12.5%	M	0 hr	8.2	25.3	7.7	243	
	—	24 hr	—	—	—	—	
		48 hr BR	8.1	24.9	7.4	271	
	M	48 hr AR	7.9	25.4	7.1	246	
		72 hr					
	M	96 hr	8.0	24.1	8.1	262	
25%	M	0 hr	8.1	25.3	7.6	295	
	—	24 hr	—	—	—	—	
		48 hr BR	8.1	24.8	7.3	340	
	M	48 hr AR	7.9	25.4	7.2	296	
		72 hr					
	M	96 hr	8.1	24.3	8.0	310	
50%	M	0 hr	8.1	25.3	7.6	372	
	—	24 hr	—	—	—	—	
		48 hr BR	8.2	24.7	7.4	425	
	M	48 hr AR	7.8	25.6	7.3	394	
		72 hr					
	M	96 hr	8.0	24.5	8.0	388	
100%	M	0 hr	7.7	25.5	7.7	602	
	—	24 hr	—	—	—	—	
		48 hr BR	8.3	24.6	7.5	643	
	M	48 hr AR	7.6	25.0 BA	6.6	604	
		72 hr					
	M	96 hr	8.2	24.2	8.0	629	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Comments:

Measured By:
0 hr: MF
24 hr: —
48 hr BR: BA
48 hr AR: AF
72 hr: —
96 hr: JD

*Measure/ record salinity for marine tests M = meth cup MF 12-13-11

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V. 2.3 1-13-10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1396954 Test # 2 of 2

Test Species:

☐ *Ceriodaphnia dubia* ☒ *Pimephales promelas* ☐ *Americamysis bahia*
☐ *Cyprinella leedsi* ☐ *Menidia beryllina* ☐ Other:_____

Test aerated: (if DO is < 4.0 mg/L) ☐ Yes ☒ No

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☒ µmhos ☐ mmhos	Salinity* (ppth)
	A	0 hr	7.7	25.9	7.5	338	
	B	24 hr	7.4	24.2	7.5	320	
Ctrl	A	48 hr BR	7.5	24.0	7.1	325	
	A	48 hr AR	7.6	24.3	7.7	335	
	B	72 hr	7.4	24.0	6.5	334	
	A	96 hr	7.5	24.9	6.6	339	
	A	0 hr	7.8	25.9	7.6	350	
	B	24 hr	7.4	24.0	7.2	327	
6.25%	A	48 hr BR	7.7	24.0	7.2	339	
	A	48 hr AR	7.7	24.3	7.6	351	
	B	72 hr	7.4	24.0	6.7	348	
	A	96 hr	7.6	24.9	7.0	356	
	A	0 hr	7.8	25.9	7.5	365	
	B	24 hr	7.5	24.0	7.3	340	
12.5%	A	48 hr BR	7.7	24.0	7.2	352	
	A	48 hr AR	7.7	24.2	7.5	364	
	B	72 hr	7.4	24.0	6.1	361	
	A	96 hr	7.6	24.6	6.9	371	
	A	0 hr	7.7	25.9	7.5	400	
	B	24 hr	7.5	24.0	7.4	372	
25%	A	48 hr BR	7.6	24.1	7.1	386	
	A	48 hr AR	7.8	24.1	7.5	398	
	B	72 hr	7.4	24.1	5.9	400	
	A	96 hr	7.7	24.3	6.9	399	
	A	0 hr	7.7	25.9	7.4	470	
	B	24 hr	7.6	24.0	7.4	438	
50%	A	48 hr BR	7.7	24.0	7.1	456	
	A	48 hr AR	7.7	24.1	7.4	468	
	B	72 hr	7.5	24.1	5.9	466	
		96 hr	7.7	24.3	6.8	473	
	A	0 hr	7.4	25.9	7.1	605	
	B	24 hr	7.7	24.0	7.4	563	
100%	A	48 hr BR	7.9	24.0	7.2	564	
	A	48 hr AR	7.6	24.0	6.9	600	
	B	72 hr	7.6	24.0	6.7	596	
		96 hr	7.7	24.5	6.9	613	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

Measured By:
0 hr: JD
24 hr: JD
48 hr BR: JD
48 hr AR: JD
72 hr: JD
96 hr: JD

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V. 2.3 1-13-10

Appendix B. (continued)

Test ID: Iron Bridge Dates: 12-13-11 — 12-17-11

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)

12/21/11 ED

V 1.1 9/21/10 MF/jd

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Appendix C. SRT Bench Sheets and Statistical Analysis

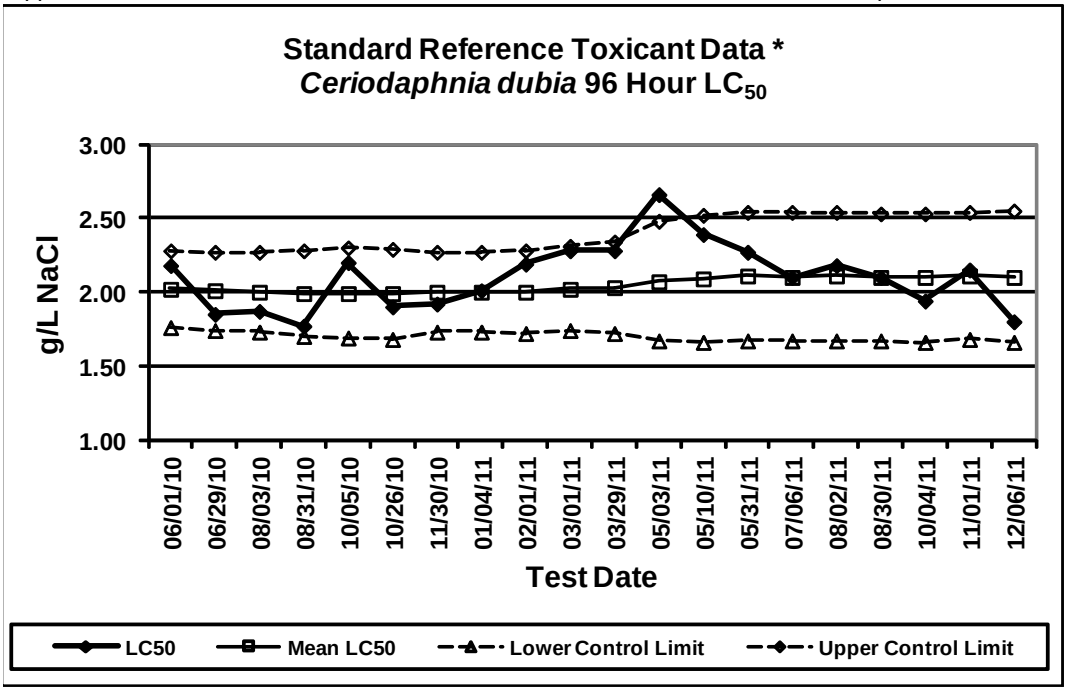
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
06/01/10	2.18	2.02	0.13	1.76	2.28
06/29/10	1.85	2.01	0.13	1.74	2.27
08/03/10	1.87	2.00	0.14	1.73	2.27
08/31/10	1.77	1.99	0.14	1.70	2.28
10/05/10	2.20	1.99	0.15	1.69	2.30
10/26/10	1.90	1.99	0.15	1.68	2.29
11/30/10	1.92	2.00	0.14	1.73	2.27
01/04/11	2.01	2.00	0.14	1.73	2.27
02/01/11	2.19	2.00	0.14	1.72	2.28
03/01/11	2.28	2.02	0.14	1.74	2.31
03/29/11	2.28	2.03	0.15	1.72	2.34
05/03/11	2.66	2.07	0.20	1.67	2.48
05/10/11	2.39	2.09	0.21	1.66	2.52
05/31/11	2.27	2.11	0.22	1.67	2.54
07/06/11	2.10	2.10	0.22	1.67	2.54
08/02/11	2.18	2.11	0.22	1.67	2.54
08/30/11	2.10	2.10	0.22	1.67	2.53
10/04/11	1.94	2.10	0.22	1.66	2.53
11/01/11	2.15	2.11	0.22	1.68	2.54
12/06/11	1.80	2.10	0.22	1.66	2.55

Lower Control Limit = mean - 2 * Std Dev
Upper Control Limit = mean + 2 * Std Dev

CV = 10.61
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

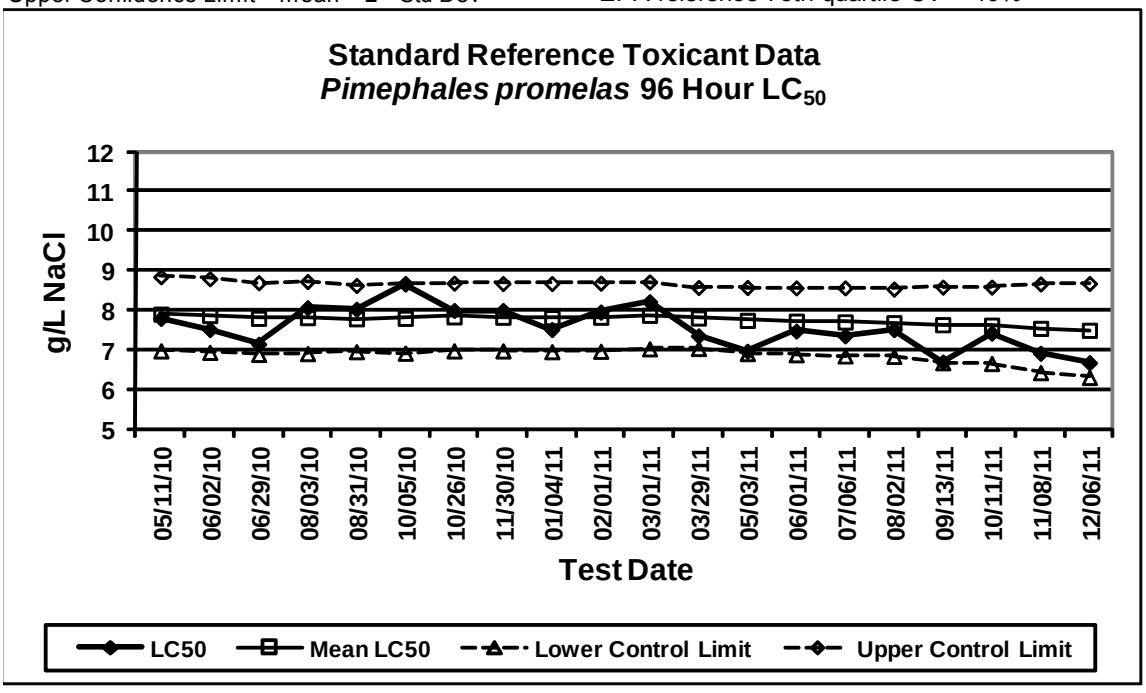
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Pimephales promelas (fathead minnow) - Sodium Chloride (NaCl)

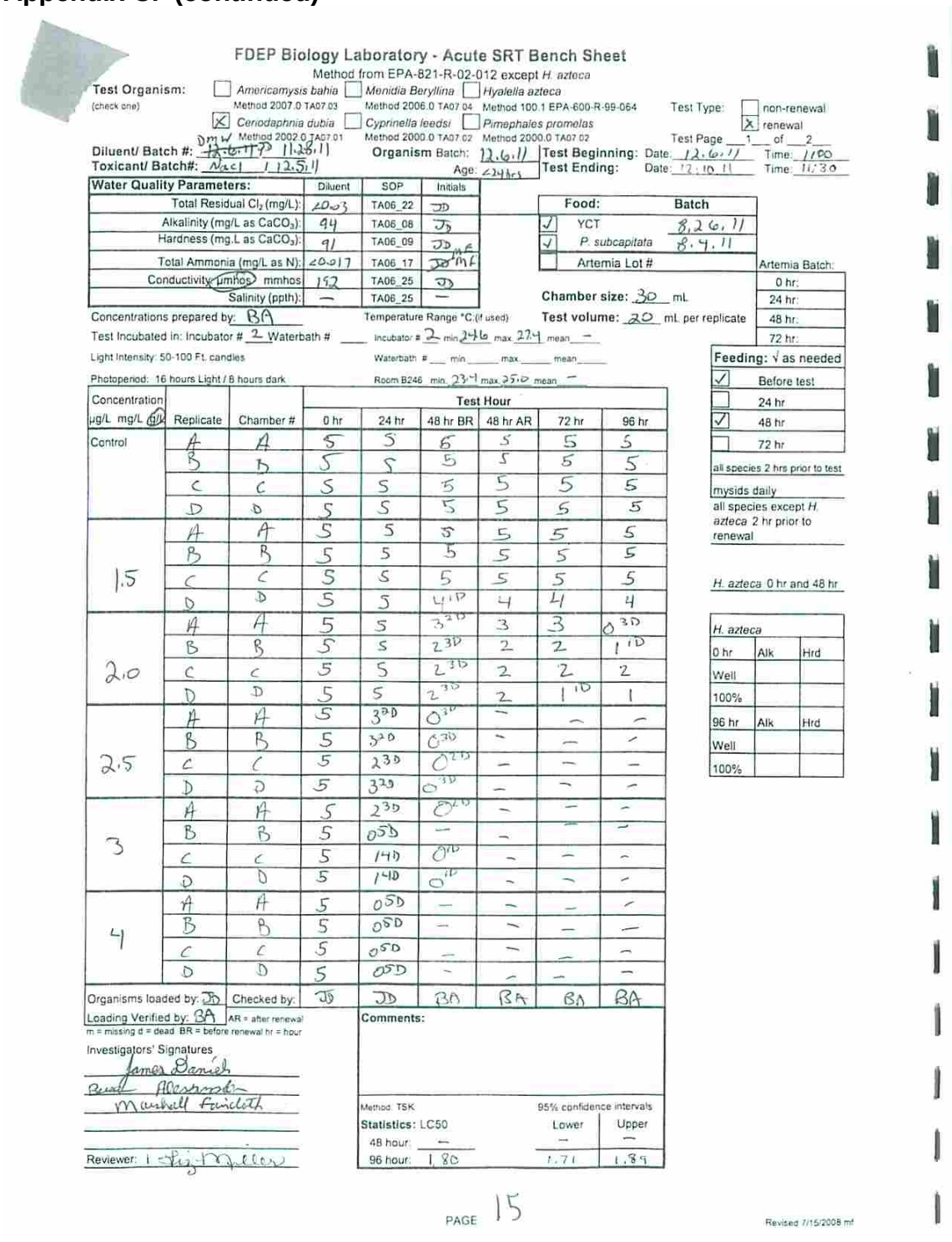
Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/11/10	7.79	7.9	0.47	6.97	8.84
06/02/10	7.51	7.86	0.46	6.93	8.79
06/29/10	7.14	7.79	0.45	6.88	8.69
08/03/10	8.06	7.81	0.45	6.9	8.72
08/31/10	8.02	7.78	0.42	6.95	8.62
10/05/10	8.66	7.79	0.44	6.91	8.67
10/26/10	7.99	7.83	0.43	6.97	8.68
11/30/10	7.99	7.82	0.42	6.97	8.67
01/04/11	7.51	7.81	0.43	6.95	8.67
02/01/11	7.95	7.82	0.43	6.96	8.68
03/01/11	8.21	7.87	0.42	7.02	8.71
03/29/11	7.35	7.8	0.39	7.03	8.57
05/03/11	6.96	7.74	0.42	6.9	8.57
06/01/11	7.47	7.72	0.42	6.87	8.56
07/06/11	7.35	7.7	0.43	6.84	8.56
08/02/11	7.51	7.68	0.43	6.83	8.53
09/13/11	6.69	7.63	0.48	6.67	8.58
10/11/11	7.42	7.62	0.48	6.65	8.58
11/08/11	6.91	7.54	0.56	6.42	8.66
12/06/11	6.67	7.49	0.59	6.3	8.67

Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 7.89
EPA reference 75th quartile CV = 19%



Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☒ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☒ renewal

Test Page 1 of 2

Diluent/ Batch #: DMW 12.6.11 11.28.11

Toxicant/ Batch#: NaCl 12.5.11

Organism Batch: 12.6.11 Age: <24hrs

Test Beginning: Date: 12.6.11 Time: 1100

Test Ending: Date: 12.10.11 Time: 1130

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	2003	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	94	TA06_08	JD
Hardness (mg.L as $CaCO_3$):	91	TA06_09	JD MAE
Total Ammonia (mg/L as N):	20.017	TA06_17	JD MAE
Conductivity: µmhos mmhos	192	TA06_25	JD
Salinity (ppth):	—	TA06_25	—

Food:	Batch
☑ YCT	8.26.11
☑ *P. subcapitata*	8.4.11
☐ Artemia Lot #	

Artemia Batch:

0 hr:
24 hr:
48 hr:
72 hr:

Chamber size: 30 mL

Test volume: 20 mL per replicate

Concentrations prepared by: BA

Temperature Range °C:(if used)

Test Incubated in: Incubator # 2 Waterbath # ___ Incubator # 2 min 24.6 max 27.4 mean —

Light Intensity: 50-100 Ft. candles Waterbath # ___ min ___ max ___ mean ___

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 23.4 max 25.2 mean —

Feeding: √ as needed

- ☑ Before test
- ☐ 24 hr
- ☑ 48 hr
- ☐ 72 hr

all species 2 hrs prior to test

mysids daily

all species except *H. azteca* 2 hr prior to renewal

H. azteca 0 hr and 48 hr

Concentration µg/L mg/L (circle)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
1.5	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	4 1D	4	4	4
2.0	A	A	5	5	3 2D	3	3	0 3D
	B	B	5	5	2 3D	2	2	1 1D
	C	C	5	5	2 3D	2	2	2
	D	D	5	5	2 3D	2	1 1D	1
2.5	A	A	5	3 2D	0 3D	—	—	—
	B	B	5	3 2D	0 3D	—	—	—
	C	C	5	2 3D	0 2D	—	—	—
	D	D	5	3 2D	0 3D	—	—	—
3	A	A	5	2 3D	0 2D	—	—	—
	B	B	5	0 5D	—	—	—	—
	C	C	5	1 4D	0 1D	—	—	—
	D	D	5	1 4D	0 1D	—	—	—
4	A	A	5	0 5D	—	—	—	—
	B	B	5	0 5D	—	—	—	—
	C	C	5	0 5D	—	—	—	—
	D	D	5	0 5D	—	—	—	—
Organisms loaded by: JD		Checked by:	JD	JD	BA	BA	BA	BA

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

Loading Verified by: BA

AR = after renewal

m = missing d = dead BR = before renewal hr = hour

Comments:

Investigators' Signatures

James Daniels

Brent Alexander

Marshall Faircloth

Reviewer: Liz Mellow

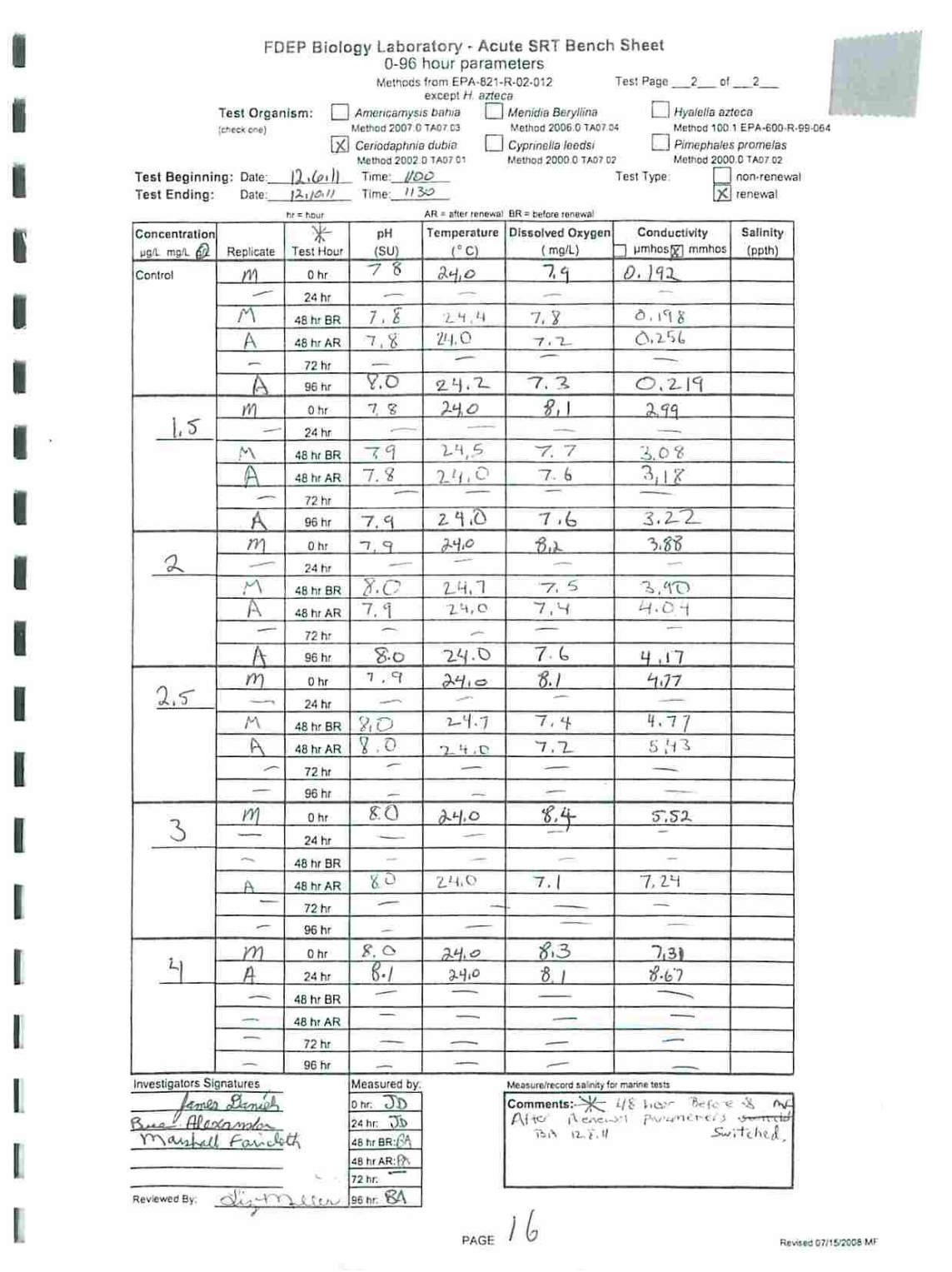
Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: —	—	—
96 hour: 1.80	1.71	1.89

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Revised 7/15/2008 mf

Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters
Methods from EPA-821-R-02-012 except *H. azteca*
Test Page 2 of 2

Test Organism: (check one)
- [ ] *Americamysis bahia* Method 2007.0 TA07.03
- [ ] *Menidia Beryllina* Method 2006.0 TA07.04
- [ ] *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- [X] *Ceriodaphnia dubia* Method 2002.0 TA07.01
- [ ] *Cyprinella leedsi* Method 2000.0 TA07.02
- [ ] *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 12.6.11 Time: 1100
Test Ending: Date: 12.10.11 Time: 1130
Test Type: [ ] non-renewal [X] renewal

hr = hour
AR = after renewal BR = before renewal

Concentration µg/L mg/L	Replicate	* Test Hour	pH (SU)	Temperature (° C)	Dissolved Oxygen (mg/L)	Conductivity [ ] µmhos [X] mmhos	Salinity (ppth)
Control	M	0 hr	7.8	24.0	7.9	0.192	
	—	24 hr	—	—	—	—	
	M	48 hr BR	7.8	24.4	7.8	0.198	
	A	48 hr AR	7.8	24.0	7.2	0.256	
	—	72 hr	—	—	—	—	
	A	96 hr	8.0	24.2	7.3	0.219	
1.5	M	0 hr	7.8	24.0	8.1	2.99	
	—	24 hr	—	—	—	—	
	M	48 hr BR	7.9	24.5	7.7	3.08	
	A	48 hr AR	7.8	24.0	7.6	3.18	
	—	72 hr	—	—	—	—	
	A	96 hr	7.9	24.0	7.6	3.22	
2	M	0 hr	7.9	24.0	8.2	3.88	
	—	24 hr	—	—	—	—	
	M	48 hr BR	8.0	24.7	7.5	3.90	
	A	48 hr AR	7.9	24.0	7.4	4.04	
	—	72 hr	—	—	—	—	
	A	96 hr	8.0	24.0	7.6	4.17	
2.5	M	0 hr	7.9	24.0	8.1	4.77	
	—	24 hr	—	—	—	—	
	M	48 hr BR	8.0	24.7	7.4	4.77	
	A	48 hr AR	8.0	24.0	7.2	5.43	
	—	72 hr	—	—	—	—	
	—	96 hr	—	—	—	—	
3	M	0 hr	8.0	24.0	8.4	5.52	
	—	24 hr	—	—	—	—	
	—	48 hr BR	—	—	—	—	
	A	48 hr AR	8.0	24.0	7.1	7.24	
	—	72 hr	—	—	—	—	
	—	96 hr	—	—	—	—	
4	M	0 hr	8.0	24.0	8.3	7.31	
	A	24 hr	8.1	24.0	8.1	8.67	
	—	48 hr BR	—	—	—	—	
	—	48 hr AR	—	—	—	—	
	—	72 hr	—	—	—	—	
	—	96 hr	—	—	—	—	

Investigators Signatures
James Daniels
Bruce Alexander
Marshall Faircloth
Reviewed By: Steve Miller

Measured by:
0 hr: JD
24 hr: JD
48 hr BR: BA
48 hr AR: BA
72 hr: —
96 hr: BA

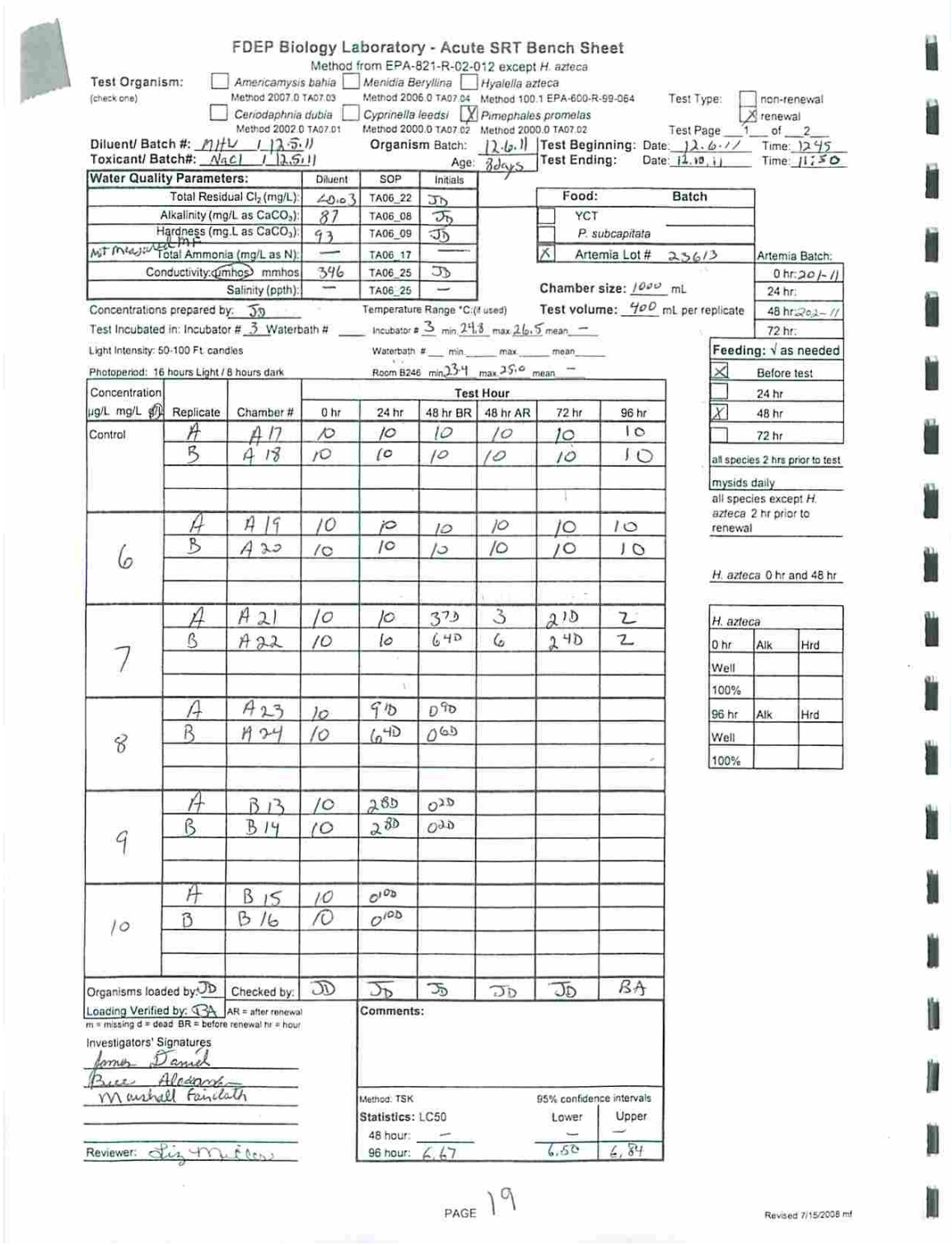
Measure/record salinity for marine tests

Comments: * 48 hour Before & AR After Renewal parameters ~~switched~~ BA 12.8.11 Switched.

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Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one) ☐ *Americamysis bahia* Method 2007.0 TA07.03 ☐ *Menidia Beryllina* Method 2006.0 TA07.04 ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064 ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01 ☐ *Cyprinella leedsi* Method 2000.0 TA07.02 ☒ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☒ renewal

Test Page 1 of 2

Diluent/ Batch #: MHV 1.12.5.11 Toxicant/ Batch#: NaCl 1.12.5.11

Organism Batch: 12.6.11 Age: 8days

Test Beginning: Date: 12.6.11 Time: 1245

Test Ending: Date: 12.10.11 Time: 1130

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	87	TA06_08	JD
Hardness (mg.L as $CaCO_3$):	93	TA06_09	JD
MT Measure WLMF Total Ammonia (mg/L as N):	—	TA06_17	——
Conductivity: ~~µmhos~~ mmhos	346	TA06_25	JD
Salinity (ppth):	—	TA06_25	—

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☒ Artemia Lot #	23613

Artemia Batch:

0 hr: 201-11

24 hr:

48 hr: 202-11

72 hr:

Chamber size: 1000 mL

Test volume: 400 mL per replicate

Concentrations prepared by: JD

Temperature Range °C: (if used)

Test Incubated in: Incubator # 3 Waterbath # ____ Incubator # 3 min 24.8 max 26.5 mean —

Light Intensity: 50-100 Ft. candles Waterbath # ___ min ____ max ____ mean ____

Photoperiod: 16 hours Light / 8 hours dark Room B246 min 23.4 max 25.0 mean —

Feeding: √ as needed

☒	Before test
☐	24 hr
☒	48 hr
☐	72 hr

all species 2 hrs prior to test

mysids daily

all species except *H. azteca* 2 hr prior to renewal

H. azteca 0 hr and 48 hr

Concentration µg/L mg/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A 17	10	10	10	10	10	10
	B	A 18	10	10	10	10	10	10
6	A	A 19	10	10	10	10	10	10
	B	A 20	10	10	10	10	10	10
7	A	A 21	10	10	3 7D	3	2 7D	2
	B	A 22	10	10	6 4D	6	2 4D	2
8	A	A 23	10	9 1D	0 9D			
	B	A 24	10	6 4D	0 6D			
9	A	B 13	10	2 8D	0 2D			
	B	B 14	10	2 8D	0 2D			
10	A	B 15	10	0 10D				
	B	B 16	10	0 10D				
Organisms loaded by: JD		Checked by:	JD	JD	JD	JD	JD	BA
Loading Verified by: BA			AR = after renewal					

m = missing d = dead BR = before renewal hr = hour

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

Investigators' Signatures

James Daniel

Bruce Alexander

Marshall Faircloth

Reviewer: Liz Mullens

Comments:

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: —	—	—
96 hour: 6.67	6.50	6.84

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Revised 7/15/2008 mf

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters
Methods from EPA-821-R-02-012 except *H. azteca*
Test Page 2 of 2

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☒ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 12.6.11 Time: 1245
Test Ending: Date: 12.10.11 Time: 1150
Test Type: ☐ non-renewal ☒ renewal

hr = hour
AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (° C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	7.8	25.9	7.6	0.346	
	B	24 hr	8.0	24.2	6.8	0.345	
	A	48 hr BR	7.4	24.5	7.6	0.341	
	A	48 hr AR	7.6	25.3	8.1	0.464	
	B	72 hr	7.3	25.1	6.6	0.335	
	A	96 hr	7.7	25.2	7.0	0.349	
6	A	0 hr	7.8	25.9	7.9	11.9	
	B	24 hr	7.9	24.2	6.9	11.2	
	A	48 hr BR	7.6	24.8	7.3	11.1	
	A	48 hr AR	7.7	25.1	7.5	11.7	
	B	72 hr	7.4	25.3	6.0	11.4	
	A	96 hr	7.7	25.0	7.0	11.7	
7	A	0 hr	7.9	25.9	7.9	14.0	
	B	24 hr	7.9	24.4	7.0	13.4	
	A	48 hr BR	7.7	24.7	7.3	13.2	
	A	48 hr AR	7.8	25.1	7.7	13.6	
	B	72 hr	7.4	24.9	6.0	13.2	
	A	96 hr	7.7	24.6	6.9	13.7	
8	A	0 hr	7.9	25.9	7.8	15.1	
	B	24 hr	7.9	24.3	7.1	14.4	
	A	48 hr BR	7.7	24.7	7.5	14.6	
		48 hr AR					
		72 hr					
		96 hr					
9	A	0 hr	7.9	25.9	7.8	17.1	
	B	24 hr	7.8	24.2	7.1	16.7	
	A	48 hr BR	7.7	24.7	7.6	16.8	
		48 hr AR					
		72 hr					
		96 hr					
10	A	0 hr	7.9	25.9	7.8	18.9	
	B	24 hr	7.8	24.1	7.2	18.3	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
James Daniels
Alex Brooks
Marshall Faircloth

Reviewed By: Elizabeth Mellow

Measured by:
0 hr: JD
24 hr: JD
48 hr BR: JD
48 hr AR: JD
72 hr: JD
96 hr: BA

Measure/record salinity for marine tests

Comments:

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Revised 07/15/2008 MF

Appendix C. (continued)

***Ceriodaphnia dubia* Acute Standard Reference Test**

DATE: 12-6-11 DURATION: 96 h TOXICANT: NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	1
2.00	20	16
2.50	20	20
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC50: 1.80
95% LOWER CONFIDENCE: 1.71
95% UPPER CONFIDENCE: 1.89

***Pimephales Promelas* Acute Standard Reference Test**

DATE: 12-6-11 DURATION: 96 h TOXICANT: NaCl
SPECIES: *Pimephales promelas*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	0
7.00	20	16
8.00	20	20
9.00	20	20
10.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 6.67
95% LOWER CONFIDENCE: 6.50
95% UPPER CONFIDENCE: 6.84

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 12/5/11

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi	150	12 DAYS	CL 111123	25	7.8	50
Pimephales promelas	150 ac	7 DAYS	FM 111128	25	7.8	50
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 D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 12/12/11

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	550	<24	FM111211-1605	25	7.8	80
	150 ac	7 DAYS	FM111205	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes:

Thank you for your order.

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

Appendix E. Chemical Analyses performed on the effluent from the Iron Bridge Regional WRF Outfall D-001, sampled on December 12, 2011.

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:27	IRON	AGP/LN	Algal Growth Potential	86.1		mg DryWt/L	0.3	0.9
12/12/2011 8:27	IRON	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.92	IJ	mg/L	0.2	2
12/12/2011 8:27	IRON	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.3	I	ug/L	0.55	1.7
12/12/2011 8:27	IRON	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
12/12/2011 8:27	IRON	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
12/12/2011 8:27	IRON	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
12/12/2011 8:27	IRON	Metals	Zinc	14	I	ug/L	5	20
12/12/2011 8:27	IRON	Metals	Lead	0.2	U	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Metals	Magnesium	8.27	A	mg/L	0.04	0.16
12/12/2011 8:27	IRON	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Metals	Nickel	1.34		ug/L	0.25	1
12/12/2011 8:27	IRON	Metals	Chromium	0.3	U	ug/L	0.3	1.2
12/12/2011 8:27	IRON	Metals	Arsenic	0.25	U	ug/L	0.25	1
12/12/2011 8:27	IRON	Metals	Calcium	40.5	A	mg/L	0.075	0.3
12/12/2011 8:27	IRON	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Metals	Copper	2.17	A	ug/L	0.5	1
12/12/2011 8:27	IRON	Metals	Aluminum	10	I	ug/L	5	20
12/12/2011 8:27	IRON	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/12/2011 8:27	IRON	Metals	Iron	100	I	ug/L	30	120
12/12/2011 8:27	IRON	Nutrients	TSS	3	I	mg/L	2	10
12/12/2011 8:27	IRON	Nutrients	Kjeldahl Nitrogen	0.9		mg N/L	0.08	0.2
12/12/2011 8:27	IRON	Nutrients	Ammonia-N	0.033		mg N/L	0.01	0.02
12/12/2011 8:27	IRON	Nutrients	O-Phosphate-P	0.079		mg P/L	0.004	0.01
12/12/2011 8:27	IRON	Nutrients	NO2NO3-N	2.1		mg N/L	0.02	0.05
12/12/2011 8:27	IRON	Nutrients	Total-P	0.13		mg P/L	0.004	0.01
12/12/2011 8:27	IRON	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:27	IRON	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
12/12/2011 8:27	IRON	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
12/12/2011 8:27	IRON	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
12/12/2011 8:27	IRON	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
12/12/2011 8:27	IRON	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
12/12/2011 8:27	IRON	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
12/12/2011 8:27	IRON	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
12/12/2011 8:27	IRON	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
12/12/2011 8:27	IRON	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
12/12/2011 8:27	IRON	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
12/12/2011 8:27	IRON	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
12/12/2011 8:27	IRON	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.5
12/12/2011 8:27	IRON	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
12/12/2011 8:27	IRON	Priority Organic Pollutants	Hexachloroethane	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	Di-n-butyl phthalate	4.7	U	ug/L	4.7	19
12/12/2011 8:27	IRON	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.5
12/12/2011 8:27	IRON	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,4-Dimethylphenol	9.4	U	ug/L	9.4	38
12/12/2011 8:27	IRON	Priority Organic Pollutants	2-Nitrophenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.75

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:27	IRON	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Hexachlorobenzene	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Hexachlorobutadiene	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	Isophorone	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.5
12/12/2011 8:27	IRON	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
12/12/2011 8:27	IRON	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzidine	94	U	ug/L	94	380
12/12/2011 8:27	IRON	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	2-Chlorophenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Di-n-octyl phthalate	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,4-Dichlorophenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	Diethyl phthalate	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Phenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,6-Dinitrotoluene	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.5
12/12/2011 8:27	IRON	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	2,4-Dinitrotoluene	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	2-Chloronaphthalene	0.94	U	ug/L	0.94	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:27	IRON	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.94	U	ug/L	0.94	3.8
12/12/2011 8:27	IRON	Priority Organic Pollutants	Butyl benzyl phthalate	4.7	U	ug/L	4.7	19
12/12/2011 8:27	IRON	Priority Organic Pollutants	Dimethyl phthalate	9.4	U	ug/L	9.4	38
12/12/2011 8:27	IRON	Priority Organic Pollutants	Pentachlorophenol	2.8	U	ug/L	2.8	11
12/12/2011 8:27	IRON	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.75
12/12/2011 8:27	IRON	Field Parameter	Specific Conductance	585		umhos/cm		
12/12/2011 8:27	IRON	Field Parameter	Temperature	25.25		C		
12/12/2011 8:27	IRON	Field Parameter	Dissolved Oxygen	7.44		mg/L		
12/12/2011 8:27	IRON	Field Parameter	Total Residual Chlorine	0		mg/L		
12/12/2011 8:27	IRON	Field Parameter	Temperature	25.25		C		
12/12/2011 8:27	IRON	Field Parameter	pH	7.56				
12/12/2011 8:27	IRON	Field Parameter	Specific Conductance	585		umhos/cm		
12/12/2011 8:27	IRON	Field Parameter	Total Residual Chlorine	0		mg/L		
12/12/2011 8:27	IRON	Field Parameter	pH	7.56				
12/12/2011 8:27	IRON	Field Parameter	Dissolved Oxygen	7.44		mg/L		
12/12/2011 8:40	IRON BLANK	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
12/12/2011 8:40	IRON BLANK	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
12/12/2011 8:40	IRON BLANK	Metals	Iron	30	U	ug/L	30	120
12/12/2011 8:40	IRON BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
12/12/2011 8:40	IRON BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/12/2011 8:40	IRON BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
12/12/2011 8:40	IRON BLANK	Metals	Aluminum	5	U	ug/L	5	20
12/12/2011 8:40	IRON BLANK	Metals	Zinc	5	U	ug/L	5	20
12/12/2011 8:40	IRON BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
12/12/2011 8:40	IRON BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
12/12/2011 8:40	IRON BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
12/12/2011 8:40	IRON BLANK	Metals	Nickel	1		ug/L	0.25	1
12/12/2011 8:40	IRON BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
12/12/2011 8:40	IRON BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/12/2011 8:40	IRON BLANK	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
12/12/2011 8:40	IRON BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
12/12/2011 8:40	IRON BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
12/12/2011 8:40	IRON BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
12/12/2011 8:40	IRON BLANK	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:40	IRON BLANK	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
12/12/2011 8:40	IRON BLANK	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Pesticides	Ethoprop	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Pesticides	Parathion Methyl	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.57
12/12/2011 8:40	IRON BLANK	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.57
12/12/2011 8:40	IRON BLANK	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Pesticides	Chlorpyrifos Methyl	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Fenamiphos	0.19	UJ	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Pesticides	Hexazinone	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
12/12/2011 8:40	IRON BLANK	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.94
12/12/2011 8:40	IRON BLANK	Pesticides	Malathion	0.14	U	ug/L	0.14	0.57
12/12/2011 8:40	IRON BLANK	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
12/12/2011 8:40	IRON BLANK	Pesticides	Metribuzin	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.57
12/12/2011 8:40	IRON BLANK	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9
12/12/2011 8:40	IRON BLANK	Pesticides	Fonofos	0.094	U	ug/L	0.094	0.38
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Dimethyl phthalate	9.5	U	ug/L	9.5	38

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.76

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Value	Qualifier	Units	MDL	PQL
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.76
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
12/12/2011 8:40	IRON BLANK	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6

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: Blake Vahlsing	**Contact Number:** (407) 897-4172
Facility Name (as it appears on permit): Iron Bridge Regional WRF	**Former Names:** N/A
NPDES Permit Number: FL0037966	**Permit Expiration Date:** February 23, 2015
Physical Address: 601 Iron Bridge Circle, Oviedo, FL 32765-8283	
District: Central	**County:** Seminole
Function of Facility: Domestic Wastewater Treatment Plant	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD):** 40.0
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): D-001 outfall flow: 4.08 MGD annual average daily flow (aadf), as reported on the October 2011 DMR (November 2010 through October 2011 reporting period). D-002 outfall flow: 17.38 MGD annual average daily flow (aadf), as reported on the October 2011 DMR (November 2010 through October 2011 reporting period). D-003 outfall flow: 0.00 MGD annual average daily flow (aadf), as reported on the October 2011 DMR (November 2010 through October 2011 reporting period).	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): R-001 discharge to artificial wetlands: 14.57 MGD annual average daily flow (aadf), as reported on the October 2011 DMR (November 2010 through October 2011 reporting period). R-002 public access reuse: 1.60 MGD annual average daily flow (aadf), as reported on the October 2011 DMR (November 2010 through October 2011 reporting period).	
Description of type of Discharge: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

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Appendix F. (continued)

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):
The sampling location of D-001 is EFD-1, located after the post aeration basin.

Description of Permitted Outfall(s):
Surface Water Discharge D-001 is a 28 MGD annual average daily flow discharge approximately 670 feet in length and discharges at a depth of approximately 2.5 feet. The point of discharge is located approximately at latitude 28°37' 4" N, longitude 81°13' 2" W.

Reuse System and Surface Water Discharge R-001, D-002 and D-003: An existing 35.0 mgd AADF permitted capacity created treatment/reuse wetland system (R-001) consisting of 1,640± acres, including berms and buffer zones (1,220± acres wetted area) and consisting of seventeen (17) cells. Reclaimed water from wetland system R-001 overflows via two 48-inch reinforced concrete pipes (outfalls D-002 and D-003) to an unnamed ditch thence to the St. Johns River (Class III fresh waters, WBID 28931), or sheet flows across an adjacent 640± acre natural wetlands (Seminole Ranch) thence to the St. Johns River, in accordance with Condition I.A.18. of this permit. No chemical dechlorination is applied to the reclaimed water. Reclaimed water is pumped through a 48-inch forcemain for approximately 16 miles from the wastewater treatment facility to the influent structure of the created wetlands. Outfall D-002 is approximately 118 feet in length and discharges at a depth of approximately 2.5 feet, to an unnamed ditch thence to the St. Johns River. The point of discharge is located approximately at latitude 28°35' 02" N, longitude 81°0' 17" W. Outfall D-003 is approximately 118 feet in length and discharges at a depth of approximately 2.5 feet, to an unnamed ditch thence to the St. Johns River. The point of discharge is located approximately at latitude 28°35' 02" N, longitude 81°00' 16" W.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):
An existing 40 mgd annual average daily flow (AADF) wastewater treatment facility consisting of mechanical influent screening, grit removal, flow equalization, two (2) 20 mgd AADF biological nutrient removal (5-stage Bardenpho) treatment units with chemical feed facilities, secondary clarification, tertiary filtration, disinfection, dechlorination and post aeration facilities, with storage, thickening and dewatering of residuals followed by lime stabilization.

Appendix F. (continued)

PART I: Continued

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

Parameter	Units	Effluent Limitations			Monitoring Requirements			Notes
		Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Flow	MGD	Max Max	28 Report	Annual Average Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-1	See 1.Error! Reference source not found..4
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max Max Max	4.28 4.28 6.42 8.56	Annual Average Monthly Average Weekly Average Single Sample	Daily; 24 hours	24-hr FPC	EFD-1	
Solids, Total Suspended	mg/L	Max Max Max Max	17.2 17.2 25.8 34.4	Annual Average Monthly Average Weekly Average Single Sample	Daily; 24 hours	24-hr FPC	EFD-1	
Coliform, Fecal	#/100mL	Max Max Max	200 200 800	Annual Average Monthly Geometric Mean Single Sample	Daily; 24 hours	Grab	EFA-3	See 1.Error! Reference source not found..5
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	Continuous	Meter	EFD-3	See 1.Error! Reference source not found..3
Chlorine, Total Residual (For Disinfection)	mg/L	Min	0.5	Single Sample	Continuous	Meter	EFA-1	See 1.Error! Reference source not found..3 and 1.Error! Reference source not found..6
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	Continuous	Meter	EFD-4	
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr TPC	EFD-1	
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr TPC	EFD-1	

Appendix F. (continued)

Parameter	Units	Effluent Limitations			Monitoring Requirements			
		Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Nitrogen, Total	mg/L	Max	3.08	Annual Average	Daily; 24 hours	24-hr FPC	EFD-1	
		Max	3.08	Monthly Average				
		Max	4.62	Weekly Average				
		Max	6.16	Single Sample				
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	2.14	Annual Average	Daily; 24 hours	24-hr FPC	EFD-1	
		Max	2.14	Monthly Average				
		Max	3.21	Weekly Average				
		Max	4.28	Single Sample				
Phosphorus, Total (as P)	mg/L	Max	0.94	Annual Average	Daily; 24 hours	24-hr FPC	EFD-1	
		Max	0.94	Monthly Average				
		Max	1.41	Weekly Average				
		Max	1.88	Single Sample				
Oxygen, Dissolved (DO)	mg/L	Min	6.1	Single Sample	Daily; 24 hours	Calculated	CAL-2	See I.Error! Reference source not found..20
Temperature (C), Water	Deg C	Max	Report	-	Daily; 24 hours	Calculated	CAL-2	
Oxygen demand, Ultimate (UOD)	lb/day	Max	3718	Monthly Average	Monthly	Calculated (*see below)	EFD-1	

Appendix F. (continued)

PART I: Continued	
Receiving Waters: The Little Econlockhatchee River (for D-001) An unnamed ditch to the St. Johns River (for D-002 and D-003)	**Classification (indicate whether fresh or marine):** Class III fresh waters (WBID 3001)

Appendix F. (continued)

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

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

1. Effluent Limitation
   - In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
   - Acute whole effluent toxicity, the 96 hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]
2. Monitoring Frequency
   - Routine toxicity tests shall be conducted semi-annually; twice per year, on the current sampling schedule for the duration of this permit.
3. Sampling Requirements
   - For each routine test or additional follow-up test conducted, a total of three samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
   - 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.
   - Samples for routine and additional follow-up tests shall not be collected on the same day.
4. Test Requirements
   - Routine Tests: All tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: 100%, 50%, 25%, 12.5%, and 6.25% .
   - The permittee shall conduct a daphnid, Ceriodaphnia dubia, Survival and Reproduction Test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Test, concurrently.
   - 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 Freshwater Organisms, 4th ed., EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
   - Control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.
5. Quality Assurance Requirements
   - A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
   - If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (Ceriodaphnia dubia) and Section 11.11 (Pimephales promelas). The repeat test shall begin within 21 days after the last day of the invalid test.
   - If 100% mortality occurs in all effluent concentrations prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) shall be terminated with the conclusion that the test fails and constitutes non-compliance.
   - Additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.
6. Reporting Requirements
   - Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
     (a) Routine and Additional Follow-up Test Results: The calculated IC25 for each test species shall be entered on the DMR.
   - A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
   - For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
   - Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
   - The same bioassay data shall not be reported as the results of more than one test.
   - All bioassay laboratory reports shall be sent to: Central District Office, 3319 Maguire Blvd, Suite 232 ,Orlando, Florida 32803-3767
7. Test Failures
   - Additional Follow-up Tests:
     a) If a routine test does not meet the chronic toxicity limitation in .a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with .d.
     b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
     c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013.
   - In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
     a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
     b) The Department shall review and approve the plan before initiation.
     c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
     d) Progress reports shall be submitted quarterly to the Department at the address above.
     e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with .d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 7.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
     f) Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in 7.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive valid routine whole effluent toxicity tests.
   - If chronic toxicity test results indicate greater than 50% mortality within 96 hours in a concentration equal to or less than the effluent concentration specified as the acute toxicity limit in 7.(1)(b), the Department may revise this permit to require acute definitive whole effluent toxicity testing.
   - The additional testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity violations.

Appendix F. (continued)

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
Not Applicable

Facility Mixing Zone Details (if applicable):
Not Applicable

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:

Date	Parameter and Units	Limit	Result
July 2011	Fecal Coliform % Less than Detect (R-002)	75%	69.2%
August 2011	Total Suspended Solids max. (R-002)	6.0 mg/L	6.10 mg/L

Describe previous FYI and WQBEL study:
Iron Bridge WRF was last sampled for a FYI on March 13, 2006. The following results were reached:
Toxics Sampling Inspection (XSI): Effluent metals copper, iron, and zinc were detected at levels that complied with Class III surface waters. Metals aluminum, lead, and nickel were found at levels above the MDL and below the PQL. Organic pollutants atrazine and chloroform were below toxic concentrations. Dichlorobromomethane was below permit limit and bromodichloromethane was below EPA Maximum Contaminant Level. Oil and grease were detected above Class III Surface Water Quality Criterion.
Compliance Biomonitoring Inspection (CBI): Effluent was not chronically toxic to the fish *Pimephales promelas*, but affected the water flea, *Ceriodaphinia dubia* during the 7-day chronic screening toxicity bioassays.
Water Quality Inspection (WQI): Fecal coliform counts complied with Class III Surface Water Criteria. Total phosphorus, ortho-phosphate, and total ammonia concentrations were elevated. Total Kjeldahl nitrogen, organic nitrogen, and total nitrogen were twice as high in the Test Sample compared to the Control Sample.
Impact Bioassessment Inspection (IBI): The Control Site score of 31 placed it in the "Poor" category and the Test Site SCI score of 7 placed it in the "Very Poor" category.

Describe previous or current Enforcement Actions (including WLs):
This facility has received three Enforcement Actions since 1999:
1999: An annex collection system was put into use without DEP approval.
2005: A force main ruptured, resulting in a 250,000 gallon spill of raw sewage into Lake Seay.
2006: A spill from the collection system resulted in a discharge to state waters.
All Enforcement Actions have been closed.

Describe any violations or problems noted in previous inspection:
Not Applicable

Discuss whether DMR trends within previous five years are improving or declining:
Over the past five years, Total Nitrogen levels have remained consistent. Total Phosphorus levels have been decreasing. TSS and pH levels have remained stable.

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

Appendix F. (continued)

PART II: Sampling Event Information	
Date(s) sample collected: December 12, 2011	**Sampler(s):** Phil Kane, Blake Vahlsing
Temperature (Deg C): 25.25˚C	**pH (SU):** 7.56 SU
Dissolved Oxygen (mg/L): 7.44 mg/L	**Conductivity (umhos/cm):** 585 um hos/cm
Total Residual Chlorine (mg/L): 2.7 mg/L	**Total Residual Chlorine - after Dechlorination (mg/L):** 0.0 mg/L
Method of Chlorination: Gas chlorine	**Method of De-chlorination:** Gas sulfur dioxide
Flow During Sample Collection for each outfall(MGD): D-001: 5.5 MGD	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day): D-001: 3.89 MGD	
Describe Discharge during Sampling Event: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix G. EPA End Sheet

The Bioassay of Iron Bridge Regional WRF effluent sampled on December 12, 2011. NPDES #FL0037966.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 FL0037966 11	12 111212	18 B	19 S	20 1

Remarks

66

The Priority Pollutants Analysis of Iron Bridge Regional WRF effluent sampled on December 12, 2011. NPDES #FL0037966.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 FL0037966 11	12 111212	18 X	19 S	20 1

Remarks

66

Biological Analyses of Iron Bridge Regional WRF effluent sampled on December 12, 2011. NPDES #FL0037966.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 FL0037966 11	12 111212	18 S	19 S	20 1

Remarks

66