

Effluent Quality Assessment

Waterway Estates Wastewater Treatment Plant

Lee County

NPDES #FL0030325

Sampled December 6, 2010

April 2011

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

CONTENTS

Introduction

Methods

Results and Discussion

Literature Cited

Tables

Table 1 Measured and predicted algal growth potential (AGP)

Table 2 Effluent limits, Class III Marine Criteria and chemical and microbiological data

Appendices

Appendix A Chain of Custody

Appendix B Bioassay Bench Sheets

Appendix C SRT Bench Sheets and Statistical Analyses

Appendix D Organism Receipt

Appendix E Chemical Analyses of Effluent

Appendix F EPA End Sheet

Waterway Estates Wastewater Treatment Plant (WWTP), 1667 Inlet Drive, North Fort Myers, Lee County, Florida, 33903. NPDES# FL0030325. Effluent grab and composite samples for bioassays, chemical, and microbiological analyses for this facility were collected on December 6, 2010.

Introduction

Waterway Estates WWTP is an extended aeration/activated sludge with nutrient removal domestic wastewater treatment facility. (Facility information from the NPDES permit provided by FDEP South District.)

Methods

Samples were collected from the EFA-01 NPDES sampling point for Outfall D-001 by Alyssa Mork (FDEP South 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 screening 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.

The sample was aerated for 30 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 12.9 mg/L to 8.5 mg/L.

An aliquot of the AGP sample was salinity-adjusted with artificial sea salts from an apparent salinity of approximately 0.42 parts per thousand (ppth) to a salinity of approximately 7 ppth to meet the minimal salinity requirements of the marine AGP test.

Results and Discussion

- **Toxicity Test Results**
  Tests were performed December 7 - 11, 2010.

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

  Cyprinella leedsi 96-hour acute screening 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 screening 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 3.5 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. Based on the results of nutrient analyses, the ratio (9.6:1) of inorganic nitrogen to ortho-phosphate suggests that the effluent AGP is limited by nitrogen; whereas, the ratio (22.6:1) of total nitrogen to total phosphorus suggests that the effluent AGP is limited by phosphorus. The predicted AGPs based on inorganic nitrogen and orthophosphate concentrations were 1.8 and 2.2 (±20%) mg dry wt/L, respectively; the predicted AGPs based on total nitrogen and total phosphorus concentrations were 24.9 and 12.5 (±20%) mg dry wt/L, respectively (Table 1; Miller et al. 1978).

The Algal Growth Potential (AGP) measured in the salinity-adjusted aliquot of effluent was 3.0 U (U - Material was analyzed for but not detected; the value reported is the minimum detection limit) mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987).

See Table 1 for AGP results.

- **Chemistry Results**
  Total residual chlorine was not detected in the bioassay sample in the bioassay laboratory nor in the effluent in the field. Total ammonia (0.0505 mg N /L) was detected in the bioassay sample in the bioassay laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.44 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.

  Iron and nickel were detected in the effluent at levels that comply with Class III marine water quality criteria (62-302.530, F.A.C.). Atrazine, bis(2-ethylhexyl)phthalate, aluminum, antimony, arsenic, chromium-III, zinc and surfactants (MBAS) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Fecal coliforms and enterococci were also detected in the effluent.

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

Conclusion

The effluent sample collected from the EFA-01 NPDES sample collection point for Outfall D-001 for this facility on December 6, 2010, was not acutely toxic to either test species during the 96-hour acute screening bioassays. The effluent AGP results were less than the "problem” threshold for both fresh and marine receiving waters. Effluent water quality samples collected on December 6, 2010, 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 1a. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus for samples collected from the Waterway Estates WWTP on December 6, 2010.

Waterway Estates WWTP NPDES# FL0030325							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	3.5	1.8 ± 0.4	2.2 ± 0.4	24.9 ± 5.0	12.5 ± 2.5	9.6	22.6

Table 1b. 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 Waterway Estates WWTP on December 6, 2010.

Waterway Estates WWTP NPDES# FL0030325			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	3.0 *U	9.6	22.6

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

* - sample salinity adjusted to 7ppt

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical and microbiological data for samples collected from the Waterway Estates WWTP on December 6, 2010.

Waterway Estates WWTP NPDES #FL0030325	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
Atrazine	-	-	0.054	I
Bis(2-ethylhexyl)phthalate	-	-	16	I
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	Report	220	I
Antimony		Report	0.15	I
Arsenic	≤ 50	Report	0.26	I
Cadmium	≤ 8.8	-	0.03	U
Calcium (mg/L)	-	-	45.6	
Chromium-III	-	-	0.31	I
Copper	≤ 3.7	≤ 3.7 s	0.5	U
Iron	≤ 300	Report	120	
Lead	≤ 8.5	Report	0.2	U
Magnesium (mg/L)	-	-	17.4	
Nickel	≤ 8.3	-	1.29	
Selenium	≤ 71	-	0.2	U
Silver	≤ 2.3	Report	0.025	U
Zinc	≤ 86	Report	14	I
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.005	I
Total Phosphorus	-	≤ 1.0 s	0.029	
Total Ammonia	-	Report	0.044	
Un-ionized Ammonia	-	-	≤ 0.02	c
Nitrate and Nitrite	-	Report	0.004	U
Total Kjeldahl Nitrogen	-	Report	0.65	
Organic Nitrogen	-	-	0.606	c
Total Nitrogen	-	≤ 6.0 s	0.652	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0 s	9.0	
pH (SU)	6.5 - 8.5	6.5 - 8.5 s	7.2	
Temperature (°C)	-	Report	20.6	
Salinity	-	-	0.01	
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	0	
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55	U
Phaeophytin (µg/L)	-	-	0.4	U
Total Suspended Solids (mg/L)	-	≤ 60.0 s	4	Ud
Total Dissolved Solids (mg/L)	-	Report	554	d
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0 s	5.2	AJd
Oils and Greases (mg/L)	≤ 5.0	Report	1.4	UJ
Surfactants (mg/l LAS)		Report	0.15	I
Flow (MGD)	-	≤ 1.0 a	0.155	e
Hardness (mg $CaCO_3$)	-	Report	185.52	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s [#]	≤ 800 s	12	
Enterococci ¥	-	≤ 35.0 m	4	

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
d - Measurments taken from composite sample
e - AADF from 12/31/2009 to11/30/2010
c - Value is calculated
m - Monthly average
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
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Analysis performed by Sanders laboratory, Fort Myers
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-12-06-26
FYI3 for Waterway Estates

Requester: Cari Butler
Field Report Prepared By: Alyssa Mork

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

Collected By: Alyssa Mork
Send Final Report To: Keith Kleinmann

Sampling Agency: FDEP
(cc) Alyssa Mork

*Collection time from Sample bottles

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Waterway Estates	☒ Comp ☐ Grab; Eastern Central; Date 12-6-10 Time 7:00	Date Time 7:00 Eastern Central	A
	Field ID: DW-120610-01	Tot Res Chlorine (mg/L): 0.00	Diss Oxygen (mg/L): 8.20	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Wastewater	Temp (C): 20.40	pH: 7.12	Sample Depth ☐ m ☐ ft: 1in; ☒ Salinity (PPTh) ☐ Sp Conductance (umho/cm): .012; NPDES Number: FL0036325
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: Composite	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Waterwayestates	☐ Comp ☒ Grab; Eastern Central; Date 12/6/10 Time 10:20	Date Time Eastern Central	A
	Field ID: DW-120610-~~02~~ 03	Tot Res Chlorine (mg/L): 0.00	Diss Oxygen (mg/L): 8.47	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Wastewater	Temp (C): 20.56	pH: 7.22	Sample Depth ☐ m ☒ ft: ~0.0; ☒ Salinity (PPTh) ☐ Sp Conductance (umho/cm): .01; NPDES Number: FL0036325
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: Grab	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Waterway Estates	☐ Comp ☒ Grab; Eastern Central; Date 12/6/10 Time 13:00	Date Time Eastern Central	B
	Field ID: DW-120610-~~03~~ 02	Tot Res Chlorine (mg/L): 0.00	Diss Oxygen (mg/L): 8.26	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Wastewater	Temp (C): 23.44	pH: 7.28	Sample Depth ☐ m ☐ ft: 0.0; ☒ Salinity (PPTh) ☐ Sp Conductance (umho/cm): 0.00; NPDES Number: FL0036325
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: Blank	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Waterway Estates	☐ Comp ☒ Grab; Eastern Central; Date 12/6/10 Time 10:50	Date Time Eastern Central	A
	Field ID: DW-120610-04	Tot Res Chlorine (mg/L): 0.00	Diss Oxygen (mg/L): 8.97	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Wastewater	Temp (C): 20.56	pH: 7.22	Sample Depth ☐ m ☐ ft: 0.0; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): 0.01; NPDES Number: FL0036325
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: 2 Dozzay Radiator by JD. 10:54 12.7.10	

Relinquished By:	Date/Time	Shipping Method	Received By:	Date/Time	Relinquished By:	Date/Time	Received By	Date/Time
Alyssa Mork	12-6-10/17:00	FED-EX	Fhamm	12-07-10 9:35				

* 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: Waterway Estates Advanced WWTP

Address : 1667 INLET DRIVE

City: N. Ft Myers **County:** Lee

Contact/District: Alyssa Mark / South

NPDES Permit #: FL 0030325

LIMS Job #: TLH-2010-12-07-03 **LIMS Sample #:** 1316530

Lims Data Entry: 12-13-10 MF Data Entry Verification: BA 12.13.10

Sample Collection: Date: 12/06/10 Time: 0900

Hold Time Start: Date: 12/06/10 Time: 0900

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: 7.9 mg/L Final DO: 8.5 mg/L Duration: 30 minutes Rate: ~NA 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:
James Danish	JD
Marshall Fairchild	MF
Bree Hooten	BA
Diane Power	DP
Amelia Perkins	AOP
Khris Cox	KC

REVIEWER: Kig Mellin

Diluent/Control Batch#:	12-6-10	12.6.10							
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	0.00	Alyssa	AOP
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03					<0.03	JD	AOP
Alkalinity (mg/L as $CaCO_3$):	85	144					130	DP	AOP
Hardness (mg/L as $CaCO_3$):	92	146					260	DP	AOP
Total Ammonia (mg/L as N):	<0.017	<0.017					0.0505	MF	AOP
Conductivity: ☒ µmhos ☐ mmhos	190	272					985	JD	AOP
Salinity (ppth):	—	—					—	—	—

V 1.0 1/13/10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1316530 SOP#: TA 07_01 Test # 1 of 2

Test Species:
Batch #: 12-7-10 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 # 11-24-10)
- [ ] ASW
- [x] 20% DMW
- [ ] MHW
- [ ] Well

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

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

Test Started: Date 12-7-10 Time 1215

Test Ended: Date 12-11-10 Time 0920

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
Ctrl	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
100%	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
Checked or Verified by:			JD	S	AM	AM	BA	MF

Food
- [x] YCT Batch# 5-19-11
- [x] P. subcapitata Batch# 5-24-10
- [ ] 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 # 2
min. 25.9 max. 26.8 mean_____

Incubator #___
min._____max._____mean_____

Waterbath #___
min._____max._____mean_____

Room B246
min. 20.7 max. 25.2 mean_____

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: MF / JS
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

000026

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

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1316530 — SOP#: TA 07 02 — Test # 2 of 2

Test Species:
Batch #: 12.7.10 Age: 13days
- [ ] *Ceriodaphnia dubia*
- [x] *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 # 12.6.10)
[ ] ASW [ ] 20% DMW
[ ] MHW [x] Well

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

Test Duration: [ ] 48 hr [x] 96 hr [ ] __hr

Chamber Size 1000 ml
Test Volume: 900 ml

Test Started: Date 12.7.10 Time 1300
Test Ended: Date 12-11-10 Time 0930

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	H9	5	5	5	5	5	5
	B	H10	5	5	5	5	5	5
	C	H11	5	5	5	5	5	5
	D	H12	5	5	5	5	5	5
100%	A	H13	5	5	5	5	5	5
	B	H14	5	5	5	5	5	5
	C	H15	5	5	5	5	5	5
	D	H16	5	5	5	5	5	5
Checked or Verified by:			JD	JD	JD	JD	JD	MF

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

Food
- [ ] YCT Batch#____
- [ ] P. subcapitata Batch#____
- [x] Artemia Lot# 23613

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 # 2
min. 25.9 max. 26.8 mean____

Incubator #___
min.____max.____mean____

Waterbath #___
min.____max.____mean____

Room B246
min. 20.7 max. 25.2 mean____

Light Intensity (ft. candles): 50-100
Photoperiod (hours): 16 light, 8 dark

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

Comments:

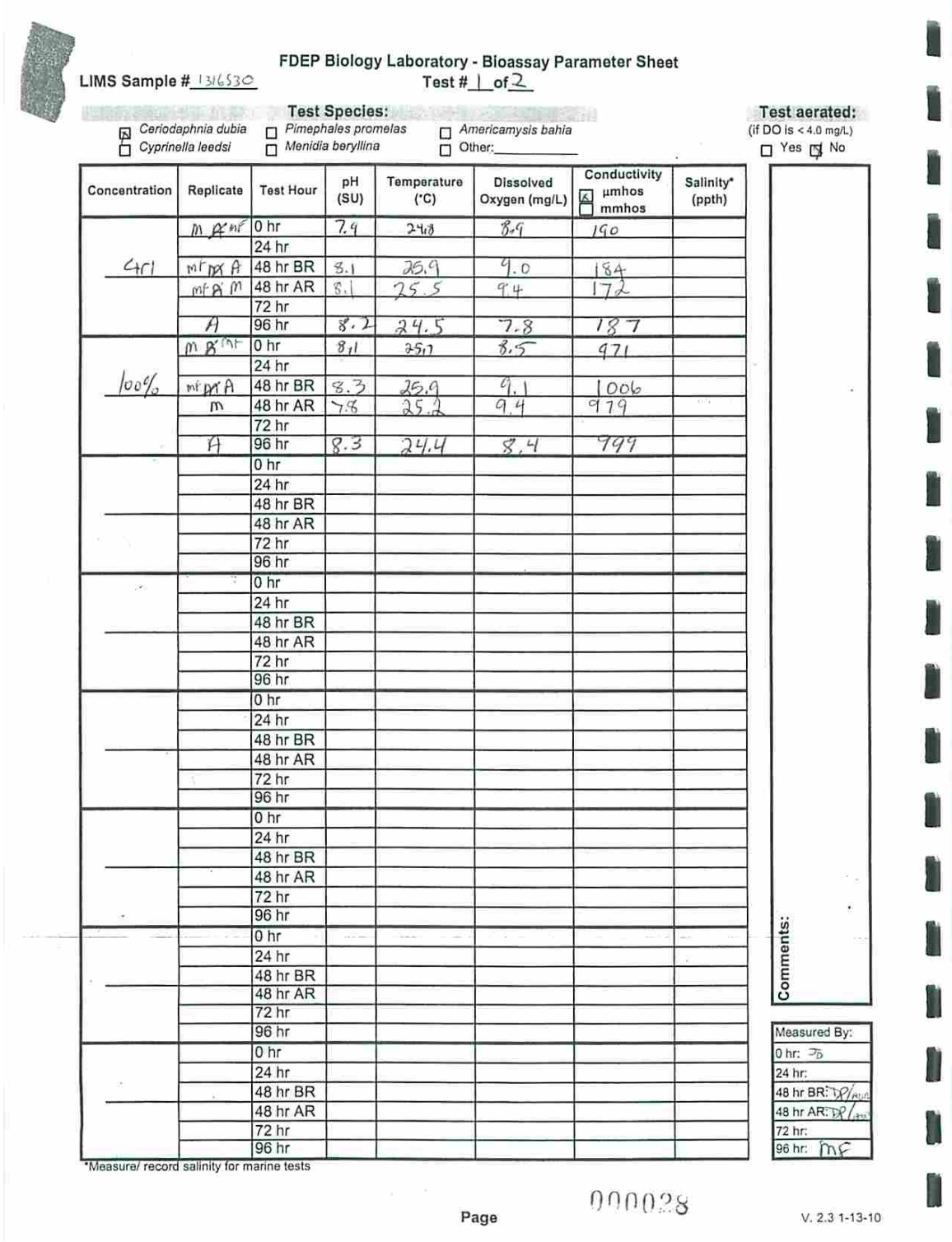
V. 2.5 1-13-10

000027

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

Page

Appendix B. (continued)



FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1316530 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)
	M A mF	0 hr	7.9	24.8	8.9	190	
		24 hr					
6.25%	mF M A	48 hr BR	8.1	25.9	9.0	184	
	mF A M	48 hr AR	8.1	25.5	9.4	172	
		72 hr					
	A	96 hr	8.2	24.5	7.8	187	
	M B mF	0 hr	8.1	25.7	8.5	971	
		24 hr					
100%	mF M A	48 hr BR	8.3	25.9	9.1	1006	
	M	48 hr AR	7.8	25.2	9.4	979	
		72 hr					
	A	96 hr	8.3	24.4	8.4	999	
		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					
		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					
		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:
48 hr BR: DP/
48 hr AR: DP/
72 hr:
96 hr: mF

Page 000028

V. 2.3 1-13-10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1311530 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)
Ctrl	A	0 hr	7.8	25.9	8.5	272	
	B	24 hr	8.2	25.1	8.8	271	
	C	48 hr BR	8.1	24.7	8.5	262	
	C	48 hr AR	7.9	24.0	8.9	265	
	D	72 hr	8.2	25.1	7.9	269	
	A	96 hr	8.2	25.1	7.3	274	
100%	A	0 hr	8.1	25.9	8.6	985	
	B	24 hr	8.1	25.0	8.1	976	
	C	48 hr BR	8.1	25.2	8.6	967	
	C	48 hr AR	7.8	24.0	8.6	953	
	D	72 hr	8.0	25.1	6.2	993	
	A	96 hr	8.2	25.4	7.0	1014	
		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					
		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					
		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/KC
48 hr BR: JD
48 hr AR: KC/JD
72 hr: JD
96 hr: MF

Page 000023

V. 2.3 1-13-10

Appendix B. (continued)

Test ID: Waterman Estates #-13/16630 Dates: 12-7-10 — 12-11-10

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-SN1101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓
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. BR 12-10-10

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

V 1.1 9/21/10 MFjd

000030

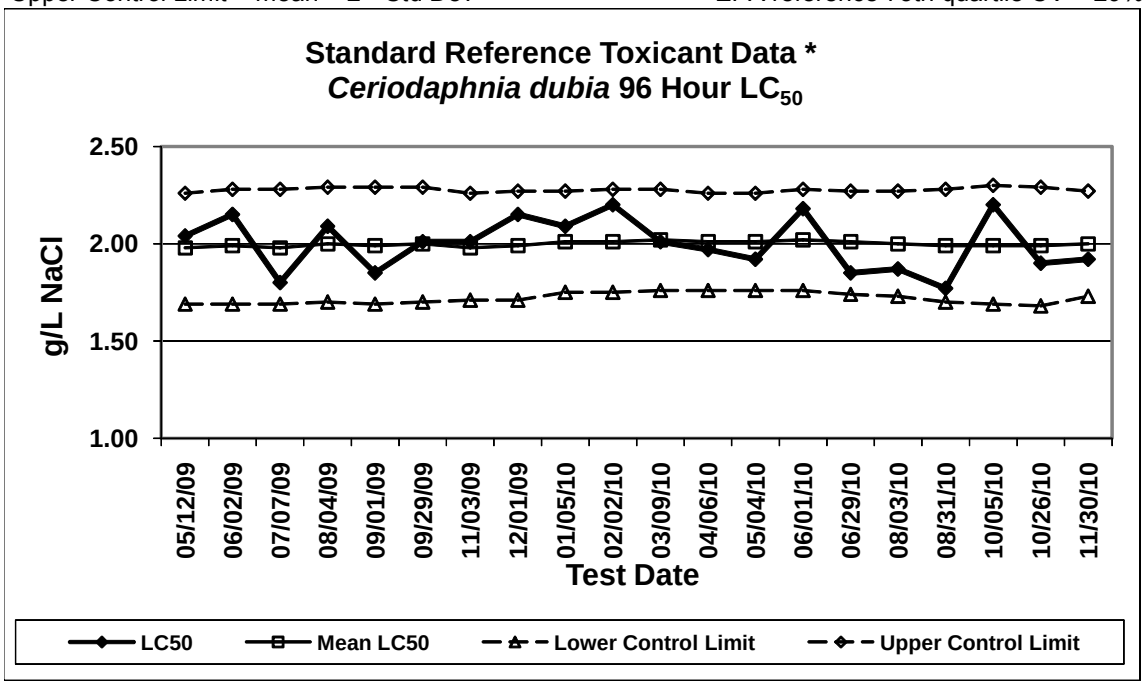
Appendix C. SRT Bench Sheets and Statistical Analysis

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
05/12/09	2.04	1.98	0.14	1.69	2.26
06/02/09	2.15	1.99	0.15	1.69	2.28
07/07/09	1.80	1.98	0.15	1.69	2.28
08/04/09	2.09	2.00	0.15	1.70	2.29
09/01/09	1.85	1.99	0.15	1.69	2.29
09/29/09	2.01	2.00	0.15	1.70	2.29
11/03/09	2.01	1.98	0.14	1.71	2.26
12/01/09	2.15	1.99	0.14	1.71	2.27
01/05/10	2.09	2.01	0.13	1.75	2.27
02/02/10	2.20	2.01	0.13	1.75	2.28
03/09/10	2.01	2.02	0.13	1.76	2.28
04/06/10	1.97	2.01	0.12	1.76	2.26
05/04/10	1.92	2.01	0.12	1.76	2.26
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

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

CV = 6.83
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

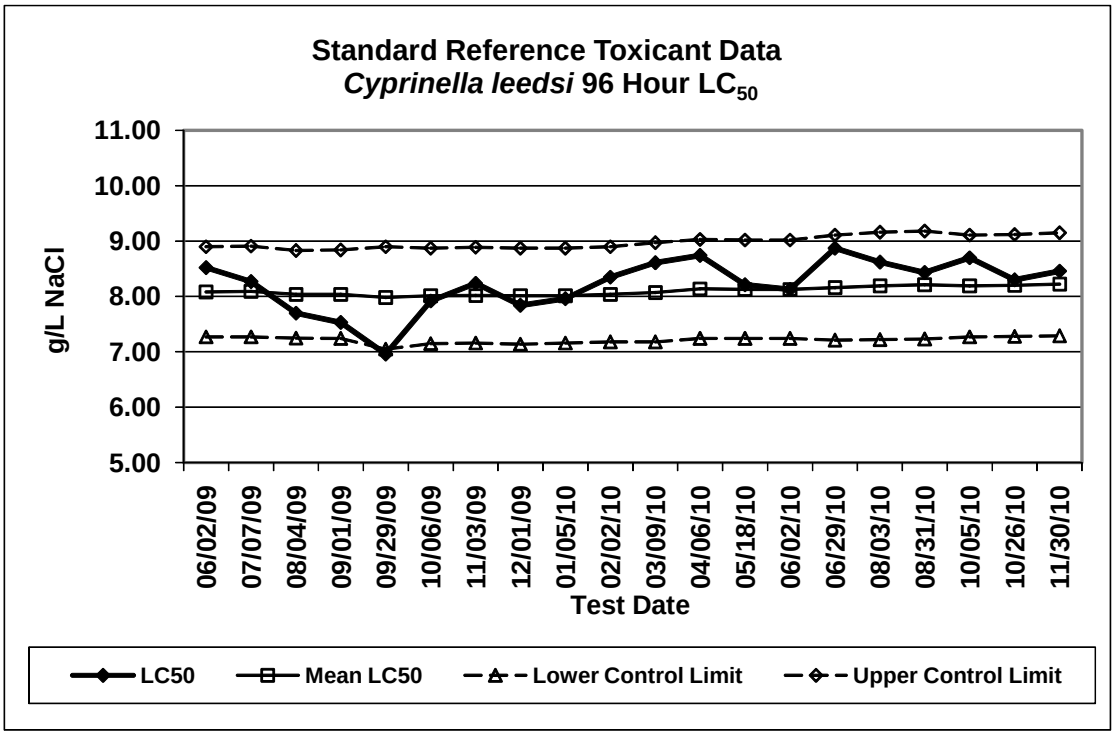
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
06/02/09	8.52	8.08	0.41	7.27	8.90
07/07/09	8.27	8.09	0.41	7.27	8.91
08/04/09	7.70	8.04	0.40	7.25	8.83
09/01/09	7.53	8.04	0.40	7.24	8.84
09/29/09	6.96	7.98	0.46	7.05	8.90
10/06/09	7.92	8.01	0.43	7.15	8.87
11/03/09	8.24	8.02	0.43	7.16	8.89
12/01/09	7.84	8.01	0.43	7.14	8.87
01/05/10	7.96	8.01	0.43	7.16	8.87
02/02/10	8.35	8.04	0.43	7.18	8.90
03/09/10	8.61	8.07	0.45	7.18	8.97
04/06/10	8.74	8.14	0.45	7.24	9.03
05/18/10	8.21	8.13	0.45	7.24	9.02
06/02/10	8.13	8.13	0.45	7.24	9.02
06/29/10	8.87	8.16	0.47	7.21	9.11
08/03/10	8.62	8.19	0.48	7.22	9.16
08/31/10	8.43	8.21	0.49	7.23	9.18
10/05/10	8.70	8.19	0.46	7.27	9.11
10/26/10	8.30	8.20	0.46	7.28	9.12
11/30/10	8.46	8.22	0.46	7.29	9.15

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

CV = 5.65
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 #: 20100mw1 11-24-10 SD — Organism Batch: 11.29.10 — Test Beginning: Date: 11.30.10 Time: 12:30

Toxicant/ Batch#: NaCl 11.29.10 — Age: <24hr — Test Ending: Date: 12.4.10 Time: 14:10

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	DP
Alkalinity (mg/L as $CaCO_3$):	91	TA06_08	ABR
Hardness (mg/L as $CaCO_3$):	82	TA06_09	ABR
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity: µmhos (mmhos)	0.179	TA06_25	BA
Salinity (ppth):	—	TA06_25	—

Food:	Batch
☒ YCT	5.19.10
☒ *P. subcapitata*	6.24.10
☐ Artemia Lot #	Artemia Batch:

Chamber size: 30 mL — Test volume: 20 mL per replicate

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

Concentrations prepared by: BA / SD — Temperature Range °C:(if used)

Test Incubated in: Incubator # 2 Waterbath # ____ — Incubator # 2 min 26.0 max 27.1 mean ____

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

Photoperiod: 16 hours Light / 8 hours dark — Room B246 min 22.3 max 25.3 mean ____

Feeding: √as needed
☑ Before test
☐ 0 hr
☐ 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 one)	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	5	5	5	5
2.0	A	A	5	5	3 2D	3	3	3
	B	B	5	5	4 1D	4	2 2D	2
	C	C	5	5	3 2D	3	1 2D	1
	D	D	5	5	4 1D	4	3 1D	2 1D
2.5	A	A	5	4 1D	0 4D	—	—	—
	B	B	5	5	1 4D	1	0 1D	—
	C	C	5	5	0 5D	—	—	—
	D	D	5	5	1 4D	1	0 1D	—
3.0	A	A	5	4 1D	0 4D	—	—	—
	B	B	5	5	0 5D	—	—	—
	C	C	5	4 1D	0 4D	—	—	—
	D	D	5	3 2D	0 3D	—	—	—
4.0	A	A	5	0 5D	—	—	—	—
	B	B	5	0 5D	—	—	—	—
	C	C	5	0 5D	—	—	—	—
	D	D	5	0 5D	—	—	—	—
Organisms loaded by: BA	Checked by:		BA	BA	BA	DD	DD	BA

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

Loading Verified by: MF — AR = after renewal m = missing d = dead BR = before renewal hr = hour

Investigators' Signatures

Brad Alexander
Marshall Faircloth
Sandra Raskin
Diane Tower
James Daniels

Reviewer: Liz McAllen

Comments:

Method: TSK — 95% confidence intervals

Statistics: LC50	Lower	Upper
48 hour: 2.11	1.99	2.24
96 hour: 1.92	1.81	2.03

Page 15

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: 11.30.10 Time: 12:30
Test Ending: Date: 12.4.10 Time: 14.10

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	M	0 hr	8.1	24.5	7.7	0.179	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.1	24.0	7.1	0.201	-
	M	48 hr AR	7.9	24.0	6.9	0.178	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	5.1	0.200	-
1.5	M	0 hr	8.0	24.0	7.4	3.07	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.1	24.0	7.4	3.47	-
	M	48 hr AR	7.9	24.1	7.3	3.09	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	7.0	3.59	-
2.0	M	0 hr	8.0	24.0	7.3	3.98	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.0	7.2	4.02	-
	M	48 hr AR	8.0	24.0	7.3	4.19	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	6.1	4.59	-
2.5	M	0 hr	8.0	24.0	7.3	4.88	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.0	6.9	5.85	-
	M	48 hr AR	8.0	24.0	7.3	4.96	-
	BMBA	72 hr	8.0	24.0	8.5	4.98	-
	—	96 hr	—	—	—	—	-
3.0	M	0 hr	8.0	24.0	7.3	5.79	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.1	7.3	7.01	-
	M	48 hr AR	8.1	24.0	7.3	5.99	-
	—	72 hr	—	—	—	—	-
	—	96 hr	—	—	—	—	-
4.0	M	0 hr	8.0	24.0	7.5	7.54	-
	A	24 hr	7.9	24.0	6.1	7.80	-
	—	48 hr BR	—	—	—	—	-
	—	48 hr AR	—	—	—	—	-
	—	72 hr	—	—	—	—	-
	—	96 hr	—	—	—	—	-

Investigators Signatures
Becca Alarcon
Amelia Bahn
Dianna Bowen
James Samek
Marshall Fairbeth
Reviewed By: Guy Miller

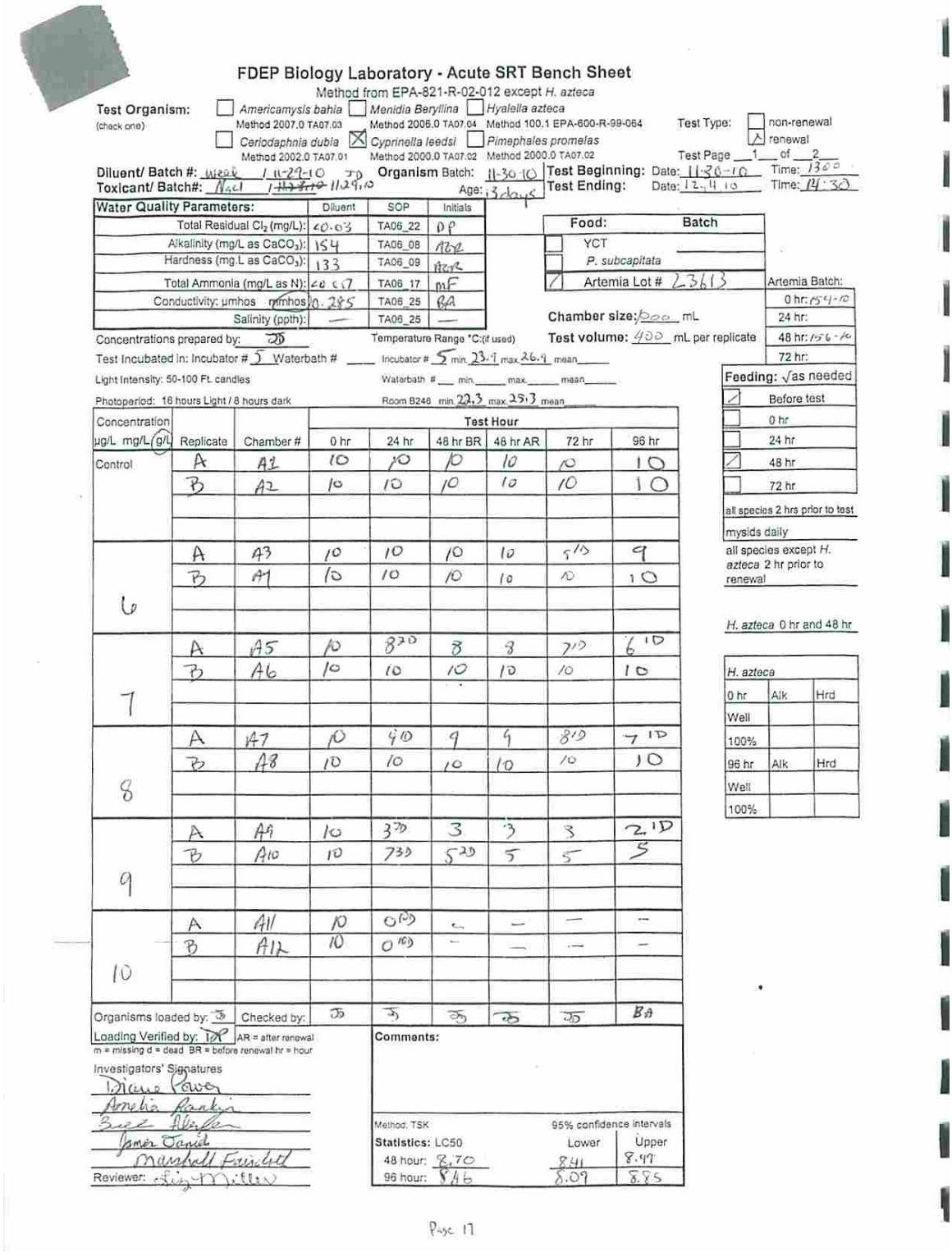
Measured by:
0 hr: BA
24 hr: BA
48 hr BR: BA
48 hr AR: BA
72 hr: RP/DD
96 hr: BA

Measure/record salinity for marine tests

Comments:

PAGE 16

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 #: well 1 11-29-10 JD

Toxicant/ Batch#: NaCl 1 ~~11-23-10~~ 11.29.10

Organism Batch: 11-30-10 Age: 3 days

Test Beginning: Date: 11-30-10 Time: 1300

Test Ending: Date: 12.4.10 Time: 14:30

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	DP
Alkalinity (mg/L as $CaCO_3$):	154	TA06_08	ABR
Hardness (mg/L as $CaCO_3$):	133	TA06_09	ABR
Total Ammonia (mg/L as N):	<0.07	TA06_17	mF
Conductivity: µmhos ~~mmhos~~:	0.285	TA06_25	BA
Salinity (ppth):	—	TA06_25	—

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

Artemia Batch:

0 hr:	1541-10
24 hr:	
48 hr:	1156-10
72 hr:	

Chamber size: 500 mL

Test volume: 400 mL per replicate

Concentrations prepared by: JD

Temperature Range °C:(if used)

Test Incubated In: Incubator # 5 Waterbath # ____ Incubator # 5 min. 23.7 max. 26.9 mean ____

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

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 22.3 max. 25.3 mean ____

Feeding: √as needed

☑	Before test
☐	0 hr
☐	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 g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A2	10	10	10	10	10	10
	B	A2	10	10	10	10	10	10
6	A	A3	10	10	10	10	5 ID	9
	B	A4	10	10	10	10	10	10
7	A	A5	10	8 2D	8	8	7 ID	6 ID
	B	A6	10	10	10	10	10	10
8	A	A7	10	9 ID	9	9	8 ID	7 ID
	B	A8	10	10	10	10	10	10
9	A	A9	10	3 2D	3	3	3	2 ID
	B	A10	10	7 3D	5 2D	5	5	5
10	A	A11	10	0 1D	—	—	—	—
	B	A12	10	0 1D	—	—	—	—

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

Organisms loaded by: JD Checked by: JD JD JD JD JD BA

Loading Verified by: DP AR = after renewal

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

Comments:

Investigators' Signatures

Diane Power

Amelia Rankin

Jose Abreu

James David

Marshall Frischer

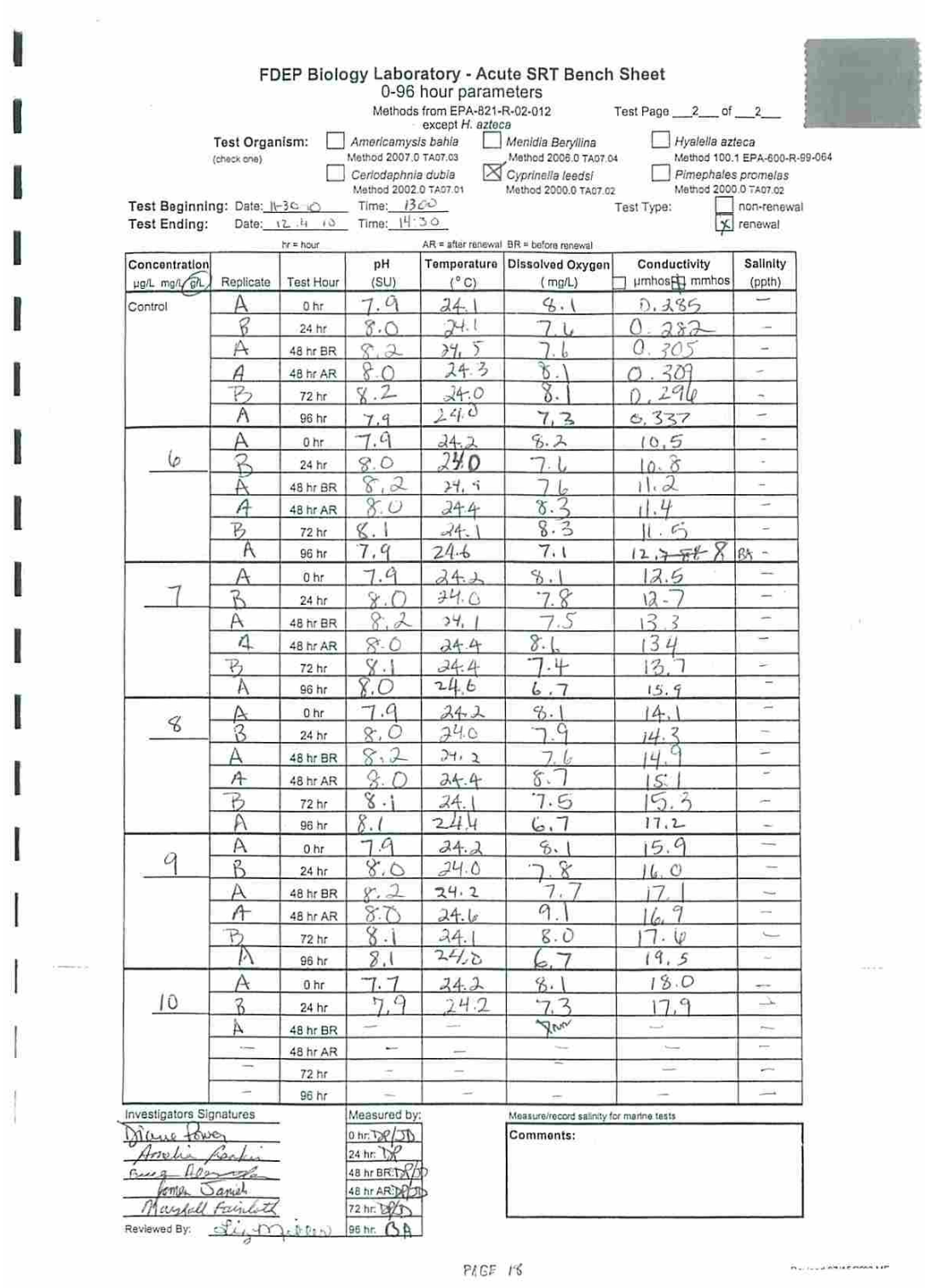
Reviewer: Liz Miller

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 8.70	8.41	8.97
96 hour: 8.46	8.09	8.85

Page 17

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: 11-30-10 Time: 1300
Test Ending: Date: 12-4-10 Time: 14:30

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	7.9	24.1	8.1	0.285	–
	B	24 hr	8.0	24.1	7.6	0.282	–
	A	48 hr BR	8.2	24.5	7.6	0.305	–
	A	48 hr AR	8.0	24.3	8.1	0.309	–
	B	72 hr	8.2	24.0	8.1	0.296	–
	A	96 hr	7.9	24.0	7.3	0.337	–
6	A	0 hr	7.9	24.2	8.2	10.5	–
	B	24 hr	8.0	24.0	7.6	10.8	–
	A	48 hr BR	8.2	24.1	7.6	11.2	–
	A	48 hr AR	8.0	24.4	8.3	11.4	–
	B	72 hr	8.1	24.1	8.3	11.5	–
	A	96 hr	7.9	24.6	7.1	12.7 ~~58~~ 8	BR –
7	A	0 hr	7.9	24.2	8.1	12.5	–
	B	24 hr	8.0	24.0	7.8	12.7	–
	A	48 hr BR	8.2	24.1	7.5	13.3	–
	A	48 hr AR	8.0	24.4	8.6	13.4	–
	B	72 hr	8.1	24.4	7.4	13.7	–
	A	96 hr	8.0	24.6	6.7	15.9	–
8	A	0 hr	7.9	24.2	8.1	14.1	–
	B	24 hr	8.0	24.0	7.9	14.3	–
	A	48 hr BR	8.2	24.2	7.6	14.9	–
	A	48 hr AR	8.0	24.4	8.7	15.1	–
	B	72 hr	8.1	24.1	7.5	15.3	–
	A	96 hr	8.1	24.4	6.7	17.2	–
9	A	0 hr	7.9	24.2	8.1	15.9	–
	B	24 hr	8.0	24.0	7.8	16.0	–
	A	48 hr BR	8.2	24.2	7.7	17.1	–
	A	48 hr AR	8.0	24.6	9.1	16.9	–
	B	72 hr	8.1	24.1	8.0	17.6	–
	A	96 hr	8.1	24.0	6.7	19.5	–
10	A	0 hr	7.7	24.2	8.1	18.0	–
	B	24 hr	7.9	24.2	7.3	17.9	–
	A	48 hr BR	–	–	~~8.1~~	–	–
	–	48 hr AR	–	–	–	–	–
	–	72 hr	–	–	–	–	–
	–	96 hr	–	–	–	–	–

Investigators Signatures
Diane Tower
Amelia Bakis
Greg Alexander
Jennifer Daniels
Marshall Faircloth
Reviewed By: Liz Mitchell

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

Measure/record salinity for marine tests

Comments:

PAGE 18

Appendix C. (continued)

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

DATE: 11-30-10 DURATION: 96 h TOXICANT : NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	12
2.50	20	20
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 1.92
95% LOWER CONFIDENCE: 1.81
95% UPPER CONFIDENCE: 2.03

***Cyprinella leedsi* Acute Standard Reference Toxicant Test**

DATE: 11-30-10 DURATION: 96 h TOXICANT : NaCl
SPECIES: *Cyprinella leedsi*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	1
7.00	20	4
8.00	20	3
9.00	20	13
10.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC50: 8.46
95% LOWER CONFIDENCE: 8.09
95% UPPER CONFIDENCE: 8.85

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

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: 11/29/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	150	4 DAYS	MS101125	25	8.0	20
Menidia beryllina	150	12 DAYS	SS101117	25	8.0	20
						Hardness mg/L
Cyprinella leedsi	150	12 days	CL 101117	25	7.8	80
Pimephales promelas	150	8 days	FM 101121	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 D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 12/6/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	150 ac	4 days	MS 101202	25	8.0	20
Menidia beryllina	150 ac	12 days	SS 101124	25	8.0	20
						Hardness mg/L
Cyprinella leedsi	150	12 days	CL 101124	25	7.8	80
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 Waterway Estates Wastewater Treatment Plant Outfall D-001, sampled on December 6, 2010.

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 10:20	DW-120610-03	AGP/LN	Algal Growth Potential	3.45		mg DryWt/L	0.3	0.9
12/6/2010 10:20	DW-120610-03	AGP/LN	Algal Growth Potential-Salinity Adjusted	3	U	mg DryWt/L	3	3
12/6/2010 10:20	DW-120610-03	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
12/6/2010 10:20	DW-120610-03	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
12/6/2010 10:20	DW-120610-03	Overflow	Fecal Coliforms-Membrane Filter	12		cfu/100 mL	1	
12/6/2010 10:20	DW-120610-03	Overflow	ENTEROCOCCI-ENTEROLERT	4		MPN/100 mL	1	
12/6/2010 10:20	DW-120610-03	Metals	Calcium	45.6		mg/L	0.075	0.3
12/6/2010 10:20	DW-120610-03	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
12/6/2010 10:20	DW-120610-03	Metals	Copper	0.5	U	ug/L	0.5	1
12/6/2010 10:20	DW-120610-03	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/6/2010 10:20	DW-120610-03	Metals	Chromium	0.31	I	ug/L	0.3	1.2
12/6/2010 10:20	DW-120610-03	Metals	Iron	120		ug/L	30	120
12/6/2010 10:20	DW-120610-03	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
12/6/2010 10:20	DW-120610-03	Metals	Magnesium	17.4		mg/L	0.04	0.16
12/6/2010 10:20	DW-120610-03	Metals	Aluminum	220	I	ug/L	60	240
12/6/2010 10:20	DW-120610-03	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/6/2010 10:20	DW-120610-03	Metals	Nickel	1.29		ug/L	0.25	1
12/6/2010 10:20	DW-120610-03	Metals	Zinc	14	I	ug/L	5	20
12/6/2010 10:20	DW-120610-03	Metals	Antimony	0.25	I	ug/L	0.25	1
12/6/2010 10:20	DW-120610-03	Metals	Arsenic	0.26	I	ug/L	0.25	1
12/6/2010 10:20	DW-120610-03	Metals	Lead	0.2	U	ug/L	0.2	0.8
12/6/2010 10:20	DW-120610-03	Nutrients	Total-P	0.029		mg P/L	0.004	0.01
12/6/2010 10:20	DW-120610-03	Nutrients	Ammonia-N	0.044		mg N/L	0.01	0.02
12/6/2010 10:20	DW-120610-03	Nutrients	O-Phosphate-P	0.005	I	mg P/L	0.004	0.01
12/6/2010 10:20	DW-120610-03	Nutrients	Kjeldahl Nitrogen	0.65		mg N/L	0.08	0.2
12/6/2010 10:20	DW-120610-03	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
12/6/2010 10:20	DW-120610-03	Overflow	Oil and Grease	1.4	UJ	mg/L	1.4	5
12/6/2010 10:20	DW-120610-03	Overflow	MBAS	0.15	I	mg/l LAS	0.12	0.2
12/6/2010 10:20	DW-120610-03	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
12/6/2010 10:20	DW-120610-03	Pesticides	Aldrin	0.0094	U	ug/L	0.0094	0.04
12/6/2010 10:20	DW-120610-03	Pesticides	Heptachlor	0.0094	U	ug/L	0.0094	0.04
12/6/2010 10:20	DW-120610-03	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 10:20	DW-120610-03	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
12/6/2010 10:20	DW-120610-03	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
12/6/2010 10:20	DW-120610-03	Pesticides	DDD-p,p'	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Endosulfan I	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Endosulfan Sulfate	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
12/6/2010 10:20	DW-120610-03	Pesticides	Endrin	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Gamma-BHC	0.0094	U	ug/L	0.0094	0.04
12/6/2010 10:20	DW-120610-03	Pesticides	Heptachlor Epoxide	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Toxaphene	0.71	U	ug/L	0.71	2.8
12/6/2010 10:20	DW-120610-03	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Pesticides	Chlorpyrifos Methyl	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Pesticides	DDT-p,p'	0.028	U	ug/L	0.028	0.11
12/6/2010 10:20	DW-120610-03	Pesticides	Endosulfan II	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Pesticides	Ethoprop	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9
12/6/2010 10:20	DW-120610-03	Pesticides	Atrazine	0.054	I	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Fonofos	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Metribuzin	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Alpha-BHC	0.0094	U	ug/L	0.0094	0.04
12/6/2010 10:20	DW-120610-03	Pesticides	Chlordane	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Hexazinone	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
12/6/2010 10:20	DW-120610-03	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Dieldrin	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
12/6/2010 10:20	DW-120610-03	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Naled	0.75	UJ	ug/L	0.75	3
12/6/2010 10:20	DW-120610-03	Pesticides	Parathion Methyl	0.094	U	ug/L	0.094	0.38
12/6/2010 10:20	DW-120610-03	Pesticides	Beta-BHC	0.0094	U	ug/L	0.0094	0.04

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 10:20	DW-120610-03	Pesticides	DDE-p,p'	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Delta-BHC	0.0094	U	ug/L	0.0094	0.04
12/6/2010 10:20	DW-120610-03	Pesticides	Endrin Aldehyde	0.019	U	ug/L	0.019	0.08
12/6/2010 10:20	DW-120610-03	Pesticides	Methoxychlor	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
12/6/2010 10:20	DW-120610-03	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	58
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.77

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzidine	96	UJ	ug/L	96	380
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	I	ug/L	14	58
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.77
12/6/2010 10:20	DW-120610-03	Field Parameter	Temperature	20.56		C		
12/6/2010 10:20	DW-120610-03	Field Parameter	Salinity	0.01		PPTh		
12/6/2010 10:20	DW-120610-03	Field Parameter	Dissolved Oxygen	8.97		mg/L		
12/6/2010 10:20	DW-120610-03	Field Parameter	pH	7.22				
12/6/2010 10:20	DW-120610-03	Field Parameter	Total Residual Chlorine	0		mg/L		
12/6/2010 9:00	DW-120610-01	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	5.2	AJ	mg/L	0.2	2
12/6/2010 9:00	DW-120610-01	Toxicology	BSY-AS-FW-Fish, LC50	100	L	LC50		
12/6/2010 9:00	DW-120610-01	Toxicology	BSY-AS-FW-C.dubia, LC50	100	L	LC50		
12/6/2010 9:00	DW-120610-01	Nutrients	TDS	554		mg/L	15	60

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 9:00	DW-120610-01	Nutrients	TSS	4	U	mg/L	4	16
12/6/2010 9:00	DW-120610-01	Field Parameter	Temperature	20.4		C		
12/6/2010 9:00	DW-120610-01	Field Parameter	Sample Depth	0.1		m		
12/6/2010 9:00	DW-120610-01	Field Parameter	Total Residual Chlorine	0		mg/L		
12/6/2010 9:00	DW-120610-01	Field Parameter	Dissolved Oxygen	8.2		mg/L		
12/6/2010 9:00	DW-120610-01	Field Parameter	pH	7.62				
12/6/2010 9:00	DW-120610-01	Field Parameter	Salinity	0.012		PPTh		
12/6/2010 13:00	DW-120610-02	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	0.2	UJ	mg/L	0.2	2
12/6/2010 13:00	DW-120610-02	Metals	Chromium	0.3	U	ug/L	0.3	1.2
12/6/2010 13:00	DW-120610-02	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
12/6/2010 13:00	DW-120610-02	Metals	Arsenic	0.25	U	ug/L	0.25	1
12/6/2010 13:00	DW-120610-02	Metals	Lead	0.2	U	ug/L	0.2	0.8
12/6/2010 13:00	DW-120610-02	Metals	Antimony	0.25	U	ug/L	0.25	1
12/6/2010 13:00	DW-120610-02	Metals	Zinc	5	U	ug/L	5	20
12/6/2010 13:00	DW-120610-02	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
12/6/2010 13:00	DW-120610-02	Metals	Copper	0.5	U	ug/L	0.5	1
12/6/2010 13:00	DW-120610-02	Metals	Aluminum	74	I	ug/L	60	240
12/6/2010 13:00	DW-120610-02	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/6/2010 13:00	DW-120610-02	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/6/2010 13:00	DW-120610-02	Metals	Iron	30	U	ug/L	30	120
12/6/2010 13:00	DW-120610-02	Metals	Nickel	0.25	U	ug/L	0.25	1
12/6/2010 13:00	DW-120610-02	Metals	Calcium	0.14	I	mg/L	0.075	0.3
12/6/2010 13:00	DW-120610-02	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
12/6/2010 13:00	DW-120610-02	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
12/6/2010 13:00	DW-120610-02	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
12/6/2010 13:00	DW-120610-02	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
12/6/2010 13:00	DW-120610-02	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
12/6/2010 13:00	DW-120610-02	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
12/6/2010 13:00	DW-120610-02	Overflow	Oil and Grease	1.4	U	mg/L	1.4	5
12/6/2010 13:00	DW-120610-02	Overflow	MBAS	0.15	I	mg/l LAS	0.12	0.2
12/6/2010 13:00	DW-120610-02	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
12/6/2010 13:00	DW-120610-02	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 13:00	DW-120610-02	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
12/6/2010 13:00	DW-120610-02	Pesticides	Endosulfan II	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Toxaphene	0.71	U	ug/L	0.71	2.8
12/6/2010 13:00	DW-120610-02	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
12/6/2010 13:00	DW-120610-02	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
12/6/2010 13:00	DW-120610-02	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
12/6/2010 13:00	DW-120610-02	Pesticides	Dieldrin	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
12/6/2010 13:00	DW-120610-02	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Methoxychlor	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
12/6/2010 13:00	DW-120610-02	Pesticides	Beta-BHC	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	DDD-p,p'	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Endrin	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
12/6/2010 13:00	DW-120610-02	Pesticides	Alpha-BHC	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	Endosulfan Sulfate	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Gamma-BHC	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
12/6/2010 13:00	DW-120610-02	Pesticides	DDT-p,p'	0.028	U	ug/L	0.028	0.11
12/6/2010 13:00	DW-120610-02	Pesticides	Endrin Aldehyde	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Heptachlor	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
12/6/2010 13:00	DW-120610-02	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
12/6/2010 13:00	DW-120610-02	Pesticides	Delta-BHC	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	Endosulfan I	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 13:00	DW-120610-02	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
12/6/2010 13:00	DW-120610-02	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
12/6/2010 13:00	DW-120610-02	Pesticides	Aldrin	0.0095	U	ug/L	0.0095	0.04
12/6/2010 13:00	DW-120610-02	Pesticides	Chlordane	0.19	U	ug/L	0.19	0.76
12/6/2010 13:00	DW-120610-02	Pesticides	DDE-p,p'	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Pesticides	Heptachlor Epoxide	0.019	U	ug/L	0.019	0.08
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Phenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,4-Dimethylphenol	9.9	U	ug/L	9.9	40
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.9
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	59
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2-Nitrophenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzidine	99	UJ	ug/L	99	400
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Diethyl phthalate	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Hexachlorobenzene	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.9
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Di-n-octyl phthalate	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Dimethyl phthalate	9.9	U	ug/L	9.9	40
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.79

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,4-Dichlorophenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,4-Dinitrotoluene	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2,6-Dinitrotoluene	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2-Chloronaphthalene	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2-Chlorophenol	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Isophorone	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.9
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.99	U	ug/L	0.99	4
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.79
12/6/2010 13:00	DW-120610-02	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	7.9
12/6/2010 13:00	DW-120610-02	Field Parameter	pH	7.28				
12/6/2010 13:00	DW-120610-02	Field Parameter	Sample Depth	0		m		
12/6/2010 13:00	DW-120610-02	Field Parameter	Dissolved Oxygen	8.26		mg/L		
12/6/2010 13:00	DW-120610-02	Field Parameter	Total Residual Chlorine	0		mg/L		
12/6/2010 13:00	DW-120610-02	Field Parameter	Temperature	23.44		C		
12/6/2010 13:00	DW-120610-02	Field Parameter	Salinity	0		PPTh		

Appendix G. EPA End Sheet

The Bioassay of Waterway Estates WWTP effluent sampled on December 6, 2010. NPDES #FL0030325.

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 F L 0 0 3 0 3 2 5 11	12 1 0 1 2 0 6	18 **B**	19 **S**	20 1

Remarks

66

The Priority Pollutants Analysis of Waterway Estates WWTP effluent sampled on December 6, 2010. NPDES #FL0030325.

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 F L 0 0 3 0 3 2 5 11	12 1 0 1 2 0 6	18 **X**	19 **S**	20 1

Remarks

66

Biological Analyses of Waterway Estates WWTP effluent sampled on December 6, 2010. NPDES #FL0030325.

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 F L 0 0 3 0 3 2 5 11	12 1 0 1 2 0 6	18 **S**	19 **S**	20 1

Remarks

66