

Effluent Quality Assessment

Spencer Wastewater Treatment Facility

Clay County

NPDES #FL0173371

Sampled April 13, 2009

August 2009

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 Freshwater Criteria and chemical and microbiological data
Table 3	Effluent limits and hardness based Class III Freshwater Criteria for effluent, control site and test site

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	Facility Summary
Appendix G	Effluent Limits
Appendix H	Permit Violations Recorded on Facility Summary
Appendix I	EPA End Sheet

Spencer Wastewater Treatment Facility, 4145-1 Savannah Glen Drive, Orange Park, Clay County, Florida, 32073. NPDES #FL0173371. Effluent samples for bioassay and chemical analyses for this facility were collected on April 13, 2009.

Introduction

Spencer Wastewater Treatment Facility (WWTF) is an advanced secondary WWTF which uses two treatment trains to treat domestic wastewater. (See Appendixes F, G, and H for detailed facility information provided by Ed Jamro of FDEP Northeast District.)

Methods

Samples were collected from the EFA-02 NPDES sampling point for Outfall D-001 by Eesa Ali, Pat O'Connor and Chuck Plank (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody form.

The 48-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.

Total residual chlorine was detected in the bioassay sample in the laboratory. An aliquot of this sample was dechlorinated by the addition of sodium thiosulfate (0.025 N) at a rate of 3.0 mL per liter of sample to neutralize the chlorine. Bioassays were performed on the dechlorinated aliquot in addition to the bioassays performed on the original sample. The same concentration of sodium thiosulfate was added to the dechlorinated test controls. The purpose of the dechlorinated test controls was to confirm that there was no adverse effect of adding sodium thiosulfate to the sample. There was no mortality in the dechlorinated controls of either test species.

Results and Discussion

- **Toxicity Test Results**

  Tests were performed April 14 - 16, 2009.

  Ceriodaphnia dubia 48-hour acute screening bioassay – LC_{50} < 100%, 100% mortality* in 100% sample within 10 minutes of test initiation

  Cyprinella leedsi 48-hour acute screening bioassay – LC_{50} < 100%, 100% mortality* in 100% sample within 10 minutes of test initiation

  The original (non-dechlorinated) bioassay samples were acutely toxic to the test organisms. Toxicity was attributed to the total residual chlorine in the sample.

  Ceriodaphnia dubia 48-hour dechlorinated acute screening bioassay – LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours

  Cyprinella leedsi 48-hour dechlorinated acute screening bioassay – LC_{50} > 100%, 0% mortality* in 100% sample at 96 hours

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

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

*NOTE: In a 48-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.).

- **Algal Growth Potential**

  The Algal Growth Potential (AGP) in the effluent, control site and test site was 109 mg dry weight/L, 4.2 mg dry weight/L and 7.1 mg dry weight/L, respectively, of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The ratio of inorganic nitrogen to ortho-phosphate in the effluent, control site and test site suggest phosphorus-limitation, co-limitation by both nitrogen and phosphorus, and nitrogen limitation, respectively; whereas, the ratios of total nitrogen to total phosphorus suggests co-limitation by both nitrogen and phosphorus in the effluent and test site and phosphorus limitation in the control site. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test should be performed (Table 1; Miller et al. 1978).

  See Table 1 for AGP results.

- **Chemistry Results**

  Total residual chlorine (2.66 mg/L) was detected in the bioassay sample in the laboratory. Total ammonia was not detected in the bioassay sample in the laboratory nor in the sample collected and preserved for chemical analysis.

  Calcium, copper, iron, magnesium, nickel, zinc, and sulfate were detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Total Residual Chlorine (TRC) (2.66 mg/L) was detected in the effluent at levels that exceed Class III fresh water quality criteria and permit conditions (≤0.01 mg/L, 62-302.530 (18), F.A.C. and NPDES Permit #FL0173371). Bis(2-ethylhexyl)phthalate was detected between the laboratory method detection limits (MDL) and the laboratory practical quantification limits (PQL).

  Copper and sulfate were detected in the control site and test site at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Arsenic and iron were detected between the laboratory MDLs and the laboratory PQLs in the control and test sites. Nickel was detected between the laboratory MDL and the laboratory PQL in the test site.

  See Table 2 for results of analytes detected in the effluent, and corresponding limits and results of analytes detected in control site and test site samples. See Table 3 for hardness based metals criteria and results for effluent, control site and test site samples. See Appendix E for a complete list of chemical analyses performed. See Appendix F for bioassay lab equipment.

Conclusion

The effluent sample collected from the EFA-02 NPDES sampling point for Outfall D-001 for this facility on April 13, 2009, was acutely toxic to both test species during the 48-hour acute screening bioassays, due to the high effluent chlorine. The effluent sample which was dechlorinated in the lab was not acutely toxic to either test species during the 48-hour acute screening bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters, implying nutrient enrichment may be an issue. Effluent total residual chlorine (TRC) (2.66 mg/L) exceeded both Class III fresh water quality criteria and permit conditions (≤0.01 mg/L, 62-302.530 (18), F.A.C. and NPDES Permit #FL0173371). Other effluent constituents did not violate water quality standards or permit limits.

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 total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* for samples collected from the Spencer WWTF on April 13, 2009.

Spencer WWTF														
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	109.0	80.2	±	16.0	38.3	±	7.7	103.4	±	20.7	68.8	±	13.8	23.7	17.0
Control	7.1	1.9	±	0.4	2.2	±	0.4	14.0	±	2.8	6.9	±	1.4	10.2	23.1
Test	4.2	2.2	±	0.4	2.6	±	0.5	19.3	±	3.9	11.2	±	2.2	9.7	19.5

Table 2. Effluent limits, Class III Freshwater Criteria, chemical and microbiological data for samples collected from the Spencer WWTF on April 13, 2009.

Spencer WWTF NPDES# FL0173371	Class III Criteria	Effluent Limits	Effluent		Control		Test	
Organic Constituents (µg/L)								
Bis(2-ethylhexyl)phthalate	-	-	26	I	-		-	
Aluminum	-	-	60	U	60	U	260	A
Arsenic	≤ 50	-	0.25	U	0.29	I	0.41	I
Cadmium	≤ 0.3 b	Report	0.03	U	0.03	U	0.03	U
Calcium (mg/L)	-	-	28.3		24.9		30.9	A
Chromium-III	≤ 100.4 b	-	0.3	U	0.3	U	0.3	U
Copper	≤ 10.9 b	-	0.75		4.72		3.85	
Iron	≤ 1,000	Report	310		96	I	430	A
Lead	≤ 4.0 b	Report	0.2	U	0.2	U	0.36	I
Magnesium (mg/L)	-	-	12.1		2.15		2.14	A
Mercury	≤ 0.012	Report	0.12	U	0.12	U	0.12	U
Nickel	≤ 61.1 b	Report	3.74		0.25	U	0.41	I
Selenium	≤ 5.0	-	0.2	U	0.2	U	0.2	U
Silver	≤ 0.07	Report	0.025	U	0.025	U	0.025	U
Zinc	≤ 140.3 b	Report	40		5	U	5	U
Nutrients (mg/L)								
Ortho-phosphate	-	Report	0.089		0.005	I	0.006	I
Total Phosphorus	-	≤ 2.0 ds	0.16		0.016		0.026	A
Total Ammonia	-	≤ 3.2 s	0.01	U	0.012	I	0.021	
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 cs	≤ 0.02	c	≤ 0.02	c	≤ 0.02	c
Nitrate and Nitrite	-	Report	2.1		0.039		0.037	
Total Kjeldahl Nitrogen	-	Report	0.62	J	0.33	I	0.47	
Organic Nitrogen	-	-	≤ 0.61	c	0.318	c	0.449	c
Total Nitrogen	-	≤ 6.0 ds	2.72	c	0.369	c	0.507	c
General Physical and Chemical Parameters								
Dissolved Oxygen (mg/L)	≥ 5.0	Report	5.5		7.5		7.3	
pH (SU)	6.0 - 8.5	Report	6.9		7.6		7.5	
Conductivity (µmhos/cm)	≤ 1,275	Report	666		202		239	
Temperature (°C)	-	Report	22.5		20.7		21.0	
Salinity	-	-	≤ 0.34	c	≤ 0.11	c	≤ 0.13	c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	2.66	£	-		-	
Chlorophyll *a* (µg/L) - Corrected	-	Report	0.62	U	1	I	1.2	I
Phaeophytin (µg/L)	-	-	0.27	U	0.27	I	0.75	
Total Suspended Solids (mg/L)	-	≤ 10.0 ds	4	U	4	U	17	A
Color (pt-Co)	-	Report	-		20		30	A
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10.0 ds	2.8	AJ	1.2	I	1.2	I
Sulfate (mg/L)	-	Report	120		14		13	
Flow (MGD)	-	2.75 a	0.006		-		-	
Hardness (mg $CaCO_3$)	-	-	120.49	c	71.03	c	85.97	c
Microbiology (Number of colony forming units/100ml)								
Fecal Coliforms	≤ 400s #	Report	26	B	827	B	673	B

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

d - 16-hour composite sample

s - Single sample

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

B - Results based on colony counts outside the acceptance range

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

J - Estimated value

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

- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

£ - Measured in Central Laboratories and entered into Tox sheets

Table 3. Effluent limits, Class III Freshwater Criteria and metals data. Class III Criteria based on hardness are presented individually for each site based on hardness at that site.

Spencer WWTF	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	60 U	-	60 U	-	260 A
Arsenic	≤ 50	-	0.25 U	≤ 50	0.29 I	≤ 50	0.41 I
Cadmium	≤ 0.3 b	Report	0.03 U	≤ 0.21 b	0.03 U	≤ 0.24 b	0.03 U
Calcium (mg/L)	-	-	28.3	-	24.9	-	30.9 A
Chromium-III	≤ 100.4 b	-	0.3 U	≤ 65.12 b	0.3 U	≤ 76.14 b	0.3 U
Copper	≤ 10.9 b	-	0.75	≤ 6.96 b	4.72	≤ 8.20 b	3.85
Iron	≤ 1,000	Report	310	≤ 1,000	96 I	≤ 1,000	430 A
Lead	≤ 4.0 b	Report	0.2 U	≤ 2.06 b	0.2 U	≤ 2.62 b	0.36 I
Magnesium (mg/L)	-	-	12.1	-	2.15	-	2.14 A
Mercury	≤ 0.012	Report	0.12 U	≤ 0.012	0.12 U	≤ 0.012	0.12 U
Nickel	≤ 61.1 b	Report	3.74	≤ 39.06 b	0.25 U	≤ 45.90 b	0.41 I
Selenium	≤ 5.0	-	0.2 U	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Silver	≤ 0.07	Report	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 140.3 b	Report	40	≤ 89.67 b	5 U	≤ 105.41 b	5 U

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

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

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-04-13-37
Spencer WWTP

Customer: NE-DIST
Project ID: FYI5
PMAS: 1143

Requester: Jennifer Paris
Collected By: POLEAICP
Sampling Agency: DEP
Field Report Prepared By: EA
Send Final Report To: Tom Kallemeyn

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	EFA2	☑ Comp ☐ Grab Date 4/13/09 Time 1430 Eastern Central	Date 4/13/09 Time 1630 Eastern Central	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C) < 6.0 pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number FL0173371
	Latitude o ' "	Longitude o ' "	Comments ~~Nut~~, BNA, PEST, ENT * Sample end, picked up @ 9420 4/13/09

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	EFA2	☐ Comp ☑ Grab Date Time 1410 Eastern Central	Date Time Eastern Central	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 5.49	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) Temp (C) 22.45	pH 6.93	Sample Depth ☑ m ☐ ft 0.3	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm) 666 NPDES Number
	Latitude o ' "	Longitude o ' "	Comments Ophos, Tox, ~~DO~~ Metals, FC, chl, Nut.	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Control chemistry + Bugs + Periphyton	☐ Comp ☑ Grab Date 4/13/09 Time 1150 Eastern Central	Date Time Eastern Central	B C
	Field ID 0 m mark in unnamed creek to Little Black Creek	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.45	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) Temp (C) 20.71	pH 7.60	Sample Depth ☐ m ☐ ft 0.1	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) 202 NPDES Number
	Latitude o ' "	Longitude o ' "	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	TEST chemistry, Bugs + Periphyton Black	☐ Comp ☑ Grab Date Time 1150 Eastern Central	Date Time Eastern Central	B C
	Field ID 100 m mark unnamed creek to Little Creek	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) Temp (C)	pH "	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
EAI	4/13/09 1600	FedEx						

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix A. (continued)

NED FD0108 **Florida Department of Environmental Protection *North East District* Field sheet**

Sample Project Spruce FMT LabRequest number 2009 04 1337

Collected By: POLC PICA Date Collected: 4/13/09

Lab ID #	Storet# / Site Name	Matrix: Water / Surface Fresh / Surface Salt / Effluent	Comments
	ESPA2 Spruce WWTP		Air Temp ____ Wind Sp ____ Wind Dir ____ 30 10 22.1 81 48 25.3

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (uohmcm)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec.	Tide Ebb/Flood/Slack	Turb. NTU
0940	0.5	0.5	22.45	666	0.32	6.93	5.49	63.6	—	—	—	—

Grab/Comp. Not applicable	Parameter/Method	Preservation	Bottle/Suite *A/B/C,etc	Initials
G / C / Na	Nutrients: Nh3,No2No3,Tkn,Toc,TP	Ice& H2SO4 less than 2 pH	A	
G / C / Na	Ortho Phosphorous	Ice & .45U filtered		
G / C / Na	Bod/CBod	Ice		
G / C / Na	Chlorophyll,Phaeophytin	Ice		
G / C / Na	Physical Aggregate:Tss,Tds,Turb.,Color,Alk.,Cl-,F-,SO4-	Ice		
G / C / Na	Metals: ICP,ICPMS	HNO3 lesss than 2 pH		
G / C / Na	Other: DNA TEST	Ice/		
G / C / Na	Microbiology: Fecal Coliform	Ice		

TOC cruel

Lab ID #	Storet# / Site Name	Matrix: Water / Surface Fresh / Surface Salt / Effluent	Comments
	Spruce control pH9		

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (uohmcm)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb NTU
1150 HHT	0.1	0.1	20.71	202	0.10	7.60	7.45	83.1	0.3L	0.4	n/a	n/a

Grab/Comp. Not applicable	Parameter/Method	Preservation	Bottle/Suite *A/B/C,etc	Initials
G / C / Na	Nutrients: Nh3,No2No3,Tkn,Toc,TP	Ice& H2SO4 less than 2 pH		
G / C / Na	Ortho Phosphorous	Ice & .45U filtered		
G / C / Na	Bod/CBod	Ice		
G / C / Na	Chlorophyll,Phaeophytin	Ice		
G / C / Na	Physical Aggregate:Tss,Tds,Turb.,Color,Alk.,Cl-,F-,SO4-	Ice		
G / C / Na	Metals: ICP,ICPMS	HNO3 lesss than 2 pH		
G / C / Na	Other:	Ice/		
G / C / Na	Microbiology: Fecal Coliform	Ice		

Lab ID #	Storet# / Site Name	Matrix: Water / Surface Fresh / Surface Salt / Effluent	Comments
	TEST Spruce 100.m		

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (uohmcm)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb NTU
1150	0.1	0.1	20.93 ~~20.93~~	~~2375~~ 237.5	~~0.11~~ 0.11	7.48	7.28	81.6	0.3L	0.5	n/a	—

Grab/Comp. Not applicable	Parameter/Method	Preservation	Bottle/Suite *A/B/C,etc	Initials
G / C / Na	Nutrients: Nh3,No2No3,Tkn,Toc,TP	Ice& H2SO4 less than 2 pH		
G / C / Na	Ortho Phosphorous	Ice & .45U filtered		
G / C / Na	Bod/CBod	Ice		
G / C / Na	Chlorophyll,Phaeophytin	Ice		
G / C / Na	Physical Aggregate:Tss,Tds,Turb.,Color,Alk.,Cl-,F-,SO4-	Ice		
G / C / Na	Metals: ICP,ICPMS	HNO3 lesss than 2 pH		
G / C / Na	Other: ALT	Ice/		
G / C / Na	Microbiology: Fecal Coliform	Ice		

* Enterolert Buss suite C

Relinquished	Date	Time	Shipping	Received	Date/Time
	4/13/09	1600	~~DHL~~ FEP	~~Fedex~~ Shuttle	04/14/09 10:35

* Suite D (all the info came from the bottles)
Equipment Blank 04/13/09 10:00

FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: Spencer WRF

Address: 4145-1 Savannah Glen Drive Orange Park, Fl, 32073

City: Orange Park County: Clay

Contact/District: Eesa Ali / Ed Jamro / Northeast

NPDES Permit #: FL 0173371

LIMS Job #: TLH-2009-04-14-24 LIMS Sample #: 1179272

Lims Data Entry: 4-17-09 MF Data Entry Verification: ~~BA~~ : 4.17.09

Sample Collection: Date: 4-13-09 Time: 0940

Hold Time Start: Date: 4-13-09 Time: 0940

Comments: An aliquot of sample was dechlorinated by the addition of 3.0 mL of 0.025N Sodium thiosulfate. Test organisms in 100% sample (2.66 mg/L TRC) were dead within 10 minutes of test initiation. MF

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: (Screen) Static Static Renewal / Flow-through

Test Duration: (48) 96 Hours.

Test 1 validation: Test 1: SOP TA 07_01

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2 validation: Test 2: SOP TA 07_02

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

(√one)

Test 1 incubated in: ☑ Incubator #: 2 ☐ Waterbath #:

Test 2 incubated in: ☐ Incubator #: ☐ Waterbath #:

Initial sample handling:

PH adjustment: yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____

Aeration: (yes) no Initial DO: 9.8 mg/L Final DO: 7.8 mg/L Duration: 10 minutes Rate: ~ 100 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 3.0 mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: <0.03

Light Intensity: 50 - 100 ft. candles

Photoperiod: 16 light 8 dark

Temperature Range °C: (If used)

Incubator # 2 min. 25.6 max. 26.5 mean 26.0

Incubator # ____ min. ____ max. ____ mean ____

Waterbath # ____ min. ____ max. ____ mean ____

Room B246 min. 24.9 max. 25.8 mean 25.4

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No — IF Hand Delivered: Cooling (received °C < collected °C) Yes No

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

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
Batch #	3-31-09	4-8-09							
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A		4.32	Facility	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03					2.66	JW	MF
Alkalinity (mg/L as $CaCO_3$):	83	147					84	BA/CF	BA
Hardness (mg/L as $CaCO_3$):	81	141					112	BA/CF	BA
Total Ammonia (mg/L as N):	<0.017	<0.017					<0.017	MF	BA
Conductivity (umhos mmhos):	197	279					676	BA	MF
Salinity (ppth):	—	—					—	—	—

Investigators' Signatures

James Daniels

Marshall Faircloth

Jim Woods

Chris French

Dave Alexander

Loretta C Wolfe

REVIEWER

V 1.6 7/8/08

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 179272 Test #: 1/2 SOP#:TA 07 01 Test Started: Date 4-14-09 Time: 15:50
Organism/Batch/Age: C. dubia / 14-09 / <24hours Test Ended: Date 4-16-09 Time: 13:25
Chamber/Test Volume: 30 / 30 ml Diluent/ Batch: 20% DMW / 3-31-09 Test Duration: (48 hr) 96 hr
Food/Batch: ☑ YCT 1-22-09 ☑ P.sub 2-13-09
☐ Artemia Lot#_____ Batch #: 0hr_____ 24hr_____ 48hr_____ 72hr_____
Feeding: ☑ Prior to Test ☐ Prior to Renewal ☑ 0 hr ☐ 24 hr ☐ 48 hr ☐ 72 hr

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			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	0 SD (A)	-			
	B	B	5	0 SD	-			
	C	C	5	0 SD	-			
	D	D	5	0 SD	-			
DCl ctrl	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
DCl 100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			

Loaded/Verified by: CF / SS Checked by: BA BA CF
m = missing d = dead BR/AR = Before/After Renewal
Comments: (A) dead w/i 10 min of test Initiation
Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 100% LC50: <100%
If Calculated: 95% CI_____ Method_____
No mortality in the dechlorinated sample at 48 hours MF 4/19/09
V 2.3 7/15/2008
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

Page 20

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1179272 Test #: 2/2 SOP#:TA 07 02 Test Started: Date 4-14-09 Time: 15:50

Organism/Batch/Age: C. leeds / 4-14-09 / 12 days Test Ended: Date 4-16-09 Time: 13:40

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: Well / 4-8-09 Test Duration: (48 hr) 96 hr

Food/Batch: ☐ YCT____ ☐ P.sub____

☑ Artemia Lot# 38438 Batch #: 0hr 56-09 24hr____ 48hr____ 72hr____

Feeding: ☑ Prior to Test ☐ Prior to Renewal ☑ 0 hr ☐ 24 hr ☐ 48 hr ☐ 72 hr

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	F1	10	10	10			
	B	F2	10	10	10			
	C							
	D							
100%	A	F3	10	(A) 10 D	—			
	B	F4	10	(A) 10 D	—			
	C							
	D							
DCl Ctrl	A	F5	10	10	10			
	B	F6	10	10	10			
DCl 100%	A	F7	10	10	10			
	B	F8	10	10	10			
Loaded/Verified by: BA / MF		Checked by:	MF	CF	CF			

m = missing d = dead BR/AR = Before/After Renewal

Comments: (A) dead w/i 10min. No mortality in the dechlorinated sample at 48hours, MF 4-17-09

Test Results:

Screening Tests: Report LC50 as >100%, =100%, or <100%.

% mortality in 100% sample: 100% LC50: <100%

If Calculated: 95% CI______ Method______

V 2.3 7/15/2008

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

Page 21

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1179272 Test #: 1 of 2

TEST SOP #: TA07 01 Test Species: [X] *Ceriodaphnia dubia* [ ] *Cyprinella leedsi* [ ] *Pimephales promelas*

Test aerated: yes (no) (circle one) Check 1: [ ] *Americamysis bahia* [ ] *Menidia beryllina* [ ] Other:

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M			
pH (S.U.)	8.0		~~8.~~ 8.1			
Temperature °C	24.1		25.0			
Dissolved Oxygen mg/L aerate if < 4	8.3		8.2			
Conductivity (µmhos) mmhos	197		201			
Salinity ppth	–		–			
(initials) Measured by:	BA		CJ			
(initials) Recorded by:	BA		CJ			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M					
pH (S.U.)	8.0					
Temperature °C	24.0					
Dissolved Oxygen mg/L aerate if < 4	8.1					
Conductivity (µmhos) mmhos	676					
Salinity ppth	–					
(initials) Measured by:	BA					
(initials) Recorded by:	BA					

Comments:

Salinity only needs measuring if saltwater.

Concentration Dechlorinated Control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M			
pH (S.U.)	8.1		7.9			
Temperature °C	24.0		25.0			
Dissolved Oxygen mg/L aerate if < 4	8.2		8.2			
Conductivity (µmhos) mmhos	227		217			
Salinity ppth	–		–			
(initials) Measured by:	BA		CJ			
(initials) Recorded by:	BA		CJ			

Comments:

Concentration Dechlorinated 150%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M			
pH (S.U.)	8.1		8.2			
Temperature °C	24.1		25.4			
Dissolved Oxygen mg/L aerate if < 4	8.2		8.4			
Conductivity (µmhos) mmhos	696		736			
Salinity ppth	–		–			
(initials) Measured by:	BA		CJ			
(initials) Recorded by:	BA		CJ			

Comments:

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1179272 Test #: 2 of 3

TEST SOP #: TA07_02 Test Species: ☐ *Ceriodaphnia dubia* ☒ *Cyprinella leedsi* ☐ *Pimephales promelas*

Test aerated: yes (no) (circle one) Check 1: ☐ *Americamysis bahia* ☐ *Menidia beryllina* ☐ Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A			
pH (S.U.)	7.3	8.1	7.8			
Temperature °C	24.2	24.0	24.2			
Dissolved Oxygen mg/L aerate if < 4	8.1	7.4	7.6			
Conductivity (µmhos) mmhos	279	284	283			
Salinity ppth	—	—	—			
(initials) Measured by:	BA	CF	CF			
(initials) Recorded by:	BA	JS	JS			

Comments: Ctrl = control

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A					
pH (S.U.)	7.6					
Temperature °C	25.0					
Dissolved Oxygen mg/L aerate if < 4	8.1					
Conductivity (µmhos) mmhos	673					
Salinity ppth	—					
(initials) Measured by:	BA					
(initials) Recorded by:	BA					

Comments:

DCL = dechlorinated

Salinity only needs measuring if saltwater.

Concentration DCL Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A			
pH (S.U.)	7.9	8.1	8.1			
Temperature °C	24.6	24.0	24.2			
Dissolved Oxygen mg/L aerate if < 4	8.1	7.5	7.4			
Conductivity (µmhos) mmhos	286	293	290			
Salinity ppth	—	—	—			
(initials) Measured by:	BA	CF	CF			
(initials) Recorded by:	BA	JS	JS			

Comments:

Concentration DCL 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A			
pH (S.U.)	8.0	7.8	7.9			
Temperature °C	24.9	24.0	24.3			
Dissolved Oxygen mg/L aerate if < 4	8.2	6.9 BA	7.2			
Conductivity (µmhos) mmhos	701	685	711			
Salinity ppth	—	—	—			
(initials) Measured by:	BA	CF	CF			
(initials) Recorded by:	BA	JS	JS			

Comments:

Appendix B. (continued)

Bioassay Instrument ID

Test ID: Spencer WJSF Dates: 4.14.09 – 4.16.09

METER / DEVICE	ID	SOP	Parameter	Method	√used
YSI Model 58 Dissolved Oxygen Meter	90H018262	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	SM 2510 B	✓
			Salinity	SM 2520 B	
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Thermometer (DO probe)	YSI 5750 SN 05J1720	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.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

V 1.1 6/12/08 MF

PAGE 24

Appendix C. SRT Bench Sheets and Statistical Analysis

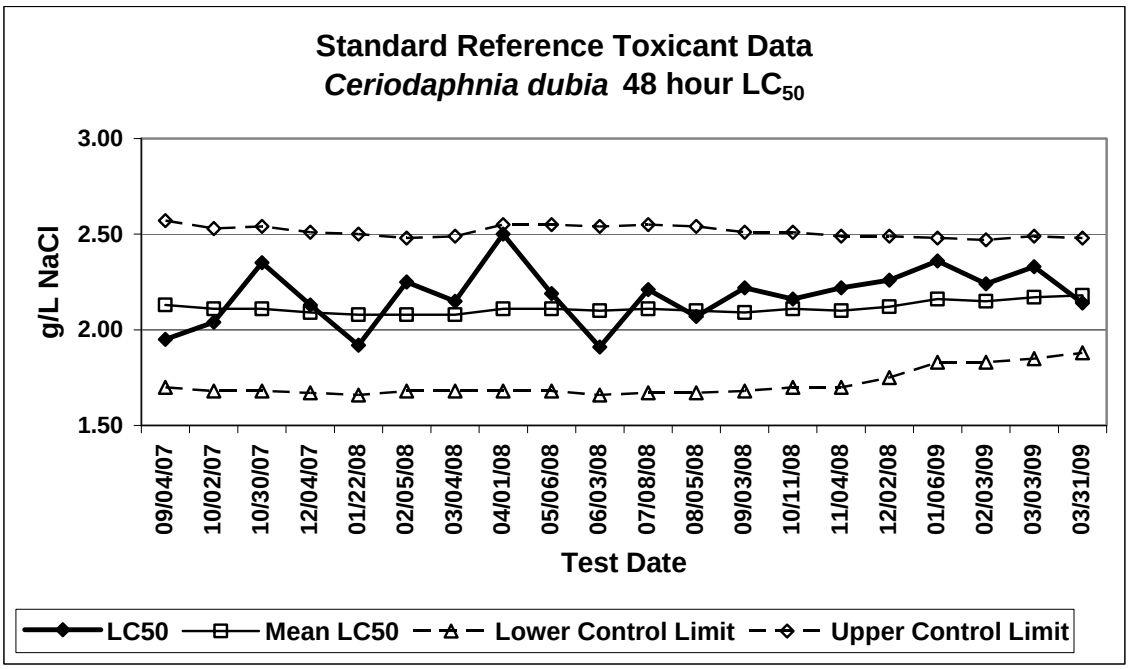
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
09/04/07	1.95	2.13	0.22	1.70	2.57
10/02/07	2.04	2.11	0.21	1.68	2.53
10/30/07	2.35	2.11	0.21	1.68	2.54
12/04/07	2.13	2.09	0.20	1.67	2.51
01/22/08	1.92	2.08	0.20	1.66	2.50
02/05/08	2.25	2.08	0.20	1.68	2.48
03/04/08	2.15	2.08	0.20	1.68	2.49
04/01/08	2.50	2.11	0.22	1.68	2.55
05/06/08	2.19	2.11	0.22	1.68	2.55
06/03/08	1.91	2.10	0.22	1.66	2.54
07/08/08	2.21	2.11	0.22	1.67	2.55
08/05/08	2.07	2.10	0.22	1.67	2.54
09/03/08	2.22	2.09	0.21	1.68	2.51
10/11/08	2.16	2.11	0.20	1.70	2.51
11/04/08	2.22	2.10	0.20	1.70	2.49
12/02/08	2.26	2.12	0.19	1.75	2.49
01/06/09	2.36	2.16	0.16	1.83	2.48
02/03/09	2.24	2.15	0.16	1.83	2.47
03/03/09	2.33	2.17	0.16	1.85	2.49
03/31/09	2.14	2.18	0.15	1.88	2.48

Means are of the last 20 SRT tests.
Lower Control Limit = mean - 2 * Std Dev
Upper Control Limit = mean + 2 * Std Dev

CV = 6.95
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

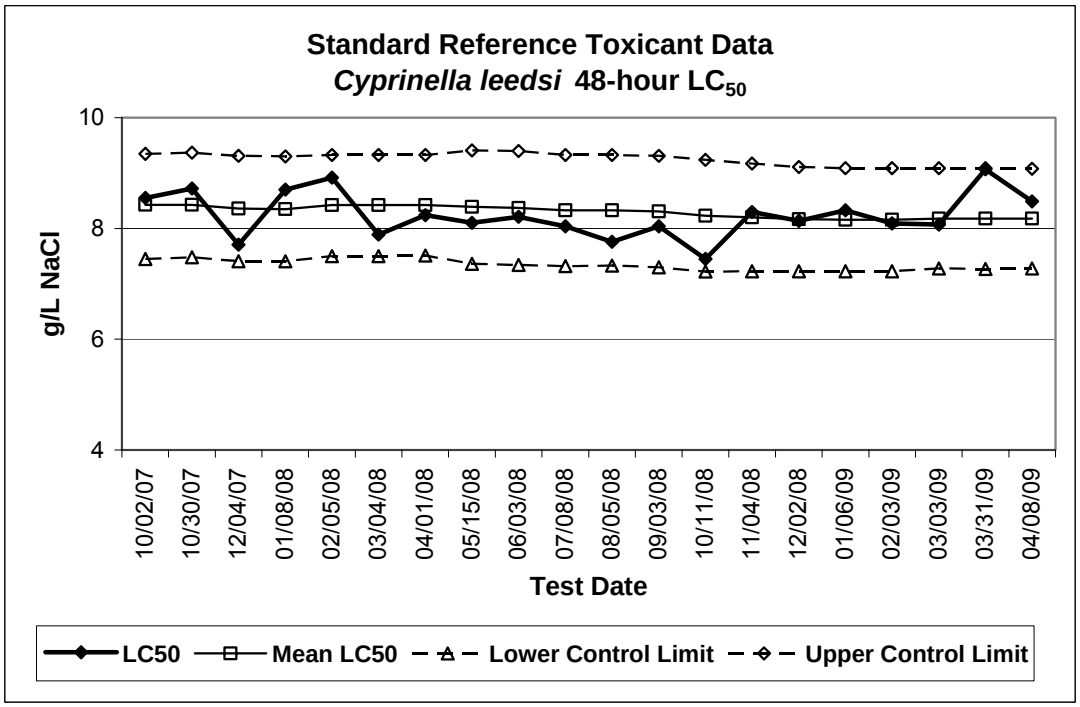
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

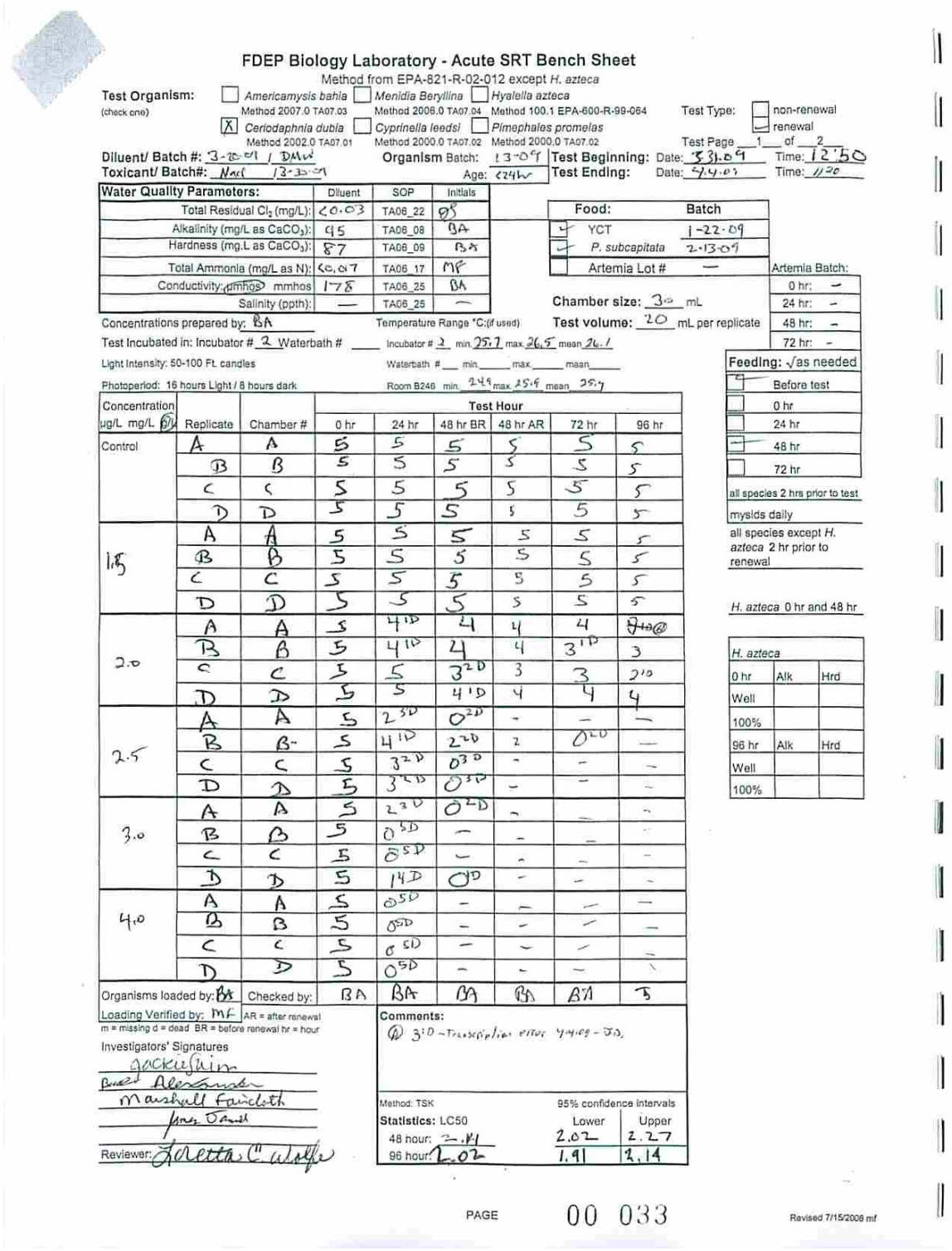
Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
10/02/07	8.55	8.43	0.47	7.45	9.35
10/30/07	8.72	8.43	0.47	7.48	9.37
12/04/07	7.71	8.36	0.47	7.41	9.31
01/08/08	8.7	8.35	0.47	7.41	9.30
02/05/08	8.92	8.42	0.46	7.50	9.33
03/04/08	7.89	8.42	0.46	7.50	9.33
04/01/08	8.24	8.42	0.45	7.51	9.33
05/15/08	8.1	8.39	0.51	7.36	9.41
06/03/08	8.21	8.37	0.51	7.34	9.40
07/08/08	8.04	8.33	0.50	7.32	9.33
08/05/08	7.76	8.33	0.50	7.33	9.33
09/03/08	8.04	8.31	0.50	7.30	9.31
10/11/08	7.45	8.23	0.51	7.22	9.24
11/04/08	8.3	8.20	0.48	7.23	9.17
12/02/08	8.14	8.17	0.47	7.23	9.11
01/06/09	8.33	8.16	0.47	7.23	9.09
02/03/09	8.09	8.16	0.47	7.23	9.09
03/03/09	8.07	8.18	0.45	7.28	9.09
03/31/09	9.07	8.18	0.45	7.27	9.09
04/08/09	8.49	8.18	0.45	7.28	9.08

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 5.52
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 #: 3-20-09 / DMW

Toxicant/ Batch#: NaCl 13-35-09

Organism Batch: 13-09 Age: 624hr

Test Beginning: Date: 3.30.09 Time: 12:50

Test Ending: Date: 4.4.09 Time: 1120

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	BS
Alkalinity (mg/L as $CaCO_3$):	95	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	87	TA06_09	BA
Total Ammonia (mg/L as N):	<0.07	TA06_17	MF
Conductivity: ~~mmhos~~ mmhos	178	TA06_25	BA
Salinity (ppth):	—	TA06_25	—

Food:	Batch
✓ YCT	1-22-09
✓ *P. subcapitata*	2-13-09
☐ 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. 25.7 max. 26.5 mean 26.1

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

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.9 max. 25.9 mean 25.7

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 ‰	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	4 1D	4	4	4	~~3 1D~~ @
	B	B	5	4 1D	4	4	3 1D	3
	C	C	5	5	3 2D	3	3	2 1D
	D	D	5	5	4 1D	4	4	4
2.5	A	A	5	2 3D	0 2D	-	—	—
	B	B	5	4 1D	2 2D	2	0 2D	—
	C	C	5	3 2D	0 3D	-	-	-
	D	D	5	3 2D	0 3D	-	-	-
3.0	A	A	5	2 3D	0 2D	-	-	-
	B	B	5	0 5D	—	-	-	-
	C	C	5	0 5D	-	-	-	-
	D	D	5	1 4D	0 5D	-	-	-
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	BA	BA	B

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

Comments:

@ 3 1D - Transcription error 4.4.09 - JD

Investigators' Signatures

Jackie Jim

Brent Alexander

Marshall Faircloth

Jane Dowd

Reviewer: Loretta C. Wolfe

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour:	2.02	2.27
96 hour: 2.02	1.91	2.14

PAGE 00 033

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: 3-31-07 Time: 12:50
Test Ending: Date: 4-4-07 Time: 1120
Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L (circle)	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☑ mmhos	Salinity (ppth)
Control	M	0 hr	7.7	24.1	7.3	0.178	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	7.5	0.196	—
	M	48 hr AR	7.8	24.2	24.2 7.2	0.178	—
	—	72 hr	—	—	—	—	—
	M	96 hr	8.2	24.2	7.1	0.190	—
1.5	M	0 hr	7.7	24.3	7.0	3.03	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	7.3	3.19	—
	M	48 hr AR	7.8	24.3	7.2	3.06	—
	—	72 hr	—	—	—	—	—
	M	96 hr	8.1	24.3	7.5	3.21	—
2.0	M	0 hr	7.8	24.4	7.1	4.07	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	7.1	4.27	—
	M	48 hr AR	7.9	24.2	7.2	4.02	—
	—	72 hr	—	—	—	—	—
	M	96 hr	8.1	24.3	7.7	4.24	—
2.5	M	0 hr	7.8	24.3	7.1	4.99	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.1	24.0	7.2	5.18	—
	M	48 hr AR	7.9	24.2	7.1	4.85	—
	B	72 hr	7.9	24.6	6.6	4.97	—
	—	96 hr	—	—	—	—	—
3.0	M	0 hr	7.9	24.5	7.1	5.87	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.1	24.0	7.2	6.11	—
	—	48 hr AR	—	—	—	—	—
	—	72 hr	—	—	—	—	—
	—	96 hr	—	—	—	—	—
4.0	M	0 hr	7.9	24.5	7.0	7.67	—
		24 hr	7.6	24.0	7.1	7.63	—
	—	48 hr BR	—	—	—	—	—
	—	48 hr AR	—	—	—	—	—
	—	72 hr	—	—	—	—	—
	—	96 hr	—	—	—	—	—

Investigators Signatures
Bill Alexander
Jackie Shim
Marshall Faircloth
James David
Reviewed By: Loretta C. Wolfe

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

Measure/record salinity for marine tests

Comments:

PAGE 00 034

Revised 07/15/2008 MF

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 3-30-09
Toxicant/ Batch#: NaCl 13-30-09
Organism Batch: 3-31-09 Age: 13 days
Test Beginning: Date: 3-31-09 Time: 13:00
Test Ending: Date: 4.4.09 Time: 1100

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	BB
Alkalinity (mg/L as $CaCO_3$):	1495	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	130	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity (umhos) mmhos	280	TA06_25	SD
Salinity (ppth):	—	TA06_25	—

145 24hr

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☑ Artemia Lot # 3 8438	

Artemia Batch:
0 hr: 47.09
24 hr: ~~48-09~~ BA 47.09
48 hr: 49.09
72 hr:

Chamber size: 1000 mL
Test volume: 500 mL per replicate

Concentrations prepared by: SD
Test Incubated in: Incubator # 2 Waterbath # ____ Temperature Range °C:(if used)
Incubator # 2 min 25.7 max 26.5 mean 26.1
Light Intensity: 50-100 Ft. candles
Waterbath # ___ min ____ max ____ mean ____
Photoperiod: 16 hours Light / 8 hours dark
Room B248 min 24.9 max 25.6 mean 25.4

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 (1)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control		A	A1	10	10	10	10	10	10
		B	A2	10	10	10	10	10	10
6		A	A3	10	10	10	10	10	9 10
		B	A4	10	10	10	10	10	10
7		A	A5	10	10	10	10	10	10
		B	A6	10	10	10	10	10	~~9~~ 10/10 (2)
8		A	A7	10	10	10	10	10	9 10
		B	A8	10	10	10	10	10	10
9		A	A9	10	6 4D	5 1D	5	5	5
		B	A10	10	10	7 3D	7	7	7
10		A	A11	10	0 10D	—	—	—	—
		B	A12	10	0 10D	—	—	—	—
Organisms loaded by: JD			Checked by:	JD	4	4	4	4	JD

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
Jacki Shim
Bobby Alvarez
James Daniels
Chelsea Franks
Maegan Fitzpatrick
Reviewer: Martha C. Wolfe

Comments:
(2) transcription error 4.4.09
96 hour result exceeded 2X STD Deviation, Test accepted 4.8.09 → Reviewed MF 4/13/09

Method: TSK	95% confidence Intervals	
Statistics: LC50	Lower	Upper
48 hour: 9.07	8.85	9.30
96 hour: 9.04	8.78	9.30

PAGE 00 035

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: 3/31/08 Time: 1300
Test Ending: Date: 4/4/08 Time: 1100

Test Type: ☐ non-renewal ☑ 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 ☑ mmhos	Salinity (ppth)
Control	A	0 hr	7.7	24.9	7.6	0.280	—
	B	24 hr	7.8	24.2	6.3	0.299	—
	A	48 hr BR	8.0	24.6	6.5	0.297	—
	A	48 hr AR	7.9	24.0	7.5	0.289	—
	B	72 hr	7.9	24.4	6.3	0.324	—
	A	96 hr	7.9	24.3	5.8	0.300	—
6	A	0 hr	7.9	24.9	7.5	11.1	—
	B	24 hr	7.8	25.0	5.9	10.9	—
	A	48 hr BR	7.9	24.5	6.3	11.6	—
	A	48 hr AR	7.9	24.1	6.8	11.2	—
	B	72 hr	7.8	24.4	5.6	11.3	—
	A	96 hr	7.9	24.3	6.0	11.3	—
7	A	0 hr	7.9	24.8	7.4	12.7	—
	B	24 hr	7.9	24.4	5.8	12.8	—
	A	48 hr BR	8.0	24.5	6.2	12.7	—
	A	48 hr AR	7.9	24.6	6.7	12.8	—
	B	72 hr	7.8	24.4	5.5	13.2	—
	A	96 hr	7.9	24.4	6.2	13.2	—
8	A	0 hr	7.9	24.6	7.4	14.7	—
	B	24 hr	7.9	24.6	5.9	14.5	—
	A	48 hr BR	8.0	24.3	6.2	14.5	—
	A	48 hr AR	8.0	24.1	6.8	14.6	—
	B	72 hr	7.8	24.3	5.5	14.9	—
	A	96 hr	7.9	24.5	6.3	14.9	—
9	A	0 hr	7.9	24.6	7.4	15.4	—
	B	24 hr	7.9	24.7	5.8	15.9	—
	A	48 hr BR	8.0	24.8	6.3	16.1	—
	A	48 hr AR	8.0	24.0	6.9	16.1	—
	B	72 hr	8.0	24.1	5.8	16.4	—
	A	96 hr	8.0	24.3	6.3	16.4	—
10	A	0 hr	7.9	24.6	7.4	17.8	—
	B	24 hr	7.8	24.3	5.8	17.4	—
	A	48 hr BR					—
		48 hr AR					—
		72 hr					—
		96 hr					—

Investigators Signatures
Jane Daniel
Jackie Shipp
Brett Beaumont
Chelsea French
Marshall Faircloth
Reviewed By: Mette Culpepper

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

Measure/record salinity for marine tests

Comments:

PAGE 00 036

Revised 07/15/2008 MF

Appendix C. (continued)

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

DATE: 3-31-09 DURATION: 48 h TOXICANT : NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	5
2.50	20	18
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: **2.14**
95% LOWER CONFIDENCE: 2.02
95% UPPER CONFIDENCE: 2.27

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

DATE: 3-31-09 DURATION: 48 h TOXICANT : NaCl
SPECIES: *Cyprinella leedsi*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	0
7.00	20	0
8.00	20	0
9.00	20	8
10.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: **9.07**
95% LOWER CONFIDENCE: 8.85
95% UPPER CONFIDENCE: 9.30

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 3/30/05

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	150	4 DAYS	M5090326	25°C	7.9	20‰
Menidia beryllina						
						Hardness
Cyprinella leedsi	150	12DAYS	CL090328	25°C	7.8	80mg/L
Pimephales promelas	150	8DAYS	FM090322	25°C	7.8	80mg/L

Packed by: _____

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

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 4/13/09

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia						
Menidia beryllina						
						Hardness
Cyprinella leedsi	100	~~12 DAYS~~ 11 DAYS	CL090402	25°C	7.8	80 mg/L
Pimephales promelas						

Packed by: DJ

Shipped Via: FedEx

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 Spencer Wastewater Treatment Facility Outfall D-001, sampled on April 13, 2009.

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 9:40	Effluent	AGP/LN	Algal Growth Potential	109		mg DryWt/L	0.3	0.9
4/13/2009 9:40	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.62	U	ug/L	0.62	1.9
4/13/2009 9:40	Effluent	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	2.8	AJ	mg/L	0.2	2
4/13/2009 9:40	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.27	U	ug/L	0.27	0.8
4/13/2009 9:40	Effluent	Overflow	Fecal Coliforms-Membrane Filter	26	B	#/100 mL	1.6	
4/13/2009 9:40	Effluent	Toxicology	BSY-Acute-Scrn-FW-Fish, LC50	100	K	LC50		
4/13/2009 9:40	Effluent	Toxicology	BSY-Acute-Scrn-FW-Fish,LC50-dcl	100	L	LC50		
4/13/2009 9:40	Effluent	Toxicology	BSY-Acute-Scrn-FW-C.dubia, LC50	100	K	LC50		
4/13/2009 9:40	Effluent	Toxicology	BSY-Acute-Scrn-FW-Cdubia,LC50-dcl	100	L	LC50		
4/13/2009 9:40	Effluent	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
4/13/2009 9:40	Effluent	Metals	Mercury	0.12	U	ug/L	0.12	0.5
4/13/2009 9:40	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/13/2009 9:40	Effluent	Metals	Nickel	3.74		ug/L	0.25	1
4/13/2009 9:40	Effluent	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/13/2009 9:40	Effluent	Metals	Magnesium	12.1		mg/L	0.04	0.16
4/13/2009 9:40	Effluent	Metals	Iron	310		ug/L	30	120
4/13/2009 9:40	Effluent	Metals	Arsenic	0.25	U	ug/L	0.25	1
4/13/2009 9:40	Effluent	Metals	Zinc	40		ug/L	5	20
4/13/2009 9:40	Effluent	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Metals	Copper	0.75		ug/L	0.5	0.5
4/13/2009 9:40	Effluent	Metals	Calcium	28.3		mg/L	0.075	0.3
4/13/2009 9:40	Effluent	Metals	Aluminum	60	U	ug/L	60	240
4/13/2009 9:40	Effluent	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
4/13/2009 9:40	Effluent	Nutrients	Kjeldahl Nitrogen	0.62	J	mg N/L	0.16	0.4
4/13/2009 9:40	Effluent	Nutrients	O-Phosphate-P	0.089		mg P/L	0.004	0.01
4/13/2009 9:40	Effluent	Nutrients	NO2NO3-N	2.1		mg N/L	0.04	0.1
4/13/2009 9:40	Effluent	Nutrients	Sulfate	120		mg SO4/L	0.4	1
4/13/2009 9:40	Effluent	Nutrients	Total-P	0.16		mg P/L	0.004	0.01
4/13/2009 9:40	Effluent	Nutrients	TSS	4	U	mg/L	4	16
4/13/2009 9:40	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
4/13/2009 9:40	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 9:40	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	Toxaphene	0.75	U	ug/L	0.75	3
4/13/2009 9:40	Effluent	Pesticides	Atrazine	0.18	U	ug/L	0.18	0.72
4/13/2009 9:40	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
4/13/2009 9:40	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Methoxychlor	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
4/13/2009 9:40	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
4/13/2009 9:40	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
4/13/2009 9:40	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
4/13/2009 9:40	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
4/13/2009 9:40	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
4/13/2009 9:40	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
4/13/2009 9:40	Effluent	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Simazine	0.14	U	ug/L	0.14	0.56
4/13/2009 9:40	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
4/13/2009 9:40	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
4/13/2009 9:40	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
4/13/2009 9:40	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 9:40	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
4/13/2009 9:40	Effluent	Pesticides	Butylate	0.2	UJ	ug/L	0.2	0.8
4/13/2009 9:40	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
4/13/2009 9:40	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
4/13/2009 9:40	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
4/13/2009 9:40	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
4/13/2009 9:40	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Fluorene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8	U	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Acenaphthylene	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	26	I	ug/L	14	57
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.5	U	ug/L	9.5	38
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Phenanthrene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Hexachloroethane	2.8	U	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8	UJ	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.8	U	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.8	UJ	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	57
4/13/2009 9:40	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Acenaphthene	0.95	UJ	ug/L	0.95	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Fluoranthene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Naphthalene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	UJ	ug/L	14	57
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8	U	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Phenol	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Pyrene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
4/13/2009 9:40	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Anthracene	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.7	U	ug/L	4.7	19
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Chrysene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.7	U	ug/L	4.7	19
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8	U	ug/L	2.8	11
4/13/2009 9:40	Effluent	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	UJ	ug/L	9.5	38
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.95	UJ	ug/L	0.95	3.8
4/13/2009 9:40	Effluent	Field Parameter	Dissolved Oxygen	5.49		mg/L		
4/13/2009 9:40	Effluent	Field Parameter	Temperature	22.45		C		
4/13/2009 9:40	Effluent	Field Parameter	pH	6.93				
4/13/2009 9:40	Effluent	Field Parameter	Specific Conductance	666		umhos/cm		
4/13/2009 9:40	Effluent	Field Parameter	Sample Depth	0.5		m		
4/13/2009 10:00	Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
4/13/2009 10:00	Blank	Metals	Zinc	5	U	ug/L	5	20
4/13/2009 10:00	Blank	Metals	Copper	0.5	U	ug/L	0.5	0.5
4/13/2009 10:00	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
4/13/2009 10:00	Blank	Metals	Mercury	0.12	U	ug/L	0.12	0.5

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 10:00	Blank	Metals	Aluminum	60	U	ug/L	60	240
4/13/2009 10:00	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
4/13/2009 10:00	Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
4/13/2009 10:00	Blank	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
4/13/2009 10:00	Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/13/2009 10:00	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/13/2009 10:00	Blank	Metals	Iron	30	U	ug/L	30	120
4/13/2009 10:00	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
4/13/2009 10:00	Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
4/13/2009 10:00	Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
4/13/2009 10:00	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
4/13/2009 10:00	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
4/13/2009 10:00	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
4/13/2009 10:00	Blank	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
4/13/2009 10:00	Blank	Pesticides	Parathion Methyl	0.099	U	ug/L	0.099	0.4
4/13/2009 10:00	Blank	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Aldrin	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
4/13/2009 10:00	Blank	Pesticides	Heptachlor	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Naled	0.79	U	ug/L	0.79	3.2
4/13/2009 10:00	Blank	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
4/13/2009 10:00	Blank	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
4/13/2009 10:00	Blank	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
4/13/2009 10:00	Blank	Pesticides	Metribuzin	0.099	U	ug/L	0.099	0.4
4/13/2009 10:00	Blank	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Ethoprop	0.099	U	ug/L	0.099	0.4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 10:00	Blank	Pesticides	Gamma-BHC	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Toxaphene	0.74	U	ug/L	0.74	3
4/13/2009 10:00	Blank	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Methoxychlor	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Fonofos	0.099	U	ug/L	0.099	0.4
4/13/2009 10:00	Blank	Pesticides	Hexazinone	0.099	U	ug/L	0.099	0.4
4/13/2009 10:00	Blank	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
4/13/2009 10:00	Blank	Pesticides	Alpha-BHC	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	Delta-BHC	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
4/13/2009 10:00	Blank	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
4/13/2009 10:00	Blank	Pesticides	Beta-BHC	0.0099	U	ug/L	0.0099	0.04
4/13/2009 10:00	Blank	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Butylate	0.2	UJ	ug/L	0.2	0.8
4/13/2009 10:00	Blank	Pesticides	Chlorpyrifos Methyl	0.099	U	ug/L	0.099	0.4
4/13/2009 10:00	Blank	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
4/13/2009 10:00	Blank	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
4/13/2009 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7
4/13/2009 10:00	Blank	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	UJ	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	39
4/13/2009 10:00	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	58

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 10:00	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	150
4/13/2009 10:00	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
4/13/2009 10:00	Blank	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
4/13/2009 10:00	Blank	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	39
4/13/2009 10:00	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 10:00	Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	UJ	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	58
4/13/2009 10:00	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	390
4/13/2009 10:00	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L	0.96	3.9
4/13/2009 10:00	Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
4/13/2009 10:00	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
4/13/2009 11:50	SPENCER Ctrll	AGP/LN	Algal Growth Potential	7.11		mg DryWt/L	0.3	0.9
4/13/2009 11:50	SPENCER Ctrll	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.27	I	ug/L	0.24	0.71
4/13/2009 11:50	SPENCER Ctrll	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	1.2	I	mg/L	0.2	2
4/13/2009 11:50	SPENCER Ctrll	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1	I	ug/L	0.55	1.7
4/13/2009 11:50	SPENCER Ctrll	Overflow	Fecal Coliforms-Membrane Filter	827	B	#/100 mL	9.1	
4/13/2009 11:50	SPENCER Ctrll	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/13/2009 11:50	SPENCER Ctrll	Metals	Zinc	5	U	ug/L	5	20
4/13/2009 11:50	SPENCER Ctrll	Metals	Calcium	24.9		mg/L	0.075	0.3
4/13/2009 11:50	SPENCER Ctrll	Metals	Copper	4.72		ug/L	0.5	0.5
4/13/2009 11:50	SPENCER Ctrll	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
4/13/2009 11:50	SPENCER Ctrll	Metals	Nickel	0.25	U	ug/L	0.25	1
4/13/2009 11:50	SPENCER Ctrll	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/13/2009 11:50	SPENCER Ctrll	Metals	Arsenic	0.29	I	ug/L	0.25	1
4/13/2009 11:50	SPENCER Ctrll	Metals	Iron	96	I	ug/L	30	120
4/13/2009 11:50	SPENCER Ctrll	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/13/2009 11:50	SPENCER Ctrll	Metals	Aluminum	60	U	ug/L	60	240
4/13/2009 11:50	SPENCER Ctrll	Metals	Magnesium	2.15		mg/L	0.04	0.16
4/13/2009 11:50	SPENCER Ctrll	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/13/2009 11:50	SPENCER Ctrll	Metals	Mercury	0.12	U	ug/L	0.12	0.5
4/13/2009 11:50	SPENCER Ctrll	Nutrients	Kjeldahl Nitrogen	0.33	I	mg N/L	0.16	0.4
4/13/2009 11:50	SPENCER Ctrll	Nutrients	TSS	4	U	mg/L	4	16
4/13/2009 11:50	SPENCER Ctrll	Nutrients	O-Phosphate-P	0.005	I	mg P/L	0.004	0.01
4/13/2009 11:50	SPENCER Ctrll	Nutrients	Total-P	0.016		mg P/L	0.004	0.01
4/13/2009 11:50	SPENCER Ctrll	Nutrients	Color	20		PCU	5	5
4/13/2009 11:50	SPENCER Ctrll	Nutrients	Sulfate	14		mg SO4/L	0.2	0.5
4/13/2009 11:50	SPENCER Ctrll	Nutrients	NO2NO3-N	0.039		mg N/L	0.004	0.01
4/13/2009 11:50	SPENCER Ctrll	Nutrients	Ammonia-N	0.012	I	mg N/L	0.01	0.02

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 11:50	SPENCER Ctrll	Field Parameter	Dissolved Oxygen	7.45		mg/L		
4/13/2009 11:50	SPENCER Ctrll	Field Parameter	pH	7.6				
4/13/2009 11:50	SPENCER Ctrll	Field Parameter	Temperature	20.71		C		
4/13/2009 11:50	SPENCER Ctrll	Field Parameter	Specific Conductance	202		umhos/cm		
4/13/2009 11:50	SPENCER CTRL 1	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	SPENCER CTRL 1	Field Parameter	Temperature	20.71		C		
4/13/2009 11:50	SPENCER CTRL 1	Field Parameter	Dissolved Oxygen	7.45		mg/L		
4/13/2009 11:50	SPENCER CTRL 1	Field Parameter	pH	7.6				
4/13/2009 11:50	SPENCER CTRL 2	Field Parameter	Dissolved Oxygen	7.45		mg/L		
4/13/2009 11:50	SPENCER CTRL 2	Field Parameter	Temperature	20.71		C		
4/13/2009 11:50	SPENCER CTRL 2	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	SPENCER CTRL 2	Field Parameter	Specific Conductance	202		umhos/cm		
4/13/2009 11:50	SPENCER CTRL 2	Field Parameter	pH	7.6				
4/13/2009 11:50	SPENCER CTRL 3	Field Parameter	pH	7.6				
4/13/2009 11:50	SPENCER CTRL 3	Field Parameter	Temperature	20.71		C		
4/13/2009 11:50	SPENCER CTRL 3	Field Parameter	Dissolved Oxygen	7.45		mg/L		
4/13/2009 11:50	SPENCER CTRL 3	Field Parameter	Specific Conductance	202		umhos/cm		
4/13/2009 11:50	SPENCER CTRL 3	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	SPENCER CTRL 4	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	SPENCER CTRL 4	Field Parameter	pH	7.6				
4/13/2009 11:50	SPENCER CTRL 4	Field Parameter	Specific Conductance	202		umhos/cm		
4/13/2009 11:50	SPENCER CTRL 4	Field Parameter	Temperature	20.71		C		
4/13/2009 11:50	SPENCER CTRL 4	Field Parameter	Dissolved Oxygen	7.45		mg/L		
4/13/2009 11:50	TEST SPENCER	AGP/LN	Algal Growth Potential	4.24		mg DryWt/L	0.3	0.9
4/13/2009 11:50	TEST SPENCER	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	1.2	I	mg/L	0.2	2
4/13/2009 11:50	TEST SPENCER	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.2	I	ug/L	0.55	1.7
4/13/2009 11:50	TEST SPENCER	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.75		ug/L	0.24	0.71
4/13/2009 11:50	TEST SPENCER	Overflow	Fecal Coliforms-Membrane Filter	673	B	#/100 mL	9.1	
4/13/2009 11:50	TEST SPENCER	Metals	Magnesium	2.14	A	mg/L	0.04	0.16
4/13/2009 11:50	TEST SPENCER	Metals	Aluminum	260	A	ug/L	60	240
4/13/2009 11:50	TEST SPENCER	Metals	Iron	430	A	ug/L	30	120
4/13/2009 11:50	TEST SPENCER	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
4/13/2009 11:50	TEST SPENCER	Metals	Copper	3.85		ug/L	0.5	0.5
4/13/2009 11:50	TEST SPENCER	Metals	Calcium	30.9	A	mg/L	0.075	0.3
4/13/2009 11:50	TEST SPENCER	Metals	Mercury	0.12	U	ug/L	0.12	0.5

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
4/13/2009 11:50	TEST SPENCER	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/13/2009 11:50	TEST SPENCER	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/13/2009 11:50	TEST SPENCER	Metals	Nickel	0.41	I	ug/L	0.25	1
4/13/2009 11:50	TEST SPENCER	Metals	Zinc	5	U	ug/L	5	20
4/13/2009 11:50	TEST SPENCER	Metals	Lead	0.36	I	ug/L	0.2	0.8
4/13/2009 11:50	TEST SPENCER	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/13/2009 11:50	TEST SPENCER	Metals	Arsenic	0.41	I	ug/L	0.25	1
4/13/2009 11:50	TEST SPENCER	Nutrients	TSS	17	A	mg/L	4	16
4/13/2009 11:50	TEST SPENCER	Nutrients	Total-P	0.026	A	mg P/L	0.004	0.01
4/13/2009 11:50	TEST SPENCER	Nutrients	Ammonia-N	0.021		mg N/L	0.01	0.02
4/13/2009 11:50	TEST SPENCER	Nutrients	Sulfate	13		mg SO4/L	0.2	0.5
4/13/2009 11:50	TEST SPENCER	Nutrients	Color	30	A	PCU	5	5
4/13/2009 11:50	TEST SPENCER	Nutrients	O-Phosphate-P	0.006	I	mg P/L	0.004	0.01
4/13/2009 11:50	TEST SPENCER	Nutrients	Kjeldahl Nitrogen	0.47		mg N/L	0.16	0.4
4/13/2009 11:50	TEST SPENCER	Nutrients	NO2NO3-N	0.037		mg N/L	0.004	0.01
4/13/2009 11:50	TEST SPENCER	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Temperature	20.95		C		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Sample Depth	0.1		m		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Specific Conductance	239		umhos/cm		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Dissolved Oxygen	7.28		mg/L		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Temperature	20.95		C		
4/13/2009 11:50	TEST SPENCER	Field Parameter	Specific Conductance	239		umhos/cm		
4/13/2009 11:50	TEST SPENCER	Field Parameter	pH	7.48				
4/13/2009 11:50	TEST SPENCER	Field Parameter	Dissolved Oxygen	7.28		mg/L		
4/13/2009 11:50	TEST SPENCER	Field Parameter	pH	7.48				

Appendix F. Facility Summary

SPENCER WWTP – FL0173371 – MARCH-2009

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Ed Jamro	**Contact Number:** 904-807-3264
Facility Name (as it appears on permit): Spencer WWTF	**Current Name:** Spencer WWTF
NPDES Permit Number: FL0 173 371	**Permit Expiration Date:** February 23, 2008
Physical Address: 4145- 1 Savannah Glen Drive, Orange Park, FL 32073	
District: Northeast	**County:** Clay
Function of Facility: Facility treats domestic wastewater.	
Facility Type: Domestic Wastewater	**Permitted Capacity (MGD):** 2.50
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): January 2008 through December 2008 mean flows @ 002-1 – 0.006 MGD (AB)	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): January 2008 through December 2008 mean flows @ R001 – 0.617 MGD (MK)	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☒ Rainfall Dependent ☐ Other, please specify	

Appendix F. (continued)

SPENCER WWTP – FL0173371 – MARCH-2009

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):
EFF-1 – After disinfection, prior to constructed wetlands,
EFF-2 – Following dechlorination prior to discharge to surface waters.
WIM-1 – Effluent at end of existing constructed wetlands,
SWU-1 –upstream from Spencer wetland in unnamed tributary off of Turtledove Drive,
SWD-1 –Downstream from Spencer wetland at S.R. 21 bridge,
EFA-2 – Post-disinfection at reuse transfer pumping station wet well following the chlorine contact chamber,
INF-1 – Influent, prior to biological treatment (cannot contain internal recycled streams)

Description of Permitted Outfall(s): (excerpted from draft permit – to be issued in April 2009)

a. **Surface Water Discharge (Construct Wetland Discharge to Received Wetland): An existing 0.499 MGD AADF permitted discharge to two 2.3 acres constructed wetland cells (R-002 System). The treated water from the constructed wetland is discharged to Spencer wetland (receiving wetland) from diffuser pipe (Outfall D-001). The Spencer wetland connects to an unnamed tributary of Little Black Creek. The Outfall D-001 is located approximately at latitude 30° 10' 5" N, longitude 81° 48' 23" W.**

b. **Surface Water Discharge (Apricot Act Discharge to Receiving Wetland): An existing 0.83 MGD annual average daily flow (AADF) or 303.0 million gallons (MG) discharge under the APRICOT Act (Section 403.086(7) of Florida Statutes) to Spencer wetland (receiving wetland) through diffuser pipe at Outfall D-002. The Spencer wetland is connected to an unnamed tributary of Little Black Creek (Class III fresh waters). The discharge D-002 is located approximately at latitude 30° 10' 18" N, longitude 81° 48' 23" W.**

Note: Outfalls D-001 and D-002 are at the same location. They are named differently due to different disposal mechanisms.

c. **Surface Water Discharge (Discharge Directly to an Unnamed Tributary of Little Black Creek): A new 1.42 MGD AADF or 518.30 million gallons (MG) discharge under the APRICOT Act (Section 403.086(7) of Florida Statutes) to an unnamed tributary of Little Black Creek (Class III fresh waters) through Outfall D-003. The Outfall D-003 is located approximately at latitude 30 ° 10' 26.2" N, longitude 81 ° 48' 22.3" W.**

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

See Next page

Appendix F. (continued)

SPENCER WWTP – FL0173371 – MARCH-2009

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

An existing 2.5 MGD annual average daily flow (AADF) permitted capacity advanced secondary wastewater treatment facility (WWTF) consisting of two treatment trains:

a. Train # 1: 0.50 MGD annual average daily flow (AADF) permitted capacity Ludzack-Ettinger activated sludge wastewater treatment plant consisting a 37,600-gallon anoxic basin, a 254,000-gallon aeration basin with internal recycle to the anoxic basin, a 26-foot diameter secondary clarifier, a 6,395-gallon chlorine contact chamber, a 50,000-gallon aerobic digester, and a 125,000-gallon reject storage tank. Train # 1 will be converted to reject storage and a digester.

b. Train # 2: A 2.0 MGD AADF permitted capacity advanced WWTF consisting of:

One influent headworks consisting of a cylindrical fine screen unit (having a bar spacing of ¼ inch and rated for 1,389 gpm), a manual bar screen for backup, and a cyclonic grit removal unit; One biological treatment unit (BTU) utilizes the Carrousel process consisting of a 1.41-million gallon (MG) aerated zone which utilizes with three 75-hp surface aerators, and a 0.34 MG-anoxic zone uses two 10-hp submerged turbine aerators; Two secondary clarifiers; each of which is 82-feet in diameter, 16-feet sidewater depths, holding 0.60 MG; Two identical 450-sf traveling bridge sand filters which have a width of 44 feet and a length of 40 feet; Two 37,700-gallon chlorine contact chambers; each chlorine contact chamber has three channels; each channel is approximately 65 feet long, 4 feet wide and 7 feet deep;

c. Reuse:

One effluent pump station which is equipped with two 50-horsepower centrifugal pumps; each pump has a capacity of 2,175 gpm; Two reclaimed water storage tanks having a total volume of 1.6 MG (One is 1.1 MG, and the other is 0.5 MG.), and one 1.55 MG reclaimed water storage pond;

d. Sludge Handling:

Consists of two digesters with a total volume of 0.085 MG; One BioChem Neutralizer System consisting of the following process units: two 160- gallon per minute rotary disk thickeners, two polymer feed systems, two 10,000-gallon process tanks, and one Huber screw presses (two 1/2 horsepower thickeners and one 2 horsepower press). The system can produce Class A biosolids and is designed to accommodate the permitted capacity of the wastewater treatment facility (WWTF).

The facility is equipped with mechanical aerators, return sludge pumps, waste sludge pump, reuse service pumps, reject pumps, a liquid chlorine dose system, chemical feed systems (ferric chloride, polymer) a dechlorination (Bisulfite) system for wetland backup discharge, a reuse monitoring and control system, digester blowers, and a 400 KW emergency generator.

Wastewater residuals are treated to Class B or Class A stabilization requirements and land applied.

SPENCER WWTP – FL0173371 – MARCH-2009

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

1. **During the period beginning on the day that Phase IV is placed into service and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from the constructed wetland to surface water (Spencer wetlands, then to Little Black Creek) through D-001. Such discharges shall be limited and monitored by the permittee as specified below. The permittee is required to conduct in stream monitoring at SWU-1 and SWD-1 as shown below.**

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
BOD, Carbonaceous 5 day, 20C	mg/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour composite	WIM-1	
Solids, Total Suspended	mg/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour composite	WIM-1	
Nitrogen, Total	mg/L	Maximum	3.0	3.75	4.5	6.0	Weekly	16-hour composite	WIM-1	
Phosphorus, Total (as P)	mg/L	Maximum	1.0	1.25	1.5	2.0	Weekly	16-hour composite	WIM-1	
Nitrogen, Ammonia, Total (as N)	mg/L	Maximum	-	2.0	2.4	3.2	Weekly	Grab	WIM-1	
Nitrogen, Ammonia, Total unionized (as N)	mg/L	Maximum				0.02	Weekly	Calculated	CAL-1	
Total Residual Chlorine (For Dechlorination)	mg/L	Maximum	-	-	-	0.01	Weekly	Grab	WIM-1	
Stage	inches	Minimum	-	Report	-	-	Weekly	Staff Gauge	WIM-1	
Temperature, Water	°C	Maximum	-	-	-	Report	Monthly	Grab	WIM-1	1.
Oxygen, Dissolved (DO)	mg/L	Minimum	-	-	-	Report	Monthly	Grab	WIM-1	1.
pH	s.u.	Range	-	-	-	Report	Monthly	Grab	WIM-1	
Coliform, Fecal	#/100mL	Maximum	-	-	-	Report	Monthly	Grab	WIM-1	

SPENCER WWTP – FL0173371 – MARCH-2009

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

1. **During the period beginning on the day that Phase IV is placed into service and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from the constructed wetland to surface water (Spencer wetlands, then to Little Black Creek) through D-001. Such discharges shall be limited and monitored by the permittee as specified below. The permittee is required to conduct in stream monitoring at SWU-1 and SWD-1 as shown below.**

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Specific Conductance	umho/cm	Maximum	-	-	-	Report	Monthly	Grab	WIM-1	
Color	pt-co	Maximum	-	-	-	Report	Monthly	Grab	WIM-1	
Phosphate, Ortho (as P)	mg/L	Maximum	-	-	-	Report	Monthly	Grab & filter immediately	WIM-1	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Maximum	-	-	-	Report	Monthly	16-hour composite	WIM-1	
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Maximum	-	-	-	Report	Monthly	16-hour composite	WIM-1	
Sulfate, Total	mg/L	Maximum	-	-	-	Report	Semi-annually	16-hour composite	WIM-1	
Chlorophyll a	mg/L	Maximum	-	-	-	Report	Semi-annually	Grab	WIM-1	
Metals (Hg, Pb, Cd, Cu, Zn, Fe, Ni, Ag)	ug/L	Maximum	-	-	-	Report	Semi-annually	Grab	WIM-1	2.
Non-Metallic priority pollutants	ug/L	Maximum	-	-	-	Report	Annually	Grab	WIM-1	
Nitrogen, Total	mg/L	Maximum	-	-	-	Report	Quarterly	Grab	SWU-1, SWD-1	In-stream
Nitrogen, Ammonia, Tot- unionized(as N)	mg/L	Maximum	-	-	-	Report	Quarterly	Calculated	CAL-1	In-stream
Nitrogen, Ammonia, Total (as N)	mg/L	Maximum	-	-	-	Report	Quarterly	Grab	SWU-1, SWD-1	In-stream
Phosphate, Total (as P)	mg/L	Maximum	-	-	-	Report	Quarterly	Grab	SWU-1, SWD-1	In-stream

SPENCER WWTP – FL0173371 – MARCH-2009

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

1. **During the period beginning on the day that Phase IV is placed into service and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from the constructed wetland to surface water (Spencer wetlands, then to Little Black Creek) through D-001. Such discharges shall be limited and monitored by the permittee as specified below. The permittee is required to conduct in stream monitoring at SWU-1 and SWD-1 as shown below.**

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Oxygen, Dissolved (DO)	**mg/L**	**Minimum**	-	-	-	**Report**	**Quarterly**	**Grab**	**SWU-1, SWD-1**	**In-stream**
pH	**s.u.**	-	-	-	-	**Report**	**Quarterly**	**Grab**	**SWU-1, SWD-1**	**In-stream**
Stage	**inches**	**Maximum**	-	-	-	**Report**	**Quarterly**	**Staff gauge**	**SWD-1**	**In-stream**
BOD, Carbonaceous 5 day, 20C	**mg/L**	**Maximum**	-	**Report**	-	-	**Weekly**	**16-hour flow proportioned composite**	**INF-1**	**3.**
Solids, Total Suspended	**mg/L**	**Maximum**	-	**Report**	-	-	**Weekly**	**16-hour flow proportioned composite**	**INF-1**	**3.**
Whole Effluent Toxicity, Acute	**N/A**	**The 96-hour LC50 shall not be less than 100% effluent. See Note 1 below.**					**See Note 4. below.**	**24-hour composite**	**EFF-1**	**See Note 4 below**

NOTES: **1. - Temperature and dissolved oxygen shall be monitored once an hour for one shift a week.**

2. **- Hardness shall also be reported as part of this sampling event.**

3. **Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters.** ***[62-601.500(4)]***

4. **Acute Whole Effluent Toxicity Testing Program**

The permittee shall comply with the following requirements to evaluate acute whole effluent toxicity of the discharge from outfall D-001 when a discharge to surface water exceeds 100,000 gallons per day monthly average daily flow.

a. Effluent limitation

(1) Whole effluent acute toxicity shall not exceed in any routine test mortality greater than 50% in the 100% effluent concentration or in any additional follow-up test an LC50 of less than 100% effluent. [Rules 62-302.200(1), Rule 62-302.500(1)(a)(4), and Rule 62-4.244(3)(a), F.A.C.]

b. Monitoring frequency

(1) The toxicity tests specified below shall be conducted semi-annually. Sampling is only required when a discharge to surface water exceeds 100,000 gallons per day monthly average daily flow. No more than one set of routine tests shall be required during any 6-month period.

(2) Upon completion of six consecutive, valid routine tests that demonstrate compliance with the effluent limitation in I.a. (1) above, the permittee may submit a written request to the Department for a reduction in monitoring frequency. The Department shall review this request within 45 days of receipt and approve or deny the request in writing. Materials submitted to the Department for review should include a summary of the data and the complete bioassay reports for all tests being considered. In no case shall the frequency of monitoring be reduced to less than annually. Requested reductions in monitoring shall only become effective upon Department approval.

(3) If a test within the sequence of the six is deemed invalid, but is replaced by a repeat valid test initiated within seven days of the invalidation, the invalid test will not be counted against the requirement for six consecutive valid tests for the purpose of evaluating the reduction of monitoring frequency. If two or more invalidations occur, this provision does not apply.

c. Test Requirements

(1) The permittee shall conduct 96-hour acute static-renewal toxicity tests using the daphnid, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*, concurrently.

(2) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and one test concentration of 100% final effluent

(3) Additional Follow-up Tests, if required:

(a) If a routine test does not meet the acute toxicity limitation in I.a. (1) above, the permittee shall conduct one additional follow-up definitive test on each species that failed the test.

(b) The additional test shall be conducted using a control and a minimum of five dilutions: 100%, 75% 50%, 25%, and 12.5% effluent. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-012.

(c) The additional follow-up test shall be initiated within two weeks of the end of the failed routine tests.

(d) In the event that discharge to surface water has ceased, contact the Department for further guidance on additional testing.

(4) All test species, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-821-R-02-012, or the most current edition. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct acute toxicity testing in accordance with the revised method.

(5) The control water and dilution water used will be moderately hard water as described in EPA-821-R-02-012, Table 7.

d. Sampling Requirements

(1) Sampling is only required when a discharge to surface water exceeds 100,000 gallons per day monthly average daily flow.

(2) Routine tests shall be conducted on a single grab sample of final effluent collected at WIM-2. The date and time of sample collection shall be documented on the chain of custody.

(3) The permittee shall contact the Department for guidance in the event of observed acute toxicity during testing and if sampling for additional toxicity testing is no longer possible because discharge to surface waters has ceased.

(4) Additional follow-up tests shall be conducted on one grab sample collected on the day and time as the sample resulting in toxicity in the routine test. Results from the additional test shall include the determination of LC50 values with 95% confidence limits.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) acute toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or starting no more than 30 days before the date of each routine or additional test conducted. The SRT-QA data shall be included in its respective routine or additional test report.

(2) If the mortality in the control exceeds 10% for either species in any test, the test for that species (including the control) shall be invalidated and the test repeated.

(3) If, during any routine test, 100% mortality occurs prior to the end of the test and control mortality is less than 10% at that time, that test (including the control) shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Additional effluent tests shall be evaluated for acceptability based on the concentration-response relationship as required by EPA-821-R-02-012, Section 12.2.6.2, and included in the bioassay reports.

f. Reporting Requirements

(1) Results from all required tests shall be reported on the toxicity page of the DMR as follows:

(a) Routine Test Results: If less than 50% survival occurs for either test species, then " < 100%" should be entered on the DMR for that test species. If 50% or more survival occurs in any test, then " > 100%" should be entered for that test species.

(b) Additional Follow-up Test Results: Report the calculated LC50 value for that test species and the 95%confidence limits.

(c) When no discharge occurs or the discharge to surface water is less than 100,000 gallons per day during any monthly reporting period, this fact shall be reported on the toxicity page of the DMR.

(2) A bioassay laboratory report for the routine test shall be prepared according to EPA-821-R-02-012, Section 12, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days of the completion of the test.

(3) For the additional test, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-012, Section 12, and mailed within 45 days of completion of the valid additional test. If any additional tests, or two consecutive routine tests, do not meet the effluent limitation specified in I.a. (1) above, the permittee shall contact with the Department within 30 days of the laboratory report submittal to discuss the corrective actions necessary to remedy the observed acute toxicity.

(4) All bioassay reports shall be mailed to:

Florida Department of Environmental Protection
Northeast District – Domestic Wastewater Section
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256-7590

Appendix H. Permit Violations Reported on Facility Summary

SPENCER WWTP – FL0173371 – MARCH-2009

PART I: Continued

Receiving Waters: **Unnamed Tributary of Little Black Creek**	**Classification (indicate whether fresh or marine):** **Class III Fresh Water**

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):
See Note 4 on previous pages.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): N/A – old CO has been closed

Facility Mixing Zone Details (if applicable): NA

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:
For January 1, 2008 to January 31, 2009

Date	Parameter and Units	Limit	Result
NONE at D-002 or R001			

Describe previous FYI and WQBEL study:
April 16, 2007 – FYI3 - results demonstrate that the effluent sample collected from the EFA-1 (EFA-2) sampling point for Outfall D-001 (D-002) for this facility was acutely toxic to both test species during the 96-hour acute screening bioassays. The observed toxicity was primarily attributed to the effluent's total residual chlorine. Although this is not a permit violation (flow was being routed to reuse system) the sample appeared to be slightly toxic and further investigation may be needed. The de-chlorinated *Cyprinella leedsi* test showed low levels of toxicity. The cause of this toxicity was not determined. The de-chlorinated *Ceriodaphnia dubia* test was prematurely terminated and reported as "No Result."

The de-chlorinated effluent Algal Growth Potential (AGP) result (49.2 mg dry weight/L) exceeded the "problem" threshold for fresh receiving waters; however, the AGP results from samples taken upstream and downstream of the wetland discharge were less than the "problem" threshold, suggesting that the wetland treatment process effectively removes nutrients.

Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Describe previous or current Enforcement Actions (including WLs):
Most recent enforcement was in 2004 for BOD & Nitrogen exceedances (CO-04-1165). A P2 project was approved and completed. The case was resolved and closed in February 2007.

Describe any violations or problems noted in previous inspection:
Inspected on 9/26/08 – no problems noted in WWTP or in Reuse system.

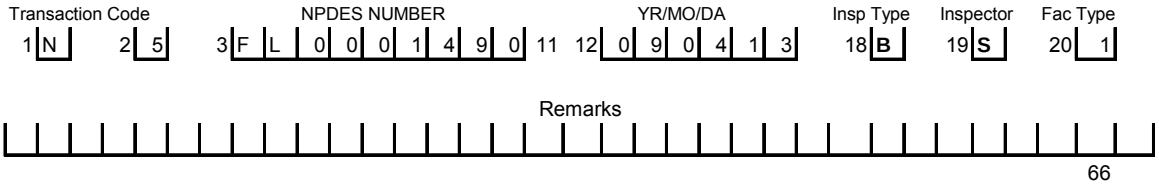
Discuss whether DMR trends within previous five years are improving or declining:
Reuse Flow is way up and discharge to wetland flow is way down. BOD and Nitrogen levels are down.

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):
Permit is about to be reissued in April 2009.

Appendix I. EPA End Sheet

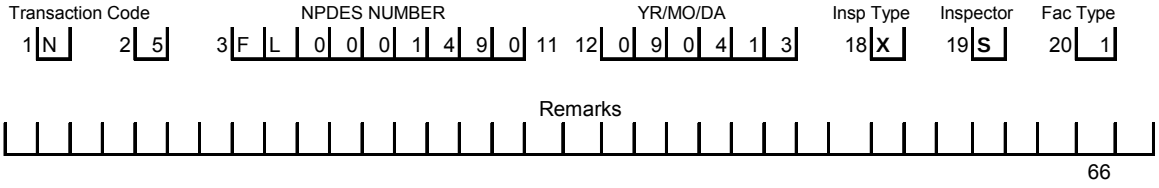
The Bioassay of the Spencer Wastewater Treatment Facility effluent sampled on April 13, 2009. NPDES #FL0173371.

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



The Priority Pollutants Analysis of the Spencer Wastewater Treatment Facility effluent sampled on April 13, 2009. NPDES #FL0173371.

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



Biological Analyses of the Spencer Wastewater Treatment Facility effluent sampled on April 13, 2009. NPDES #FL0173371.

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

