

Effluent Quality Assessment

Noma Wastewater Treatment Plant

Holmes County

NPDES #FL0040207

Sampled December 6, 2010

March 2011
(Resubmitted March 2011 with corrected tables)

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

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, Effluent Limits, and Permit Violations Recorded on Discharge Monitoring Report

Appendix G EPA End Sheet

Noma Wastewater Treatment Plant (WWTP), 3488 Smalley Lane, Noma, Holmes County, Florida, 32452. NPDES #FL0040207. Effluent grab samples for bioassay, microbiological and chemical analyses for this facility were collected on December 6, 2010.

Introduction

Noma WWTP is a sequencing batch reactor type treatment plant which treats municipal wastewater (See Appendix F for detailed facility information provided by Kim Allen of FDEP Northwest District.)

Methods

Samples were collected from the EFF-02 NPDES sampling point for Outfall D-001 by Nathan Mulkey and Rick Abad (FDEP Northwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/bars/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The 96-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

The sample was aerated for 30 minutes at a rate of approximately 100 bubbles per minute to reduce the dissolved oxygen (DO) from 9.3 mg/L to 8.6 mg/L.

Results and Discussion

- **Toxicity Test Results**

  Tests were performed December 7 - 11, 2010.

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

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

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

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

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

- **Algal Growth Potential**

  The effluent Algal Growth Potential (AGP) was 410 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen-limited. The predicted AGP based on inorganic nitrogen concentrations was 509.2 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

- **Chemistry Results**

  Total residual chlorine was not detected in the bioassay sample in the bioassay laboratory. Total ammonia (3.05 mg/L) was detected in the bioassay sample in the bioassay laboratory. Based on the pH, salinity, and temperature of the effluent at test initiation, the calculated unionized ammonia concentration was 0.087 mg/L. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 3.4 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was ≤ 0.02 mg/L.

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

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

Conclusion

The effluent sample collected from the EFF-02 for this facility on December 6, 2010, was not acutely toxic to either test species during the 96-hour acute screening bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on December 6, 2010, did not exceed any applicable water quality standards.

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) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus for samples collected from the Noma WWTP on December 6, 2010.

Noma Wastewater Treatment Plant NPDES #FL0040207					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
EFF-02	410.0	509.2 ± 101.8	573.8 ± 114.8	3.3	3.3

Table 2. Effluent limits, Class III Freshwater Criteria and chemical and microbiological data for samples collected from the Noma WWTP on December 6, 2010.

Noma Wastewater Treatment Plant NPDES #FL0040207	Class III Criteria	Effluent Limits	Effluent	
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	100	I
Arsenic	≤ 50	-	1.23	
Cadmium	≤ 0.31 b	-	0.03	U
Calcium (mg/L)	-	-	34.8	
Chromium-III	≤ 100.76 b	-	0.3	U
Copper	≤ 10.98 b	-	3.64	
Iron	≤ 1,000	-	110	I
Lead	≤ 4.06 b	-	0.35	I
Magnesium (mg/L)	-	-	8.29	
Nickel	≤ 61.31 b	-	0.7	I
Selenium	≤ 5.0	-	0.2	U
Silver	≤ 0.07	-	0.029	I
Zinc	≤ 140.85 b	-	44	
Nutrients (mg/L)				
Ortho-phosphate	-	-	4.1	
Total Phosphorus	-	-	4.6	
Total Ammonia	-	Report	3.4	
Un-ionized Ammonia	≤ 0.02 s	Report	≤ 0.02	c
Nitrate and Nitrite	-	-	10	
Total Kjeldahl Nitrogen	-	≤ 10.0 s	5.1	
Organic Nitrogen	-	-	1.7	c
Total Nitrogen	-	-	15.1	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	-	7.4	
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.1	
Conductivity (µmhos/cm)	≤ 1,275	-	476	
Temperature (°C)	-	Report	14.8	
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	≤ 0.03	UQ£
Chlorophyll *a* (µg/L) - Corrected	-	-	1	IJ
Phaeophytin (µg/L)	-	-	0.46	UJ
Total Suspended Solids (mg/L)	-	≤ 60.0 s	8	I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0 s	5.4	J
Chloride (mg/L)	-	-	30	
Fluoride (mg/L)	≤ 10.0	-	0.11	
Sulfate (mg/L)	-	-	32	
Flow (MGD)	-	≤ 0.025 a	0.02	a*
Hardness (mg $CaCO_3$)	-	-	121.03	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	-	100	

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

b - Value is calculated based on hardness

c - Value is calculated

s - Single sample

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

J - Estimated value

Q - Sample held beyond normal holding time

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

¥ - Fecal coliform analysis performed by Central Micro lab

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

* - Flow measured from 9/2009 - 8/2010

£ - Measured in Central Labs and entered into Tox sheets

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-12-06-25
FYI3 for Noma WWTP

Requester: Cari Butler
Field Report Prepared By: N Mulkey

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

Collected By: Nathan Mulkey / Rick Hand
Sampling Agency: FDEP
Send Final Report To: Toni Edwards

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Noma WWTP	☐ Comp ☒ Grab Date 12/6/10 Time 1215 Eastern Central	Date Time Eastern Central	
	Field ID: EFF-01	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.50	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 14.77	pH: 6.95	Sample Depth: 0.365 ☒ m ☐ ft
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☒: 432	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Noma WWTP	☐ Comp ☒ Grab Date 12/6/10 Time 1215 Eastern Central	Date Time Eastern Central	
	Field ID: EFF-02	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.40	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 14.77	pH: 7.06	Sample Depth: 0.262 ☒ m ☐ ft
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☒: 476	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Noma WWTP	☐ Comp ☒ Grab Date 12/6/10 Time 1230 Eastern Central	Date Time Eastern Central	
	Field ID: TOX	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☐	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Noma WWTP	☐ Comp ☐ Grab Date 12/6/10 Time 1230 Eastern Central	Date Time Eastern Central	
	Field ID: Blank	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☐	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
[signature]	12/6/10	Hand	[signature]	12-6-10 16:10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

1 Micro and 1 chl
12/6/10 1628 gg

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: NOMA WWTP

Address: 3488 Smalley Lane 32452

City: Noma **County:** Holmes

Contact/District: Kim Allen / NWD

NPDES Permit #: FL 0040207

LIMS Job #: TLH-2010-12-06-06 **LIMS Sample #:** 1316507

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

Sample Collection: Date: 12/06/10 Time: 1330

Hold Time Start: Date: 12/06/10 Time: 1330

Comments:

Initial sample handling:

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

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

Aeration : ☒ yes ☐ no Initial DO: 9.3 mg/L Final DO: 8.6 mg/L Duration: 30 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 ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Sample Validation:

Instructions: Check yes or no. Fill in temperatures.

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

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

Investigators' Signatures:	Initials:
James Daniels	JD
Marshall Faircloth	MF
Sara Ayala	SA
Dana Power	DP
Amelia Parker	AMP
Kara Cox	KC

REVIEWER: Liz Miller

Diluent/Control Batch#:	12.6.10	12.6.10							
Water Quality Parameters	20% DMW	Well Water	Moderately Hard Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	Not measured		AMP
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03					<0.03	JD	MF
Alkalinity (mg/L as $CaCO_3$):	85	(A) ~~95~~ 144					119	DP	AMP
Hardness (mg/L as $CaCO_3$):	92	~~92~~ 146					122	DP	AMP
Total Ammonia (mg/L as N):	<0.017	<0.017					3.05	MF	AMP
Conductivity: ☒ µmhos ☐ mmhos	185	270 ~~255~~ (B)					452	JD	AMP
Salinity (ppth):	—	—					—	~~JD~~ JD	—

(A) Recorded alkalinity/hardness for 20% DMW in ~~well~~ water column. AMP 12/6/10

(B) Well water conductivity 270 umhos - MF for Dgr 12-14-10

V1.8 1/13/10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1316507 **SOP#: TA 07** 01 **Test #** 1 **of** 2

Test Species:
Batch #: 12-7-10 Age: < 24 hours
- [x] *Ceriodaphnia dubia*
- [ ] *Cyprinella leedsi*
- [ ] *Pimephales promelas*
- [ ] *Menidia beryllina*
- [ ] *Americamysis bahia*
- [ ] Other:______

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

Diluent (Batch # 11-24-10 **)**
[ ] ASW [x] 20% DMW
[ ] MHW [ ] Well

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

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

Chamber Size 30 **ml**
Test Volume: 20 **ml**

Test Started:
Date 12-7-10 Time 1200

Test Ended:
Date 12-11-10 Time 0900

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Checked or Verified by:			DD	JD	[illegible]	[illegible]	[illegible]	MF

Food
[x] YCT Batch# 5-19-10
[x] P. subcapitata Batch# 6-24-10
[ ] Artemia Lot#______

Feeding and Artemia Batch #
[ ] 0 hr____ [ ] Prior to Test
[ ] 24 hr____
[ ] 48 hr____ [ ] Prior to Renewal
[ ] 72 hr____

Temperature Range (°C)

Incubator # 2
min. 25.9 max. 26.8 mean______

Incubator #___
min.______max.______mean______

Waterbath #___
min.______max.______mean______

Room B246
min. 20.7 max. 25.2 mean______

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: MF / [illegible]
m = missing, d = dead, BR/AR Before/ After Renewal

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

Comments:

000020

V. 2.5 1-13-10

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

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1316507 SOP#: TA 07 02 Test # 2 of 2

Test Species:
Batch #: 12.7.10 Age: 13 days
- [ ] Ceriodaphnia dubia
- [x] Cyprinella leedsi
- [ ] Pimephales promelas
- [ ] Menidia beryllina
- [ ] Americamysis bahia
- [ ] Other:

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

Diluent (Batch # 12.6.10)
[ ] ASW [ ] 20% DMW
[ ] MHW [x] Well

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

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

Test Started: Date 12.7.10 Time 1230

Test Ended: Date 12-11-10 Time 0930

Chamber Size 600 ml
Test Volume: 400 ml

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	H1	5	5	5	5	5	5
	B	H2	5	5	5	5	5	5
	C	H3	5	5	5	5	5	5
	D	H4	5	5	5	5	5	5
100%	A	H5	5	5	5	5	5	5
	B	H6	5	5	5	5	5	5
	C	H7	5	5	5	5	5	5
	D	H8	5	5	5	5	5	5
Checked or Verified by:			JD	JD	JD	JD	JD	MF

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

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

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

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

Temperature Range (°C)

Incubator # 2
min. 25.9 max. 26.8 mean______

Incubator #___
min.______ max.______ mean______

Waterbath #___
min.______ max.______ mean______

Room B246
min. 20.7 max. 25.2 mean______

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Comments:

000021

V. 2.5 1-13-10

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

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1316507 Test # 1 of 2

Test Species:

☒ *Ceriodaphnia dubia* ☐ *Pimephales promelas* ☐ *Americamysis bahia*

~~☒~~ *Cyprinella leedsi* ☐ *Menidia beryllina* ☐ Other:_____

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

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☒ µmhos ☐ mmhos	Salinity* (ppth)
	A	0 hr	8.1	24.8	8.6	185 ~~270~~	
		24 hr					
Ctrl		48 hr BR	8.0	25.9	9.6	186	
		48 hr AR	8.0	25.5	8.1	173	
		72 hr					
	A	96 hr	8.2	24.4	7.6	187	
	A	0 hr	7.7	25.9	8.5	448	
		24 hr					
100%		48 hr BR	8.2	25.9	9.6	483	
		48 hr AR	7.1	24.7	9.1	450	
		72 hr					
	A	96 hr	8.2	24.3	7.9	474	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

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

000022

Page

V. 2.3 1-13-10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1316507 Test # 2 of 2

Test Species:

☐ *Ceriodaphnia dubia* ☐ *Pimephales promelas* ☐ *Americamysis bahia*

☒ *Cyprinella leedsi* ☐ *Menidia beryllina* ☐ Other:_____

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

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☒ µmhos ☐ mmhos	Salinity* (ppth)
CTRL	A	0 hr	7.8	25.9	9.0	~~275~~ 270	
	B	24 hr	8.3	25.0	8.1	272	
	C	48 hr BR	8.2	25.1	8.8	270	
	C	48 hr AR	8.0	24.5	8.5	262	
	D	72 hr	7.8 MF	25.3	6.5	272	
	A	96 hr	~~8.2~~ 7.2	25.1	7.2	275	
100%	A	0 hr	7.6	25.9	9.0	452	
	B	24 hr	8.0	24.8	8.0	458	
	C	48 hr BR	8.0	25.3	8.5	461	
	C	48 hr AR	7.3	24.0	8.2	446	
	D	72 hr	7.6	25.3	6.7	461	
	A	96 hr	8.1 MF	25.3	6.7	474	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

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

000023

Page

V. 2.3 1-13-10

Appendix B. (continued)

Test ID: Noma WWTP #134567 Dates: 12-7-10 - 12-11-10

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

SM-2530B modified to allow use of electronic and non-mercury filled thermometers. BA 12.10.10

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

V 1.1 9/21/10 MF/jd

000024

Appendix C. SRT Bench Sheets and Statistical Analysis

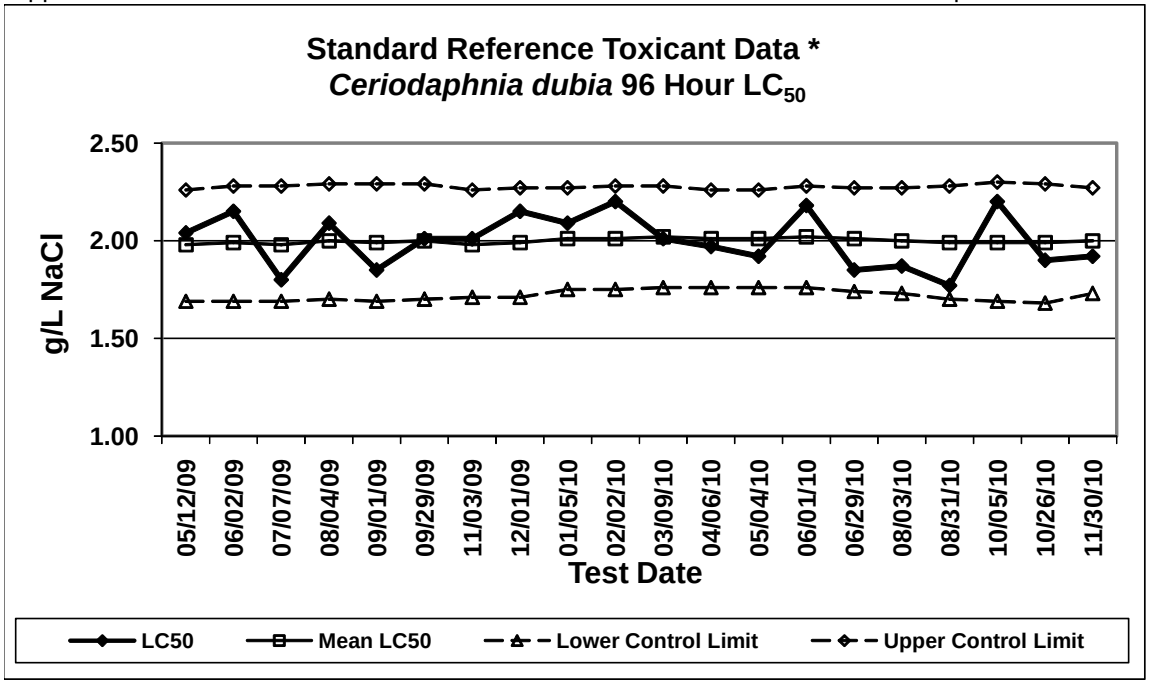
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/12/09	2.04	1.98	0.14	1.69	2.26
06/02/09	2.15	1.99	0.15	1.69	2.28
07/07/09	1.80	1.98	0.15	1.69	2.28
08/04/09	2.09	2.00	0.15	1.70	2.29
09/01/09	1.85	1.99	0.15	1.69	2.29
09/29/09	2.01	2.00	0.15	1.70	2.29
11/03/09	2.01	1.98	0.14	1.71	2.26
12/01/09	2.15	1.99	0.14	1.71	2.27
01/05/10	2.09	2.01	0.13	1.75	2.27
02/02/10	2.20	2.01	0.13	1.75	2.28
03/09/10	2.01	2.02	0.13	1.76	2.28
04/06/10	1.97	2.01	0.12	1.76	2.26
05/04/10	1.92	2.01	0.12	1.76	2.26
06/01/10	2.18	2.02	0.13	1.76	2.28
06/29/10	1.85	2.01	0.13	1.74	2.27
08/03/10	1.87	2.00	0.14	1.73	2.27
08/31/10	1.77	1.99	0.14	1.70	2.28
10/05/10	2.20	1.99	0.15	1.69	2.30
10/26/10	1.90	1.99	0.15	1.68	2.29
11/30/10	1.92	2.00	0.14	1.73	2.27

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

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



Appendix C. (continued)

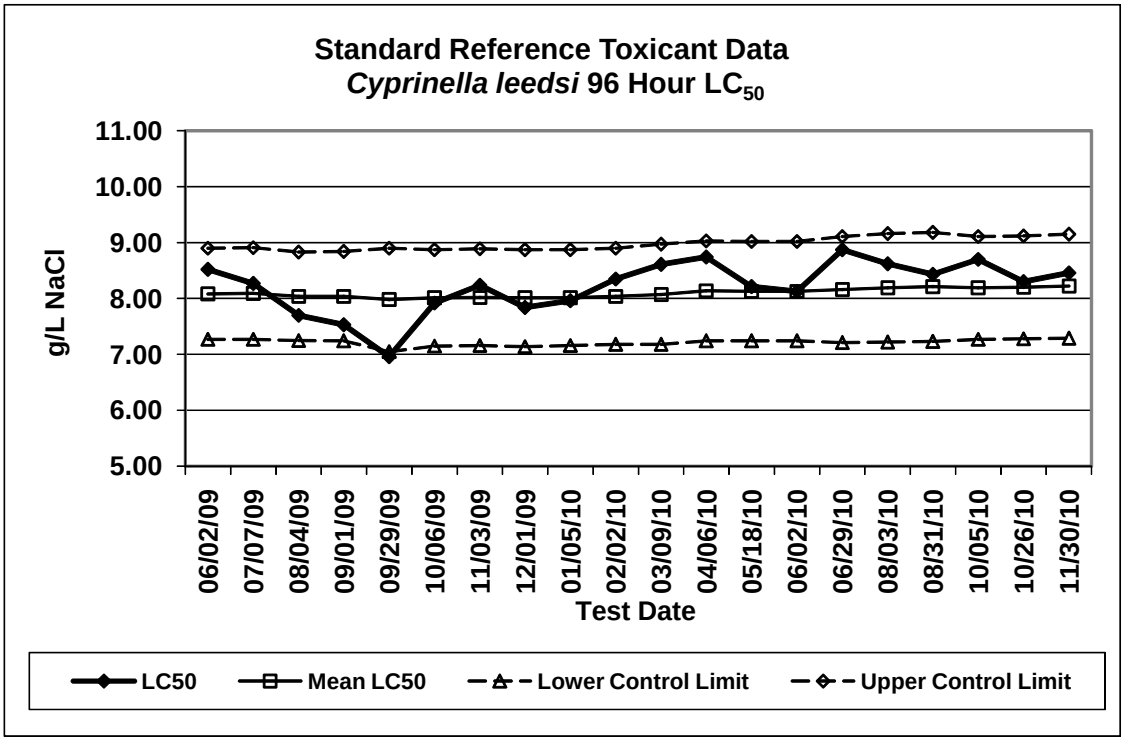
Florida Department of Environmental Protection
Bureau of Laboratories

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

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

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

CV = 5.65
EPA reference 75th quartile CV = 19%



Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☑ renewal

Test Page 1 of 2

Diluent/ Batch #: 2070 DMW / 11-24-10 (57) Organism Batch: 11.29.10 Test Beginning: Date: 11.30.10 Time: 12:30

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

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

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

Artemia Batch:
- 0 hr:
- 24 hr:
- 48 hr:
- 72 hr:

Chamber size: 30 mL

Test volume: 20 mL per replicate

Concentrations prepared by: BA / JD

Temperature Range °C:(if used)

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

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

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

Feeding: √as needed
- ☑ Before test
- ☐ 0 hr
- ☐ 24 hr
- ☑ 48 hr
- ☐ 72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

Concentration µg/L	mg/L	g/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	5	3 2D	3	3	3
			B	B	5	5	4 1D	4	2 2D	2
			C	C	5	5	3 2D	3	1 2D	1
			D	D	5	5	4 1D	4	3 1D	2 1D
2.5			A	A	5	4 1D	0 4D	—	—	—
			B	B	5	5	1 4D	1	0 1D	—
			C	C	5	5	0 5D	—	—	—
			D	D	5	5	1 4D	1	0 1D	—
3.0			A	A	5	4 1D	0 4D	—	—	—
			B	B	5	5	0 5D	—	—	—
			C	C	5	4 1D	0 4D	—	—	—
			D	D	5	3 2D	0 3D	—	—	—
4.0			A	A	5	0 5D	—	—	—	—
			B	B	5	0 5D	—	—	—	—
			C	C	5	0 5D	—	—	—	—
			D	D	5	0 5D	—	—	—	—
Organisms loaded by: BA			Checked by:		BA	BA	BA	JD	JD	BA

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

Loading Verified by: MF AR = after renewal

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

Comments:

Investigators' Signatures

Reviewer:

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 2.11	1.99	2.24
96 hour: 1.92	1.81	2.03

Page 15

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

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

Test Page 2 of 2

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

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

Test Type: ☐ non-renewal ☒ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	M	0 hr	8.1	24.5	7.7	0.179	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.1	24.0	7.1	0.201	-
	M	48 hr AR	7.9	24.0	6.9	0.178	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	5.1	0.200	-
1.5	M	0 hr	8.0	24.0	7.4	3.07	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.1	24.0	7.4	3.47	-
	M	48 hr AR	7.9	24.1	7.3	3.09	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	7.0	3.59	-
2.0	M	0 hr	8.0	24.0	7.3	3.98	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.0	7.2	4.62	-
	M	48 hr AR	8.0	24.0	7.3	4.19	-
	—	72 hr	—	—	—	—	-
	A	96 hr	8.0	24.0	6.1	4.59	-
2.5	M	0 hr	8.0	24.0	7.3	4.88	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.0	6.9	5.85	-
	M	48 hr AR	8.0	24.0	7.3	4.96	-
	BMBA	72 hr	8.0	24.0	8.5	4.98	-
	—	96 hr	—	—	—	—	-
3.0	M	0 hr	8.0	24.0	7.3	5.79	-
	—	24 hr	—	—	—	—	-
	A	48 hr BR	8.2	24.1	7.3	7.01	-
	M	48 hr AR	8.1	24.0	7.3	5.99	-
	—	72 hr	—	—	—	—	-
	—	96 hr	—	—	—	—	-
4.0	M	0 hr	8.0	24.0	7.5	7.54	-
	A	24 hr	7.9	24.0	6.1	7.80	-
	—	48 hr BR	—	—	—	—	-
	—	48 hr AR	—	—	—	—	-
	—	72 hr	—	—	—	—	-
	—	96 hr	—	—	—	—	-

Investigators Signatures
Becca Alexander
Amelia Bahin
Dianne Bowers
James Samuels
Marshall Faircloth

Reviewed By: Lisa Miller

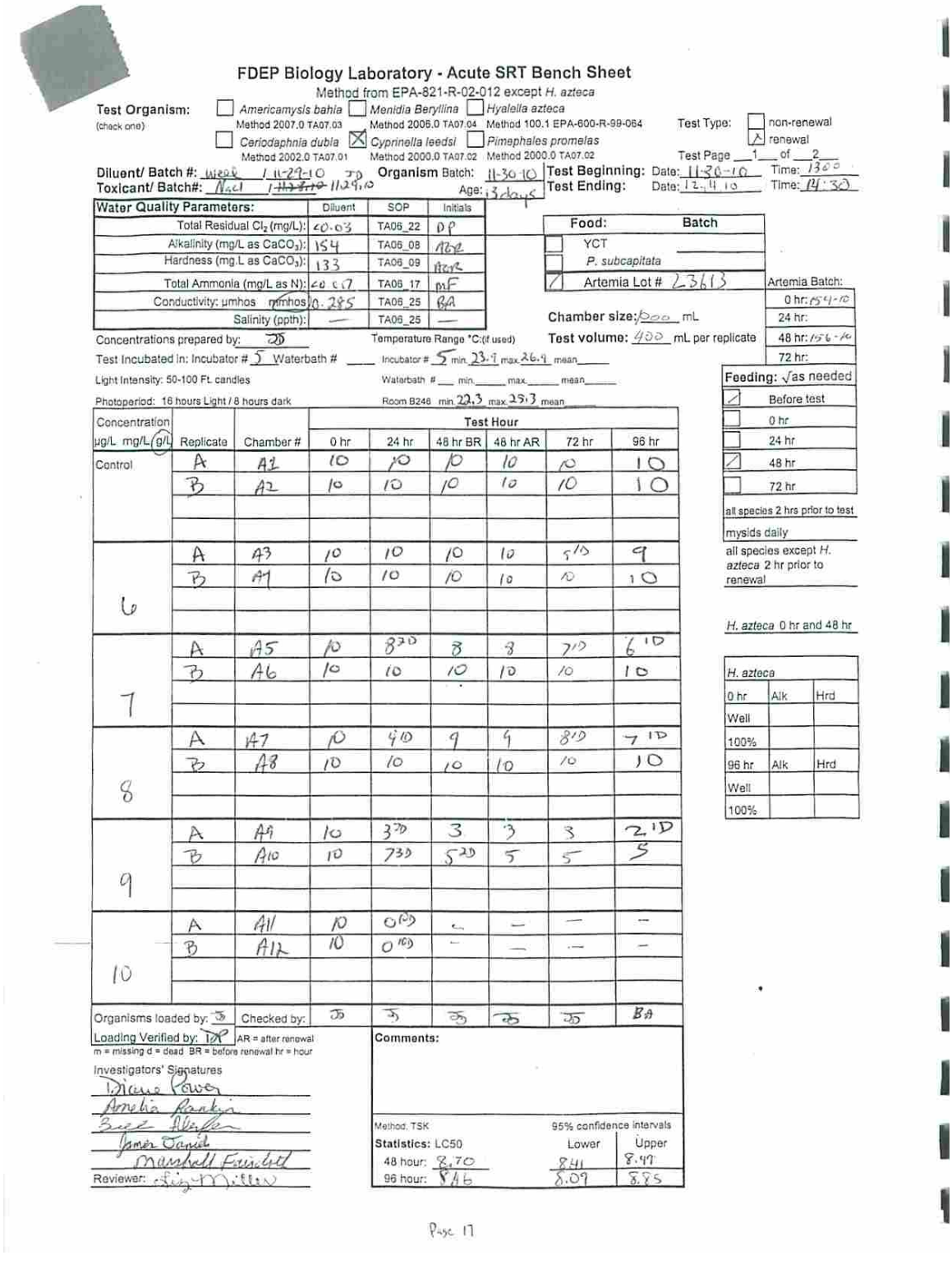
Measured by:
0 hr: BA
24 hr: BA
48 hr BR: BA
48 hr AR: BA
72 hr: RP/DD
96 hr: BA

Measure/record salinity for marine tests

Comments:

PAGE 16

Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☒ renewal

Test Page 1 of 2

Diluent/ Batch #: well 1 11-29-10 FP

Toxicant/ Batch#: NaCl 1 ~~11-29-10~~ 11.29.10

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

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

Test Ending: Date: 12.4.10 Time: 14:30

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

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

Artemia Batch:

0 hr:	1154-10
24 hr:	
48 hr:	1156-10
72 hr:	

Chamber size: 500 mL

Test volume: 400 mL per replicate

Concentrations prepared by: DP

Temperature Range °C:(if used)

Test Incubated In: Incubator # 5 Waterbath # ____ Incubator # 5 min. 23.9 max. 26.9 mean ____

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

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

Feeding: √as needed	
☑	Before test
☐	0 hr
☐	24 hr
☑	48 hr
☐	72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

Concentration µg/L mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A2	10	10	10	10	10	10
	B	A2	10	10	10	10	10	10
6	A	A3	10	10	10	10	5 1D	9
	B	A4	10	10	10	10	10	10
7	A	A5	10	8 2D	8	8	7 1D	6 1D
	B	A6	10	10	10	10	10	10
8	A	A7	10	9 1D	9	9	8 1D	7 1D
	B	A8	10	10	10	10	10	10
9	A	A9	10	3 2D	3	3	3	2 1D
	B	A10	10	7 3D	5 2D	5	5	5
10	A	A11	10	0 1D	—	—	—	—
	B	A12	10	0 1D	—	—	—	—
Organisms loaded by:		Checked by:	DP	JP	DP	DP	DP	BA

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

Loading Verified by: DP AR = after renewal

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

Comments:

Investigators' Signatures

Diane Power

Amelia Rankin

Jose Abreu

James David

Marshall Frischer

Reviewer: Liz Miller

Method: TSK

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

Page 17

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

Methods from EPA-821-R-02-012 except *H. azteca* — Test Page 2 of 2

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

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

Test Type: ☐ non-renewal ☒ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	7.9	24.1	8.1	0.285	–
	B	24 hr	8.0	24.1	7.6	0.282	–
	A	48 hr BR	8.2	24.5	7.6	0.305	–
	A	48 hr AR	8.0	24.3	8.1	0.309	–
	B	72 hr	8.2	24.0	8.1	0.296	–
	A	96 hr	7.9	24.0	7.3	0.337	–
6	A	0 hr	7.9	24.2	8.2	10.5	–
	B	24 hr	8.0	24.0	7.6	10.8	–
	A	48 hr BR	8.2	24.4	7.6	11.2	–
	A	48 hr AR	8.0	24.4	8.3	11.4	–
	B	72 hr	8.1	24.1	8.3	11.5	–
	A	96 hr	7.9	24.6	7.1	12.7 ~~58~~ 8	BR –
7	A	0 hr	7.9	24.2	8.1	12.5	–
	B	24 hr	8.0	24.0	7.8	12.7	–
	A	48 hr BR	8.2	24.1	7.5	13.3	–
	A	48 hr AR	8.0	24.4	8.6	13.4	–
	B	72 hr	8.1	24.4	7.4	13.7	–
	A	96 hr	8.0	24.6	6.7	15.9	–
8	A	0 hr	7.9	24.2	8.1	14.1	–
	B	24 hr	8.0	24.0	7.9	14.3	–
	A	48 hr BR	8.2	24.2	7.6	14.9	–
	A	48 hr AR	8.0	24.4	8.7	15.1	–
	B	72 hr	8.1	24.1	7.5	15.3	–
	A	96 hr	8.1	24.4	6.7	17.2	–
9	A	0 hr	7.9	24.2	8.1	15.9	–
	B	24 hr	8.0	24.0	7.8	16.0	–
	A	48 hr BR	8.2	24.2	7.7	17.1	–
	A	48 hr AR	8.0	24.6	9.1	16.9	–
	B	72 hr	8.1	24.1	8.0	17.6	–
	A	96 hr	8.1	24.0	6.7	19.5	–
10	A	0 hr	7.7	24.2	8.1	18.0	–
	B	24 hr	7.9	24.2	7.3	17.9	–
	A	48 hr BR	–	–	~~dead~~	–	–
	–	48 hr AR	–	–	–	–	–
	–	72 hr	–	–	–	–	–
	–	96 hr	–	–	–	–	–

Investigators Signatures
Diane Power
Amelia Baskin
Greg Alexander
Kenya Samuels
Marshall Faircloth
Reviewed By: Liz Mellon

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

Measure/record salinity for marine tests

Comments:

PAGE 18

Appendix C. (continued)

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

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

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

SPEARMAN-KARBER TRIM: .00%

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

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

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

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

SPEARMAN-KARBER TRIM: 5.00%

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

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

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 11/29/10

Ship to: FDEP

P.O. No: _____

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

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

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

Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 12/6/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	150 ac	4 days	MS 101202	25	8.0	20
Menidia beryllina	150 ac	12 days	SS 101124	25	8.0	20
						Hardness mg/L
Cyprinella leedsi	150	12 days	CL 101124	25	7.8	80
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

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

Appendix E. Chemical Analyses performed on the effluent from the Noma Wastewater Treatment Plant Outfall D-001, sampled on December 6, 2010.

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:30	BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
12/6/2010 13:30	BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/6/2010 13:30	BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
12/6/2010 13:30	BLANK	Metals	Iron	30	U	ug/L	30	120
12/6/2010 13:30	BLANK	Metals	Aluminum	60	U	ug/L	60	240
12/6/2010 13:30	BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
12/6/2010 13:30	BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
12/6/2010 13:30	BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
12/6/2010 13:30	BLANK	Metals	Sodium	0.5	U	mg/L	0.5	2
12/6/2010 13:30	BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
12/6/2010 13:30	BLANK	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
12/6/2010 13:30	BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
12/6/2010 13:30	BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
12/6/2010 13:30	BLANK	Metals	Zinc	5	U	ug/L	5	20
12/6/2010 13:30	BLANK	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
12/6/2010 13:30	BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
12/6/2010 13:30	BLANK	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
12/6/2010 13:30	BLANK	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
12/6/2010 13:30	BLANK	Nutrients	Organic Carbon	1	U	mg C/L	1	5
12/6/2010 13:30	BLANK	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
12/6/2010 13:30	BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
12/6/2010 13:30	BLANK	Nutrients	Color (true)	5	U	PCU	5	5
12/6/2010 13:30	BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
12/6/2010 13:30	BLANK	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
12/6/2010 13:30	BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
12/6/2010 13:30	BLANK	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
12/6/2010 13:30	BLANK	Pesticides	Ethion	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
12/6/2010 13:30	BLANK	Pesticides	Phorate	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Alpha-BHC	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	DDT-p,p'	0.029	U	ug/L	0.029	0.12

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:30	BLANK	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Beta-BHC	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	Endrin Aldehyde	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Heptachlor	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Endosulfan I	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
12/6/2010 13:30	BLANK	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
12/6/2010 13:30	BLANK	Pesticides	Simazine	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Chlordane	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Gamma-BHC	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	Toxaphene	0.71	U	ug/L	0.71	2.8
12/6/2010 13:30	BLANK	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
12/6/2010 13:30	BLANK	Pesticides	DDE-p,p'	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Dieldrin	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Methoxychlor	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Endosulfan II	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Endrin	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
12/6/2010 13:30	BLANK	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
12/6/2010 13:30	BLANK	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
12/6/2010 13:30	BLANK	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
12/6/2010 13:30	BLANK	Pesticides	DDD-p,p'	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Endosulfan Sulfate	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Pesticides	Ametryn	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Atrazine	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Diazinon	0.048	U	ug/L	0.048	0.19
12/6/2010 13:30	BLANK	Pesticides	Metolachlor	0.48	U	ug/L	0.48	1.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:30	BLANK	Pesticides	Aldrin	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	Delta-BHC	0.0095	U	ug/L	0.0095	0.038
12/6/2010 13:30	BLANK	Pesticides	Heptachlor Epoxide	0.019	U	ug/L	0.019	0.076
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.8
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	20
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	59
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
12/6/2010 13:30	BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.8
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	20
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Dimethyl phthalate	9.8	U	ug/L	9.8	39
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.8
12/6/2010 13:30	BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzidine	98	UJ	ug/L	98	390
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
12/6/2010 13:30	BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.78
12/6/2010 13:30	BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	7.8
12/6/2010 13:05	EFF-01	Nutrients	Total-P	4.9		mg P/L	0.05	0.5
12/6/2010 13:05	EFF-01	Nutrients	Kjeldahl Nitrogen	5.6		mg N/L	0.16	0.4
12/6/2010 13:05	EFF-01	Nutrients	Ammonia-N	4.2		mg N/L	0.05	0.1
12/6/2010 13:05	EFF-01	Nutrients	Organic Carbon	6.7		mg C/L	1	5
12/6/2010 13:05	EFF-01	Nutrients	NO2NO3-N	10		mg N/L	0.08	0.2
12/6/2010 13:05	EFF-01	Field Parameter	Dissolved Oxygen	6.5		mg/L		
12/6/2010 13:05	EFF-01	Field Parameter	pH	6.95				
12/6/2010 13:05	EFF-01	Field Parameter	Specific Conductance	432		umhos/cm		
12/6/2010 13:05	EFF-01	Field Parameter	Sample Depth	0.365		m		
12/6/2010 13:05	EFF-01	Field Parameter	Temperature	14.77		C		
12/6/2010 13:15	EFF-02	AGP/LN	Algal Growth Potential	410		mg DryWt/L	0.3	0.9
12/6/2010 13:15	EFF-02	Chlorophyll/Grain Size/BOD	BOD-5 Day,N-Inhib	5.4	J	mg/L	0.2	2

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:15	EFF-02	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1	IJ	ug/L	0.63	2
12/6/2010 13:15	EFF-02	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.46	UJ	ug/L	0.46	1.4
12/6/2010 13:15	EFF-02	Microbiology	Fecal Coliforms-Membrane Filter	100		cfu/100 mL	2	2
12/6/2010 13:15	EFF-02	Metals	Iron	110	I	ug/L	30	120
12/6/2010 13:15	EFF-02	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
12/6/2010 13:15	EFF-02	Metals	Magnesium	8.29		mg/L	0.04	0.16
12/6/2010 13:15	EFF-02	Metals	Silver	0.029	I	ug/L	0.025	0.1
12/6/2010 13:15	EFF-02	Metals	Aluminum	100	I	ug/L	60	240
12/6/2010 13:15	EFF-02	Metals	Sodium	40.8		mg/L	0.5	2
12/6/2010 13:15	EFF-02	Metals	Zinc	44		ug/L	5	20
12/6/2010 13:15	EFF-02	Metals	Chromium	0.3	U	ug/L	0.3	1.2
12/6/2010 13:15	EFF-02	Metals	Copper	3.64		ug/L	0.5	1
12/6/2010 13:15	EFF-02	Metals	Lead	0.35	I	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Metals	Nickel	0.7	I	ug/L	0.25	1
12/6/2010 13:15	EFF-02	Metals	Calcium	34.8		mg/L	0.075	0.3
12/6/2010 13:15	EFF-02	Metals	Selenium	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Metals	Arsenic	1.23		ug/L	0.25	1
12/6/2010 13:15	EFF-02	Nutrients	Ammonia-N	3.4		mg N/L	0.05	0.1
12/6/2010 13:15	EFF-02	Nutrients	Organic Carbon	6.8		mg C/L	1	5
12/6/2010 13:15	EFF-02	Nutrients	Total-P	4.6		mg P/L	0.05	0.5
12/6/2010 13:15	EFF-02	Nutrients	Kjeldahl Nitrogen	5.1		mg N/L	0.16	0.4
12/6/2010 13:15	EFF-02	Nutrients	Alkalinity	110		mg CaCO3/L	0.65	2.5
12/6/2010 13:15	EFF-02	Nutrients	Sulfate	32		mg SO4/L	1	2.5
12/6/2010 13:15	EFF-02	Nutrients	Color (true)	15	A	PCU	5	5
12/6/2010 13:15	EFF-02	Nutrients	Fluoride	0.11		mg F/L	0.035	0.1
12/6/2010 13:15	EFF-02	Nutrients	O-Phosphate-P	4.1		mg P/L	0.16	0.4
12/6/2010 13:15	EFF-02	Nutrients	Chloride	30		mg Cl/L	1	2.5
12/6/2010 13:15	EFF-02	Nutrients	NO2NO3-N	10		mg N/L	0.08	0.2
12/6/2010 13:15	EFF-02	Nutrients	TSS	8	I	mg/L	4	16
12/6/2010 13:15	EFF-02	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Toxaphene	0.75	U	ug/L	0.75	3
12/6/2010 13:15	EFF-02	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:15	EFF-02	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
12/6/2010 13:15	EFF-02	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
12/6/2010 13:15	EFF-02	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
12/6/2010 13:15	EFF-02	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
12/6/2010 13:15	EFF-02	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Methoxychlor	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
12/6/2010 13:15	EFF-02	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
12/6/2010 13:15	EFF-02	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
12/6/2010 13:15	EFF-02	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
12/6/2010 13:15	EFF-02	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
12/6/2010 13:15	EFF-02	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Endrin Aldehyde	0.02	UJ	ug/L	0.02	0.08

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:15	EFF-02	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
12/6/2010 13:15	EFF-02	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
12/6/2010 13:15	EFF-02	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
12/6/2010 13:15	EFF-02	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Benzidine	100	UJ	ug/L	100	400
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
12/6/2010 13:15	EFF-02	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
12/6/2010 13:15	EFF-02	Field Parameter	Sample Depth	0.262		m		
12/6/2010 13:15	EFF-02	Field Parameter	Dissolved Oxygen	7.4		mg/L		
12/6/2010 13:15	EFF-02	Field Parameter	pH	7.06				
12/6/2010 13:15	EFF-02	Field Parameter	Specific Conductance	476		umhos/cm		
12/6/2010 13:15	EFF-02	Field Parameter	Temperature	14.77		C		
12/6/2010 13:30	TOX	Toxicology	BSY-AS-FW-Fish, LC50	100	L	LC50		
12/6/2010 13:30	TOX	Toxicology	BSY-AS-FW-C.dubia, LC50	100	L	LC50		

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

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen	**Contact Number:** (850)595-0553
Facility Name (as it appears on permit): **Noma WWTP**	**Former Names:**
NPDES Permit Number: FL0040207	**Permit Expiration Date:** July 22, 2013
Physical Address: 3488 Smalley Lane (off County Road 175), Noma, FL 32452	
District: NWD	**County:** Holmes
Function of Facility: Municipal wastewater treatment facility	
Facility Type: Domestic	**Permitted Capacity (MGD):** 0.025 MGD annual average daily flow
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): .020 mgd (9/09-8/10)	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☐ **Continuous** ☒ **Intermittent*** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify** *This is a Sequencing Batch Reactor (SBR) type facility that discharges in batches	

Appendix F. (continued)

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

EFA-01 Chlorine Contact Chamber next to Effluent Weir
EFD-01 Effluent Sampling Manhole at Exit Pipe
EFF-01 Chlorine Contact Chamber next to Effluent Weir
EFF-02 Effluent Manhole at Exit Pipe
FLW-01 Magnetic Flow Meter and Totalizer in line prior to Chlorine Contact Chamber
OTH-01 Calculation

** Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the unionized ammonia value. *[62-302.530(3)]*

Description of Permitted Outfall(s):

Effluent is discharged to Wrights Creek, a Class III waters of the State, at Outfall D-001 approximately 1.1 miles east of the WWTP, just north of the old railroad right-of-way. The point of discharge is located approximately at latitude 30 o 58' 46" N, longitude 85 o 35' 57" W. Outfall D-001 is approximately 3 feet in length and discharges at the surface.

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

An existing 0.025 MGD AADF permitted capacity, 0.030 MGD AADF design capacity, extended aeration biological sequencing batch reactor type (SBR) package plant. The treatment system consists of a trash trap/sludge holding tank, a surge anoxic mix (SAM) tank, a selective batch reactor (SBR), a flow equalization tank, an effluent meter, a tablet chlorinator, dual chlorine contact chambers, a tablet dechlorinator, an effluent sampling manhole and a flow control basin.

PART I: Continued

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

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Wrights Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	MGD	Maximum	0.025	Report	-	-	6 Days/Week	Meter	FLW-01	See Cond.I.A.3
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	20.0	25.0	40.0	60.0	Monthly	Grab	EFF-01	
CBOD, % Removal, 5-day [(Influent - Effluent)/Influent]x100	PERCENT	Minimum	-	85.0	-	-	Monthly	Grab	OTH-01	See Cond.I.A.7
Solids, Total Suspended	MG/L	Maximum	20.0	30.0	45.0	60.0	Monthly	Grab	EFF-01	
Solids, Suspended, % Removal [(Influent - Effluent)/Influent]x100	PERCENT	Minimum	-	85.0	-	-	Monthly	Grab	OTH-01	See Cond.I.A.7
pH	SU	Range	-	-	-	6.0 to 8.5	6 Days/Week	Grab	EFF-02	
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	0.5	6 Days/Week	Grab	EFA-01	See Cond.I.A.6
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Monthly	Grab	EFD-01	
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				Monthly	Grab	EFF-01	
Nitrogen, Kjeldahl, Total (as N)	MG/L	Maximum	5.0	6.25	7.5	10.0	Monthly	Grab		
Nitrogen , Ammonia, Total (as N)	MG/L	Maximum	-	-	-	Report	Monthly	Grab	-	See Cond.I.A.4
Temperature (F), Water	DEG.F	Maximum	-	-	-	Report	Monthly	Grab		
Ammonia, Unionized (as NH3)	MG/L	Maximum	-	-	-	Report	Monthly	Grab	-	See Cond.I.A.4

**I.A.4. Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the unionized ammonia value. *[62-302.530(3)]*

Appendix F. (continued)

PART I: Continued	
Receiving Waters: Wrights Creek	**Classification (indicate whether fresh or marine):** Class III Fresh
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): Not required.	
Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): None	
Facility Mixing Zone Details (if applicable): None	

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

Date	Parameter and Units	Limit	Result

Describe previous FYI and WQBEL study:
Describe previous or current Enforcement Actions (including WLs): None
Describe any violations or problems noted in previous inspection:
Discuss whether DMR trends within previous five years are improving or declining:

Appendix F. (continued)

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):	
PART II: Sampling Event Information	
Date(s) sample collected:	Sampler(s):
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

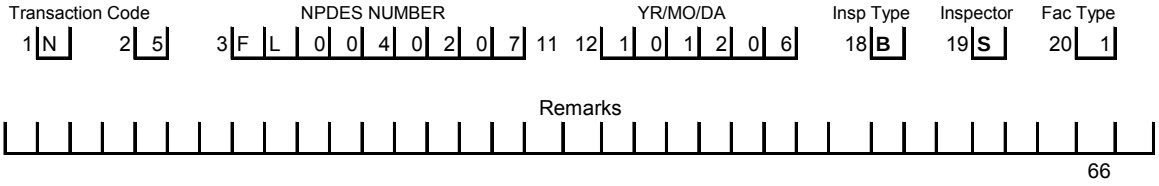
Appendix F. (continued)

Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:

Appendix G. EPA End Sheet

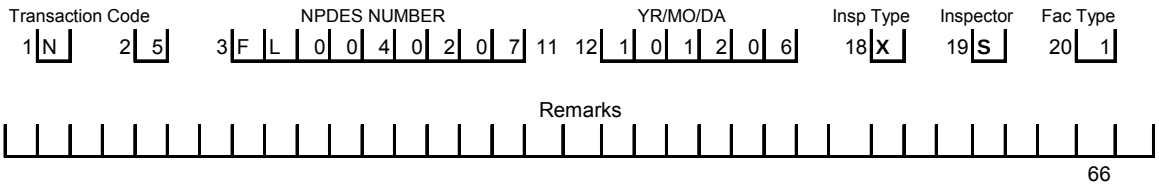
The Bioassay of Noma Wastewater Treatment Plant effluent sampled on December 6, 2010. NPDES #FL0040207.

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



The Priority Pollutants Analysis of Noma Wastewater Treatment Plant effluent sampled on December 6, 2010. NPDES #FL0040207.

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



Biological Analyses of Noma Wastewater Treatment Plant effluent sampled on December 6, 2010. NPDES #FL0040207.

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

