

Effluent Quality Assessment

Sailfish Point Utility Corporation

Martin County

NPDES #FL0037001

Sampled November 15, 2010

February 2011
Revised March 2, 2011

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Sailfish Point Utility Corporation, 6929 SE Marina Way, Stuart, Martin County, Florida, 34996. NPDES #FL0037001. Effluent grab samples for bioassay and chemical analyses for this facility were collected on November 15, 2010.

Introduction

Sailfish Point Utility Corporation is a water treatment plant which uses reverse osmosis to provide potable water to 665 residences in the Sailfish Point community. (See Appendix F for detailed facility information provided by Terry Davis of FDEP Southeast District.)

Methods

Samples were collected from the I-001 (EFF-01) NPDES sampling point by William Thiel (FDEP Southeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. Samples were collected at this point instead of at D-001 to avoid inclusion of other sources of input. 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 48-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_03, TA07_04, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Results and Discussion

- **Toxicity Test Results**
  Tests were performed November 16 - 18, 2010.

  Americamysis bahia 48-hour acute screening bioassay – LC_{50} > 100%, 25%* mortality in 100% sample at 48 hours

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

  The bioassay samples showed low to moderate acute toxic to the *Americamysis bahia* test organisms.

  The chemistry results confirmed that the ion makeup of the sample was not in seawater proportions and that the apparent 7.5 ‰ salinity of the sample was due to elevated levels of ground-water ions. The observed mortality in the *A. bahia* test is likely due to the seawater-ion imbalance of the sample. Previous research conducted by the FDEP Biology Section demonstrated that *A. bahia* is much more sensitive to seawater-ion imbalances than is *M. beryllina* (Wolfe et al. 1995). The calcium concentration was measured at 315 mg/L at 7.5 ‰ salinity (salinity based on conductivity and temperature). This is approximately 250% greater than the normal concentration for calcium in seawater of this salinity. The magnesium concentration was measured at 317 mg/L at 7.5 ‰ salinity. This is approximately 17% greater than the normal concentration for magnesium in seawater of this salinity. The elevated calcium concentration is one potential source of toxicity in this sample, but other unidentified sources of toxicity cannot be ruled out without performing the major-seawater-ion imbalance toxicity testing protocols cited above.

  *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.).

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 14.3 A (A - Value reported is the mean of two or more determinations) mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The ratio (55.1:1) of total nitrogen to total phosphorus suggests that the effluent is phosphorus- limited (Maloney et al. 1978).

  See Table 1 for AGP results.

- **Chemistry Results**
  Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia (1.86 mg N/L) was detected in the bioassay sample in the laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 1.9 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.08 mg/L.

  Aluminum and iron were detected in the effluent between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Total alpha particles (24.7 ±5.7 pCi/L; limit ≤ 15.0 pCi/L, 62-302.500 (57) (b), F.AC.) exceeded the Class II criteria for marine water. Bis(2-ethylhexyl)phthalate and nitrate+ nitrite were detected between the MDLs and PQLs in the field blanks. Bis(2-ethylhexyl)phthalate was not detected in the effluent.

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

Conclusion

The effluent sample collected from the I-001 NPDES sampling point for Outfall EFF-01 for this facility on November 15, 2010, showed low to moderate acute toxicity to the *Americamysis bahia* test species during the 48-hour acute screening bioassays. The toxicity was attributed, in part, to the seawater-ion imbalance in the sample. The effluent AGP result was greater than the "problem" threshold for marine receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on November 15, 2010, exceeded applicable water quality standards for total alpha particles.

Literature Cited

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

FDEP. 1995. Protocols for determining Major-Seawater-Ion Toxicity in Membrane-Technology Water-Treatment Concentrate. Biology and Chemistry Section, FDEP Bureau of Laboratories, Tallahassee, Florida. 99 pp.

Table 1. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from the Sailfish Point Utilities Corporation on November 15, 2010.

Sailfish Point Utility Corporation NPDES # FL0037001				
Location	**AGP (measured)**		**Inorganic N:P ratio**	**Total N:P ratio**
Effluent	14.3	A	46.8	55.1

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

Table 2. Effluent limits, Class II Criteria for predominantly marine waters and chemical data for samples collected from the Sailfish Point Utility Corporation outfall on November 15, 2010.

Sailfish Point Utility Corporation NPDES# FL0037001	Class II Criteria	Effluent Limits	Effluent	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	230	I
Arsenic	≤ 50	-	0.75	U
Cadmium	≤ 8.8	-	0.09	U
Calcium (mg/L)	-	-	315	
Chromium-III	-	-	0.9	U
Copper	≤ 3.7	-	1.5	U
Iron	≤ 300	-	54	I
Lead	≤ 8.5	-	0.6	U
Magnesium (mg/L)	-	-	317	
Nickel	≤ 8.3	-	0.75	U
Selenium	≤ 71	-	0.6	U
Silver	≤ 2.3	-	0.075	U
Zinc	≤ 86	-	5	U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.044	
Total Phosphorus	-	-	0.041	
Total Ammonia	-	-	1.9	
Un-ionized Ammonia	-	-	0.08	c
Nitrate and Nitrite	-	-	0.16	F
Total Kjeldahl Nitrogen	-	-	2.1	
Organic Nitrogen	-	-	0.2	c
Total Nitrogen	-	-	2.26	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	-	7.3	c
pH (SU)	6.5 - 8.5	-	7.8	
Conductivity (µmhos/cm)	-	-	12960	
Temperature (°C)	-	-	26.2	
Salinity	-	-	7.3	c
Total Residual Chlorine (mg/L)	≤ 0.01	-	< 0.03	Q£
Total Suspended Solids (mg/L)	-	-	7	I
Total Dissolved Solids (mg/L)	-	-	7270	
Fluoride (mg/L)	≤ 5.0	-	2.4	
Alpha, Total (pCi/L)	≤ 15	-	24.7	
Alpha-Counting Error (pCi/L)	-	-	5.7	
Flow (MGD)	-	0.115 a	0.0635	*
Hardness (mg $CaCO_3$)	-	-	2091.96	c

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

F - Analyte was detected in both sample and field blank

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

£ - Measured in Central Labs and entered into Tox sheets.

Q - Sample held beyond normal holding time.

* - Flow measured from 3rd quarter 2009 through 2nd quarter 2010

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-15-21
Sailfish Point FYI3

Requester: Cari Butler
Field Report Prepared By: WILLIAM THIEL

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

Collected By: WILLIAM THIEL
Sampling Agency: Southeast District
Send Final Report To: Michael Hambor/ Terry Davis

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Effluent	☐ Comp ☒ Grab	Date 11-15-10 Time 0715 Eastern Central		A
	Field ID: 51-SP-1	Tot Res Chlorine (mg/L): 0.0	Diss Oxygen (mg/L): 73.8 %	Storet Station Number:	
	Matrix (include type e.g. Salt, Fresh, etc): water	Temp (C): 26.2	pH: 7.80	Sample Depth: ☒ m ☐ ft .01	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm): 12,960
	NPDES Number: FL0037001				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: PRESENTUS 42.0 AS RECEIVED 79.0 " " JPN 11/10		

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Blank	☐ Comp ☒ Grab	Date 11-15-10 Time 0745 Eastern Central		B
	Field ID: 51-SP-2	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:	
	Matrix (include type e.g. Salt, Fresh, etc): Water, D.I	Temp (C):	pH:	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm):
	NPDES Number:				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments:		

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

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Eastern Central		
	Field ID	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:	
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C):	pH:	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm):
	NPDES Number:				
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: 2 biomassy Recd in Tox by J.D. 9:57 11.16.10		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	11-15-10 1340	FEDEX	Tahnoures Ebrahimi	11-16-10 9:25				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: Sailfish Point Utility Corp

Address : 6929 SE Marina Way

City: Stuart **County:** Martin

Contact/District: South East District / Terry Davies

NPDES Permit #: FL 0037001

LIMS Job #: JH-2010-1176-99 **LIMS Sample #:** 1312816

Lims Data Entry: 11-18-10 MF Data Entry Verification: 11.18.10 J.D.

Sample Collection: Date: 11/15/10 Time: 0915

Hold Time Start: Date: 11.15.10 Time: 0915

Comments:
Tests were run at the salinity of effluent as received. Dilution water/control water was 20‰ artificial seawater diluted to mean sample salinity with DI water. A 50% sample concentration was run in addition to the normal 100% sample concentration used in an acute screening test. MF 11-18-10

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

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

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

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

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

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

Sample Validation:
Instructions: Check yes or no. Fill in temperatures.

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

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

Investigators' Signatures:	Initials:
Bruce Ahrens	BA
Amelia Rankin	AR
Mary Power	MP
James Daniels	J.D.
Marshall Faircloth	MF
REVIEWER: Terry Miller	

Diluent/Control Batch#:	11-05-10	11-15-10		11-16-10					
Water Quality Parameters	** 20% DMW	** Well Water	Moderately Hard Water	Salt Water (ASW) NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	0.0 *	William Taylor SE MF	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03		<0.03			<0.03	AR	AR / BA
Alkalinity (mg/L as $CaCO_3$):	90	154		[illegible]			280	AR	AR / BA
Hardness (mg/L as $CaCO_3$):	83	136		—			—	AR	AR
Total Ammonia (mg/L as N):	<0.017	<0.017		<0.034			1.86	BA	AR
Conductivity: ☐ µmhos ☒ mmhos	—	—		13.1			13.1	AR	AR / BA
Salinity (ppth):	—	—		7.46			7.50	AR	AR / BA

** 20% DMW or well water were NOT used as MF controls

* measured by William Taylor SE District, MF 11-18-10

V 1.8 1/13/10

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1312816 SOP#: TA 07 03 Test # 1 of 2

Test Species:
Batch #: 11/16/10 Age: 5 days
☐ *Ceriodaphnia dubia*
☐ *Cyprinella leedsi*
☐ *Pimephales promelas*
☐ *Menidia beryllina*
☒ *Americamysis bahia*
☐ Other:______

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

Diluent (Batch # 11/15/10)
☒ ASW ☐ 20% DMW
☐ MHW ☐ Well

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

Test Duration:
☒ 48 hr
☐ 96 hr
☐ __hr

Test Started:
Date ~~11.15.10~~ 11.16.10 JD Time 1300

Test Ended:
Date ~~11.17.10~~ 11.18.10 JD Time 1245

Chamber Size 400 ml
Test Volume: 350 ml

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	I 1	5	5	5			
	B	I 2	5	5	5			
	C	I 3	5	5	5			
	D	I 4	5	5	5			
50%	A	I 12	5	5	5			
	B	I 11	5	5	5			
	C	I 10	5	5	5			
	D	I 9	5	4 1D	4			
100%	A	I 13	5	5	3 2D			
	B	I 14	5	5	3 2D			
	C	I 15	5	5	5			
	D	I 16	5	5	4 1D			
	1							
		Checked or Verified by:	JD	JD	JD			

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

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

Feeding and Artemia Batch #
☒ 0 hr 152-10 ☒ Prior to Test
☒ 24 hr 153-10
☐ 48 hr____ ☐ Prior to Renewal
☐ 72 hr____

Temperature Range (°C)

Incubator # 2
min. 26.3 max. 26.8 mean_____

Incubator #___
min._____ max._____ mean_____

Waterbath #___
min._____ max._____ mean_____

Room B246
min. 23.7 max. 25.1 mean_____

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 25% LC50: >100%
Calculated LC50 (Definitive) 95% CI______ Method______

Comments:

V. 2.5 1-13-10

000014

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 # 1312816 **SOP#: TA 07** 04 **Test #** 2 **of** 2

Test Species:
Batch #: 11/16/10 Age: 13 days
- [ ] *Ceriodaphnia dubia*
- [ ] *Cyprinella leedsi*
- [ ] *Pimephales promelas*
- [x] *Menidia beryllina*
- [ ] *Americamysis bahia*
- [ ] Other:______

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

Diluent (Batch # 11/15/10 **)**
[x] ASW [ ] 20% DMW
[ ] MHW [ ] Well

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

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

Chamber Size 1000 **ml**
Test Volume: 400 **ml**

Test Started:
Date ~~11/15/10~~ 11/16/10 JD Time 1315

Test Ended:
Date ~~11/17/10~~ JD 11/18/10 Time 1300

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	I 21	5	5	5			
	B	I 22	5	5	5			
	C	I 23	5	5	5			
	D	I 24	5	5	5			
50%	A	I ~~9~~ 5	5	5	5			
	B	I ~~10~~ 6	5	5	5			
	C	I ~~11~~ 7	5	5	5			
	D	I ~~12~~ 8	5	5	5			
100%	A	I ~~13~~ 17	5	5	5			
	B	I ~~14~~ 18	5	5	5			
	C	I ~~15~~ 19	5	5	5			
	D	I ~~16~~ 20	5	5	5			
		Checked or Verified by:	JD	JD	JD			

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

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

Feeding and Artemia Batch #
- [x] 0 hr 152-10 [x] Prior to Test
- [ ] 24 hr____
- [ ] 48 hr____ [ ] Prior to Renewal
- [ ] 72 hr____

Temperature Range (°C)

Incubator # 2
min. 26.3 max. 26.8 mean_____

Incubator #___
min.______max.______mean______

Waterbath #___
min.______max.______mean______

Room B246
min. 23.7 max. 25.1 mean______

Light Intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

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

Comments:

000015

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)

[redacted]

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1312816 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	8.0	24.1	7.8	13.1	7.46
	B	24 hr	8.1	25.1	7.6	13.5	7.73
Ctrl	C	48 hr BR	7.9	24.9	6.1	12.9	7.35
		48 hr AR					
		72 hr					
		96 hr					
	A	0 hr	8.1	25.2	7.8	13.1	7.49
	B	24 hr	8.2	25.0	7.5	13.4	7.68
50%	C	48 hr BR	8.1	24.7	6.1	12.7	7.27
		48 hr AR					
		72 hr					
		96 hr					
	A	0 hr	8.1	24.9	6.8	13.1	7.50
	B	24 hr	8.2	25.0	7.1	13.3	7.65
100%	C	48 hr BR	8.2	25.0	6.2	12.9	7.36
		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					
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		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:

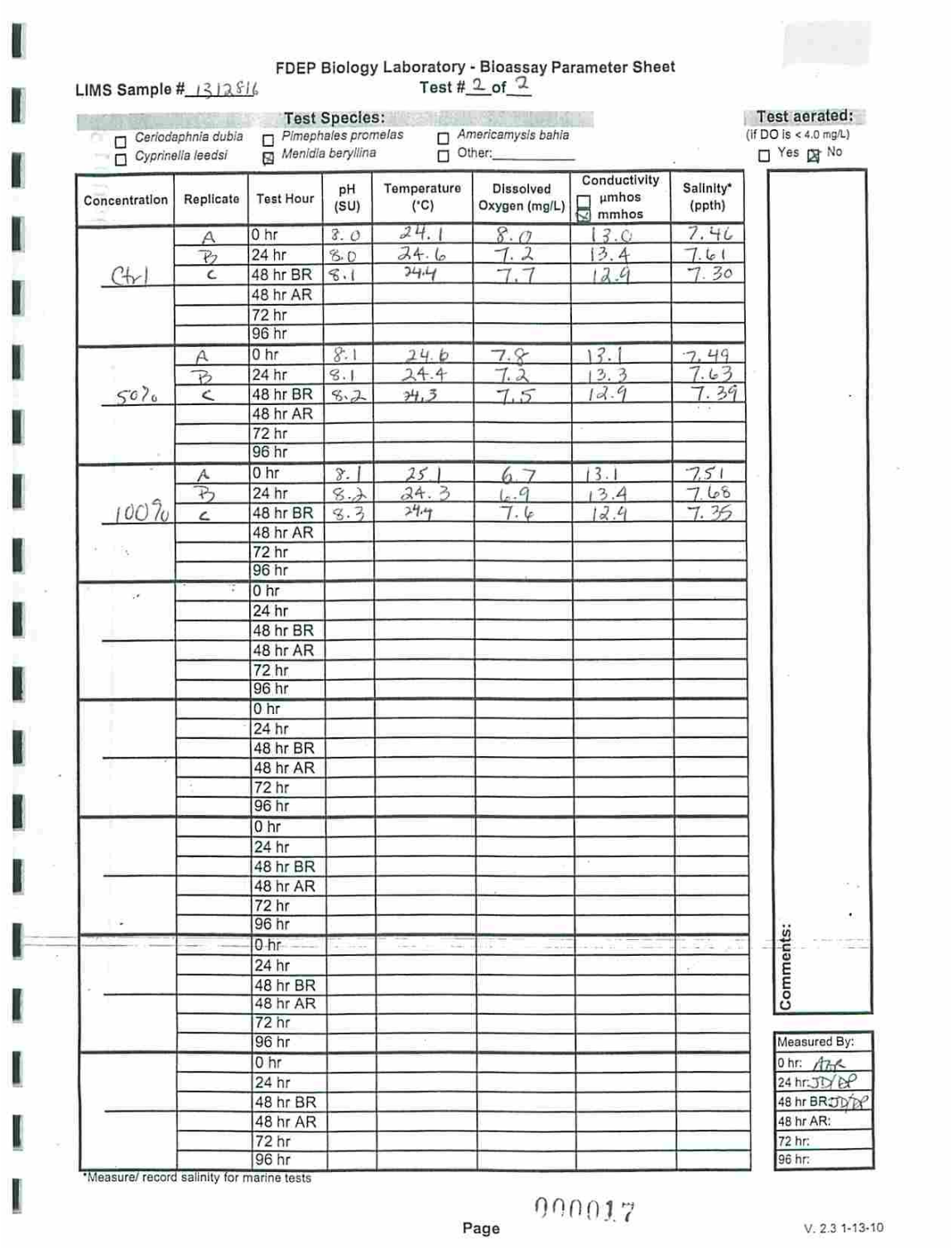
Measured By:
0 hr: [redacted]
24 hr: JD/ DP
48 hr BR: JD/DP
48 hr AR:
72 hr:
96 hr:

000016

Page

V. 2.3 1-13-10

Appendix B. (continued)



FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1312816 Test # 2 of 2

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

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

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity* (ppth)
	A	0 hr	8.0	24.1	8.0	13.0	7.46
	B	24 hr	8.0	24.6	7.2	13.4	7.61
Ctrl	C	48 hr BR	8.1	24.4	7.7	12.9	7.30
		48 hr AR					
		72 hr					
		96 hr					
	A	0 hr	8.1	24.6	7.8	13.1	7.49
	B	24 hr	8.1	24.4	7.2	13.3	7.63
50%	C	48 hr BR	8.2	24.3	7.5	12.9	7.39
		48 hr AR					
		72 hr					
		96 hr					
	A	0 hr	8.1	25.1	6.7	13.1	7.51
	B	24 hr	8.2	24.3	6.9	13.4	7.68
100%	C	48 hr BR	8.3	24.4	7.6	12.9	7.35
		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: ATK
24 hr: JD/EP
48 hr BR: JD/EP
48 hr AR:
72 hr:
96 hr:

000017

Page

V. 2.3 1-13-10

Appendix B. (continued)

Test ID: Sailfish Point Dates: Nov. 16 - 18, 2010

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	✓ #4
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)

11/18/10 SA

V 1.1 9/21/10 MF/jd

000018

Appendix C. SRT Bench Sheets and Statistical Analysis

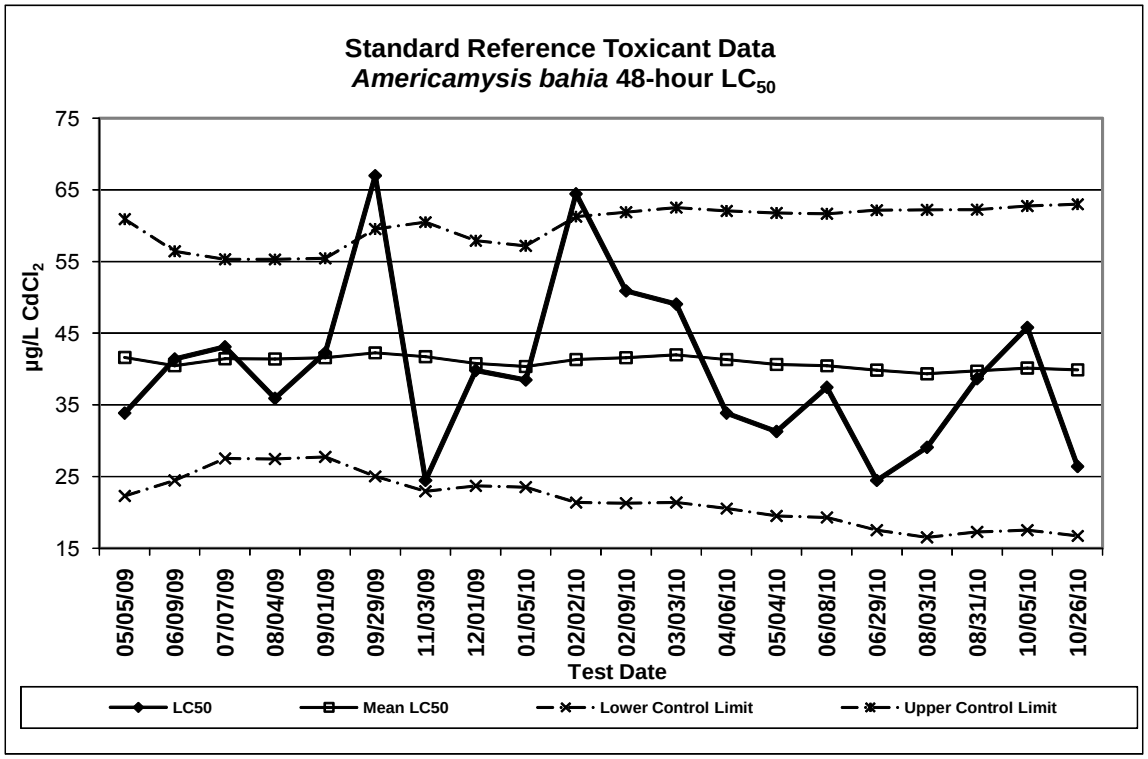
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/05/09	33.86	41.62	9.66	22.31	60.93
06/09/09	41.42	40.46	8.00	24.47	56.45
07/07/09	43.11	41.44	6.94	27.55	55.32
08/04/09	35.91	41.41	6.97	27.47	55.34
09/01/09	42.29	41.61	6.93	27.76	55.46
09/29/09	67.01	42.30	8.62	25.06	59.54
11/03/09	24.49	41.74	9.40	22.94	60.54
12/01/09	39.81	40.82	8.56	23.70	57.93
01/05/10	38.48	40.36	8.42	23.53	57.19
02/02/10	64.45	41.35	9.97	21.41	61.28
02/09/10	50.93	41.59	10.15	21.30	61.89
03/03/10	49.07	41.98	10.29	21.40	62.55
04/06/10	33.86	41.33	10.37	20.58	62.08
05/04/10	31.29	40.65	10.57	19.51	61.79
06/08/10	37.47	40.49	10.60	19.30	61.69
06/29/10	24.49	39.86	11.17	17.52	62.20
08/03/10	29.10	39.36	11.43	16.51	62.21
08/31/10	38.67	39.77	11.24	17.28	62.25
10/05/10	45.81	40.15	11.31	17.52	62.77
10/26/10	26.43	39.90	11.57	16.76	63.03

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

CV = 28.99
EPA reference 75th quartile CV = 26%



Appendix C. (continued)

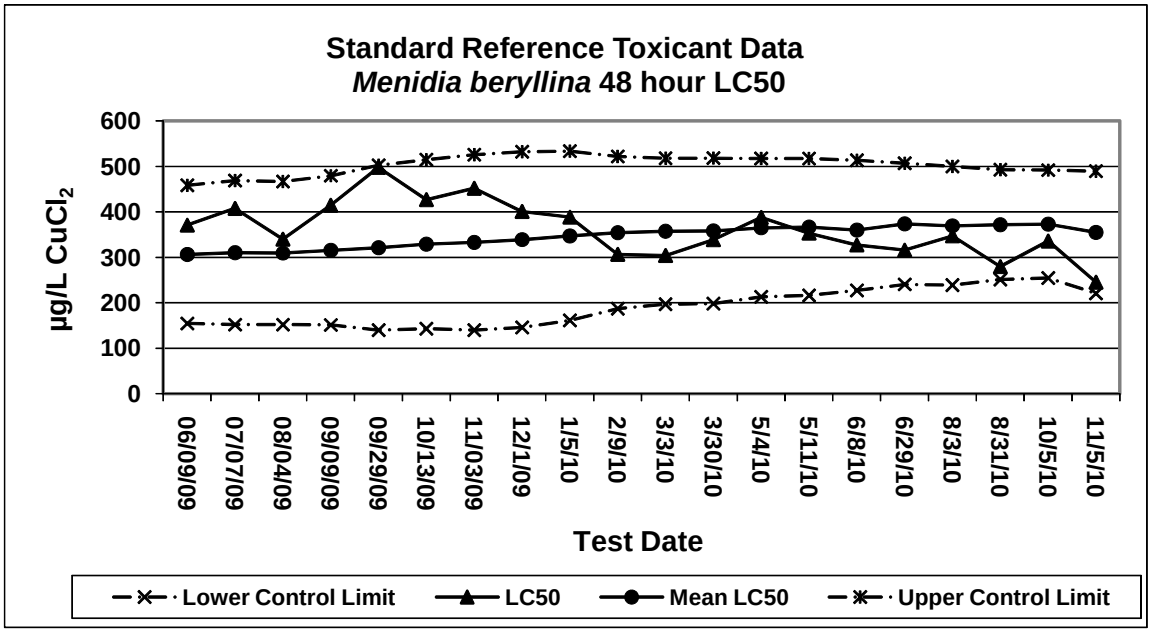
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - Acute Toxicity
Menidia beryllina (Inland silverside) - Copper Chloride ($CuCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
06/09/09	370.27	306.03	75.93	154.18	457.89
07/07/09	407.17	309.94	79.12	151.71	468.20
08/04/09	339.47	309.04	78.65	151.74	466.34
09/09/09	414.01	314.96	81.97	151.03	478.90
09/29/09	497.50	320.86	90.65	139.57	502.16
10/13/09	426.50	328.56	92.84	142.89	514.24
11/03/09	451.45	332.46	96.39	139.68	525.25
12/1/09	400.34	338.72	96.54	145.64	531.80
1/5/10	387.88	347.06	92.99	161.08	533.03
2/9/10	306.10	353.99	83.59	186.81	521.16
3/3/10	303.50	357.16	80.17	196.82	517.50
3/30/10	338.23	357.79	79.96	197.88	517.71
5/4/10	387.23	364.66	76.00	212.67	516.66
5/11/10	352.66	366.46	75.23	216.00	516.91
6/8/10	326.64	359.94	71.41	227.11	512.76
6/29/10	315.29	373.43	66.55	240.32	506.53
8/3/10	346.64	369.06	65.22	238.62	499.50
8/31/10	279.08	371.57	60.33	250.90	492.23
10/5/10	335.32	372.83	59.23	254.36	491.30
11/5/10	244.95	354.74	67.21	220.32	489.16

Means are of the last 20 SRT tests.

EPA reference 75th quartile CV = 21% **CV = 18.95**



Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

Test Organism: (check one)
- [X] *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 [X] renewal

Test Page 1 of 2

Diluent/ Batch #: ASW 110-26-10 **Organism Batch:** D.26.10 **Test Beginning:** Date: 10.26.10 Time: 1330

Toxicant/ Batch#: Cdcl2 10.25.10 **Age:** 5d 4h **Test Ending:** Date: 10-30-10 Time: 1120

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	DP
Alkalinity (mg/L as $CaCO_3$):	211	TA06_08	AGR
Hardness (mg.L as $CaCO_3$):	—	TA06_09	—
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos mmhos	33.4	TA06_25	AGR
Salinity (ppth):	30.9	TA06_25	AGR

Food:	Batch
[ ] YCT	
[ ] *P. subcapitata*	
[X] Artemia Lot # 23613	

Artemia Batch:
- 0 hr: 142-10
- 24 hr: 143-10
- 48 hr: 144-10
- 72 hr: 145110

Chamber size: 400 mL

Test volume: 350 mL per replicate

Concentrations prepared by: JD

Temperature Range °C:(if used)

Test Incubated in: Incubator # 5 Waterbath # ____ Incubator # 5 min. 24.1 max. 27.2 mean ____

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

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 25.1 max. 25.4 mean ____

Feeding: √as needed

- [X] Before test
- [4] 0 hr
- [X] 24 hr
- [X] 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 (%) mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A		5	5	5	5	5	5
	B		5	5	5	5	5	5
	C		5	5	5	5	5	5
	D		5	5	5	5	5	5
20	A		5	5	5	5	3 2D	3
	B		5	5	4 1D	4	3 1D	3
	C		5	5	3 2D	3	2 1D	2
	D		5	5	5	5	4 1D	4
30	A		5	5	1 1D	1	0 1D	—
	B		5	5	3 2D	3	1 2D	0 1D
	C		5	5	0 5D	—	—	—
	D		5	5	2 3D	2	1 1D	1
45	A		5	5	0 3D	—	—	
	B		5	5	0 5D	—	—	
	C		5	5	0 5D	—	—	
	D		5	5	2 3D	2	0 2D	
67	A		5	4 1D	0 4D			
	B		5	5	0 3D			
	C		5	5	0 5D			
	D		5	3 2D	0 3D			
100	A		5	5	0 5D			
	B		5	5	0 5D			
	C		5	4 1D	0 4D			
	D		5	5	0 5D			
Organisms loaded by: JD		Checked by: JD	JD	JD	JD	JD	JD	MF

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

James Daniels

Amelia Parker

Drew Powell

Marshall Fairbeth

Reviewer: Liz Miller

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour:	24.43	23.30	25.97
96 hour:	21.53	18.85	24.59

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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)
- [X] *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: 10-26-10 Time: 1530
Test Ending: Date: 10-30-10 Time: 1120

Test Type: [ ] non-renewal [x] 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 [x] mmhos	Salinity (ppth)
Control	A	0 hr	8.2	24.8	7.1	33.4	20.9
	B	24 hr	8.2	24.3	6.9	34.1	21.4
	C	48 hr BR	8.0	25.1	6.6	34.1	21.3
	C	48 hr AR	8.2	24.6	7.0	32.8	20.5
	D	72 hr	8.1	24.0	(A) ~~8.0~~ 7.1	35.1	21.9
	A	96 hr	8.1	25.2	6.1	35.9	22.4
20	A	0 hr	8.2	25.4	7.2	33.~~4~~5	21.0
	B	24 hr	8.2	24.7	7.0	34.2	21.5
	C	48 hr BR	8.0	25.2	5.7	35.0	22.0
	C	48 hr AR	8.2	24.4	6.9	33.2	20.8
	D	72 hr	8.1	24.0	(A) ~~8.0~~ 7.0	34.8	21.9
	A	96 hr	8.1	24.8	5.9	35.7	22.2
30	A	0 hr	8.2	25.4	7.2	33.5	21.0
	B	24 hr	8.2	24.3	6.8	33.7	21.2
	C	48 hr BR	8.2	25.0	7.0	35.3	22.2
	D	48 hr AR	8.2	24.4	7.2	33.1	20.7
	D	72 hr	8.2	24.0	(A) ~~7.9~~ 7.5	34.9	21.9
	B	96 hr	8.1	24.9	6.1	35.3	22.1
45	A	0 hr	8.2	25.5	7.3	33.5	21.0
	B	24 hr	8.2	24.3	6.9	34.1	21.4
	C	48 hr BR	8.1	24.7	6.9	35.5	22.4
	D	48 hr AR	8.2	24.5	7.3	33.1	20.7
	D	72 hr	8.2	24.1	(A) ~~7.9~~ 7.7	35.7	22.5
		96 hr					
67	A	0 hr	8.2	25.7	7.2	33.4	21.0
	B	24 hr	8.2	24.1	6.9	34.0	21.4
	C	48 hr BR	8.2	25.0	6.8	34.8	21.9
		48 hr AR					
		72 hr					
		96 hr					
100	A	0 hr	8.2	25.9	7.4	33.5	20.9
	B	24 hr	8.2	24.1	6.9	34.2	21.5
	C	48 hr BR	8.2	24.6	6.8	35.0	22.0
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Diane Powell
Ameha Rankin
Mastell Faircloth
Sue Abell

Reviewed By: Liz Miller

Measured by:
0 hr: ADC
24 hr: ADC
48 hr BR: DP
48 hr AR: ADC
72 hr: JS
96 hr: MF

Measure/record salinity for marine tests

Comments: (A) Salinity was not changed before measurements were taken 10-29-10 ADC

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Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☒ renewal

Test Page 1 of 2

Diluent/ Batch #: ASW / 10126L10 **Organism Batch:** 11.5.10 **Test Beginning:** Date: 11.5.10 Time: 1420

Toxicant/ Batch#: CuSO4 / 11.5.10 Age: 12 d, 5 **Test Ending:** Date: 11.9.10 Time: 1100

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	DP
Alkalinity (mg/L as $CaCO_3$):	211	TA06_08	AHP
Hardness (mg.L as $CaCO_3$):	—	TA06_09	—
Total Ammonia (mg/L as N):	<0.094	TA06_17	NF
Conductivity: umhos (mmhos)	33.2	TA06_25	JD
Salinity (ppth):	20.7	TA06_25	JD

Food:	Batch
☒ ~~YCT~~	~~5-11-10~~ JD, Not used
☒ ~~*P. subcapitata*~~	~~6-24-10~~
☒ Artemia Lot # 23613	Artemia Batch:

Chamber size: 1000 mL

Test volume: 900 mL per replicate

Artemia Batch:	
0 hr:	149.10
24 hr:	150.10
48 hr:	151.10
72 hr:	152.10

Concentrations prepared by: JD

Test Incubated in: Incubator # 2 Waterbath # ____ Temperature Range °C (if used) Incubator # 2 min 26.1 max 26.4 mean ____

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

Photoperiod: 16 hours Light / 8 hours dark Room B246 min 22.6 max 24.9 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 (g/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	D12	10	10	10	10	10	10
	B	D13	10	10	10	10	10	10
100	A	D14	10	9 1D	9	9	9	9
	B	D15	10	9 1D	9	9	9	9
200	A	D16	10	10	10	10	10	10
	B	D17	10	8 2D	8	8	7 1D	7
300	A	D18	10	3 7D	2 1D	2	2	2
	B	D19	10	5 5D	0 5D	—	—	—
400	A	D20	10	0 10D				
	B	D21	10	0 10D				
500	A	D22	10	0 10D				
	B	D23	10	0 10D				
Organisms loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD

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

Loading Verified by: BA AR = after renewal

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

Comments:

Investigators' Signatures

Reviewer: Stephen Nelson

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 244.95	233.45	257.01
96 hour: 236.68	208.11	269.18

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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: 11.5.10 Time: 1420
Test Ending: Date: 11.9.10 Time: 1100
Test Type: ☐ non-renewal ☒ renewal

hr = hour AR = after renewal BR = before renewal

Concentration ~~%~~ mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (° C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	8.2	24.0	6.9	33.2	20.7
	B	24 hr	8.1	24.7	6.8	33.0	20.3
	A	48 hr BR	8.1	24.1	6.8	34.0	21.2
	A	48 hr AR	8.2	24.0	7.5	33.3	20.7
	JD AB	72 hr	8.0	24.5	6.1	31.7	19.5
	A	96 hr	8.0	24.0	7.6	32.4	20.0
100	A	0 hr	8.2	24.0	6.9	33.4	20.7
	B	24 hr	8.1	24.7	6.9	33.8	21.1
	A	48 hr BR	8.1	24.8	7.0	34.5	21.6
	A	48 hr AR	8.2	24.1	7.4	33.8	21.1
	JD AB	72 hr	8.1	24.2	6.0	31.9	19.8
	A	96 hr	8.1	24.0	7.5	32.8	20.5
200	A	0 hr	8.2	24.0	7.0	33.4	20.9
	B	24 hr	8.1	24.6	6.9	33.7	21.0
	A	48 hr BR	8.1	24.4	6.9	34.0	21.2
	A	48 hr AR	8.2	24.1	7.4	33.6	21.0
	JD AB	72 hr	8.1	24.4	6.4	31.9	19.8
	A	96 hr	8.1	24.0	7.7	32.5	20.3
300	A	0 hr	8.2	24.0	7.4	33.5	21.0
	B	24 hr	8.1	24.8	6.9	33.8	21.1
	A	48 hr BR	8.1	24.2	7.1	34.4	21.6
	A	48 hr AR	8.2	24.0	7.3	33.6	21.0
	A	72 hr	8.2	24.5	6.5	32.0	19.8
	A	96 hr	8.1	24.0	7.9	32.7	20.3
400	A	0 hr	8.2	24.0	7.3	33.4	20.9
	B	24 hr	8.1	24.5	6.8	33.6	21.0
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
500	A	0 hr	8.2	24.0	7.2	33.4	20.9
	B	24 hr	8.1	25.3	7.0	33.7	21.1
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures

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

Reviewed By:

Measure/record salinity for marine tests

Comments:

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Appendix C. (continued)

***Americamysis bahia* Acute Standard Reference Toxicant Test**

DATE: 10-26-10 DURATION: 48 h TOXICANT : CdCl2
SPECIES: *Americamysis bahia*

RAW DATA: Concentration (ug/L)	Number Exposed	Mortalities
.00	20	0
20.00	20	3
30.00	20	14
45.00	20	18
67.00	20	20
100.00	20	20

SPEARMAN-KARBER TRIM: 15.00%

SPEARMAN-KARBER ESTIMATES: LC50: **26.43**
95% LOWER CONFIDENCE: 23.30
95% UPPER CONFIDENCE: 29.97

***Menidia beryllina* Acute Standard Reference Toxicant Test**

DATE: 11-5-10 DURATION: 48 h TOXICANT : CuCl2
SPECIES: *Menidia beryllina*

RAW DATA: Concentration (ug/L)	Number Exposed	Mortalities
.00	20	0
100.00	20	2
200.00	20	2
300.00	20	18
400.00	20	20
500.00	20	20

SPEARMAN-KARBER TRIM: 10.00%

SPEARMAN-KARBER ESTIMATES: LC50: **244.95**
95% LOWER CONFIDENCE: 233.45
95% UPPER CONFIDENCE: 257.01

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: 10/25/10

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	150	4DAYS	MS101021	25	7.9	20
Menidia beryllina	150	12DAYS	SS101013	25	7.9	20
						Hardness mg/L
Cyprinella leedsi	150	12DAYS	CL 101013	25	7.8	80
Pimephales promelas	150	8DAYS	FM101017	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

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Notes:

Thank you for your order.

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Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 11/4/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina	150+	11 DAYS	SS101024	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

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Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 11/15/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	200	4 days	MS 101111	25	8.0	16
Menidia beryllina	200	12 days	SS 101103	25	8.0	16
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

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Appendix E. Chemical Analyses performed on the effluent from the Sailfish Point Utility Corporation Outfall D-001, sampled on November 15, 2010.

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:15	Effluent	AGP/LN	Algal Growth Potential	14.3	A	mg DryWt/L	3	3
11/15/2010 9:15	Effluent	Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	L	LC50		
11/15/2010 9:15	Effluent	Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	L	LC50		
11/15/2010 9:15	Effluent	Metals	Silver	0.075	U	ug/L	0.075	0.3
11/15/2010 9:15	Effluent	Metals	Lead	0.6	U	ug/L	0.6	2.4
11/15/2010 9:15	Effluent	Metals	Copper	1.5	U	ug/L	1.5	3
11/15/2010 9:15	Effluent	Metals	Aluminum	230	I	ug/L	60	240
11/15/2010 9:15	Effluent	Metals	Magnesium	317		mg/L	0.8	3.2
11/15/2010 9:15	Effluent	Metals	Calcium	315		mg/L	1.5	6
11/15/2010 9:15	Effluent	Metals	Zinc	5	U	ug/L	5	20
11/15/2010 9:15	Effluent	Metals	Nickel	0.75	U	ug/L	0.75	3
11/15/2010 9:15	Effluent	Metals	Selenium	0.6	U	ug/L	0.6	2.4
11/15/2010 9:15	Effluent	Metals	Cadmium	0.09	U	ug/L	0.09	0.36
11/15/2010 9:15	Effluent	Metals	Iron	54	I	ug/L	30	120
11/15/2010 9:15	Effluent	Metals	Arsenic	0.75	U	ug/L	0.75	3
11/15/2010 9:15	Effluent	Metals	Chromium	0.9	U	ug/L	0.9	3.6
11/15/2010 9:15	Effluent	Nutrients	Sulfide	1.1	A	mg S/L	0.05	0.2
11/15/2010 9:15	Effluent	Nutrients	Kjeldahl Nitrogen	2.1		mg N/L	0.16	0.4
11/15/2010 9:15	Effluent	Nutrients	TDS	7270		mg/L	150	600
11/15/2010 9:15	Effluent	Nutrients	Total-P	0.041		mg P/L	0.008	0.02
11/15/2010 9:15	Effluent	Nutrients	TSS	7	I	mg/L	4	16
11/15/2010 9:15	Effluent	Nutrients	Ammonia-N	1.9		mg N/L	0.05	0.1
11/15/2010 9:15	Effluent	Nutrients	NO2NO3-N	0.16		mg N/L	0.004	0.01
11/15/2010 9:15	Effluent	Nutrients	Fluoride	2.4		mg F/L	0.035	0.1
11/15/2010 9:15	Effluent	Nutrients	O-Phosphate-P	0.044		mg P/L	0.008	0.02
11/15/2010 9:15	Effluent	Overflow	Alpha-Counting Error	5.7		pCi/L		
11/15/2010 9:15	Effluent	Overflow	Alpha, Total	24.7		pCi/L		
11/15/2010 9:15	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	Metalaxyl	0.24	UJ	ug/L	0.24	0.96
11/15/2010 9:15	Effluent	Pesticides	Metolachlor	0.49	U	ug/L	0.49	2
11/15/2010 9:15	Effluent	Pesticides	Mevinphos	0.2	UJ	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	Parathion Methyl	0.098	U	ug/L	0.098	0.39
11/15/2010 9:15	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:15	Effluent	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Alpha-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	Delta-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	Heptachlor	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	Toxaphene	0.73	U	ug/L	0.73	2.9
11/15/2010 9:15	Effluent	Pesticides	Chlorpyrifos Methyl	0.098	U	ug/L	0.098	0.39
11/15/2010 9:15	Effluent	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Gamma-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Fonofos	0.098	U	ug/L	0.098	0.39
11/15/2010 9:15	Effluent	Pesticides	Beta-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Endrin	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Methoxychlor	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Ethoprop	0.098	UJ	ug/L	0.098	0.39
11/15/2010 9:15	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
11/15/2010 9:15	Effluent	Pesticides	Naled	0.78	U	ug/L	0.78	3.1
11/15/2010 9:15	Effluent	Pesticides	Phorate	0.049	UJ	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
11/15/2010 9:15	Effluent	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Aldrin	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:15	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	DDT-p,p'	0.029	U	ug/L	0.029	0.12
11/15/2010 9:15	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
11/15/2010 9:15	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
11/15/2010 9:15	Effluent	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
11/15/2010 9:15	Effluent	Pesticides	Metribuzin	0.098	U	ug/L	0.098	0.39

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:15	Effluent	Pesticides	Hexazinone	0.098	U	ug/L	0.098	0.39
11/15/2010 9:15	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
11/15/2010 9:15	Effluent	Pesticides	Alachlor	0.59	U	ug/L	0.59	2.4
11/15/2010 9:15	Effluent	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	58
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	58
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	UJ	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
11/15/2010 9:15	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:15	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
11/15/2010 9:15	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
11/15/2010 9:15	Effluent	Field Parameter	Dissolved Oxygen	7. 3		mg/L		
11/15/2010 9:15	Effluent	Field Parameter	Temperature	26.2		C		
11/15/2010 9:15	Effluent	Field Parameter	pH	7.8				
11/15/2010 9:15	Effluent	Field Parameter	Specific Conductance	12960		umhos/cm		
11/15/2010 9:15	Effluent	Field Parameter	Sample Depth	0.1		m		
11/15/2010 9:15	Effluent	Field Parameter	Total Residual Chlorine	0		mg/L		
11/15/2010 9:45	Blanks	Metals	Zinc	5	U	ug/L	5	20
11/15/2010 9:45	Blanks	Metals	Nickel	0.25	U	ug/L	0.25	1
11/15/2010 9:45	Blanks	Metals	Silver	0.025	U	ug/L	0.025	0.1

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:45	Blanks	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/15/2010 9:45	Blanks	Metals	Lead	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
11/15/2010 9:45	Blanks	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Metals	Copper	0.5	U	ug/L	0.5	1
11/15/2010 9:45	Blanks	Metals	Calcium	0.075	U	mg/L	0.075	0.3
11/15/2010 9:45	Blanks	Metals	Iron	30	U	ug/L	30	120
11/15/2010 9:45	Blanks	Metals	Aluminum	60	U	ug/L	60	240
11/15/2010 9:45	Blanks	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
11/15/2010 9:45	Blanks	Metals	Arsenic	0.25	U	ug/L	0.25	1
11/15/2010 9:45	Blanks	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
11/15/2010 9:45	Blanks	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
11/15/2010 9:45	Blanks	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
11/15/2010 9:45	Blanks	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
11/15/2010 9:45	Blanks	Nutrients	Sulfide	0.05	U	mg S/L	0.05	0.2
11/15/2010 9:45	Blanks	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
11/15/2010 9:45	Blanks	Nutrients	NO2NO3-N	0.007	I	mg N/L	0.004	0.01
11/15/2010 9:45	Blanks	Overflow	Alpha-Counting Error	0.4		pCi/L		
11/15/2010 9:45	Blanks	Overflow	Alpha, Total	0.6	U	pCi/L		
11/15/2010 9:45	Blanks	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	DDT-p,p'	0.029	U	ug/L	0.029	0.12
11/15/2010 9:45	Blanks	Pesticides	Gamma-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:45	Blanks	Pesticides	Alachlor	0.59	U	ug/L	0.59	2.4
11/15/2010 9:45	Blanks	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Metalaxyl	0.24	UJ	ug/L	0.24	0.96
11/15/2010 9:45	Blanks	Pesticides	Phorate	0.049	UJ	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Delta-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:45	Blanks	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
11/15/2010 9:45	Blanks	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Alpha-BHC	0.0098	U	ug/L	0.0098	0.039

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:45	Blanks	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Mevinphos	0.2	UJ	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	Parathion Methyl	0.098	U	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Heptachlor	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:45	Blanks	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Hexazinone	0.098	U	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	Aldrin	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:45	Blanks	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Toxaphene	0.73	U	ug/L	0.73	2.9
11/15/2010 9:45	Blanks	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	Chlorpyrifos Methyl	0.098	U	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
11/15/2010 9:45	Blanks	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
11/15/2010 9:45	Blanks	Pesticides	Beta-BHC	0.0098	U	ug/L	0.0098	0.039
11/15/2010 9:45	Blanks	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
11/15/2010 9:45	Blanks	Pesticides	Ethoprop	0.098	UJ	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	Metolachlor	0.49	U	ug/L	0.49	2
11/15/2010 9:45	Blanks	Pesticides	Metribuzin	0.098	U	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
11/15/2010 9:45	Blanks	Pesticides	Endrin	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Methoxychlor	0.049	U	ug/L	0.049	0.2
11/15/2010 9:45	Blanks	Pesticides	Fonofos	0.098	U	ug/L	0.098	0.39
11/15/2010 9:45	Blanks	Pesticides	Naled	0.78	U	ug/L	0.78	3.1
11/15/2010 9:45	Blanks	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
11/15/2010 9:45	Blanks	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.77

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	58
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	UJ	ug/L	2.9	12
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	57	I	ug/L	14	58
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
11/15/2010 9:45	Blanks	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.77
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
11/15/2010 9:45	Blanks	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12

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: Terry Davis		Contact Number: (772)398-2806 X122
Facility Name (as it appears on permit): Sailfish Point Utility Corp.		Former Names:
NPDES Permit Number: FL0037001	Permit Expiration Date: 14 December, 2011	
Physical Address: 6929 SE Marina Way, Stuart, FL 34996		
District: SED	County: Martin	
Function of Facility: Provide potable water to 665 residences		
Facility Type: Reverse osmosis WTP	Permitted Capacity (MGD): 0.115 MGD concentrate	
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 0.0635 MGD - 3rd quarter, 09 through 2nd quarter, 10		
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): None		
Description of type of Discharge: ☐ Continuous ☒ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify		
Description of Sampling Location(s) - actual permit designation of permitted sampling point(s): I-002 (EFF-01) – discharge from rock trench into catch basin, before discharge to stormwater lakes		
Description of Permitted Outfall(s): D-001 (SWI-01) – discharge from stormwater lake system to Class II surface waters. I-002		
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): pH adjustment with the addition of sodium hydroxide solution and aeration through a gravel bed trench to remove excess hydrogen sulfide. Treated concentrate is diluted with water in the stormwater lake system before the potential discharge to State's waters.		

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Appendix F. (continued)

PART I: Continued

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

			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			0.115 Max					EFF-01	

Appendix F. (continued)

PART I: Continued	
Receiving Waters: **Indian River – coastal lagoon**	**Classification (indicate whether fresh or marine):** **Class II Marine**
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): **None**	
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: None	

Date	Parameter and Units	Limit	Result

Describe previous FYI and WQBEL study: **12 Sept., 2005 – FYI3 – Not toxic**
Describe previous or current Enforcement Actions (including WLs): **None**
Describe any violations or problems noted in previous inspection: **None**
Discuss whether DMR trends within previous five years are improving or declining: **No trends**
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse): **Anticipate taking sample for bioassay at I-002 (EFF-01) even though it is not off site discharge point , because of the high dilution by stormwater, and inclusion of other possible sources, at the potential off site outfall D-001.**

Appendix F. (continued)

PART II: Sampling Event Information	
Date(s) sample collected: 11-15-2010	Sampler(s): William Thiel
Temperature (Deg C): 26.2	pH (SU): 7.80
Dissolved Oxygen (mg/L): 93.8%	Conductivity (umhos/cm): 12,960
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination: N/A	Method of De-chlorination: N/A
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): 0.064 MGD	
Describe Discharge during Sampling Event: ☐ Continuous ☒ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix G. EPA End Sheet

The Bioassay of Sailfish Point Utility Corporation effluent sampled on November 15, 2010. NPDES #FL0037001.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 3 7 0 0 1 11	12 1 0 1 1 1 5	18 **B**	19 **S**	20 2

Remarks

66

The Priority Pollutants Analysis of Sailfish Point Utility Corporation effluent sampled on November 15, 2010. NPDES #FL0037001.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 3 7 0 0 1 11	12 1 0 1 1 1 5	18 **X**	19 **S**	20 2

Remarks

66

Biological Analyses of Sailfish Point Utility Corporation effluent sampled on November 15, 2010. NPDES #FL0037001.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 3 7 0 0 1 11	12 1 0 1 1 1 5	18 **S**	19 **S**	20 2

Remarks

66