

Effluent Quality Assessment

JEA District II WWTF

Duval County

NPDES #FL0026450

Sampled February 4, 2013

May 2013

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 Effluent limits, Class III Marine Criteria and chemical and microbiological data, and qualifiers

Appendices

Appendix A Facility Summary

Appendix B Chain of Custody

Appendix C Chemical Analyses of Effluent

Appendix D Bioassay Bench Sheets

Appendix E Standard Reference Toxicant Data

Appendix F Organism Receipt

EPA End Sheet

JEA District II WWTF, 1840 Cedar Bay Road, Jacksonville, Duval County, Florida, 32218. NPDES #FL0026450. Effluent grab samples for biological and chemical analyses for this facility were collected on February 4, 2013.

Introduction

JEA District II WWTF is a wastewater treatment facility which treats domestic wastewater for reuse via public access spray field and two power plant cooling towers or discharge to the Class III Marine waters (at point of discharge) of the St. John's River. (See Appendix A for detailed facility information provided by Kyle Watson of FDEP Northeast District.)

Methods

Samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Sharon Piltz and Jeremy Parrish (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/bars/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The 96-hour acute definitive toxicity tests were performed following internal DEP SOPs TA07_01, TA07_02. All internal DEP SOPs are available on the web at:
http://www.dep.state.fl.us/water/sas/sop/index.htm

Results

Chemistry Results (See Table 1 and Appendix C)

- Total residual chlorine was not detected in the bioassay sample in the laboratory. The total ammonia concentration in the bioassay sample was 1.06 mg N/L. An ammonia analyses was not performed on the effluent samples collected and preserved for chemical analysis; therefore, unionized ammonia cannot be calculated for this sample.
- Copper and nickel were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Aluminum, chromium III, iron and zinc were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Note that the designation of the receiving water as freshwater in the facility summary (Appendix A) was determined to be incorrect.
- Algal Growth Potential
  Sample not collected

Toxicity Test Results (See Appendices C- F)

Tests were performed February 5 - 9, 2013.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 5%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

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

*NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1) (a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of

toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

See Appendix D for bioassay bench sheets. See Appendix E 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 F for test organism receipts.

Conclusion

The effluent sample collected from the EFD-1 NPDES sampling point for this facility on February 4, 2013, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. Effluent water quality samples collected on February 4, 2013, did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

None

Table 1. Effluent limits, Class III Marine Criteria and chemical and microbiological data.

JEA District II WWTF FL0026450	Class III Criteria	Effluent Limits	Effluent Grab	
Organic Constituents (µg/L)				
None Detected	-		None Detected	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	13	I
Arsenic	≤ 50	-	0.25	U
Cadmium	≤ 8.8	-	0.05	U
Calcium (mg/L)	-	-	58.9	
Chromium-III	-	-	0.31	I
Copper	≤ 3.7	≤ 3.7	1.16	
Iron	≤ 300	-	73	I
Lead	≤ 8.5	-	0.2	U
Magnesium (mg/L)	-	-	24.3	
Nickel	≤ 8.3	-	1.27	
Selenium	≤ 71	-	0.2	U
Silver	≤ 2.3	-	0.025	U
Sodium (mg/L)	-	-	96.8	
Zinc	≤ 86	-	19	I
Nutrients (mg/L)				
Total Organic Carbon	-	-	8.2	
Total Phosphorus	-	Report	2	
Nitrate and Nitrite	-	-	11	
Total Kjeldahl Nitrogen	-	-	2.2	
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	5.9	
pH (SU)	6.5 - 8.5	6.0 - 8.5	7.1	
Conductivity (µmhos/cm)	-	-	943	
Temperature (°C)	-	-	22.8	
Sample Depth (m)	-	-	0.5	
Total Residual Chlorine (mg/L)	≤ 0.01	-	≤ 0.03	UQ£
Cyanide (µg/L)	≤ 1.0	≤ 1.0	0.005	U
Sulfate (mg/L)	-	-	77	
Flow (MGD)	-	10	1.63	a
Hardness (mg $CaCO_3$)	-	-	247.14	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	800 s	2	U

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

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

Q - Sample held beyond normal holding time

¥ - Fecal coliform analysis performed by Columbia Analytical Services Inc, Jacksonville

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

£ - measurement taken in the FDEP laboratory

Appendix A. Facility Summary

DISTRICT II (JEA) – FACILITY SUMMARY – FL0026450 – NOVEMBER-2012

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kyle Watson	Contact Number: (904) 256-1624
Facility Name (as it appears on permit): JEA District II WWTF	Former Names: Rabbit Ridge
NPDES Permit Number: FL0026450	Permit Expiration Date: 5/10/2014
Physical Address: 1840 Cedar Bay Road Jacksonville, Florida 32218	
District: NED	County: Duval
Function of Facility: Treat wastewater for reuse via public access sprayfield (0.12 MGD) and two power plant cooling towers (5.0 MGD each), or discharge to St John's River.	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD): 10.0
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 3.5 MGD from 9/2011 – 7/2012.	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): 3.5 MGD from 9/2011 – 7/2012.	
Description of type of Discharge: Continuous operation, effluent mostly reused ☐ Continuous ☒ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify @ D001	

DISTRICT II (JEA) – FACILITY SUMMARY – FL0026450 – NOVEMBER-2012

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

EFD-1 - Sample point after disinfection and prior to discharge to the river (from the river discharge wet well)

Description of Permitted Outfall(s):

Surface Water Discharge D-001: An existing 10.0 MGD annual average daily flow discharge to St. John's River, Class III fresh waters, (WBID# 2213C) which is 54 inches in diameter, approximately 600 feet in length and discharges at a depth of approximately 13 feet. The point of discharge is located approximately at latitude 30°24' 28" N, longitude 81°36' 24" W.

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

Plant 1 (south plant) consists of the following process units:

- One mechanical bar screen with a capacity of 12.5 MGD at peak hour flow (PHF), and one manually cleaned bar screen used for backup;
- One 0.646-million gallons (MG) primary clarifiers with a surface area of 7,854 SF;
- Two 22,050 CF (183,015-gallon) anoxic zones at the head of the train followed by two 147,000 CF (1.256-MG) aeration zones;
- Two 0.823-MG secondary clarifiers with a surface area of 7,854 SF each.

Plant 2 (north plant) consists of the following process units:

- One mechanical bar screen with a capacity of 12.5 MGD at PHF, and one manually cleaned bar screen used for backup;
- Two 0.248-MG primary clarifiers with a surface area of 3,318 SF each;
- Two 15,100 CF (125,934-gallon) anoxic zones at the head of the train followed by two 201,344 CF (1.679-MG) aeration zones;
- Two 0.571-MG secondary clarifiers with a surface area of 6,362 SF each.

The clarifier supernatant from the two plants is combined. One portion of the water is conveyed to two rotary disk filters with a capacity of 11.2 MGD PHF to provide tertiary treatment to reuse, and then to an ultraviolet (UV) high-level disinfection train which consists of four UV banks (104 lamps). The other portion of water is conveyed to an ultraviolet (UV) basic-level disinfection train which consists of two banks (40 lamps) prior to the surface water discharge.

DISTRICT II (JEA) – FACILITY SUMMARY – FL0026450 – NOVEMBER-2012

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 (to St. Johns River)	MGD	Max Max	10.0	Report			Continuous	Recording Flow Meter with Totalizer	EFD-1	See I.A.2.
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max Max Max	20.0	25.0	40.0	60.0	5 Days/Week	24-hr FPC	EFD-1	
CBOD, % Removal, 5-day	percent	Min		85.0			5 Days/Week	Calculated	CAL-1	See I.A.5
Solids, Total Suspended	mg/L	Max Max Max Max	20.0	30.0	45.0	60.0	5 Days/Week	24-hr FPC	EFD-1	
Solids, Total Suspended, % Removal	percent	Min		85.0			5 Days/Week	Calculated	CAL-1	See I.A.5
pH	s.u.	Min Max			6.5 8.5		Continuous	Meter	EFD-1	See I.A.1
Oxygen, Dissolved (DO)	mg/L	Min				4.0	Daily; 24 hours	Grab	EFD-1	See I.A.6
Ultraviolet Light Dosage	mW-s/sqcm	Min				Record	Daily; 24 hours	Meter	EFF-1	See I.A.7
Ultraviolet Light Transmittance	percent	Min				Record	Daily; 24 hours	Meter	EFF-1	See I.A.7
Ultraviolet Light Intensity	mW/sqcm	Min				Record	Daily; 24 hours	Meter	EFF-1	See I.A.7

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
Coliform, Fecal	#/100mL	Max Max Max Max	200	200 Monthly Geometric Mean	400 90th Percentile	800	5 Days/Week	Grab	EFD-1	See I.A.3
Nitrogen, Total	mg/L	Max Max Max	Report	Report	Report		5 Days/Week	24-hr FPC	EFD-1	
Nitrogen, Total	lb/mth	Max		Report Monthly Total		Report	Monthly	Calculated	CAL-2	
Nitrogen, Total	lb/yr	Max	Report Annual Total			Report	Monthly	Calculated	CAL-2	
Copper, Total Recoverable	ug/L	Max	3.7	Single Sample		3.7	Monthly	24-hr FPC	EFD-1	See I.A.8
Cyanide, Total (as CN)	ug/L	Max				1.0	Monthly	Grab	EFD-1	See I.A.9
Nitrogen, Organic, Total (as N)	mg/L	Max				Report	Monthly	24-hr FPC	EFD-1	See I.A.12
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max				Report	Monthly	24-hr FPC	EFD-1	See I.A.12
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max				Report	Monthly	24-hr FPC	EFD-1	See I.A.12
Nitrogen, Ammonia, Total (as N)	mg/L	Max				Report	Monthly	24-hr FPC	EFD-1	See I.A.12
Phosphorus, Total (as P)	mg/L	Max				Report	Monthly	24-hr FPC	EFD-1	See I.A.12
Phosphate, Ortho (as P)	mg/L	Max				Report	Monthly	Grab	EFD-1	See I.A.12

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
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	**percent**	**Min**				**100**	**Semi-Annually; twice per year**	**24-hr FPC**	**EFD-1**	**See I.A.4**
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	**percent**	**Min**				**100**	**Semi-Annually; twice per year**	**24-hr FPC**	**EFD-1**	**See I.A.4**

I.A.

1. **Hourly measurement of pH during the period of required operator attendance may be substituted for continuous measurement.** *[Chapter 62-601, Figure 2]*
2. **A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months.** *[62-601.200(17) and .500(6)]*
3. **The effluent limitation for the monthly geometric mean for fecal coliform is only applicable if 10 or more values are reported. If fewer than 10 values are reported, the monthly geometric mean shall be calculated and reported on the Discharge Monitoring Report.** *[62-600.440(4)(c)]*
4. **The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.**
   a. **Effluent Limitation**
      (1) **In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]**
      (2) **For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]**
   b. **Monitoring Frequency**
      (1) **Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the issuance date of this permit and lasting for the duration of this permit.**

c. Sampling Requirements
   (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
   (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
   (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements
   (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: 100%, 50%, 25%, 12.5%, and 6.25% final effluent.
   (2) The permittee shall conduct a daphnid, Ceriodaphnia dubia, Survival and Reproduction Test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Test, concurrently.
   (3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
   (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

5. The monthly average effluent carbonaceous biochemical oxygen demand 5-day (CBOD5) and total suspended solids concentrations shall not exceed 15% of the respective influent values (85% removal). *[62-620.620(1)(o) and (3)]*

6. The average of DO level shall not be less than 5.0 mg/L in a 24-hour period and shall never be less than 4.0 mg/L. Normal daily and seasonal fluctuations above these levels shall be maintained. The lower St. Johns River has an SSAC for DO in accordance with the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008. *[62-302.530(30)]*

7. The ultraviolet disinfection system consists of a basic-level ultraviolet disinfection system with two banks per reactor, a total of 5 modules per bank (4 lamps per module) to produce a minimum dosage of 140 mW-s/sqcm at the peak flow rate. The UV system shall be monitored for proper operation on each day of operator attendance. The ultraviolet light intensity, ultraviolet light dosage, ultraviolet light transmittance and unit operation shall be monitored and verified. The operation and maintenance shall be performed on a regular basis in accordance with the manufacturer recommended factor of safety. Daily record keeping, routine cleaning and daily system checks of the system shall be conducted and records maintained for review by the Department. *[62-600.440(4)(b)]*

8. The final limit for total cyanide and total recoverable copper are held in abeyance until the final compliance date listed in Section VI.1. of the permit is complete. *[FS 403.088(2)(e)-(f)]*

9. The permittee shall be deemed in compliance with the Surface Water Quality Standards for total cyanide, when concentration for the total cyanide in the effluent meet permit limit specified Condition I.A.1 or shall be undetectable or less than the method detection limit (MDL) level established by Department corresponding to approved analytical method. *[62-4.246, 62-302.530(24)]*

10. The permittee, JEA, shall meet the aggregate cap through collectively managing the total nitrogen loads from individual JEA facilities (Arlington East WRF - FL0026441; Beacon Hills WWTF - FL0026778; Buckman WWTF - FL0026000; District II WWTF - FL0026450; Jacksonville Heights WWTF - FL0023671; Julington Creek WWTF - FL0043591; Mandarin WRF - FL0023493; Monterey WWTF - FL0023604; Royal Lakes WWTF - FL0026751; San Jose WWTF - FL0023663; San Pablo WWTF - FL0024767; Southwest District WWTF - FL0026468; Woodmere WWTF -FL0026786; and JEA Power

Plant - FPL), which are listed in the JEA - Aggregate Total Nitrogen (Permit ID: FL0620564). The monthly mass load and annually mass loads of total nitrogen shall be calculated as follows:

- Monthly Mass Load (ML)

$$\textbf{ML (Lbs/Mon)} = [\textbf{Flow } (\tfrac{MG}{Mon}) \textbf{ x TN } (\tfrac{mg}{L})] \textbf{ x 8.34 } (\tfrac{L}{MG})(\tfrac{Lbs}{mg})]$$

Where:

ML	=	Monthly mass load of total nitrogen; (Lbs/Mon)
Flow	=	Monthly volume of effluent discharged from D-001 in a given month; (million gallons (MG))
TN	=	Monthly average concentration of total nitrogen monitored at EFD-1; (mg/L)

- Annual Mass Load

The annual mass load is computed using a rolling twelve (12) – month period. The calculation shall be the sum of the twelve most recent monthly mass loading of total nitrogen starting from the second month following permit issuance month.

[BPJ]

11. **The Florida water quality criteria and standards shall not be violated as a result of the discharge.** ***[62-620.320(9) and 62-302.530]***

12. **Ambient stream monitoring and reporting shall be conducted in accordance with the locations, frequencies, and parameters in the latest, Department approved, version of JEA's Ambient Stream Monitoring Plan. The ambient stream sample event shall be coincided with the week effluent -nutrients sample event collected at EFD-1 as described in Condition I.A.1. JEA will submit to the Department's Northeast District office a report with stream sample data results and graphical analyses for each sample location. Data qualifiers and any important comments concerning the sample event and sample results will be included. The annual report (calendar year monitoring period) shall be submitted to the Northeast District wastewater permitting section by March 1, of the following year.** ***[62-4.240(3)(c)***

13. **The Department reserves the right to require the Permittee to conduct a reconnaissance sediment sampling event to include up to six transects with a minimum of three transects located (1) along the outfall, D-001, and approximately 300 feet upstream and 300 feet downstream of the outfall, D-001, for the purpose of establishing final sampling locations for permit monitoring.** ***[BPJ]***

14. **JEA shall provide an initial report concerning the integrity of the outfall and shall determine and propose an evaluation and analysis method. The initial report shall be submitted to DEP within one year from permit issuance. Then, annual reports shall be submitted based on the approved evaluation and analysis method to indicate the status of the outfall line on or before January 01 of each year.** ***[BPJ]***

DISTRICT II (JEA) – FACILITY SUMMARY – FL0026450 – NOVEMBER-2012

PART I: Continued	
Receiving Waters: St. John's River	Classification (indicate whether fresh or marine): Class III fresh waters

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

7-DAY CHRONIC STATRE: See I.A.4.
Ceriodaphnia dubia (Routine)
Pimephales promelas (Routine)

Ceriodaphnia dubia (Additional)
Pimephales promelas (Additional)

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
5/11/2009 – AO 129 NE – Submit plan of action identifying sources of cyanide and recoverable copper, submit a plan of action proposing actions to bring these parameters down to permitted levels, implement plan with periodic reported updates. Comply with permitted limits by 12/31/2012.
5/13/2011 – CO 11-0360 – Two months of daily sampling for Total Recoverable Copper shall be conducted until source is found. A plan shall be presented and implemented to reduce the recorded levels to below limits ordered in AO 129 NE. In addition, a fine of $17,300 shall be submitted to the Department. CO was closed on 5/17/2012.

Facility Mixing Zone Details (if applicable):
Discharge is 54 inches in diameter, approximately 600 feet in length and discharges at a depth of approximately 13 feet. The point of discharge is located approximately at latitude 30°24' 28" N, longitude 81°36' 24" W.

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

Date	Parameter and Units	Limit	Result
9/19/2012	Copper, ug/L	8.91	23.2

Describe previous FYI and WQBEL study:

i) The Third-Year inspection was conducted on June 24 and 25, 2004 for the effluent discharge through Outfall D-001; the result is summarized following:

(1) Results of the Water Chemistry:

Total ammonia was not detected in the bioassay samples in the laboratory. Total ammonia concentration in the sample collected and preserved for chemical analysis was 0.04 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

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

(2) Toxicity Test Result:

The effluent sample collected from D-001 was not acutely toxic to test organisms during the acute screen 96-hour bioassays.

+ Sample #4 collected October 24, 2004, 1700 hours:
Americamysis bahia 96-hr acute screening bioassay – LC_{50} > 100%, 10% mortality in 100% sample at 96 hours.
Medidia beryllina 96-hr acute screening bioassay – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours.
+ Sample #1 collected October 24, 2004, 2300 hours:
Americamysis bahia - 96-hr acute screening bioassay – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours.
Medidia beryllina - 96-hr acute screening bioassay – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours.
+ Sample #2 collected October 25, 2004, 0500 hours:
Americamysis bahia - 96-hr acute screening bioassay – LC_{50} > 100%, 5% mortality in 100% sample at 96 hours.
Medidia beryllina - 96-hr acute screening bioassay – LC_{50} > 100%, 5% mortality in 100% sample at 96 hours.
+ Sample #3 collected October 25, 2004, 1120 hours:
Americamysis bahia - 96-hr acute screening bioassay – LC_{50} > 100%, 5% mortality in 100% sample at 96 hours.
Medidia beryllina - 96-hr acute screening bioassay – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours.

(3) Algal Growth Potential:

The effluent AGP result exceeded the "problem" threshold for marine receiving waters.

The effluent Algal Growth Potential (AGP) was 195 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters. The predicted AGP based on inorganic nitrogen concentrations was 77.41 (±20%) mg dry wt/L.

The effluent salinity-adjusted Algal Growth Potential (AGP) was 114 mg dry wt/L of the saltwater species, *Dunaliella tertiolecta*. Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment.

(b) Water Quality Based Effluent Limitation (WQBEL)

(i) Dissolved Oxygen: The STORET data shows that average dissolved oxygen (DO) concentrations of the water body complies with the water quality criterion. The facility is required monitor the DO level in the effluent in accordance with Rule 62-302.530(30), FAC

(ii) Cyanide: The Expanded Effluent Testing Data shows that the maximum concentration of total cyanide was 4.00 µg/L. These values were exceeded the Florida Water Quality Criteria for total cyanide. Pursuant with Section 403.088(2)(d), F.S., and Rule 62-620.320(1), F.A.C, to provide a reasonable assurance of the permit, the permittee is required to monitor total cyanide. Limits and monitoring frequencies of the parameters are based on Rules 62-302.530(24) and 62-601, FAC.

The monitoring requirements and limitation of total cyanide is new and more stringent than the previous permit requirements. Therefore, in accordance with Sections 403.088(2)(e) and (f) of the FS, the permit shall be issued, accompanied by an administrative order which contains interim limits and establishes a schedule for achieving compliance with the final limits for the two parameters

(iii) Enterococci: The Environmental Protection Agency (EPA) promulgated water quality criteria for enterococci for coastal recreation waters in Florida effective December 16, 2004. However, the JEA District II WRF discharges to WBID 2213E which is more than 12 miles away from coastal recreation waters of the U.S. therefore, the JEA District II WRF is not required to monitor for enterococci in the effluent discharged from Outfall D-001. Therefore, enterococci limits and monitoring are not required.

Describe previous or current Enforcement Actions (including WLs):
6/14/2010 – Warning for placing three new collection systems into operation without DEP's prior approval.
2/23/2011 - Warning for placing a new collection system into operation without DEP's prior approval.
10/19/2011 – Warning for failure to maintain equipment (Faye Rd).

Describe any violations or problems noted in previous inspection:
None listed. Inspection conducted on 9/6/2012.

Discuss whether DMR trends within previous five years are improving or declining:
Improving.

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

DISTRICT II (JEA) – FACILITY SUMMARY – FL0026450 – NOVEMBER-2012

PART II: Sampling Event Information	
Date(s) sample collected: December 10, 2012 - planned	Sampler(s): Eesa Ali, Sharon Piltz
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	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-02-04-02
FYI3 JEA District II Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: S. Piltz

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

Collected By: J. Parrish / S. Piltz
Sampling Agency: FDEP NED
Send Final Report To: Tom Rauth

Lab ID *: JEA District II FYI EFF-1
Location:
Field ID:
Matrix (include type e.g. Salt, Fresh, etc): EFF / Reuse
Temp (C): 22.78
pH: 7.10
Latitude: ☐ dd ☐ dms
Longitude: ☐ dd ☐ dms
Comments:
☐ Comp ☑ Grab
Collection (comp begin or grab) (Eastern / Central): Date 2/4/13 Time 1005
Composite end (Eastern / Central): Date Time
Bottle Group(s)**: A
Tot Res Chlorine (mg/L):
Diss Oxygen (mg/L): 5.90
Storet Station Number:
Sample Depth ☐ m ☐ ft: 0.5
Salinity (PPTh): 0.46
Sp Conductance (umho/cm): 943
NPDES Number:

Lab ID *: Field Blank
Location:
Field ID:
Matrix (include type e.g. Salt, Fresh, etc): DI
Temp (C):
pH:
Latitude: ☐ dd ☐ dms
Longitude: ☐ dd ☐ dms
Comments:
☐ Comp ☑ Grab
Collection (comp begin or grab) (Eastern / Central): Date 2/4/13 Time 1015
Composite end (Eastern / Central): Date Time
Bottle Group(s)**: B
Tot Res Chlorine (mg/L):
Diss Oxygen (mg/L):
Storet Station Number:
Sample Depth ☐ m ☐ ft:
Salinity (PPTh):
Sp Conductance (umho/cm):
NPDES Number:

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

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	2/4/13	Fed Ex						2-5-13/9:10

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

17 bioassay 9:56 on 2.5.13
13 A bottles

Appendix C
Chemical Analyses of Effluent

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
2/4/2013 10:05	EFD-1	Overflow	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL	2	
2/4/2013 10:05	EFD-1	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
2/4/2013 10:05	EFD-1	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
2/4/2013 10:05	EFD-1	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/4/2013 10:05	EFD-1	Metals	Selenium	0.2	U	ug/L	0.2	0.8
2/4/2013 10:05	EFD-1	Metals	Silver	0.025	U	ug/L	0.025	0.1
2/4/2013 10:05	EFD-1	Metals	Chromium	0.31	I	ug/L	0.3	1.2
2/4/2013 10:05	EFD-1	Metals	Arsenic	0.25	U	ug/L	0.25	1
2/4/2013 10:05	EFD-1	Metals	Sodium	96.8		mg/L	0.5	2
2/4/2013 10:05	EFD-1	Metals	Copper	1.16		ug/L	0.5	1
2/4/2013 10:05	EFD-1	Metals	Aluminum	13	I	ug/L	5	20
2/4/2013 10:05	EFD-1	Metals	Zinc	19	I	ug/L	5	20
2/4/2013 10:05	EFD-1	Metals	Magnesium	24.3		mg/L	0.04	0.16
2/4/2013 10:05	EFD-1	Metals	Iron	73	I	ug/L	30	120
2/4/2013 10:05	EFD-1	Metals	Nickel	1.27		ug/L	0.25	1
2/4/2013 10:05	EFD-1	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/4/2013 10:05	EFD-1	Metals	Calcium	58.9		mg/L	0.075	0.3
2/4/2013 10:05	EFD-1	Nutrients	NO2NO3-N	11		mg N/L	0.2	0.5
2/4/2013 10:05	EFD-1	Nutrients	Total-P	2		mg P/L	0.025	0.25
2/4/2013 10:05	EFD-1	Nutrients	Kjeldahl Nitrogen	2.2		mg N/L	0.16	0.4
2/4/2013 10:05	EFD-1	Nutrients	Organic Carbon	8.2		mg C/L	0.5	1
2/4/2013 10:05	EFD-1	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
2/4/2013 10:05	EFD-1	Nutrients	Sulfate	77		mg SO4/L	0.4	1
2/4/2013 10:05	EFD-1	Field Parameter	Sample Depth	0.5		m		
2/4/2013 10:05	EFD-1	Field Parameter	Specific Conductance	943		umhos/cm		
2/4/2013 10:05	EFD-1	Field Parameter	Temperature	22.78		C		
2/4/2013 10:05	EFD-1	Field Parameter	pH	7.1				
2/4/2013 10:05	EFD-1	Field Parameter	Dissolved Oxygen	5.9		mg/L		
2/4/2013 10:15	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
2/4/2013 10:15	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
2/4/2013 10:15	Field Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/4/2013 10:15	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	1

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
2/4/2013 10:15	Field Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
2/4/2013 10:15	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
2/4/2013 10:15	Field Blank	Metals	Iron	30	U	ug/L	30	120
2/4/2013 10:15	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
2/4/2013 10:15	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/4/2013 10:15	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
2/4/2013 10:15	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
2/4/2013 10:15	Field Blank	Metals	Aluminum	5	U	ug/L	5	20
2/4/2013 10:15	Field Blank	Metals	Zinc	5	U	ug/L	5	20
2/4/2013 10:15	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
2/4/2013 10:15	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
2/4/2013 10:15	Field Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
2/4/2013 10:15	Field Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
2/4/2013 10:15	Field Blank	Nutrients	Organic Carbon	0.5	U	mg C/L	0.5	1
2/4/2013 10:15	Field Blank	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
2/4/2013 10:15	Field Blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005

Appendix D
Bioassay Bench Sheets

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: JEA District II WWTF

Address: 1840 Cedar Bay Road Zip 32218

City: Jacksonville County: Duval

Contact/District: Esmaeli / Northeast Jacksonville

NPDES Permit #: FL 0026450

LIMS Job #: TLH-2013-02-05-74

LIMS Sample #: 1482127

Lims Data Entry: 2/15/13 MF

Data Entry Verification: 2/15/13 BA

Sample Collection: Date: 2/4/13 Time: 1005

Hold Time Start: Date: 2/4/13 Time: 1005

Comments:

Initial sample handling:

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

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

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

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

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

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

Sample Validation:

Instructions: Check yes or no. Fill in temperatures.

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

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

Investigators' Signatures:	Initials:
Marshall Faircloth	MF
Patricia Pennington	AP
Bruce Abell	BA
Hans Walter	HW

REVIEWER: Chip Mazeau

Diluent/Control Batch#:	1-25-13	2-1-13							
Water Quality Parameters	MHWCD 20% DMW MF	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		MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03				<0.03	AP/BA	MF
Alkalinity (mg/L as $CaCO_3$):	76		74				190	HW/AP	MF
Hardness (mg/L as $CaCO_3$):	89		84				224	HW/AP	MF
Total Ammonia (mg/L as N):	<0.017	<0.017 MF	<0.017				1.06	MF	AP
Conductivity: ☑ µmhos ☐ mmhos	306		331				1779 735 mL	ME/AP	AP/MF
Salinity (ppth):									

V 1.8 1/13/10

Page 49

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1482127 **SOP#: TA 07** 01 **Test #** 1 **of** 2

Test Species:
Batch #: 2-5-13 Age: 24 hrs
- [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

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

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

Test Started: Date 2-5-13 Time 1100

Test Ended: Date 2.9.13 Time 1000

Diluent (Batch # 1-25-13) MF
- [ ] ASW
- [x] ~~20% DMW~~ MHWCD
- [ ] MHW
- [ ] Well

Chamber Size 30 ml
Test Volume: 20 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
C+C	A	1	5	5	5	5	5	5
	B	2	5	5	5	5	5	5
	C	3	5	5	5	5	5	5
	D	4	5	5	5	5	5	5
6.25%	A	5	5	5	5	5	5	5
	B	6	5	5	5	5	5	5
	C	7	5	5	5	5	5	5
	D	8	5	5	5	5	5	5
12.5%	A	9	5	5	5	5	5	5
	B	10	5	5	5	5	5	5
	C	11	5	5	5	5	5	5
	D	12	5	5	5	5	5	5
25%	A	13	5	5	5	5	5	5
	B	14	5	5	5	5	5	5
	C	15	5	5	5	5	5	5
	D	16	5	5	5	5	5	5
50%	A	17	5	5	5	5	5	5
	B	18	5	5	5	5	5	5
	C	19	5	5	5	5	5	5
	D	20	5	5	5	5	5	5
100%	A	21	5	5	5	5	5	5
	B	22	5	5	5	5	5	5
	C	23	5	5	5	5	5	5
	D	24	5	5	5	5	5	4 ID
Checked or Verified by:			MF	MF	MF	MF	MF	BA

Food
- [x] YCT Batch# 11254-12
- [x] P. subcapitata Batch# 1-18-13
- [ ] Artemia Lot#_____

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

Temperature Range (°C)
Incubator # 3
min. 26.3 max. 28.1 mean ___

Incubator #___
min.____max.____mean____

Waterbath #___
min.____max.____mean____

Room B246
min. 21.9 max. 25.7 mean ___

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

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

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 5% LC50: >100%
Calculated LC50 (Definitive) 95% CI____ Method____

Comments:

Page 50

V. 2.5 1-13-10

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

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 148127 Test # 1 of 2

Test Species:

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

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

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☑ µmhos ☐ mmhos	Salinity* (ppth)
	M	0 hr	8.1	24.6	7.7	306	
		24 hr					
CTC	A	48 hr BR	7.9	25.4	8.1 MF	340	
	M	48 hr AR	7.8	24.2	~~7.8~~ 8.2	310	
		72 hr					
	A	96 hr	7.3	24.9	7.5	334	
	M	0 hr	8.1	24.2	7.6	349	
		24 hr					
6.25%	A	48 hr BR	7.9	25.2	8.2 MF	390	
	M	48 hr AR	7.8	24.7	~~7.8~~ 8.1	352	
		72 hr					
	A	96 hr	7.5	24.7	7.4	374	
	M	0 hr	7.9	24.8	7.8	392	
		24 hr					
12.5%	A	48 hr BR	7.9	25.2	8.2 MF	404	
	M	48 hr AR	7.8	24.8	~~7.8~~ 8.0	394	
		72 hr					
	A	96 hr	7.5	24.7	7.4	413	
	M	0 hr	7.9	24.8	7.8	475	
		24 hr					
25%	A	48 hr BR	7.9	25.2	8.2 MF	552	
	M	48 hr AR	7.7	24.9	~~7.7~~ 7.9	476	
		72 hr					
	A	96 hr	7.6	24.2	7.7	506	
	M	0 hr	7.7	25.0	7.7	633	
		24 hr					
50%	A	48 hr BR	7.9	25.1	8.3 MF	688	
	M	48 hr AR	7.7	25.1	~~7.7~~ 7.9	639	
		72 hr					
	A	96 hr	7.7	24.2	7.8	683	
	M	0 hr	7.6	25.1	7.9	954	
		24 hr					
100%	A	48 hr BR	8.1	25.1	8.3 MF	1015	
	M	48 hr AR	7.6	25.6	~~7.6~~ 7.8	958	
		72 hr					
	A	96 hr	8.1	24.1	7.4	1008	
		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: MF
24 hr:
48 hr BR: MF
48 hr AR: MF
72 hr:
96 hr: BA

V. 2.3 1-13-10

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1482127 SOP#: TA 07-02 Test # 2 of 2

Test Species:
Batch #: 2.5.13 Age: 7 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 # 2.1.13)
☐ ASW ☐ 20% DMW ☑ MHW ☐ Well

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

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 2.5.13 Time 1300

Test Ended: Date 2.9.13 Time 1000

Chamber Size 1000ml
Test Volume: 500ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	F1	10	10	10	10	10	10
	B	F2	10	10	10	10	10	10
6.25%	A	F3	10	10	10	10	10	10
	B	F4	10	10	10	10	10	10
12.5%	A	F5	10	10	9 1D	9	9	9
	B	F6	10	10	10	10	10	10
25%	A	F7	10	10	10	10	10	10
	B	F~~8~~ 8MF	10	10	10	10	10	10
50%	A	F9	10	10	10	10	10	10
	B	F10	10	10	10	10	10	10
100%	A	F11	10	10	10	10	10	10
	B	F12	10	10	10	10 M ~~10~~ 10		10
Checked or Verified by:			BA	BA	BA	AP	BA	BA

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 08813

Feeding and Artemia Batch #
- ☑ 0 hr 22.13 ☑ Prior to Test
- ☐ 24 hr___
- ☑ 48 hr 24.13 ☑ Prior to Renewal
- ☐ 72 hr___

Temperature Range (°C)
Incubator # 2
min. 25.3 max. 26.3 mean —
Incubator #___
min.___ max.___ mean___
Waterbath #___
min.___ max.___ mean___
Room B246
min. 24.9 max. 25.7 mean —
Light Intensity (ft. candles): 50-100
Photoperiod (hours): 16 light, 8 dark

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

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

Comments:

V. 2.5 1-13-10

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

Page 51

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1482127 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)
control	A	0 hr	7.7	24.1	7.8	331	
	B	24 hr	7.6	24.6	7.3	387	
	A	48 hr BR	7.6	24.7	8.0	332	
	A	48 hr AR	7.7	24.8	7.4	351	
	B	72 hr	7.2	25.0	6.2	376	
	A	96 hr	7.9	24.8	7.2	318	
6.25%	A	0 hr	7.7	24.3	7.7	370	
	B	24 hr	7.6	25.2	7.3	395	
	A	48 hr BR	7.7	25.1	7.8	415	
	A	48 hr AR	7.8	24.9	7.5	374	
	B	72 hr	7.4	25.3	6.9	360	
	A	96 hr	7.6	24.4	7.6	376	
12.5%	A	0 hr	7.7	24.4	7.7	405	
	B	24 hr	7.6	24.8	7.3	485	
	A	48 hr BR	7.8	25.0	7.7	513	
	A	48 hr AR	7.6	24.8	7.4	428	
	B	72 hr	7.4	25.7	7.1	418	
	A	96 hr	7.7	24.8	7.5	462	
25%	A	0 hr	7.7	24.4	7.7	600	
	B	24 hr	7.7	25.0	7.3	615	
	A	48 hr BR	8.0	24.7	7.6	660	
	A	48 hr AR	7.6	24.9	7.3	535	
	B	72 hr	7.5	25.2	6.8	519	
	A	96 hr	7.8	24.9	7.1	567	
50%	A	0 hr	7.7	24.6	7.7	612	
	B	24 hr	7.8	24.8	7.2	630	
	A	48 hr BR	8.0	24.9	7.6	667	
	A	48 hr AR	7.6	24.9	7.4	630	
	B	72 hr	7.6	25.2	6.7	615	
	A	96 hr	7.9	24.8	7.2	667	
100%	A	0 hr	7.5	24.7	7.7	935	
	B	24 hr	7.8	25.0	7.2	943	
	A	48 hr BR	8.1	24.8	7.6	979	
	A	48 hr AR	7.5	25.2	7.4	964	
	B	72 hr	7.9	25.4	6.7	928	
	A	96 hr	8.1	24.9	7.3	1014	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

Measured By:
0 hr: AP
24 hr: AP
48 hr BR: AP
48 hr AR: BA
72 hr: BA/AP
96 hr: BA

Page 53

V. 2.3 1-13-10

Test ID: JEA District II WWTF Dates: 2/5-9/2013

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 #5
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

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

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

entered by M. Faircloth 4/5/13

V 1.1 9/21/10 MF/jd

Page 54

Appendix E. SRT Bench Sheets and Statistical Analysis

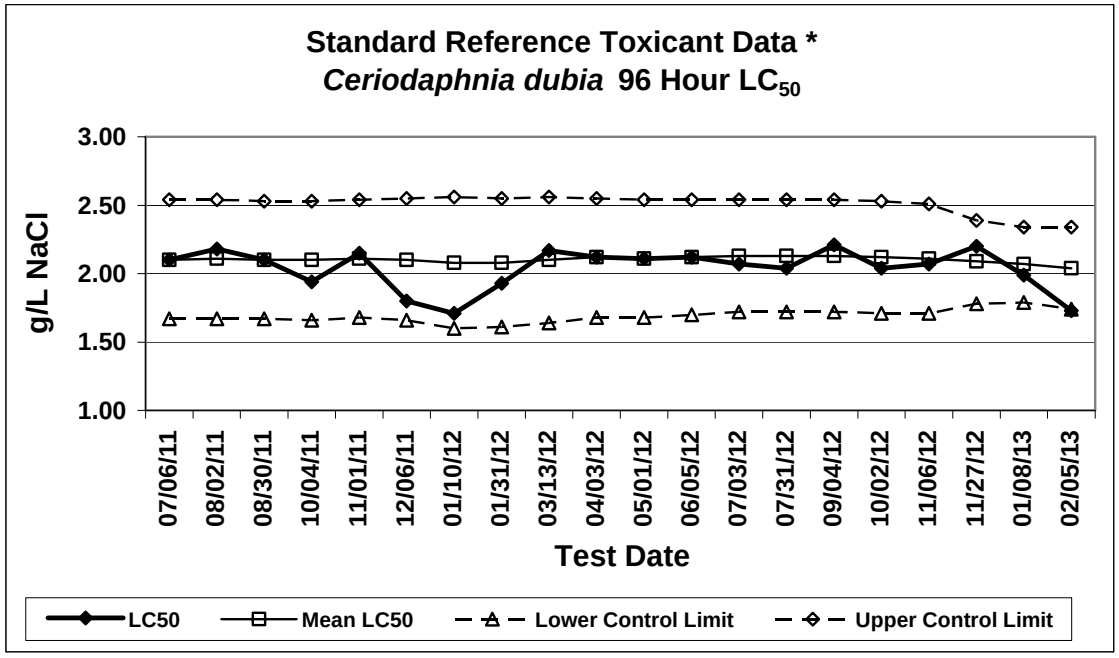
Florida Department of Environmental Protection
Bureau of Laboratories

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
07/06/11	2.10	2.10	0.22	1.67	2.54
08/02/11	2.18	2.11	0.22	1.67	2.54
08/30/11	2.10	2.10	0.22	1.67	2.53
10/04/11	1.94	2.10	0.22	1.66	2.53
11/01/11	2.15	2.11	0.22	1.68	2.54
12/06/11	1.80	2.10	0.22	1.66	2.55
01/10/12	1.71	2.08	0.24	1.60	2.56
01/31/12	1.93	2.08	0.24	1.61	2.55
03/13/12	2.17	2.10	0.23	1.64	2.56
04/03/12	2.12	2.12	0.22	1.68	2.55
05/01/12	2.11	2.11	0.22	1.68	2.54
06/05/12	2.12	2.12	0.21	1.70	2.54
07/03/12	2.07	2.13	0.21	1.72	2.54
07/31/12	2.04	2.13	0.20	1.72	2.54
09/04/12	2.21	2.13	0.21	1.72	2.54
10/02/12	2.04	2.12	0.20	1.71	2.53
11/06/12	2.07	2.11	0.20	1.71	2.51
11/27/12	2.20	2.09	0.15	1.78	2.39
01/08/13	1.99	2.07	0.14	1.79	2.34
02/05/13	1.73	2.04	0.15	1.74	2.34

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

CV = 7.27
EPA reference 75th quartile CV = 29%



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 #: 1-25-13 1 MHW CP **Organism** Batch: 2-5-13 **Test Beginning:** Date: 2-5-13 Time: 0945
Toxicant/ Batch#: NaCl 12-4-13 Age: <24hr **Test Ending:** Date: 2-9-13 Time: 10:00

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	AP
Alkalinity (mg/L as $CaCO_3$):	76	TA06_08	HW
Hardness (mg/L as $CaCO_3$):	89	TA06_09	HW
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity: (µmhos) mmhos	316	TA06_25	MF
Salinity (ppth):		TA06_25	

Food:	Batch
☑ YCT	11-14-12
☑ *P. subcapitata*	1-18-13
☐ Artemia Lot #	

Artemia Batch:

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

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

Concentrations prepared by: MF Temperature Range °C:(if used)

Test Incubated in: Incubator # 3 Waterbath # ____ Incubator # 3 min. 26.3 max. 28.1 mean. –

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

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

Feeding: √ as needed

☑	Before test
☐	24 hr
☑	48 hr
☐	72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

Concentration µg/L mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	1	5	5	5	5	5	5
	B	2	5	5	5	5	5	5
	C	3	5	5	5	5	5	5
	D	4	5	5	5	5	5	5
1.5	A	5	5	5	5	5	5	4 1D
	B	6	5	5	5	5	5	5
	C	7	5	5	4 1D	4	4	3 1D
	D	8	5	5	5	5	5	0 5D
2.0	A	9	5	5	4 1D	4	3 1D	3
	B	10	5	5	4 1D	4	2 2D	2
	C	11	5	5	5	5	1 4D	1
	D	12	5	5	3 2D	3	3	2 1D
2.5	A	13	5	mF 5 1D	0 1D			
	B	14	5	mF 4 1D	0 1D			
	C	15	5	mF 3 2D	0 2D			
	D	16	5	mF 2 3D	0 2D			
3.0	A	17	5	mF 0 5D				
	B	18	5	mF 0 5D				
	C	19	5	mF 0 5D				
	D	20	5	mF 0 5D				
4.0	A	21	5	mF 0 5D				
	B	22	5	mF 0 5D				
	C	23	5	mF 0 5D				
	D	24	5	mF 0 5D				
Organisms loaded by: MF	Checked by:		MF	MF	MF	MF	MF	BA
Loading Verified by: AP	AR = after renewal							

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

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

Comments:

Investigators' Signatures

Marshall Faircloth

Adrienne Pennington

Brian Heath

Hans Wilke

Reviewer: Elizabeth Leppo

Method: TSK 95% confidence intervals

Statistics: LC50		Lower	Upper
48 hour:	–	–	–
96 hour:	1.73	1.39	2.16

PAGE 41

Revised 7/15/2008 mf

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: 2-5-13 Time: 0945
Test Ending: Date: 2.9.13 Time: 10:00

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L %/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☑ µmhos ☐ mmhos	Salinity (ppth)
Control	M	0 hr	8.2	24.6	7.7	316	
	—	24 hr	—	—	—	—	
	A	48 hr BR	8.1	24.5	8.3	334	
	M	48 hr AR	8.0	24.7	8.4	309	
	—	72 hr	—	—	—	—	
	A	96 hr	7.6	25.1	6.8	322	
1.5	M	0 hr	8.0	25.2	7.4	3340	
	—	24 hr	—	—	—	—	
	A	48 hr BR	8.0	24.7	8.3	3420	
	M	48 hr AR	8.0	24.8	8.3	3230	
	—	72 hr	—	—	—	—	
	A	96 hr	7.6	25.0	7.1	3610	
2.0	M	0 hr	8.0	25.4	7.5	4310	
	—	24 hr	—	—	—	—	
	A	48 hr BR	8.0	24.8	8.2	4380	
	M	48 hr AR	8.1	24.9	8.2	4166	
	—	72 hr	—	—	—	—	
	A	96 hr	7.6	24.8	7.2	4550	
2.5	M	0 hr	8.0	25.3	7.5	5270	
	—	24 hr	—	—	—	—	
	A	48 hr BR	8.1	24.8	8.2	5400	
		48 hr AR					
		72 hr					
		96 hr					
3.0	M	0 hr	8.0	25.1	7.5	6060	
	A	24 hr	8.0	24.9	7.6	6250	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
4.0	M	0 hr	8.0	25.0	7.5	7950	
	A	24 hr	8.0	24.8	7.6	8100	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Meredith Faircloth
Princess Pennington
Bruce Alcala
Hans Wilde

Reviewed By: Liz Miller

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

Measure/record salinity for marine tests

Comments:

PAGE 42

Revised 07/15/2008 MF

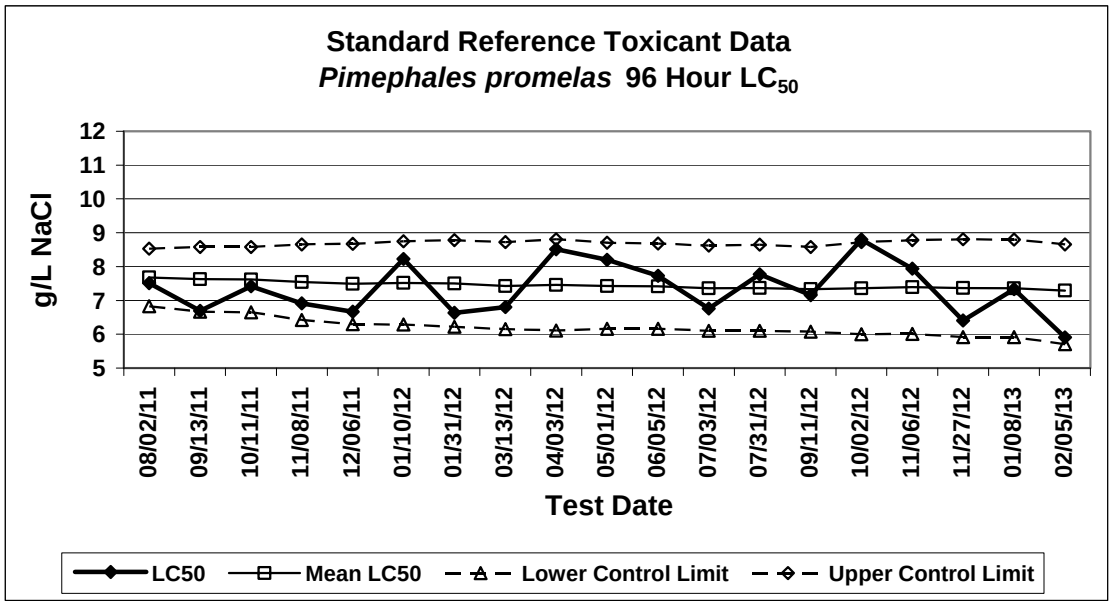
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
07/06/11	7.35	7.7	0.43	6.84	8.56
08/02/11	7.51	7.68	0.43	6.83	8.53
09/13/11	6.69	7.63	0.48	6.67	8.58
10/11/11	7.42	7.62	0.48	6.65	8.58
11/08/11	6.91	7.54	0.56	6.42	8.66
12/06/11	6.67	7.49	0.59	6.3	8.67
01/10/12	8.23	7.52	0.61	6.29	8.75
01/31/12	6.63	7.5	0.64	6.22	8.78
03/13/12	6.80	7.43	0.64	6.15	8.72
04/03/12	8.51	7.46	0.68	6.11	8.81
05/01/12	8.20	7.43	0.64	6.16	8.71
06/05/12	7.73	7.42	0.63	6.16	8.68
07/03/12	6.76	7.36	0.63	6.1	8.62
07/31/12	7.77	7.37	0.64	6.1	8.65
09/11/12	7.16	7.33	0.62	6.08	8.58
10/02/12	8.80	7.36	0.68	6	8.72
11/06/12	7.94	7.39	0.69	6.01	8.78
11/27/12	6.41	7.37	0.72	5.92	8.81
01/08/13	7.33	7.36	0.72	5.92	8.8
02/05/13	5.91	7.29	0.79	5.71	8.66

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

CV = 10.83
EPA reference 75th quartile CV = 19%



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* ☐ *Hyalella azteca* Method 2006.0 TA07.04 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 #: MHW 12-1-13
Toxicant/ Batch#: NaCl 12-5-13
Organism Batch: 2-5-13 Age: 7dy
Test Beginning: Date: 2-5-13 Time: 1300
Test Ending: Date: 2-9-13 Time: 9:30

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	BA
Alkalinity (mg/L as $CaCO_3$):	74	TA06_08	AP
Hardness (mg.L as $CaCO_3$):	84	TA06_09	AP
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity: (µmhos) mmhos	293	TA06_25	AP
Salinity (ppth):		TA06_25	

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☑ Artemia Lot #	08812

Artemia Batch:
0 hr: 22-13
24 hr:
48 hr: 24-13
72 hr:

Chamber size: 100 mL
Test volume: 400 mL per replicate

Concentrations prepared by: BA
Temperature Range °C: (if used)
Test Incubated in: Incubator # 2 Waterbath # ____ Incubator # 2 min. 25.3 max. 26.3 mean —
Light Intensity: 50-100 Ft. candles Waterbath # ___ min. ____ max. ____ mean ____
Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.9 max. 25.1 mean —

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

all species 2 hrs prior to test
mysids daily
all species except *H. azteca* 2 hr prior to renewal
H. azteca 0 hr and 48 hr

Concentration µg/L mg/L (g/L)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	E13	10	10	9 11D	9	9	9
	B	E14	10	10	10	10	10	10
5	A	E15	10	10	10	10	10	10
	B	E16	10	10	10	10	10	10
6	A	E17	10	10	8 2D	8	5 3D	5
	B	E18	10	10	7 3D	7	3 4D	3
7	A	E19	10	10	3 7D	3	1 2D	1
	B	E20	10	7 3D	2 5D	2	0 2D	
	Amf							
8	A	E21	10	3 7D	0 3D			
	B	E22	10	2 8D	0 2D			
10	A	E23	10	0 10D				
	B	E24	10	0 10D				
Organisms loaded by: AP		Checked by: BA	BA	BA	AP	BA	JH	

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

Investigators' Signatures
Marshall Faircloth
Adrienne Bennington
Bruce Abell
Jackie Savage

Reviewer: Liz Mellen

Comments:

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour:	—	—
96 hour: 5.91	5.68	6.15

PAGE 45

Revised 7/15/2008 mf

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
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☑ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 2-5-13 Time: 1300
Test Ending: Date: 2-9-13 Time: 9:30

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	7.8	24.3	7.8	0.293	
	B	24 hr	7.7	24.7	7.6	0.326	
	A	48 hr BR	7.8	25.0	8.1	0.323	
	A	48 hr AR	7.8	24.8	6.6	0.307	
	B	72 hr	7.6	24.8	7.5	0.301	
	A	96 hr	7.8	25.0	8.0	0.333	
5	A	0 hr	7.8	24.5	7.9	8.90	
	B	24 hr	7.7	24.7	~~6.8~~ AP 7.6	9.06	
	A	48 hr BR	7.9	25.4	7.8	9.61	
	A	48 hr AR	7.7	24.7	6.8	9.11	
	B	72 hr	7.7	24.4	6.9	8.91	
	A	96 hr	7.8	25.2	7.4	9.61	
6	A	0 hr	7.9	24.6	7.8	10.4	
	B	24 hr	7.8	24.6	~~6.8~~ AP 7.6	10.8	
	A	48 hr BR	7.9	25.2	7.8	10.9	
	A	48 hr AR	7.7	24.8	7.1	10.6	
	B	72 hr	7.7	24.8	6.9	10.6	
	A	96 hr	7.8	25.3	7.5	11.3	
7	A	0 hr	7.9	24.6	7.7	12.0	
	B	24 hr	7.8	25.1	7.4	12.3	
	A	48 hr BR	7.9	24.9	7.9	12.7	
	A	48 hr AR	7.7	24.8	7.4	12.3	
	B	72 hr	7.7	24.5	7.0	12.2	
	A	96 hr	7.7	25.1	7.2	12.8	
8	A	0 hr	7.9	24.6	7.7	13.8	
	B	24 hr	7.8	25.1	7.5	14.1	
	A	48 hr BR	7.8	24.8	7.9	14.4	
		48 hr AR					
		72 hr					
		96 hr					
10	A	0 hr	7.9	24.6	7.7	17.2	
	B	24 hr	7.8	24.8	7.5	17.4	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Marshall Faircloth
Adrienne Pennington
Ben Davis
Jackie Savage

Reviewed By: Liz Miller

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

Measure/record salinity for marine tests

Comments:

PAGE 46

Revised 07/15/2008 MF

DATE: 2/5/2013 TEST NUMBER: 1 DURATION: 96 H
TOXICANT : NaCl
SPECIES: Ceriodaphnia dubia

Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	8
2.00	20	12
2.50	20	20
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: 40.00%

SPEARMAN-KARBER ESTIMATES: LC50: 1.73
95% LOWER CONFIDENCE: 1.39
95% UPPER CONFIDENCE: 2.16

DATE: 2/5/2013 TEST NUMBER: 1 DURATION: 96 H
TOXICANT : NaCl
SPECIES: Pimephales promelas

Concentration (g/l)	Number Exposed	Mortalities
.00	20	1
5.00	20	0
6.00	20	12
7.00	20	19
8.00	20	20
10.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 5.91
95% LOWER CONFIDENCE: 5.68
95% UPPER CONFIDENCE: 6.15

Appendix F. Test Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 2/4/13

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi	150 ac	11 days	CL 130124	25	7.8	80
Pimephales promelas	300	<24 HRS	FM 130209-1645	25	7.8	80
	150 ac	7 days	FM 130128	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

EPA End Sheet

The Bioassay of JEA District II WWTF effluent sampled on February 4, 2013. NPDES #FL0026450.

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 2 6 4 5 0 11	12 1 3 0 2 0 4	18 **B**	19 **S**	20 1

Remarks

66

The Priority Pollutants Analysis of JEA District II WWTF effluent sampled on February 4, 2013. NPDES #FL0026450.

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 2 6 4 5 0 11	12 1 3 0 2 0 4	18 **X**	19 **S**	20 1

Remarks

66

Biological Analyses of JEA District II WWTF effluent sampled on February 4, 2013. NPDES #FL0026450.

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 2 6 4 5 0 11	12 1 3 0 2 0 4	18 **S**	19 **S**	20 1

Remarks

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