

Effluent Quality Assessment

Jacksonville Beach Wastewater Treatment Facility

Duval County

NPDES #FL0020231

Sampled January 14, 16, 18, 2013

April 2013

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration
Quality Manual No. 870346G
NELAC Certification No. E31780

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Jacksonville Beach Wastewater Treatment Facility (WWTF), 910 10th Street South, Jacksonville Beach, Duval County, Florida, 32250. NPDES #FL0020231.

Facility Overview

Jacksonville Beach WWTF uses sequential batch reactors to treat domestic wastewater. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for toxicity testing were collected on January 14, 2013, January 16, 2013, and January 18, 2013. Effluent grab samples for biological and chemical analyses for this facility were collected on January 14, 2013. All samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Eesa Ali and Sharon Piltz (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.dep.state.fl.us/water/sas/sop/index.htm.

The chronic definitive toxicity tests with dechlorinated aliquots of effluent, the chronic screening toxicity tests with original sample and the algal growth potential tests were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.dep.state.fl.us/labs/library/lab_sops.htm.

Results

Chemistry Results (See Table 1 and Appendix C)

- Total residual chlorine (0.27 mg/L) was detected in the bioassay sample collected on January 14, 2013, in the laboratory, exceeding the permitted limit (≤ 0.01 mg/L), but was not detected in the subsequent bioassay samples collected on January 16 and January 18, 2013. Total ammonia was not measured in the bioassay samples in the laboratory due to meter failure. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 12 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.05 mg/L.
- The effluent's copper (18.7 µg/L) and iron (490 µg/L) exceeded Class III Marine Criterion and/or permitted limits. Aluminum, lead, nickel, silver, and zinc were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.). Arsenic, cadmium, chromium III and selenium were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).
- The dissolved oxygen concentration (4.8 mg/L) in the effluent sample collected on January 16, 2013, while in compliance with the Class III Marine surface water criterion (≥ 4.0) was less than the permitted limit of (≥ 5.0). The effluent's carbonaceous biochemical oxygen demand ((CBOD) 14 mg/L) exceeded the permit limit.

Algal Growth Potential (See Table 2a and 2b and Appendix C)

- The effluent Algal Growth Potential (AGP) was 233 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen limited (Miller et al. 1978).
- An aliquot of the AGP sample was salinity adjusted by the addition of artificial sea salts to meet the salinity requirements of the marine test species.
- The salinity adjusted effluent algal growth potential (AGP) was 543 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).

Toxicity Test Results (See Appendices C- F)

- Tests were performed January 15 - 23, 2013.

Ceriodaphnia dubia 8-day chronic definitive bioassay - (Dechlorinated sample)	NOEC: 25% IC_{25}: 36%
Ceriodaphnia dubia 8-day chronic screening bioassay - (Original sample)	NOEC: < 100% IC_{25}: NA*
Pimephales promelas 7-day chronic definitive bioassay - (Dechlorinated sample)	NOEC: 50% IC_{25}: 80.3%
Pimephales promelas 7-day chronic screening bioassay - (Original sample)	NOEC: 100% IC_{25}: < 100%

*90% mortality in the Ceriodaphnia dubia 100% original sample concentration within 48 hours of test initiation.

- The bioassay samples were chronically toxic to the test organisms. The cause of toxicity was attributed at least in part to the residual chlorine in the first bioassay sample.
- Total residual chlorine was detected in bioassay sample #1 (LIMS# 1477591) in the laboratory. An aliquot of this sample was dechlorinated by the addition of sodium thiosulfate (0.025 N) at a rate of 0.3 mL per liter of sample to neutralize the chlorine. Bioassays were performed on the dechlorinated aliquot in addition to the bioassays performed on the original sample. The same concentration of sodium thiosulfate was added to the dechlorinated test controls. The purpose of the dechlorinated test control is to confirm that there is no adverse effect of adding sodium thiosulfate to the sample; however, there was 23% reduction in reproduction in the *Ceriodaphnia dubia* dechlorinated control compared to the regular control, suggesting that there was an adverse effect on reproduction in the *C. dubia* test. There was 100% survival in the C. dubia dechlorinated and regular controls. The addition of sodium thiosulfate did not appear to have an adverse effect on the *Pimephales promelas* test. There was 7.5% mortality in the dechlorinated control and no mortality in the regular control of the *P. promelas* tests. There was no significant difference in growth between the *P. promelas* controls.

Conclusion

The effluent samples collected from the EFD-1 NPDES sampling point for this facility on January 14, 16 and 18, 2013, were chronically toxic to both test species during the chronic definitive and screening bioassays. The cause of toxicity was attributed at least in part to the total residual chlorine in the bioassay sample. The effluent AGP result was greater than the "problem” threshold for both fresh and marine receiving waters suggesting that nutrient enrichment may be an issue. The effluent’s copper (18.7 µg/L), carbonaceous biochemical oxygen demand ((CBOD) 14 mg/L), iron (490 µg/L) and total residual chlorine (0.27 mg/L) exceeded either their respective Class III Marine Criterion or permitted limits. The dissolved oxygen concentration (4.8 mg/L) in the effluent sample collected on January 16, 2013, while in compliance with the Class III Marine surface water criterion (≥ 4.0) was less than the permitted limit of ≥ 5.0 mg/L. Additional effluent water quality samples collected on January 14, 2013, did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Table 1. Effluent limits, Class III Criteria for predominantly marine waters and chemical and microbiological data.

Jacksonville Beach WWTP NPDES #FL0020231	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-		None Detected	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	101	
Arsenic	≤ 50	-	0.45	I
Cadmium	≤ 8.8	-	0.075	I
Calcium (mg/L)	-	-	75.5	
Chromium-III	-	-	0.78	I
Copper	≤ 3.7	≤ 3.7 p	18.7	
Iron	≤ 300	-	490	
Lead	≤ 8.5	-	1.24	
Magnesium (mg/L)	-	-	32.5	
Mercury	≤ 0.025	-	-	
Nickel	≤ 8.3	-	1.84	
Selenium	≤ 71	-	0.27	I
Silver	≤ 2.3	-	0.18	
Sodium	-	-	91.8	
Zinc	≤ 86	-	74	
Nutrients (mg/L)				
Ortho-phosphate	-	Report	1.8	
Total Phosphorus	-	Report	2.4	
Total Ammonia	-	Report	12	
Nitrate and Nitrite	-	Report	0.14	
Total Kjeldahl Nitrogen	-	Report	16	
Organic Nitrogen	-	-	5	c
Total Nitrogen	-	Report	16.14	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0 s	≥ 5.0 s	6.1	
pH (SU)	6.5 - 8.5 s	6.5 - 8.5 s	6.8	
Conductivity (µmhos/cm)	-	-	1067	
Temperature (°C)	-	-	23.5	
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	0.27	Q£
Chlorophyll *a* (µg/L) - Corrected	-	-	0.8	U
Phaeophytin (µg/L)	-	-	1.2	I
Total Suspended Solids (mg/L)	-	-	24	
CBOD, 5 day (mg/L), N - inhibited	-	10	14	
Chloride (mg/L)	-	-	140	
Cyanide (µg/L)	≤ 1.0	≤ 1.0 s	0.005	U
Fluoride (mg/L)	≤ 5.0	-	0.68	
Sulfate (mg/L)	-	-	170	
Flow MGD	-	4.5 a	2.5	a
Hardness (mg $CaCO_3$)	-	-	322.36	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #		39	B

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
p - 24 hour flow proportioned composite
s - Single sample
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Fecal coliform analysis performed by 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

Table 2a. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

Jacksonville Beach WWTP					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	233	461 ± 92.3	613 ± 123	6.7	6.7

Table 2b. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus.

Jacksonville Beach WWTP			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	543	6.7	6.7

* - sample salinity adjusted to 7ppt

Appendix A.
Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Brian Kirts	Contact Number:904-256-1627
Facility Name (as it appears on permit):Jacksonville Beach WWTF	Former Names: NA
NPDES Permit Number:FL0020231	Permit Expiration Date:2/3/2014
Physical Address: 910 10th Street South Jacksonville Beach FL	
District: Northeast District	County: Duval
Function of Facility: Treat Domestic Wastewater	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD):4.5 MGD
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 2.5MGD	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

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

D-001 The point of discharge is located approximately at latitude 30 ° 23' 05" N, longitude 81 ° 26' 29" W.
D-002 The point of discharge is located approximately at latitude 30 ° 16' 33" N, longitude 81 ° 23' 01" W.

Description of Permitted Outfall(s):
Surface Water Discharge (D-001): An existing 4.5 MGD annual average daily flow (AADF) permitted discharge through a 24-inch diameter ductile iron pipe effluent force main to the St. Johns River (Class III marine waters) at Sherman Point.
Surface Water Discharge (D-002): An existing permitted discharge of final effluent and stormwater to Cradle Creek to Pablo Creek [Intracoastal Waterway (Class III marine waters)] at Discharge Location (D-002).

Land Application (R-001): An existing 0.75 MGD monthly average daily flow (MADF) permitted capacity slow-rate public access (R-001) consisting of following:

User Name	Acreage (Acres)	Capacity (MGD)
Jacksonville Beach Municipal Golf Course	84.0	0.75
Wingate Park	10.4	0.05
Police Station, O & M Grounds, Ballfields	3.0	0.01
Jacksonville Beach WWTF – Belt press, Irrigation of ground	-	0.04

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

Operate a new 4.5 MGD annual average daily flow permitted capacity advanced wastewater treatment (AWT) consisting of:

- A screening chamber consisting of two traveling bar screen with 3/16 inch opening. Each screen is mechanically cleaned, provided with a spiral conveyor/compactor and a continuous bagging unit.
- Master pump station consisting of 4 pumps 2,800 gpm each operating at a maximum TDH of approximately 53 feet.
- Four new sequential batch reactors (SBRs) each of which has a volume of 1.436 million gallons (Mgal). Each SBR tank contains four (4) Invent HyperClassis mixer/aerator. Three blowers (at 3588 ICFM, 3200 SCFM (one redundant) provide oxygen for the SBR system. The SBR cycle includes six main steps: fill/mix without aeration, fill with aeration, aeration without filling, mixing without filling, settling and decanting and excess sludge removal. The SBRs will operate at minimum hydraulic retention time (HRT) of 30 hours with a solids retention time (SRT) of 23 days and with mixed liquor suspended solids (MLSS) concentration of 4,322 mg TSS/L or lower at the minimum water depth (post decanting). The entire SBR operation is controlled by a PLC/CPU controller.
- Four ultrascreen filters each of which has twelve 22 square feet each filter elements with a design filter element loading rate of 4 to 8 gpm per square foot.
- Two chlorine contact chambers, each of which has a volume of 325,050 gallons and dimensions of 97 (width) feet by 112 feet (length) and 11 feet (side water depth).
- Two rectangular reaeration basins (each has a volume of 46,914 gallons (112 ft by 8 ft and 7 ft water depth) consisting of six modules (Invent model E-Flex SMB30). Each module consists of 18 membrane tubes.
- Three aerobic digesters each of which is 45 foot diameter with 20 foot side water depth. The aerobic digesters are aerated by three blowers (one redundant).

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 From the Outfall D-001	**MGD**	**Maximum**	**4.5**	**Report**	-	-		**Recording flow meters and totalizers**	**EFD-1**	**See Cond.I.A.5**
Flow, Total Volume	**MG**	**Maximum**	-	**Report (Monthly Total)**	-	-		**Calculated**	**CAL-1**	
BOD, Carbonaceous 5 day, 20C	**MG/L**	**Maximum**	**5.00**	**6.25**	**7.50**	**10.0**		**24-hour flow proportioned composite**	**EFD-1**	
Solids, Total Suspended	**MG/L**	**Maximum**	**5.00**	**6.25**	**7.50**	**10.0**		**24-hour flow proportioned composite**	**EFD-1**	
pH	**SU**	**Range**	-	-	-	**6.5 to 8.5**		**Meter**	**EFD-1**	**See Cond.I.A.4**
Coliform, Fecal	**#/100 ML**	**Maximum**	**See Permit Condition I.A.6.**					**Grab**	**EFD-1**	
Enterococci	**#/100ML**	**Maximum**	**See Permit Condition I.A.15.**					**Grab**	**EFD-1**	
Total Residual Chlorine (For Disinfection)	**MG/L**	**Minimum**	-	-	-	**0.5**		**Meter**	**EFA-1**	**See Cond.I.A.4, 7**
Total Residual Chlorine (For Dechlorination)	**MG/L**	**Maximum**	-	-	-	**0.01**		**Grab**	**EFD-1**	**See Cond.I.A.8**
Dissolved Oxygen, (DO)	**MG/L**	**Minimum**	-	-	-	**5.0**		**Meter**	**EFD-1**	**See Cond.I.A.9**
Total recoverable copper	**µg/L**	**Maximum**	-	-	-	**3.7**		**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A.10**
Total Cyanide	**µg/L**	**Maximum**	-	-	-	**1.0**		**Grab**	**EFD-1**	**See Cond.I.A.10 & 11**
Total Nitrogen as N	**MG/L**	**Maximum**	**Report**	**Report**	-	**Report**		**24-hour flow proportioned composite**	**EFD-1**	

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
Total Nitrogen as N	**Lbs/Yr**	**Summation of Total Nitrogen Discharge from Outfalls D-001 and D-002 (See Condition I.C.)**						**Calculated**	**CAL-5**	
Organic Nitrogen, as N	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**24-hour flow proportioned composite**	**EFD-1**	
Nitrate + Nitrite (NO2+NO3), as N	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**24-hour flow proportioned composite**	**EFD-1**	
Total Ammonia (NH3+NH4+), as N	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**24-hour flow proportioned composite**	**EFD-1**	
Total Kjeldahl Nitrogen (TKN), as N	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**24-hour flow proportioned composite**	**EFD-1**	
Total Phosphorous, as P	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**24-hour flow proportioned composite**	**EFD-1**	
Orthophosphorous, as P	**mg/L**	**Maximum**	**Maximum**	**Report**	-	-	**Report**	**Grab and filtered**	**EFD-1**	
Stream Monitoring								**Grab**	-	
Chronic, Whole Effluent Toxicity										
Flow, the LWWD	**MGD**	**Maximum**	**Report**	**Report**	-	-	**Continuous (During Discharge Period)**	**Recording flow meter and totalizers**	**EFD-2**	**See Cond.I.B. 4, 5, 6 & 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
Flow, Total Volume	**MG**	**Maximum**	-	**Report (Monthly Total)**	-	-	**Calculated (Sum of daily flow in the month)**	**Calculated**	**CAL-1**	
Stream Flow	**ft^3/Sec**	**Minimum**	-	-	-	**Report**	**Daily (During Discharge Period)**	**Instrument**	**SWU-3**	**See Cond.I.B.11**
Stream Dilution Ratio	**Ratio**	**Minimum**	-	-	-	**16.6**	**Daily (During Discharge Period)**	**Calculation**	**CAL-3**	**See Cond.I.B. 6**
Average Rainfall	**Inches**	**Minimum**	-	-	-	**Report**	**Daily (During Discharge Period)**	**Instrument**	**OTH-1**	**See Cond.I.B.12**
BOD, Carbonaceous 5 day, 20C	**MG/L**	**Maximum**	**5.0**	**6.25**	**7.5**	**10.0**	**Daily (During Discharge Period)**	**24-hour flow proportioned composite***	**EFD-2**	**See Cond.I.B.8**
Solids, Total Suspended	**MG/L**	**Maximum**	**5.0**	**6.25**	**7.5**	**10.0**	**Daily (During Discharge Period)**	**Grab**	**EFD-2**	
Total Kjeldahl Nitrogen, as N	**MG/L**	**Maximum**	**3.0**	**3.0**	**4.5**	**6.0**	**Daily (During Discharge Period)**	**24-hour flow proportioned composite***	**EFD-2**	**See Cond.I.B.8**
pH	**SU**	**Range**	-	-	-	**6.5 to 8.5**	**Daily (During Discharge Period)**	**Grab**	**EFD-2**	**See Cond.I.B.4 & 8**
Coliform, Fecal	**#/100ML**	**Maximum**	**See Permit Condition I.B.9.**	**Daily (During Discharge Period)**	**Grab**	**EFD-2**				
Total Residual Chlorine (For Disinfection)	**MG/L**	**Minimum**	-	-	-	**0.5**	**Continuous (During Discharge Period)**	**Meter**	**EFD-2**	**See Cond.I.B.10**

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
Total Residual Chlorine (For Dechlorination)	**MG/L**	**Maximum**	-	-	-	**0.01**	**Daily (During Discharge Period)**	**Grab or Instrument**	**EFD-2**	
Cumulative number of days LWWD be activated	**Days**	**Maximum**	-	-	-	**Report**	**Daily (During Discharge Period)**	**Calculated**	**CAL-4**	**See Cond.I.B.6**
Total Nitrogen, as N	**MG/L**	**Maximum**	-	**Report**	-	**Report**	**Weekly (During Discharge Period)**	**24-hour flow proportioned composite***	**EFD-2**	
Total recoverable copper	**µg/L**	**Maximum**	-	-	-	**3.7**	**Monthly (During Discharge Period)**	**24-hour flow proportioned composite***	**EFD-2**	**See Cond.I.A.10 & I.B.8**
Total Cyanide	**µg/L**	**Maximum**	-	-	-	**1.0**	**Monthly (During Discharge Period)**	**Grab**	**EFD-2**	**See Cond.I.A.10, 11 & I.B.8**
Whole Effluent Toxicity									**EFD-2**	**See Permit Condition I.B.13. *(Not required at the current time)***

PART I: Continued

Receiving Waters: St. Johns River for D-001and Cradle Creek for D-002	Classification (indicate whether fresh or marine): Class III Marine Waters

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

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) Whole effluent chronic toxicity shall not result in an Inhibition Concentration 25% (IC_{25}) less than 100% effluent in any test. [Rule 62-302.530(61), as defined in 62-302.200(14) F.A.C.]

      (2) Whole effluent acute toxicity shall not result in a 96-hour LC50 less than 100% effluent in any test. [Rule 62-302.500(1)(a)4., F.A.C.]

   b. **Monitoring Frequency**

      (1) Routine toxicity tests shall be conducted once every six months, starting within 6 months of the most recent test, and lasting for the duration of the permit.

   c. **Sampling Requirements**

      (1) For each routine test or additional follow-up test conducted, a total of three *flow proportional 24-hour 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%, 75%, 50%, 25%, and 12.5% 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

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):

Administrative Order was issued for TR copper exceedances. An approved action plan has been received. The AO has now been superseded by the CO.

Facility Mixing Zone Details (if applicable):
NA

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

Date	Parameter and Units	Result	Limit

1/2012	TSS	30.1	30.0 mon average
1/2012	TR Copper	20	15
2/2012	TSS	36.4	30 mon average
2/2012	TSS	80.8	60 single sample max
2/2012	TR Copper	40.8	15
2/2012	% TSS Removal	81	85
3/2012	TSS	90	60
3/2012	TR Copper	28.2	15
4/2012	TR Copper	23	15
5/2012	TR Copper	21.4	15
6/2012	TSS	66	60
6/2012	TSS	>20	20 Annual Average
6/2012	TSS at D-002	32	30 Mon average
6/2012	TSS at D-002	36.5	20 ann average
6/2012	TKN at D-002	7.5	5 monthly average
6/2012	TKN at D-002	13.4	10 single sample max
6/2012	CBOD at D-002	160	25 monthly average
6/2012	CBOD at D-002	748	60 single sample max
6/2012	CBOD at D-002	87.2	20 annual average
7/2012	TSS	64	60 single sample max
9/2012	TR Copper	21.2	15

Describe previous FYI and WQBEL study:

Last inspection was found to be in compliance.

Describe previous or current Enforcement Actions (including WLs):

Warning letter was issued in June 2012 over TR copper exceedances.

CO 12- 1579. Interim limit for Copper was established.
4500 dollar fee assessed and need to be paid by 12/7/2012. This was received in Nov 2012.
All corrective actions specified in the AO's approved action plan need to be completed by 12/31/2013.

Describe any violations or problems noted in previous inspection:

2012 Inspection. Exceedances with TR copper and others, and also the number of reuse signs at water features were deemed inadequate.

2011 inspection. Exceedances of TN Loadings in 2010, flow meter device not available in Cradle Creek upstream to measure stream flow, and not filing out completion of construction form at appropriate time.

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

The facility has had some exceedances in the past that have met SNC criteria but they are now under a CO which established interim limits.

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

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

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

Appendix B.
Chain of Custody

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-01-14-17
FYI3 Jacksonville Beach WWTF Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: EJ BZ

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

Collected By: EA ISP
Sampling Agency: DEP
Send Final Report To: Tom Rauth

Lab ID *	Location / Field ID	Collection (comp begin or grab) / Composite end	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Storet Station Number	Matrix / Temp (C) / pH / Sample Depth / Salinity / Sp Conductance / NPDES Number	Latitude / Longitude / Comments	Bottle Group(s)**
	JAX BEACH WWTP 3YI EFF-1 GRAB	☐ Comp ☑ Grab Date 1-9-13 Time 1111 Eastern Central; Composite end Date Time Eastern Central	Diss Oxygen (mg/L): 6.09	Matrix: wqk water; Temp (C): 23.53; pH: 6.83; Sample Depth ☐ m ☐ ft; 0.53 ☑ Salinity (PPTh); 1067 ☑ Sp Conductance (umho/cm); NPDES Number: FL0032031	Latitude ☐ dd ☐ dms; Longitude ☐ dd ☐ dms; Comments	A+C
	FIELD BLANK	☐ Comp ☑ Grab Date 1-14-13 Time 1025 Eastern Central; Composite end Date Time Eastern Central	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: CN preserved @ 1120 w/ ascorbic + NaOH	B+D
		☐ Comp ☐ Grab Date Time Eastern Central; Composite end Date Time Eastern Central	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	
		☐ Comp ☐ Grab Date Time Eastern Central; Composite end Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Matrix (include type e.g. Salt, Fresh, etc); Temp (C); pH; Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh); ☐ Sp Conductance (umho/cm); NPDES Number	Latitude ☐ dd ☐ dms; Longitude ☐ dd ☐ dms; Comments	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1-14-13 1300	FedEx	[signature]	01-15-13 09:19				

2. biomass @ 1000 1.15.13 B. Miranda

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Ascorbic lot = 124323
w-OH 215 exp 6/13

All samples collected as "GRAB".

NED FD0511 **Florida Department of Environmental Protection *North East District* Field sheet**

Check box if data qualified ☐

Sample Project Jax Beach WWTP 3YI Lab request # 2013-01-14-17

Collected By E.Ali / S.Piltz Date Collected 1/16/13

Lab ID #		Matrix:Water Surface Fresh ☐ Surface Salt ☐ Effluent ☑	Comments Air temp ____ Wind pp/ dir ____
	JAX BEACH WWTP 3YI EFF-1 GRAB	Sampled from Tap	

Time	Total depth(m)	Sample depth(m)	Temp °C	Conductivity µmhos	Salinity ‰	pH s.u.	D.O. mg/L	D.O. % sat	Secchi m	Vel. ft./sec	Tide Ebb/Fld Slack	Turb NTU
1114	—	—	23.8	1081	0.53	7.40	4.83	56.9	—	—	—	—

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)		Preservation	Suite	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP	☐HS ☐G ☐P	Ice& H_2SO_4 <2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll, Phaeophytin ½ secchi ½ tot depth	☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4	☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	HNO_3, <2 pH*		
G / C / Na	Other:(Tox) BNA, Pest, O&G, AGP, CN, ____	☐HS ☑G ☐P	Ice/	A	SP
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

Lab ID #	Storet# Site Name	Matrix:Water Surface Fresh☐ Surface Salt ☐ Effluent ☐	Comments

Time	Total depth(m)	Sample depth(m)	Temp °C	Conductivity µmhos	Salinity ‰	pH s.u.	D.O. mg/L	D.O. % sat	Secchi m	Vel. ft./sec	Tide Ebb/Fld Slack	Turb NTU

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)		Preservation	Suite	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP	☐HS ☐G ☐P	Ice& H_2SO_4 <2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll, Phaeophytin ½ secchi ½ tot depth	☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4	☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	HNO_3,<2 pH*		
G / C / Na	Other:Tox, BNA, Pest, O&G, AGP, CN, ____	☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

Lab ID #	Storet# Site Name	Matrix:Water Surface Fresh ☐ Surface Salt ☐ Effluent ☐	Comments

Time	Total depth(m)	Sample depth(m)	Temp °C	Conductivity µmhos	Salinity ‰	pH s.u.	D.O. mg/L	D.O. % sat	Secchi m	Vel. ft./sec	Tide Ebb/Fld Slack	Turb NTU

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)		Preservation	Suite	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP	☐HS ☐G ☐P	Ice& H_2SO_4 <2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll, Phaeophytin ½ secchi ½ tot depth	☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4	☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	HNO_3,<2 pH*		
G / C / Na	Other:Tox, BNA, Pest, O&G, AGP, CN, ____	☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

Relinquished	Date	Time	Shipping	Received	Date/Time
Eesa Ali	1-16-13	1250	FEDEX		1-17-13/9:25

*All acid preserved samples are with 2ml of (1to1) acid unless noted otherwise. H_2SO_4 Lot # n/a HNO_3 Lot # n/a

Patrick O'Connor (PWO) / Jeremy Parrish (JP) / Chuck Plank (CP) / Jann Gruentzel (JG) / Sharon Piltz (SP) / Eesa Ali (EA) / Jake Mast (JM) / Bipin Adhyaru (BA) / Tom Kallemeyn (TK) All samples collected and handled per DEP SOP FS 1000,2000,2100,2400,FC 1000

Grab Biweekly Sop 1/17/13 0951 M. Faircloth

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-01-14-17
FYI3 Jacksonville Beach WWTF Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: E-AL
Collected By: EAL
Send Final Report To: Tom Rauth
Sampling Agency: DEP

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

Lab ID *	Location			☐ Comp ☑ Grab Collection (comp begin or grab) ~~Eastern~~ Date 1.18.13 Time 812 Central		Composite end Date Time	Eastern Central	Bottle Group(s)**	
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.6	Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc) water - Air	Temp (C) 14.80 20.63	pH 7.52	Sample Depth ☐ m ☐ ft 5ft. 50t	1063	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments					
Lab ID *	Location			☐ Comp ☐ Grab Collection (comp begin or grab) Eastern Date Time Central		Composite end Date Time	Eastern Central	Bottle Group(s)**	
	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 (comp begin or grab) Eastern Date Time Central		Composite end Date Time	Eastern Central	Bottle Group(s)**	
	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 (comp begin or grab) Eastern Date Time Central		Composite end Date Time	Eastern Central	Bottle Group(s)**	
	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					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
E. Mc.	1.18.13	FedEx	Michael Cloth	1-19-13 0940				1.22.13

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 coolers ~~Orange~~ Orange 2 Jugs @ MF 1 °C
White 1 Jug 0.1 °C MF

Appendix C.
Chemical Analyses of Effluent

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 11:11	EFD-1	AGP/LN	Algal Growth Potential-Salinity Adjusted	543		mg DryWt/L	3	3
1/14/2013 11:11	EFD-1	AGP/LN	Algal Growth Potential	233		mg DryWt/L	0.3	0.9
1/14/2013 11:11	EFD-1	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.2	I	ug/L	0.58	1.8
1/14/2013 11:11	EFD-1	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.8	U	ug/L	0.8	2.5
1/14/2013 11:11	EFD-1	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	14		mg/L	0.2	2
1/14/2013 11:11	EFD-1	Overflow	Fecal Coliforms-Membrane Filter	39	B	cfu/100 mL	1.6	
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, IC25	100	K	IC25		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100	K	NOEC		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100	K	NOEC		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	25		NOEC		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	80.3		IC25		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	36		IC25		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, IC25	No Result		IC25		
1/14/2013 11:11	EFD-1	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	50		NOEC		
1/14/2013 11:11	EFD-1	Metals	Nickel	1.84		ug/L	0.25	1
1/14/2013 11:11	EFD-1	Metals	Arsenic	0.45	I	ug/L	0.25	1
1/14/2013 11:11	EFD-1	Metals	Aluminum	101		ug/L	5	20
1/14/2013 11:11	EFD-1	Metals	Selenium	0.27	I	ug/L	0.2	0.8
1/14/2013 11:11	EFD-1	Metals	Magnesium	32.5		mg/L	0.04	0.16
1/14/2013 11:11	EFD-1	Metals	Cadmium	0.075	I	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Metals	Silver	0.18		ug/L	0.025	0.1
1/14/2013 11:11	EFD-1	Metals	Sodium	91.8		mg/L	0.5	2
1/14/2013 11:11	EFD-1	Metals	Calcium	75.5		mg/L	0.075	0.3
1/14/2013 11:11	EFD-1	Metals	Lead	1.24		ug/L	0.2	0.8
1/14/2013 11:11	EFD-1	Metals	Chromium	0.78	I	ug/L	0.3	1.2
1/14/2013 11:11	EFD-1	Metals	Zinc	74		ug/L	5	20
1/14/2013 11:11	EFD-1	Metals	Copper	18.7		ug/L	0.5	1
1/14/2013 11:11	EFD-1	Metals	Iron	490		ug/L	30	120
1/14/2013 11:11	EFD-1	Nutrients	Chloride	140		mg Cl/L	2	5
1/14/2013 11:11	EFD-1	Nutrients	NO2NO3-N	0.14		mg N/L	0.004	0.01
1/14/2013 11:11	EFD-1	Nutrients	Kjeldahl Nitrogen	16		mg N/L	0.4	1
1/14/2013 11:11	EFD-1	Nutrients	Fluoride	0.68		mg F/L	0.035	0.1
1/14/2013 11:11	EFD-1	Nutrients	Sulfate	170		mg SO4/L	2	5
1/14/2013 11:11	EFD-1	Nutrients	O-Phosphate-P	1.8		mg P/L	0.08	0.2

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 11:11	EFD-1	Nutrients	Total-P	2.4		mg P/L	0.025	0.25
1/14/2013 11:11	EFD-1	Nutrients	TSS	24		mg/L	2	10
1/14/2013 11:11	EFD-1	Nutrients	Ammonia-N	11		mg N/L	0.5	1
1/14/2013 11:11	EFD-1	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
1/14/2013 11:11	EFD-1	Nutrients	Ammonia-N	12		mg N/L	0.5	1
1/14/2013 11:11	EFD-1	Nutrients	Alkalinity	163		mg CaCO3/L	0.65	2.5
1/14/2013 11:11	EFD-1	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
1/14/2013 11:11	EFD-1	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/14/2013 11:11	EFD-1	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
1/14/2013 11:11	EFD-1	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
1/14/2013 11:11	EFD-1	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
1/14/2013 11:11	EFD-1	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/14/2013 11:11	EFD-1	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
1/14/2013 11:11	EFD-1	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
1/14/2013 11:11	EFD-1	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
1/14/2013 11:11	EFD-1	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
1/14/2013 11:11	EFD-1	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
1/14/2013 11:11	EFD-1	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
1/14/2013 11:11	EFD-1	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
1/14/2013 11:11	EFD-1	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
1/14/2013 11:11	EFD-1	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
1/14/2013 11:11	EFD-1	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	62
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	12

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Di-n-butyl phthalate	5.2	U	ug/L	5.2	21
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	UJ	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	62
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	U	ug/L	41	160
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	UJ	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	62
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.2
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.2
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	UJ	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Butyl benzyl phthalate	5.2	U	ug/L	5.2	21
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	UJ	ug/L	2.1	8.2
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.2
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	41
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Pentachlorophenol	3.1	UJ	ug/L	3.1	12
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.82
1/14/2013 11:11	EFD-1	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
1/14/2013 11:11	EFD-1	Field Parameter	Specific Conductance	1067		umhos/cm		
1/14/2013 11:11	EFD-1	Field Parameter	Temperature	23.53		C		
1/14/2013 11:11	EFD-1	Field Parameter	Specific Conductance	1067		umhos/cm		
1/14/2013 11:11	EFD-1	Field Parameter	Temperature	23.53		C		
1/14/2013 11:11	EFD-1	Field Parameter	pH	6.83				
1/14/2013 11:11	EFD-1	Field Parameter	pH	6.83				
1/14/2013 11:11	EFD-1	Field Parameter	Dissolved Oxygen	6.09		mg/L		
1/14/2013 11:11	EFD-1	Field Parameter	Temperature	23.53		C		
1/14/2013 11:11	EFD-1	Field Parameter	Dissolved Oxygen	6.09		mg/L		
1/14/2013 11:11	EFD-1	Field Parameter	pH	6.83				
1/14/2013 11:11	EFD-1	Field Parameter	Dissolved Oxygen	6.09		mg/L		
1/14/2013 10:25	FIELD BLANK	Metals	Aluminum	5	U	ug/L	5	20
1/14/2013 10:25	FIELD BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
1/14/2013 10:25	FIELD BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
1/14/2013 10:25	FIELD BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
1/14/2013 10:25	FIELD BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
1/14/2013 10:25	FIELD BLANK	Metals	Zinc	5	U	ug/L	5	20
1/14/2013 10:25	FIELD BLANK	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Metals	Sodium	0.5	U	mg/L	0.5	2
1/14/2013 10:25	FIELD BLANK	Metals	Iron	30	U	ug/L	30	120
1/14/2013 10:25	FIELD BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
1/14/2013 10:25	FIELD BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
1/14/2013 10:25	FIELD BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 10:25	FIELD BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
1/14/2013 10:25	FIELD BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
1/14/2013 10:25	FIELD BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/14/2013 10:25	FIELD BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/14/2013 10:25	FIELD BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
1/14/2013 10:25	FIELD BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
1/14/2013 10:25	FIELD BLANK	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
1/14/2013 10:25	FIELD BLANK	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
1/14/2013 10:25	FIELD BLANK	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
1/14/2013 10:25	FIELD BLANK	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
1/14/2013 10:25	FIELD BLANK	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
1/14/2013 10:25	FIELD BLANK	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
1/14/2013 10:25	FIELD BLANK	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
1/14/2013 10:25	FIELD BLANK	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/14/2013 10:25	FIELD BLANK	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
1/14/2013 10:25	FIELD BLANK	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
1/14/2013 10:25	FIELD BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/14/2013 10:25	FIELD BLANK	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
1/14/2013 10:25	FIELD BLANK	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
1/14/2013 10:25	FIELD BLANK	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
1/14/2013 10:25	FIELD BLANK	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
1/14/2013 10:25	FIELD BLANK	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 10:25	FIELD BLANK	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
1/14/2013 10:25	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	UJ	ug/L	2	8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	UJ	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	UJ	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
1/14/2013 10:25	FIELD BLANK	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
1/16/2013 11:14	EFD-1	Field Parameter	pH	7.4				
1/16/2013 11:14	EFD-1	Field Parameter	Specific Conductance	1081		umhos/cm		
1/16/2013 11:14	EFD-1	Field Parameter	Dissolved Oxygen	4.83		mg/L		
1/16/2013 11:14	EFD-1	Field Parameter	Temperature	23.8		C		
1/18/2013 8:12	EFD-1	Field Parameter	pH	7.52				
1/18/2013 8:12	EFD-1	Field Parameter	Specific Conductance	1062		umhos/cm		
1/18/2013 8:12	EFD-1	Field Parameter	Temperature	19.8		C		
1/18/2013 8:12	EFD-1	Field Parameter	Dissolved Oxygen	7.61		mg/L		

Appendix D.
Bioassay Bench Sheets

FDEP Biology Laboratory - Chronic Definitive Bench Sheet
Ceriodaphnia dubia

Facility: Jacksonville Beach WWTF
Address: 910 10th STreet South Jacksonville Beach
County: Duval
NPDES Permit #: FL 0020231
Contact/District: Erica Ali / Northeast
LIMS entry: 1-28-13 MF verified: BA 2.1.13

Diluent/ Batch: ~~20% SDMHW~~ / 1-4-13 Test Days Used: 0 - 1
~~20% SDMHW~~ / 1-12-13 Test Days Used: 2-7

SOP#: TA07_05 EPA 821-R-02-013 Method 1002.0

Organism: *Ceriodaphnia dubia*
Organism Batch #: 1-15-13
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: ☑ YCT ☐ *P. subcapitata*
Food Batch: 11-14-12 10-31-12
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	LAB Sample #	LIMS JOB #	LIMS SAMPLE #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2013-01-15-03	1477591	1-14-13 11:11 AM	1-15-13 1000
Test Day 2	2	TLH-2013-01-17-14	1478382	1-16-13 1114	1-17-13 0951
Test Day 4	3	TLH-2013-01-22-20	1479093	1-18-13 0812	1-19-13 0908

Water Quality Parameters	Batch #	1-4-13 ~~20%~~ SDMHW	1-12-13 ~~20%~~ SDMHW	Sample 1	Sample 2	Sample 3	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):		NA	NA	Not measured				—	MF
Lab Total Residual Cl_2 (mg/L):		<0.03	<0.03	0.27	<0.03	<0.03		AP/HW	MF/AP
Alkalinity (mg/L as $CaCO_3$):		75	80	189	173	184		AP/HW	MF
Hardness (mg/L as $CaCO_3$):		88	87	286	290	307		AP/HW	MF
Total Ammonia (mg/L as N):		Not measured *	Not measured	Not measured				MF →	MF
Conductivity: (µmhos) mmhos:		310	313	1096	1072	1164		MF	BA
Salinity (ppth):									

* Ammonia Meter out of service MF

Test Incubated in: Incubator #: 2

Loaded by: MF

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.1 max. 27.5 mean —
Room B246 min. 24.4 max. 25.8 mean —
Test min. 24.0 max. 25.8 mean —

Test Replicates	Loaded from culture vial
1	A3
2	A4
3	A9
4	A15
5	A19
6	A23
7	A28
8	B2
9	B14
10	B27

Results	all	Acetate controls	Decholor CTL STATS
Control % CV:	31.7		45.3
Dunnetts PMSD:	36.9		48.7
Reproduction NOEC:	25		100
Reproduction LOEC:	50		>100
Survival NOEC:	100		100
Survival LOEC:	>100		>100
ICP_{20}:	—		—
ICP_{25}:	36.0		45.3

Results reported from Dilution Water Controls MF

Investigators' signatures
Marshall Faircloth
Brian Ahr
Adrienne Pennington

REVIEWER

Comments: aliquot of sample (1477591) dechlorinated by the addition of 0.3 mL/L of 0.025N Sodium Thiosulfate MF 1-15-13
Sample 1478382 TRC <0.03 mg/L MF 1-17-13
Sample 1479093 TRC <0.03 mg/L MF 1-19-13

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Jacksonville Beach WWTF

LIMS Sample #: 1477591 for lab sample #1

Start Date: 1-15-13 Time: 1245

End Date: 1-23-13 Time: 1000

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	0	9	5	5	6	5	0	31	10	3.1
	5	9	10	7	7	0	2	0	1⑤	0	7	42	10	4.2
	6	5	0	3	6	0	0	0	0	1	0	19	10	1.9
	7	14	5	3⑤	7	18	9	15	12	1⑤	14	94	10	9.4
	8	0	0	0	0	4	0	0	6	5	0	15	10	1.5
	Total	28	15	13	20	31	16	20	25	12	21	201	10	20.1

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
* Dech CTL ~~6.25%~~ MF	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	5	0	9	5	5	4	8	5	41	10	4.1
	5	9	8	0	9	0	0	4	11	6	9	52	10	5.3
	6	2	0	0	7	0	0	0	1⑤	0	0	9	10	0.9
	7	0	2	1	0	0	10	0	0	9	9	31	10	3.1
	8	0	5	0	0	6	0	0	10	0	0	21	10	2.1
	Total	11	15	6	16	15	15	5	26	23	23	155	10	15.5

Organisms loaded by: MF		
Day	Counted/ verified by:	Concentrations prepared by:
0	BA	MF
1	MF	MF
2	MF	MF
3	MF	MF
4	MF	MF
5	BA	BA
6	BA	BA
7	MF	MF
8	MF	—

Concentration	Mean neonates /adult	% survival
Control	20.1	100
~~6.25%~~	15.5	100
12.50%	21.1	90
25%	18.7	100
50%	10.8	80
100%	11.9	100

Test acceptability	Rejected control	
Mean control reproduction 15/female	(yes)	no
3rd brood in 60% of surviving females	(yes)	no
Control survival ≥ 80%:	(yes)	no

Comments: ⑤ = split brood * Dechlorinated Control Failed 3rd brood in 60% of surviving females indicating that the Dechlorination agent may have induced toxicity in the control and the 100% sample (dechlorinated). MF

(Comment continued Page 9)

*Day 0 is test initiation day
X = Dead (original organism)

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Jacksonville Beach WWTF

LIMS Sample # : 1777591 for lab sample #1

Start Date: 1-15-13 Time: 1245

End Date: 1-23-13 Time: 1000

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
12.50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	4	0	0	4	10	0.4
	4	8	0	0	0	8	0	7	8	6	0	29	10	2.9
	5	0	0	0	1	1	9	0	0	16	0	26	9	2.6
	6	8	0	11	12	|	3	4	0	0	0	38	9	3.8
	7	6	0	7	6	|	0	0	3	10	12	51	9	5.1
	8	0	0	4	14	1	3	7	7	0	7	21	9	2.1
	Total	22	0	22	19	20	15	18	22	32	19	169	9+	21.1

+ Total Divided by 8 (male and killed excluded) MF

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	0	7	3	9	7	6	4	36	10	3.6
	5	1	0	8	10	8	12	0	5	10	8	62	10	6.2
	6	15	14	2	8	0	0	0	0	10	0	39	10	3.9
	7	0	6	5	10	12	2	1	1	0	0	37	10	3.7
	8	2	0	0	7	4	0	0	0	12	0	14	10	1.4
	Total	17	20	15	28	27	17	10	13	28	12	188	10	18.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	X	0	0	0	0	0	0	0	0	0	0	9	0
	4	|	6	0	0	7	7	6	8	0	0	34	9	3.4
	5	|	0	8	X	7	0	0	1	0	9	25	8	2.5
	6	|	7	2	|	0	6	0	0	0	0	16	8	1.6
	7	|	4	6	|	11	10	0	0	0	0	27	8	2.4
	8	|	3	0	|	0	0	7	0	2	0	9	8	0.9
	Total		20	16	0	25	14	13	9	2	9	108	8	10.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	1	0	0	0	0	0	6	6	0	0	13	10	1.3
	5	0	0	5	0	0	8	0	0	0	0	13	10	1.3
	6	0	8	1	0	0	1	0	0	2	8	12	10	1.2
	7	0	0	0	2	11	7	3	0	12	4	39	10	3.9
	8	0	9	5	0	0	0	6	0	12	10	42	10	4.2
	Total	1	9	11	2	11	16	15	6	26	22	119	10	11.9

Comments: * killed during transfer BA 1-20-13 ** 2nd neonate count MF 1-23-13 # 4th brood don't count MF 1-23-13 ⑤ = split brood

♂ male Rep 2 12.5% MF 1-23-13

(Comment Continued from Page 8) → The non-dechlorinated sample (tested as a chronic screening test produced 80% mortality within 24 hours of test initiation. MF 1-23-13

*Day 0 is test initiation day
X = Dead (original organism)

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Jacksonville Beach WWTF SOP TA07_05

LIMS Sample #: 1477591 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ←		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	8.1	24.2	7.8	310					
	1	DECL CPL ~~6.25%~~ MF	M	8.0	24.2	7.9	314					
	1	12.5%	M	7.9	24.9	7.9	415					
	1	25%	M	7.8	24.8	7.9	515					
	1	50%	M	7.7	24.8	7.9	716					
	1	100%	M	7.6	24.9	7.9	1096					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	8.3	24.3	7.8	312	M	8.0	25.0	8.1	342
	1	DECL CPL ~~6.25%~~ MF	M	8.3	24.1	7.9	311	M	8.0	24.7	8.0	355
	1	12.5%	M	8.1	24.6	7.9	411	M	7.9	25.2	8.1	440
	1	25%	M	8.0	24.9	7.9	516	M	8.1	25.4	8.1	540
	1	50%	M	7.8	25.3	8.0	715	M	8.1	25.4	8.1	742
	1	100%	M	7.6	25.8	8.1	1103	M	8.2	25.1	8.0	1101
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 2	sample:	Control	M	8.0	24.5	8.1	313	M	8.0	24.6	8.4	353
	2	DECL CPL ~~6.25%~~ MF	M	8.1	24.6	8.1	320	M	8.0	24.6	8.2	355
	2	12.5%	M	8.3	25.0	8.2	399	M	8.2	24.6	8.5	446
	2	25%	M	8.4	24.0	8.4	498	M	8.2	24.6	8.5	552
	2	50%	M	8.4	25.2	8.3	698	M	8.2	24.8	8.5	756
	2	100%	M	8.4	25.8	8.4	1072	M	8.3	25.0	8.5	1142
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample:	Control	M	8.0	24.8	8.1	332	M	8.0	24.9	8.1	356
	2	DECL CPL ~~6.25%~~ MF	M	8.2	24.6	8.1	328	M	7.9	24.8	8.1	321
	2	12.5%	M	8.2	24.8	8.2	434	M	7.9	25.2	8.1	430
	2	25%	M	8.1	24.8	8.2	532	M	8.0	25.4	8.1	528
	2	50%	M	8.1	25.1	8.2	726	M	8.0	25.4	8.1	723
	2	100%	M	8.0	25.5	8.3	1124	M	8.0	24.8	8.1	1118
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

Replicate M= "Metered" vial, a surrogate vial for parameters

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Jacksonville Beach WWTF SOP TA07_05

LIMS Sample #: 1477591 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ←		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	7.9	24.5	7.9	337	M	7.9	24.4	8.6	387
	3	~~6.25%~~ Decl CTL	M	7.9	24.5	7.9	337	M	8.3	24.4	8.8	384
	3	12.5%	M	7.9	24.4	8.2	450	M	8.3	24.5	8.9	478
	3	25%	M	7.9	24.6	8.3	552	M	8.3	24.4	8.9	583
	3	50%	M	7.9	25.1	8.4	751	M	8.2	24.6	9.0	770
	3	100%	M	8.0	25.6	8.6	1164	M	8.2	24.6	9.0	1178
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	8.0	24.4	7.6	286	M	8.1	24.0	7.0	369
	3	~~6.25%~~ Decl CTL	M	8.1	24.0	7.7	332	M	8.1	24.0	7.0	370
	3	12.5%	M	8.0	24.0	7.7	424	M	8.1	24.0	7.2	449
	3	25%	M	8.0	24.0	7.7	479	M	8.0	24.0	7.5	557
	3	50%	M	8.0	24.0	7.9	706	M	8.0	24.0	7.5	749
	3	100%	M	8.0	24.0	7.9	1133	M	8.1	24.0	7.6	1183
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 6	sample:	Control	M	7.3	24.5	7.5	318	M	7.9	24.0	7.6	301
	3	~~6.25%~~ Decl CTL	M	7.3	24.0	7.7	322	M	8.0	24.0	7.7	307
	3	12.5%	M	7.3	24.0	7.7	418	M	8.0	24.0	7.7	442
	3	25%	M	7.3	24.0	7.7	531	M	8.0	24.0	7.9	521
	3	50%	M	7.3	24.0	7.6	717	M	8.1	24.0	7.9	738
	3	100%	M	7.6	24.0	7.5	1111	M	8.1	24.0	7.9	1179
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 7	sample:	Control	M	8.2	24.5	8.1	322	M	8.2	24.0	7.9	353
	3	~~6.25%~~ Decl Ctrl	M	8.2	24.2	8.0	326	M	8.2	24.0	8.0	356
	3	12.5%	M	8.1	24.9	8.0	429	M	8.1	24.0	8.1	441
	3	25%	M	8.1	24.9	8.2	542	M	8.1	24.1	8.1	555
	3	50%	M	8.0	24.7	8.4	753	M	8.1	24.2	8.3	755
	3	100%	M	8.0	24.4	8.4	1170	M	8.1	24.1	8.5	1215
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

measured by MF

	pH	Temp	DO	Cond.
CTL	8.2	24.7	7.5	370
Decl CTL	8.2	24.8	7.5	373
12.5	8.1	24.7	7.4	459
25	8.1	24.6	7.5	578
50	8.1	24.6	7.5	793
100	8.2	24.8	7.6	1240

Replicate M= "Metered" vial, a surrogate vial for parameters

Test ID: Jacksonville Beach WWTF Dates: January 15-23, 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 1-23-13

V 1.1 9/21/10 MF/jd

000112

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia

Facility: Jacksonville Beach WWTF
Address: 910 10th Street South Jacksonville Beach FL.
County: Duval
NPDES Permit #: FL 0020231
Contact/District: Eesa Ali / Northeast

LIMS entry: 2-1-13 MF verified: BM 2.1.13

Diluent/ Batch: ~~20%~~ SDMHW / 1-4-13 Test Days Used: 0 — 1 (MF)
~~20%~~ SDMHW / 1-12-13 Test Days Used: 2 — 7

SOP#: TA07_05 EPA 821-R-02-013 Method 1002.0

Organism: *Ceriodaphnia dubia*
Organism Batch #: 1-15-13
Organism age : <24h hours
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 11-14-12 10-31-12
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	LAB Sample #	LIMS JOB #	LIMS SAMPLE #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2013-01-15-03	1477591	1-14-13 11:11 AM	1-15-13 1000
Test Day 2	2	TLH-2013-01-17-14	1478382	1-16-13 1114	1-17-13 0951
Test Day 4	3	TLH-2013-01-22-20	1479093	1-18-13 0812	1-19-13 0908

Batch #	1-4-13	1-12-13	NA	NA	NA			
Water Quality Parameters	MF ~~20%~~ SDMHW	MF ~~20%~~ SDMHW	Sample 1	Sample 2	Sample 3	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	Not measured				—	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	0.27	<0.03	<0.03		MF	AP
Alkalinity (mg/L as $CaCO_3$):	75	80	189	173	184		AP/HW	MF
Hardness (mg/L as $CaCO_3$):	88	87	286	290	307		AP/HW	MF
Total Ammonia (mg/L as N):	Not measured		Meter failure				—	MF
Conductivity: (µmhos) mmhos:	316	313	1098	1058	1146		MF	AP
Salinity (ppth):								

Test Incubated in: Incubator #: 2

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C: 4 MF
Incubator # 2 min. 24.1 max. 27.5 mean —
Room B246 min. 24.1 max. 25.8 mean —
Test min. ~~24.0~~ 24.0 max. 25.8 mean —

Loaded by: MF

Test Replicates	Loaded from culture vial
1	A3
2	A4
3	A9
4	A15
5	A19
6	A23
7	A28
8	B2
9	B14
10	B27

due to 90% mortality in 100% comp. — Reproduction

Results	
Control % CV:	
Dunnetts PMSD:	
Reproduction NOEC:	
Reproduction LOEC:	
Survival NOEC:	NA
Survival LOEC:	100%
ICP_{20}:	
ICP_{25}:	NA

analyzed w/o MF ret. wm, MF 1-25-13

Investigators' signatures
Marshall Faircloth
Bruce Atkinson
Adrienne Kennington

REVIEWER

Comments: Screen (control + 100% with TRC) MF 1-15-13

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Jacksonville Beach WWTF

LIMS Sample #: 1477591 for lab sample #1

Start Date: 1-15-13 Time: 1245

End Date: 1-23-13 Time: 1000

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	0	7	7	0	7	0	10	31	10	3.1
	5	6	4	9	2	0	0	9	10	0	0	40	10	4.0
	6	9	5	0	5	8	6	10	0	0	0	43	10	4.3
	7	0	0	0	6	0	6	0	14	8	5	39	10	3.9
	8	0	0	0	0	4	0	2	0	5	6	17	10	1.7
	Total	15	9	9	13	19	19	21	31	13	21	170	10	17.0

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
100% 6.25%	0*												10	
	1	X	X	X	X		X	X	X	X			MF 8 2	
	2										X	0	1	0
	3											0	1	0
	4					0						0	1	0
	5					0						0	1	0
	6					0						0	1	0
	7					0						0	1	0
	8					0						0	1	0
	Total					0						0	1	0

Organisms loaded by: MF

Day	Counted/ verified by:	Concentrations prepared by:
0	BA	MF
1	MF	MF
2	MF	MF
3	MF	MF
4	MF	MF
5	BA	BA
6	BA	BA
7	MF	MF
8	MF	

Concentration	Mean neonates /adult	% survival
Control	17.0	100 %
~~6.25%~~ MF		
~~12.50%~~ MF		
~~25%~~ MF		
~~50%~~ MF		
100%	0	10 %

Test acceptability	
Mean control reproduction 15/female	(yes) no
3rd brood in 60% of surviving females	(yes) no
Control survival ≥ 80%:	(yes) no

Comments:

*Day 0 is test initiation day
X = Dead (original organism)

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Jacksonville Beach WWTF SOP TA07_05

LIMS Sample #: 1477591 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	8.1	24.3	7.8	316					
	1	6.25%	M									
	1	12.5%	M									
	1	25%	M									
	1	50%	M									
	1	100%	M	7.6	24.2	7.9	1098					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	8.1	24.8	8.1	315	M	8.2	25.1	8.0	331
	1	6.25%	M					M				
	1	12.5%	M					M				
	1	25%	M					M				
	1	50%	M					M				
	1	100%	M	7.6	25.5	8.1	1115	M	8.2	24.1	7.8	1114
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 2	sample:	Control	M	8.0	24.5	8.3	313	M	8.0	24.6	8.3	338
	2	6.25%	M					M				
	2	12.5%	M					M				
	2	25%	M					M				
	2	50%	M					M				
	2	100%	M	8.1	25.8	8.3	1058	M	8.3	24.9	8.4	1120
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample:	Control	M	8.0	24.8	8.0	329	M	8.0	25.1	8.1	336
	2	6.25%	M					M				
	2	12.5%	M					M				
	2	25%	M					M				
	2	50%	M					M				
	2	100%	M	7.9	25.3	7.9	1099	M	8.1	24.9	8.0	1138
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

Replicate M= "Metered" vial, a surrogate vial for parameters

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Jacksonville Beach WWTF SOP TA07_05

LIMS Sample #: 1477591 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ←		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	7.9	24.3	8.8	328	M	7.9	25.1	8.8	350
	3	6.25%	M				~~287~~ BA FINAL	M				
	3	12.5%	M					M				
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M	8.2	25.7	9.0	1136 MF	M	8.2	25.4	9.1	1138
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	8.2	24.0	8.6	291	M	8.2	24.0	7.9	362
	3	6.25%	M					M				
	3	12.5%	M					M				
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M	8.0	24.0	8.1	1136	M	8.1	24.0	7.8	1181
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 6	sample:	Control	M	8.3	24.0	7.0	334	M	8.3	24.0	7.7	392
	3	6.25%	M					M				
	3	12.5%	M					M				
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M	8.1	24.0	7.9	1121	M	8.2	24.0	7.6	1154
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 7	sample:	Control	M	8.1	24.0	8.0	330	M	8.0	24.8	8.2	382
	3	6.25%	M					M				
	3	12.5%	M					M				
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M	8.0	24.0	8.3	1171	M	8.1	25.3	8.4	1180
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

DAY 8 "old" measured by MF

	pH	Temp	DO	Conductivity
Control	8.1	24.1	7.6	346
100%	8.3	24.3	7.7	1189

Replicate M= "Metered" vial, a surrogate vial for parameters

Test ID: Jacksonville Beach WWTF 100% sample Screening Test Dates: 1-15-13 — 1-23-13

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	U
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	V
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	V
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	V
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	V
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	V
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	V
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	V
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 1-23-13

V 1.1 9/21/10 MF/jd

87000

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: JEA K Sonville Beach WWTF
Address: 910 10th Street South Jacksonville Beach Fl.
County: Duval
NPDES Permit #: FL 0020231
Contact/District: Tessa Ali / Northeast

Test Species (circle one)
(P. promelas) SOP#: TA07_09 EPA-821-R-02-013 Method 1000.0
M. beryllina SOP#: TA07_14 EPA-821-R-02-014 Method 1006.0

Start Date: 1-15-13 Time: 1300
End Date: 1-22-13 Time: 1000

Diluent/ Batch:
MHW / 1-9-13 Test Days Used: 0-6
MHW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____

Organism age : 24 hours days
Feeding Prior to Test and Daily
Artemia Lot # : 0881 2
Chamber size : 1000 ml
Test volume : 500 ml

Organism Batch #:	1-15-13	
Artemia Batch #	Day 3	1-13
Day 0	1-13	Day 4 1-14
Day 1	8-13	Day 5 1-15
Day 2	9-13	Day 6 1-16

LIMS entry: 1-28-13 MF Entry verification: BA 2.1.13

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2013-01-15-03	1477591	1-14-13 1111	1-15-13 1000
Test Day 2	2	TLH-2013-01-17-14	1478382	1-16-13 1114	1-17-13 0951
Test Day 4	3	TLH-2013-01-22-20	1479093	1-18-13 0812	1-19-13 0908

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	Not measured			0.27	<0.03	<0.03	189	173	184	286	290	307
Diluent/Control:				<0.03			68			76		
Method:				Hach	Hach	Hach	Hach	Hach	Hach	AP Hach	Hach	Hach
Measured by:				AP/MF	MF	MF	AP/HW	HW	HW	MF/HW	HW	HW
Verified by:	MF	MF	MF	MF/BA	BA	BB	MF	MF	MF	MF	MF	MF

	Conductivity (circle one) (umhos-cm) mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	1102	1072	1164	not	measured				
Diluent/Control:	287			LAB	meter	failure			
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	BA	MF	MF						
Verified by:	MF	AP	AP		MF				

Definitive Test

Statistics *	
Growth NOEC:	50%
Growth LOEC:	100%
Growth IC_{20}:	~~73.47%~~ 94%
Growth IC_{25}:	80.3
Ctrl % CV:	16.6%
Dunnetts PMSD:	16.0%
Survival NOEC:	50%
Survival LOEC:	100%

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min. 24.3 max. 26.1 mean —
Water bath # ____ min. _____ max. _____ mean ____
Room B246 min. 24.8 max. 25.8 mean —

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)

Lims Data Entry:_____ Data Entry Verification:_____

Investigators' signatures

	Initials:
Bruce Aleck	BA
Marshall Faircloth	MF
Adriana Pennington	AP

REVIEWER

Comments: Aliquot of sample (1477591) dechlorinated by the addition of 0.3 mL/L of 0.025N Sodium Thiosulfate MF 1-15-13
Sample 1478382 TRC <0.03 mg/L MF 1-17-13
Sample 1479093 TRC < 0.03 mg/L MF 1-19-13
* the NOEC in the screening test for survival is 100% sample, Growth in the screening test is reported as IC25 <100%. MF

revised 01/24/12 MF

Chronic Bioassay Survival Benchsheet

Facility: Jacksonville Beach WWTF

LIMS Sample Number: 1477591
(for Lab Sample # 1)

Department of Environmental Protection
Biology Laboratory Chronic Screening Bioassay
***P. promelas* SOP TA07_09 *M. beryllina* SOP TA07_14**

Organism: (*P. promelas*) *M.beryllina* (circle one)

Concentration	Replicate	TEST DAY 0	1	2	3	4	5	6	7
Control DCL	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	9	9	9	9
	C	10	9 1D	9	9	9	9	9	9
	D	10	10	10	10	10	10	10	9 1D
Sample 12.5 % DCL	A	10	10	10	10	9 1D	9	9	9
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 25 % DCL	A	10	10	10	10	10	10	10	10
	B	10	10	10	9 1D	9	*10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	9 1D	9	9	9
Sample 50 % DCL	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	9 1D
	D	10	9 1D	9	9	9	9	9	9
Sample 100 % DCL	A	10	9 1D	9	9	7 2D	6 1D	6	6
	B	10	10	10	10	7 3D	7	6 1D	6
	C	10	10	10	10	8 2D	8	7 1D	7
	D	10	10	10	10	10	9 1D	9	9
Sample ctrl %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 100%	A	10	10	8 2D	7 1D	7	7	7	5 2D
	B	10	9 1D	9	9	9	9	9	8 1D
	C	10	10	10	9 1D	8 1D	8	8	8
	D	10	10	10	10	9 1D	9	9	8 1D
Loaded by: BA	Checked by:		BA	BA	MF	MF	BA	BA	BA
Verified by: MF									

Comments: * organisms miscounted, 10 present (0 mortality)
BA 1/20/17

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Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_14 parameter pg. 1

Sample Source: Jacksonville Beach WWTF Start Date: 1.15.13 End Date: 1-22-13

LIMS Sample #: 1477591 (for Lab sample #1) Start Time: 1300 End Time: 1600

conc = concentration rep = replicate circle umhos or mmhos

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 0	sample:	Control	A	7.3	25.3	7.2	287							
	1	12.5%	A	7.3	24.8	7.2	388							
Declin	1	25%	A	7.3	24.6	7.4	507							
	1	50%	A	7.4	24.6	7.4	701							
	1	100%	A	7.4	24.5	7.4	1109							
	1	ctrl	A	7.7	24.4	7.4	289							
	1	100%	A	7.5	24.2	7.4	1102							
	Measured by:			BA	BA	BA	BA							
	Recorded by:			BA	BA	BA	BA							
Day 1	sample:	Control	B	7.3	25.1	7.6	301		B	7.2	24.8	7.1	294	
	1	12.5%	B	7.3	25.2	7.5	395		B	7.2	24.8	7.2	393	
DCL.	1	25%	B	7.5	25.1	7.4	499		B	7.2	24.6	7.3	502	
	1	50%	B	7.6	25.2	7.3	689		B	7.3	24.5	7.3	686	
	1	100%	B	7.8	25.0	7.1	1087		B	7.3	24.7	7.3	1092	
	1	ctrl	B	7.9	24.5	7.0	295		B	7.4	24.4	7.2	291	
	1	100%	B	7.9	24.3	7.2	1086		B	7.5	24.3	7.2	1091	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 2	sample:	Control	C	7.2	25.5	7.2	299		C	7.2	25.2	6.3	289	
	2	12.5%	C	7.2	26.0	6.2	408		C	7.2	25.0	6.9	390	
DCL	2	25%	C	7.2	25.3	6.1	522		C	7.3	24.5	7.0	499	
	2	50%	C	7.3	25.6	6.1	712		C	7.4	24.4	7.1	684	
	2	100%	C	7.4	25.6	6.1	1119		C	7.8	24.2	7.1	1075	
	2	Ctrl	C	7.7	25.0	7.6	306		C	8.0	24.1	7.0	301	
	2	100%	C	7.7	24.9	7.2	1124		C	8.0	24.0	7.2	1089	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 3	sample:	Control	D	8.0	24.5	7.3	287		D	8.1	25.0	7.9	311	
Dec. flow in Ctrl	2	12.5	D	8.0	24.2	7.3	396		D	7.9	24.7	8.1	418	
	2	25	D	7.9	25.1	7.3	499		D	7.9	24.5	7.7	534	
	2	50	D	7.9	24.2	7.2	692		D	7.8	24.8	7.0	733	
	2	100	D	7.8	24.4	7.0	1089		D	7.9	24.9	6.8	1153	
	2	ctrl	D	8.1	24.6	6.9	299		D	7.9	25.1	7.9	309	
	2	100% ~~50%~~	D	7.9	25.1	7.1	1091		D	7.9	24.4	6.6	1135	
	Measured by:			BA	BA	BA	BA			MF	MF	MF	MF	
	Recorded by:			BA	BA	BA	BA			MF	MF	MF	MF	

Comments: * after is ~~New~~/New is after MF 1-18-13
Before/Before for MF 3/20/13

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional.

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Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_14

parameter pg. 2

Sample Source: Jacksonville Beach WWTF — Start Date: 1-15-13 — End Date: 1-22-13

LIMS Sample #: 147759 (for Lab sample #1) — Start Time: 1300 — End Time: 1000

conc = concentration — rep = replicate

Test Day	% Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4 — sample:	Control	A	8.1	24.0	7.7	312		A	8.0	24.5	7.7	301	
3	12.5	A	8.0	24.6	7.7	422		A	7.9	25.0	7.8	399	
3	25	A	8.0	24.7	7.4	503		A	7.8	24.6	7.7	509	
3	50	A	7.9	24.6	7.3	708		A	7.9	24.8	7.6	719	
3	100	A	8.0	24.9	7.2	1112		A	7.9	25.2	7.7	1134	
3	Ctrl	A	7.1	24.0	8.0	298		A	8.0	24.8	7.7	290	
3	100%	A	8.0	24.7	8.6	1103		A	8.1	25.1	7.8	1110	
Measured by:			MF	MF	MF	MF	—		MF	MF	MF	MF	
Recorded by:			MF	MF	MF	MF	—		MF	MF	MF	MF	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5 — sample:	Control	B	7.3	24.1	5.9	298		B	7.2	24.9	6.2	296	
3	12.5%	B	7.3	24.0	6.0	399		B	7.2	24.7	6.7	400	
3	25%	B	7.3	24.0	6.3	517		B	7.2	24.6	6.9	513	
3	50%	B	7.3	24.0	6.4	715		B	7.2	24.5	7.0	724	
3	100%	B	7.4	24.0	6.4	1130		B	7.2	24.5	7.0	1131	
3	Ctrl	B	7.8	24.0	6.4	299		B	7.6	24.5	7.0	301	
3	100%	B	7.8	24.0	6.4	1123		B	7.5	24.3	7.0	1132	
Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6 — sample:	Control	C	7.2	24.0	6.2	303		C	7.2	25.2	6.9	301	
3	12.5%	C	7.2	24.7	6.2	407		C	7.2	24.8	6.9	405	
3	25%	C	7.2	24.4	6.2	515		C	7.2	24.7	7.0	522	
3	50%	C	7.2	24.8	5.8	721		C	7.2	24.5	7.2	741	
3	100%	C	7.5	24.7	5.6	722 1141		C	7.3	24.5	7.1	1160	
3	Ctrl	C	7.7	24.7	5.8	306		C	7.6	24.4	6.8	305	
3	100%	C	7.6	25.2	5.5	1142		C	7.6	24.2	6.8	1157	
Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7 — sample:	Control	D	7.2	24.0	6.0	309		D					
3	12.5%	D	7.2	24.0	6.1	418		D					
3	25%	D	7.6	24.0	6.0	544		D					
3	50%	D	7.6	24.0	6.1	754		D					
3	100%	D	7.6	24.0	5.7	1147		D					
3	Ctrl	D	7.8	24.0	5.6	314		D					
3	100%	D	7.8	24.0	5.6	1155		D					
Measured by:			BA	BA	BA	BA							
Recorded by:			BA	BA	BA	BA							

DCL

DCL

DCL

Dechlorinated tap water MF

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional

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Chronic Bioassay Weighing Benchsheet

Facility: Jacksonville Beach WWTF

LIMS Sample Number: 1477591
(for Lab Sample # 1)

***P. promelas* and *M. beryllina* Bench Sheet**
SOP TA06_21

Concentration		Replicate	Pan #	Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg
				mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control DCL		A	1	0.0 2040	0.0 2590	0.0650	10	0.550
		B	2	0.0 2082	0.0 2655	0.00573	10	0.573
		C	3	0.0 2104	0.0 2730	0.00626	10	0.626
		D	4	0.0 2171	0.0 2586	0.00415	10	0.415
sample	DCL 12.5 %	A	5	0.0 2121	0.0 2669	0.00548	10	0.548
		B	6	0.0 2095	0.0 2657	0.00562	10	0.562
		C	7	0.0 2186	0.0 2664	0.00478	10	0.478
		D	8	0.0 2072	0.0 2604	0.00532	10	0.532
sample	DCL 25 %	A	9	0.0 2168	0.0 2607	0.00439	10	0.439
		B	10	0.0 2286	0.0 2844	0.00558	10	0.558
		C	11	0.0 2059	0.0 ~~2541~~ 2603 (A)	0.00544	10	0.544
		D	12	0.0 2155	0.0 ~~2603~~ 2685	0.00530	10	0.530
sample	DCL 50 %	A	13	0.0 2076	0.0 ~~2685~~ 2631	0.00555	10	0.555
		B	14	0.0 2102	0.0 ~~2631~~ 2751	0.00649	10	0.649
		C	15	0.0 2090	0.0 ~~2751~~ 2627	0.00537	10	0.537
		D	16	0.0 2068	0.0 ~~2677~~ 2625	0.00557	10	0.557
sample	DCL 100%	A	17	0.0 2177	0.0 ~~2541~~ 2491	0.00314	10	0.314
		B	18	0.0 2147	0.0 2434	0.00287	10	0.287
		C	19	0.0 2178	0.0 2441	0.00263	10	0.263
		D	20	0.0 2234	0.0 2675	0.00441	10	0.441
sample	Ctrl%	A	21	0.0 2206	0.0 2788	0.00582	10	0.582
		B	22	0.0 2169	0.0 2725	0.00556	10	0.556
		C	23	0.0 2158	0.0 2685	0.00527	10	0.527
		D	24	0.0 2185	0.0 2710	0.00525	10	0.525
sample	100 %	A	25	0.0 1876	0.0 2089	0.00213	10	0.213
		B	26	0.0 1939	0.0 2404	0.00465	10	0.465
		C	27	0.0 1808	0.0 2149	0.00341	10	0.341
		D	28	0.0 2026	0.0 2472	0.00446	10	0.446
		Weighed by initials:		BA	BA		revised 7/16/08 mf	

Comments: (A) Pan+Fish weight displaced by tare weight on reps # 11-17
BA 1.23.13

Balance: Ohaus 250D Ser# 1125481084
S-Weights: BIO-S-Weights-01

Note: Pan number (#) refers to actual Pan number.

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Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Jacksonville Beach WWTF

LIMS Sample Number: 147759

(for Lab Sample # 1)

P. promelas and M. beryllina **Bench sheet**

SOPs TA07_09, TA07_14 and TA06_21

Drying Oven ID:	ER035000	Tare weighed by:	BA
Temperature °C:	100	Final weighed by:	BA
Hours:	8		
Tare Weighing Date:	1.21.13	Final Weighing Date:	1.23.13

					Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02040	@	0.02040	S-weights	0.01999	@	0.02
Tare Pan 1 after Pan 10 (g)	0.02041	@	0.02040	at tare	0.05001	@	0.05
Tare Pan 1 after Pan 15 (g)	0.02040	@	0.02040	S-weights	0.02000	@	0.02
Tare Pan 1 after Pan 20 (g)	0.02041	@	0.02040	at final	0.05002	@	0.05
Tare Pan 1 after Pan 25 (g)	0.02039	@	0.02040				
Tare Pan 1 after Pan ~~30~~ 25 (g)	0.02040	@	0.02040	Balance: Ohaus 250D Ser# 1125481084			
Tare Pan 1 after Pan 35 (g)		@		S-Weights: BIO-S-Weights-01			
Tare Pan 1 after Pan 40 (g)		@					
Tare Pan 1 after Pan 45 (g)		@					
Tare Pan 1 after Pan 48 (g)		@					
Final Pan 1 after Pan 5 (g)	0.02592	@	0.02590				
Final Pan 1 after Pan 10 (g)	0.02591	@	0.02590				
Final Pan 1 after Pan 15 (g)	0.02591	@	0.02590				
Final Pan 1 after Pan 20 (g)	0.02590	@	0.02590				
Final Pan 1 after Pan 25 (g)	0.02591	@	0.02590				
Final Pan 1 after Pan ~~30~~ 25 (g)	0.02590	@	0.02590				
Final Pan 1 after Pan 35 (g)		@					
Final Pan 1 after Pan 40 (g)		@					
Final Pan 1 after Pan 45 (g)		@					
Final Pan 1 after Pan 48 (g)		@					

Note: Pan numbers (5, 10, etc.) for Tare and Final refers to sequence of weighing as actual Pan #s may differ.

Comments:

revised 7/16/08 MF

Page 00013

Test ID: Jacksonville Beach WWTF Dates: 1-15-13 — 1-22-13

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	#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 1-23-13

V 1.1 9/21/10 MF/jd

00014

Appendix E.
Standard Reference Toxicant Data

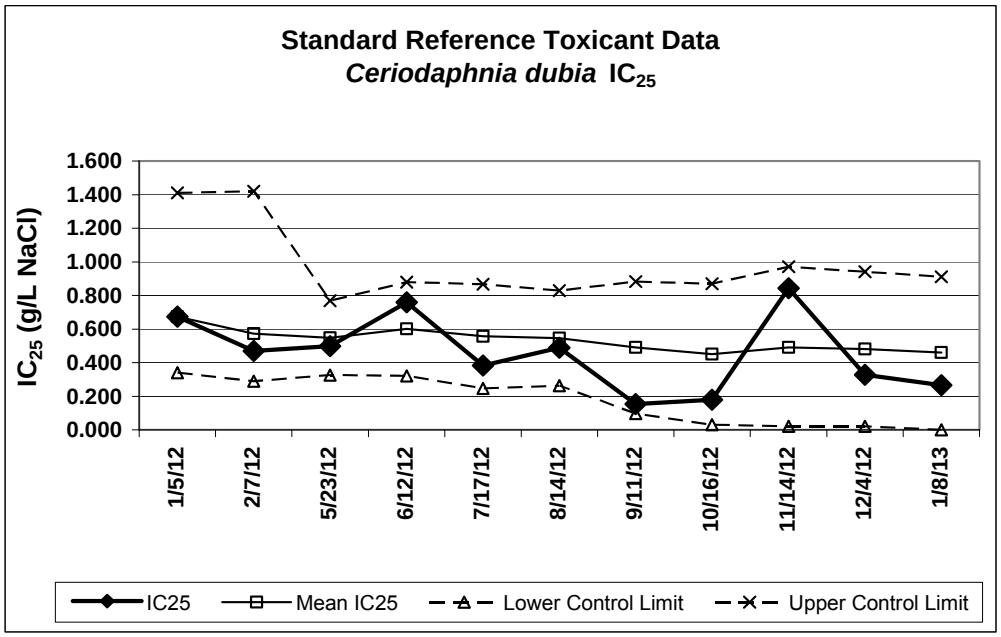
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
1/5/12	0.674	0.67	0.14	0.34	1.41
2/7/12	0.470	0.57	0.11	0.29	1.42
5/23/12	0.498	0.55	0.11	0.33	0.77
6/12/12	0.760	0.60	0.14	0.32	0.88
7/17/12	0.383	0.56	0.15	0.25	0.87
8/14/12	0.489	0.55	0.14	0.26	0.83
9/11/12	0.153	0.49	0.20	0.10	0.88
10/16/12	0.179	0.45	0.21	0.03	0.87
11/14/12	0.843	0.49	0.24	0.02	0.97
12/4/12	0.328	0.48	0.23	0.02	0.94
1/8/13	0.266	0.46	0.23	0.00	0.91

Means are of the last 7 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

EPA 75th Percentile %CV for Reproduction **45%**
Last 7 - Lab %CV Reproduction 49.7%



Fewer than 20 tests with MHW

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% SDMHW / 12-19-12 Test Days Used: 0-1
20% SDMHW / 1-4-13 Test Days Used: 2-4
Toxicant/ Batch: NaCl / 1-8-13 g/L

SOP # : TA 07_05
EPA-821-R-02-013 Method 1002.0

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 1-8-13 MF (<24 hr)
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 11-14-12 10-31-12
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 1-8-13 Time: 1030
End Date: 1-13-13 Time: 1011

Batch:	12-19-12	MF 1-4-13			
Water Quality Parameters	MF ~~20%~~ SDMHW	MF ~~20%~~ SDMHW	Other	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	20.03	20.03		AP	MF
Alkalinity (mg/L as $CaCO_3$):	75	75		AP	MF
Hardness (mg/L as $CaCO_3$):	89	88		AP	MF
Total Ammonia (mg/L as N):	not measured		due to instrument failure		
Conductivity (umhos-cm) mmhos-cm :	318	320		MF	BA

Loaded by: MF

Day	Concentrations prepared by	Counted by
0	MF	AP
1	MF	MF
2	MF	MF
3	MF	MF
4	MF	BA
5	—	BA
6		
7		
8		

Test Replicate	Loaded from culture vial
1	A5
2	A13
3	A17
4	A21
5	A27
6	B3
7	B6
8	B7
9	B23
10	B3

Results	
Control % CV:	20.6 %
Dunnetts PMSD:	26.3 %
Reproduction NOEC:	0.25 MF
Reproduction LOEC:	0.5 g/L
Survival NOEC:	1.5 g/L
Survival LOEC:	3 g/L MF
ICP_{20}:	0.2125
ICP_{25}:	0.2656

Comments:

Investigators' signatures

Marshall Faircloth
Bruce Alaga
Adrienne Pennington

REVIEWER

Test Incubated in: Incubator: # 2
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.1 max. 26.3 mean —
Room B246 ____ min. _____ max. _____ mean _____
Test min. 24.1 max. 26.3 mean —

00001

Test Page 1 of 6

PAGE

10/30/12 BA

Ceriodaphnia dubia Survival and Reproduction

Start Date: 1-8-13 Time: 1030 Loaded by: MF
End Date: 1-13-13 Time: 1000 Verified by: AP

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	4	0	3	3	5	4	4	5	4	36	10	3.6
	4	4	9	11	6	7	8	10	9	1	8	73	10	7.3
	5	9	15	13	11	11	12	13	10	7	11	112	10	11.2
	6													
	7													
	8													
	Total	17	28	24	20	21	25	27	23	13	23	221	10	22.1
0.5 ~~0.89~~ ppth MF	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	3	0	0	4	3	0	4	4	0	22	10	2.2
	4	0	2	1	0	6	8	0	3	4	7	31	10	3.1
	5	8	11	3	0	8	11	2	3	13	0	59	10	5.9
	6													
	7													
	8													
	Total	12	16	4	0	18	22	2	10	21	7	112	10	11.2
1.0 ~~0.89~~ ppth MF	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	4	3	3	2	2	3	2	3	0	25	10	2.5
	4	5	4	3	2	2	2	6	7	4	0	35	10	3.5
	5	5	7	7	3	5	2	12	10	11	0	62	10	6.2
	6													
	7													
	8													
	Total	13	15	13	8	9	6	21	19	18	0	122	10	12.2

Comments:

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
5MF 1.3 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	1	3	1	0	0	2	2	2	0	11	10	1.1
	4	0	3	1	3	4	4	4	2	5	4	30	10	3.0
	5	0	5	10	0	2	1	8	2	5	0	33	10	3.3
	6													
	7													
	8													
	Total	0	9	~~3~~ 14	4	6	5	14	6	12	4	74	10	7.4
3 MF 2.0 ppth	0												10	
	1												10	
	2	X	X	X	X	X	X	X	X	X	X	0	0	
	3													
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	10	0
4 MF 3.0 ppth	0												10	
	1	X	X	X	X	X	X	X	X		X	0	1 X MF	
	2									X		0	0	
	3													
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	10	0

Comments:

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	8.1	24.2	8.0	318					
	0.5 ppth	M	8.0	24.4	8.0	1324					
	1.0 ppth	M	8.0	24.4	8.1	2320					
	1.5 ppth	M	8.0	24.5	8.2	2730					
	2.0 ppth	M	8.0	24.5	8.1	6160					
	3.0 ppth	M	8.1	24.5	8.1	8050					
	Measured by:		MF	MF	MF	MF					
	Recorded by:		MF	MF	MF	MF					
Day 1	Control	M	8.2	24.1	7.9	322	A	8.1	25.2	7.8	331
	0.5 ppth	M	8.1	24.5	7.7	1171	A	8.1	25.6	7.8	1330
	1.0 ppth	M	8.1	24.8	7.7	2060	A	8.0	25.9	7.9	2325
	1.5 ppth	M	8.1	24.8	7.8	2920	A	8.0	25.9	7.8	2800
	2.0 ppth	M	8.1	25.0	7.7	5290	A	8.1	26.2	7.8	6170
	3.0 ppth	M	—	—	—	—	A	8.1	26.2	7.9	8090
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 2	Control	M	8.1	24.7	7.8	320	A	8.1	25.9	8.0	322
	0.5 ppth	M	8.0	24.9	7.9	1175	A	8.0	26.0	7.8	1179
	1.0 ppth	M	8.0	24.8	7.6	1904	A	8.0	25.9	8.0	2050
	1.5 ppth	M	8.0	24.7	7.7	2690	A	8.1	25.9	7.7	2910
	2.0 ppth	M					MF A J	8.1	26.0	7.8	5310
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 3	Control	M	8.2	24.7	7.5	326	A	8.1	25.9	7.7	338
	0.5 ppth	M	8.0	24.7	7.5	1207	A	8.0	26.1	7.6	1219
	1.0 ppth	M	8.0	24.7	7.5	1978	A	8.0	26.2	7.7	2010
	1.5 ppth	M	8.0	24.8	7.5	2830	A	8.0	26.3	7.6	2830
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF

Comments: Concentrations are 0.5, 1.0, 1.5, 3.0 and 4.0 g/L NaCl + Control MF-1-10-13

M= "Metered" vial, a surrogate vial for parameters

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Concentrations are 0.5, 1.0 and 2.0 g/L MF 1-11-13

Test Day ↓	Conc.	Replicate	New Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	7.3	25.3	6.9	311	A	7.5	24.5	7.9	331
	0.59 ppth (0.5 MF)	M	7.3	24.7	7.3	1132	A	7.4	24.4	7.9	1213
	0.89 ppth (1.0 MF)	M	7.3	24.7	7.6	1897	A	7.4	24.4	7.8	2010
	1.3ppth (2.0 MF)	M	7.3	24.6	7.8	2710	A	7.4	24.5	7.8	2880
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 5	Control	M					A	7.4	25.1	7.6	349
	0.59 ppth (0.5 MF)	M					A	7.5	24.5	7.7	1203
	0.89 ppth (1.0 MF)	M					A	7.5	24.5	7.7	1989
	1.3ppth (2.0 MF)	M					A	7.5	24.6	7.6	2890
	2.0 ppth	M		End of Test Not renewed							
	3.0 ppth	M									
	Measured by:							BA	BA	BA	BA
	Recorded by:							BA	BA	BA	BA
Day 6	Control	M									
	0.59 ppth (0.5 MF)	M									
	0.89 ppth (1.0 MF)	M									
	1.3ppth (2.0 MF)	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 7	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										

Replicate M= "Metered" vial, a surrogate vial for parameters

C. dubia Chronic 8 SRT

BIOASSAY INSTRUMENT ID Jan 8 – 13, 2013

METER / DEVICE	ID	SOP	Parameter	Method
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G
YSI DO Probe	5750 SN 05J1720	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
Themometer	BIOLAB #1 BIOLAB #2 BIOLAB #3 BIOLAB #4 NC ~~BIOLAB #5~~ MF	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400 MF
Traceable Thermometer	EC#1-SN101686412 EC #2-SN221295527 EC#3-SN240116020 EC#4-SN80361795 EC#5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G
Hach Pocket Colorimeter II #2	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)

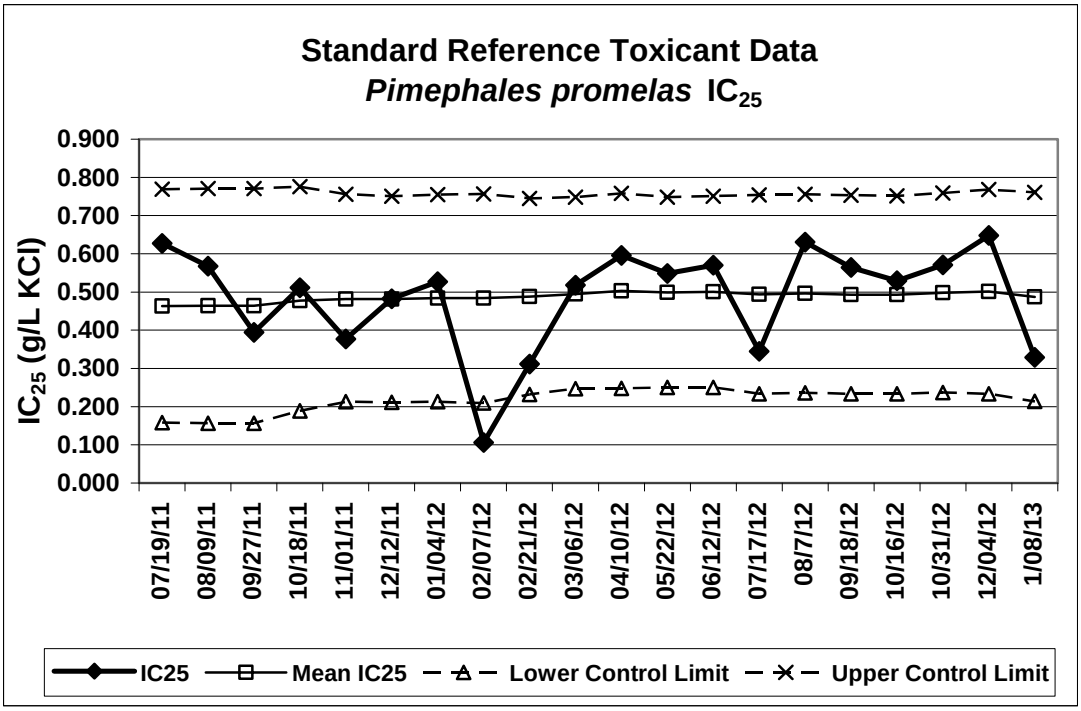
Entered By: M. Fairbrother

V 1.1 9/21/10 MF/jd

Florida Department of Environmental Protection
Bureau of Laboratories
Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Pimephales promelas (fathead minnow) - Potassium Chloride (KCl)

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
07/19/11	0.627	0.463	0.15	0.158	0.769
08/09/11	0.568	0.464	0.15	0.157	0.771
09/27/11	0.394	0.464	0.15	0.157	0.771
10/18/11	0.511	0.478	0.14	0.189	0.776
11/01/11	0.377	0.482	0.14	0.213	0.756
12/12/11	0.483	0.481	0.14	0.211	0.751
01/04/12	0.527	0.484	0.14	0.213	0.755
02/07/12	0.106	0.484	0.14	0.210	0.757
02/21/12	0.312	0.489	0.13	0.232	0.745
03/06/12	0.518	0.495	0.13	0.247	0.748
04/10/12	0.596	0.503	0.13	0.248	0.758
05/22/12	0.548	0.499	0.12	0.250	0.748
06/12/12	0.570	0.501	0.12	0.250	0.751
07/17/12	0.345	0.494	0.13	0.234	0.754
08/7/12	0.631	0.496	0.13	0.236	0.756
09/18/12	0.564	0.493	0.13	0.234	0.753
10/16/12	0.529	0.493	0.13	0.234	0.752
10/31/12	0.571	0.498	0.13	0.237	0.759
12/04/12	0.648	0.501	0.13	0.234	0.768
1/08/13	0.329	0.488	0.14	0.214	0.761

Means are from the last 20 SRTs.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev
EPA 75th %CV: 38%
lab % CV: 28%



FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

P. promelas	SOP#: TA07_09	EPA-821-R-02-013	Method 1000.0
M. beryllina	SOP#: TA07_14	EPA-821-R-02-014	Method 1006.0

Diluent/ Batch: MHW/1.4.13 Test Days Used: 0--0

Diluent/ Batch: MHW/1.9.13 Test Days Used: 1-6

Toxicant/ Batch # : 2g/L KCl/1.7.13

Artemia Lot # : 08812

Start Date: 1.8.13 Time: 1430

End Date: 1-15-13 Time: 1000

Organism Batch #/ Age: 1-8-13 <24hours

Artemia Batch #	Day 2 3.13	Day 5 6.13
Day 0 ~~1.7.13~~ AP 1.13	Day 3 4-13	Day 6 7-13
Day1 2.13	Day 4 5-13	

Chamber size : 1000 ml

Test volume : 500 ml

Feeding: *P. promelas* 0.15 g wet wt. 2X day 6 hour interval

M. beryllina 0.10 g wet wt days 0-2 0.15g wet wt. days 3-7

Water Quality Parameters	Diluent 1.4.13	Diluent 1.9.13 (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	AP	MF
Alkalinity (mg/L as $CaCO_3$):	71	68	HACH	AP	MF
Hardness (mg/L as $CaCO_3$):	80	76	HACH	AP	MF
Total Ammonia (mg/L as N):	meter failure		DENVER		
Conductivity (µmhos-cm) mmhos-cm:	309	310	METTLER	BA	AP

Statistics	
Growth NOEC:	0.25 g/L
Growth LOEC:	0.5 g/L
Growth IC_{20}:	0.3080 g/L
Growth IC_{25}:	0.3286 g/L
Ctrl % CV:	14.7 %
Dunnetts PMSD:	17.8 %
Survival NOEC:	0.25 g/L
Survival LOEC:	0.5 g/L

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Test incubated in : Temperature Range °C:

Incubator # 3 min. 25.3 max. 26.7

Water bath # ____ min. _____ max. _____

Room B246 min. 24.8 max. 25.6

P. promelas PMSD Bounds for Growth: Lower 12 Upper 30

M. beryllina PMSD Bounds for Growth: Lower 11 Upper 28

Investigators' signatures

Brian Adams

Autumn Pennington

Marshall Faircloth

Jackie Savage

Liz Miller

REVIEWER

Comments:

PAGE 00001

revised 8/6/12 JD

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

Organism: *P. promelas* *M.beryllina* (circle one) D = dead M = missing

Concentration: µg/L g/L (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	B1	10	10	10	10	10	10	10	10
	B	B2	10	10	10	10	10	10	10	10
	C	B3	10	10	10	10	10	10	10	10
	D	B4	10	10	10	10	10	~~9~~ 10	9 1D	9
0.125	A	B5	10	10	10	10	10	10	10	10
	B	B6	10	10	10	10	10	10	10	10
	C	B7	10	10	10	10	10	10	10	10
	D	B8	10	10	10	10	9 1D	9	9	9
0.25	A	B9	10	10	10	10	10	10	10	10
	B	B10	10	10	10	10	10	10	10	10
	C	B11	10	10	10	10	10	9 1D	9	9
	D	B12	10	10	10	10	10	10	10	10
0.5	A	B13	10	6 4D	6	6	6	5 1D	5	3 2D
	B	B14	10	5 4D	5 1D	4 1D	4	4	4	4
	C	B15	10	4 2D	4	4	4	3 1D	3	3
	D	B16	10	5 3D	4 1D	4	2 2D	2	2	2
1.0	A	B17	10	1 9D	0 1D					
	B	B18	10	0 10D	—					
	C	B19	10	1 9D	0 1D					
	D	B20	10	0 10D	—					
2.0	A	B21	10	0 10D						
	B	B22	10	0 10D						
	C	B23	10	0 10D						
	D	B24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): BA		Checked by:		BA	AP	BA	AP	JH	BA	BA
Verified by (0 hr): AP										
Concentrations prepared by:			CA	BA	BA	AP	AP	JH	BA	

Comments:

PAGE 00002 revised 7/16/08 MF

Chronic SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15

parameter pg. 1

Start Date: 1-8-13 End Date: 1-15-13

Start Time: 1430 End Time: 1000

5/2

conc = concentration rep = replicate circle umhos or mmhos

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	Control	A	7.7	24.0	7.4	309							
	0.125	A	7.6	24.0	7.2	582							
	0.25	A	7.6	24.0	7.2	833							
	0.5	A	7.7	24.0	7.6	1323							
	1.0	A	7.7	24.0	7.8	2310							
	2.0	A	7.8	24.0	7.9	4140							
		A											
	Measured by		BA	BA	BA	BA							
	Recorded by		BA	BA	BA	BA							
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	Control	B	7.6	24.5	7.1	318		B	7.6	24.0	7.2	308	
	0.125	B	7.6	24.6	7.0	572		B	7.5	24.0	7.3	578	
	0.25	B	7.6	24.4	7.1	814		B	7.6	24.0	7.5	790	
	0.5	B	7.6	24.3	7.1	1309		B	7.6	24.0	7.4	1262	
	1.0	B	7.6	24.2	7.0	2220		B	7.6	24.0	7.4	2240	
	2.0	B	7.7	24.3	7.0	4030		B					
		B						B					
	Measured by		BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by		BA	BA	BA	BA			BA	BA	BA	BA	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	7.5	23.8	7.0	303		C	7.8	24.2	7.3	297	
	0.125	C	7.6	24.0	7.2	546		C	7.8	24.5	7.3	~~1087~~ AP 550	
	0.25	C	7.6	24.2	7.2	739		C	7.8	24.6	7.3	758	
	0.5	C	7.7	24.6	7.2	1189		C	7.8	24.4	7.2	~~550~~ AP 1113	
	1.0	C	7.8	24.3	7.1	2120		C					
		C						C					
		C						C					
	Measured by		AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	Control	D	7.5	25.1	6.1	307		D	7.5	24.3	7.0	292	
	0.125	D	7.4	25.1	6.1	571		D	7.5	24.5	6.8	571	
	0.25	D	7.4	25.0	6.1	784		D	7.6	24.4	6.9	784	
	0.5	D	7.4	24.9	6.2	1181		D	7.6	24.5	6.9	1207	
	1.0	D						D					
		D						D					
		D						D					
	Measured by		BA	BA	BA	BA			AP	AP	AP	AP	
	Recorded by		BA	BA	BA	BA			AP	AP	AP	AP	

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional.

Page 00003

Chronic SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15

parameter pg. 2

Start Date: 1-8-13 End Date: 1-15-13

Start Time: 1430 End Time: 1000

conc. = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos/mmhos	Salinity ppth
Day 4	Control	A	7.6	24.7	6.6	297		A	7.2	24.6	7.0	286	
	0.125	A	7.6	24.4	6.6	580		A	7.2	24.6	7.2	539	
	0.25	A	7.6	24.7	6.4	821		A	7.2	24.6	7.2	770	
	0.5	A	7.7	24.6	6.3	1253		A	7.2	24.7	7.3	1220	
		A						A					
		A						A					
		A						A					
	Measured by		AP	AP	AP	AP			BA	BA	BA	BA	BA
	Recorded by		AP	AP	AP	AP			BA	BA	BA	BA	BA
Day 5	Control	B	7.4	25.4	6.3	310		B	7.2	25.5	7.6	297	
	0.125	B	7.2	25.5	7.0	577		B	7.2	24.7	7.4	546	
	0.25	B	7.3	25.2	7.0	818		B	7.2	24.6	7.3	789	
	0.5	B	7.5	25.1	7.3	1318		B	7.2	24.6	7.3	1275	
		B						B					
		B						B					
		B						B					
	Measured by								BA	BA	BA	BA	
	Recorded by								BA	BA	BA	BA	
Day 6	Control	C	7.3	25.7	6.5	296		C	7.2	25.3	7.3	297	
	0.125	C	7.3	26.0	6.4	536		C	7.2	24.9	6.9	564	
	0.25	C	7.4	25.4	6.4	772		C	7.2	24.8	6.9	780	
	0.5	C	7.4	25.6	6.5	1245		C	7.3	24.7	7.0	1255	
		C						C					
		C						C					
		C						C					
	Measured by		BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by		BA	BA	BA	BA			BA	BA	BA	BA	
Day 7	Control	D	7.1	25.3	5.9	305		D					
	0.125	D	7.1	25.0	5.9	569		D					
	0.25	D	7.1	24.9	5.8	807		D					
	0.5	D	7.2	24.8	5.9	1263		D					
		D						D					
		D						D					
		D						D					
	Measured by		BA	BA	BA	BA							
	Recorded by		BA	BA	BA	BA							

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional.

Page 00004

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

Organism: (*P. promelas*) / *M.beryllina* (circle one)

Concentration: (µg/L) (g/L) (circle one)

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	25	0.02296	0.02837	0.00541	10	0.541
	B	26	0.02148	0.02773	0.00625	10	0.625
	C	27	0.02088	0.02602	0.00514	10	0.514
	D	28	0.02074	0.02510	0.00436	10	0.436
0.125	A	29	0.02119	0.02636	0.00562	10	0.562
	B	30	0.02128	0.02657	0.00529	10	0.529
	C	31	0.02101	0.02521	0.00420	10	0.420
	D	32	0.02207	0.02685	0.00478	10	0.478
0.25	A	33	0.02104	0.02552	0.00448	10	0.448
	B	34	0.02182	0.02702	0.00520	10	0.520
	C	35	0.02167	0.02648	0.00481	10	0.481
	D	36	0.02197	0.02784	0.00587	10	0.587
0.5	A	37	0.02164	0.02311	0.00147	10	0.147
	B	38	0.02190	0.02419	0.00229	10	0.229
	C	39	0.02132	0.02313	0.00181	10	0.181
	D	40	0.02229	0.02381	0.00152	10	0.152
	A					10	
	B					10	
	C					10	
	D					10	
	A					10	
	B					10	
	C					10	
	D					10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	BA	BA			

Comments:

Note: Pan number (#) refers to actual Pan number.

PAGE 00005

revised 8/24/06 MF/SP

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 1.14.13 Weighed by: BA

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02296	@ 0.02296
after Pan 10	0.02295	@ 0.02296
after Pan 15	0.02296	@ 0.02296
after Pan ~~20~~ 16 BA		@ 0.02296
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01999	@ 0.02 g
	0.05000	@ 0.05 g

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 1.23.13 Weighed by: BA

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02838	@ 0.02837
after Pan 10	0.02838	@ 0.02837
after Pan 15	0.02838	@ 0.02837
after Pan 20		@
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.02000	@ 0.02 g
	0.05002	@ 0.05 g

Drying Oven ID: ERO 3'1000

Temperature °C: 100

Drying Hours: 8

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

PAGE 00006

revised 7/16/08 MF

Test ID: P. Prowla Chronic SRT Dates: Jan. 8 – 15, 2013

METER / DEVICE	ID	SOP	Parameter	Method	√ 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	5
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Hach Pocket Colorimeter II #2	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. Fairchild 1-23-13

V 1.2 2/20/11 MF/jd

Teat Page 8 of 8 PAGE

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	1/15/2013 12:45	Test ID:	jaxbcd113	Sample ID:	Jax Beach
End Date:	1/23/2013 10:00	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia

Comments: Ceriodaphnia dubia chronic bioassay for Jacksonville Beach WWTF Jan. 2

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	28.000	15.000	13.000	20.000	31.000	16.000	20.000	25.000	12.000	21.000
I-Control	11.000	15.000	6.000	16.000	15.000	15.000	5.000	26.000	23.000	23.000
12.5	22.000	22.000	19.000	15.000	18.000	22.000	32.000	19.000		
25	17.000	20.000	15.000	28.000	27.000	17.000	10.000	13.000	28.000	12.000
50	0.000	20.000	16.000	0.000	25.000	14.000	13.000	9.000	2.000	9.000
100	1.000	9.000	11.000	2.000	11.000	16.000	15.000	6.000	26.000	22.000

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	20.100	1.2968	20.100	12.000	31.000	31.679	10	20.613	1.0000
I-Control	15.500	1.0000	15.500	5.000	26.000	45.340	10		
12.5	21.125	1.3629	21.125	15.000	32.000	23.795	8	20.613	1.0000
25	18.700	1.2065	18.700	10.000	28.000	36.361	10	18.700	0.9072
50	10.800	0.6968	10.800	0.000	25.000	78.422	10	11.350	0.5506
100	11.900	0.7677	11.900	1.000	26.000	67.976	10	11.350	0.5506

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.951091	0.929	0.338062	-0.6698
Bartlett's Test indicates equal variances (p = 0.66)	2.424757	13.2767		
The control means are not significantly different (p = 0.14)	1.533902	2.100922		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL		Skew
IC05	19.236	7.191	5.227	29.136	-0.1752
IC10	25.506	6.589	10.453	34.286	-0.1949
IC15	29.011				
IC20	32.517				
IC25	36.023				
IC40	46.539				
IC50	>100				

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	1/15/2013 13:00	Test ID:	Jaxbhpp113	Sample ID:	Jax Beach WWTF
End Date:	1/22/2013 10:00	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas

Comments: P. promelas chronic bioassay for Jacksonville Beach January 15, 2013

Conc-%	1	2	3	4
D-Control	0.5500	0.5730	0.6260	0.4150
I-Control	0.5820	0.5560	0.5270	0.5250
12.5	0.5480	0.5620	0.4780	0.5320
25	0.4390	0.5580	0.5440	0.5300
50	0.5550	0.6490	0.5370	0.5570
100	0.3140	0.2870	0.2630	0.4410

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.5410	0.9881	0.5410	0.4150	0.6260	16.604	4		
I-Control	0.5475	1.0000	0.5475	0.5250	0.5820	4.934	4	0.5475	1.0000
12.5	0.5300	0.9680	0.5300	0.4780	0.5620	6.938	4	0.5408	0.9877
25	0.5178	0.9457	0.5178	0.4390	0.5580	10.378	4	0.5408	0.9877
50	0.5745	1.0493	0.5745	0.5370	0.6490	8.786	4	0.5408	0.9877
100	0.3263	0.5959	0.3263	0.2630	0.4410	24.302	4	0.3263	0.5959

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.971315	0.868	0.609318	0.66945
Bartlett's Test indicates equal variances (p = 0.50)	3.327115	13.2767		
The control means are not significantly different (p = 0.89)	0.138594	2.446912		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05	54.808	15.122	0.000	59.742	-2.0431
IC10	61.189	4.273	47.689	68.624	-3.1714
IC15	67.570	3.965	53.709	77.867	-0.0356
IC20	73.951	4.647	60.817	88.544	0.3683
IC25	80.332	5.482	66.768	98.208	0.5887
IC40	99.476				
IC50	>100				

Comments: Chronic screen for Jacksonville Beach with trc January 2013

Conc-%	1	2	3	4
D-Control	0.5820	0.5560	0.5270	0.5250
100	0.2130	0.4650	0.3410	0.4460

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.5475	1.0000	0.5475	0.5250	0.5820	4.934	4	0.5475	1.0000
100	0.3663	0.6689	0.3663	0.2130	0.4650	31.620	4	0.3663	0.6689

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.91753	0.749	-0.85725	1.534985
F-Test indicates equal variances (p = 0.04)	18.38042	47.46723		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05*	15.103	5.466	4.321	46.346	1.1380
IC10*	30.207	10.933	8.641	92.693	1.1380
IC15*	45.310				
IC20*	60.414				
IC25*	75.517				
IC40	>100				
IC50	>100				

* indicates IC estimate less than the lowest concentration

Appendix F.
Organism Receipt(s)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 1/7/2013

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	10 days	CL 121228	25	7.8	80
Pimephales promelas	550	C24 Hrs	FM130107-0830	25	7.8	80
	150 ac	7DAYS	FM121231	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

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 1/14/13

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	12 days	CL 130102	25	7.8	80
Pimephales promelas	300	<24 hrs	FM 130113-1630	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

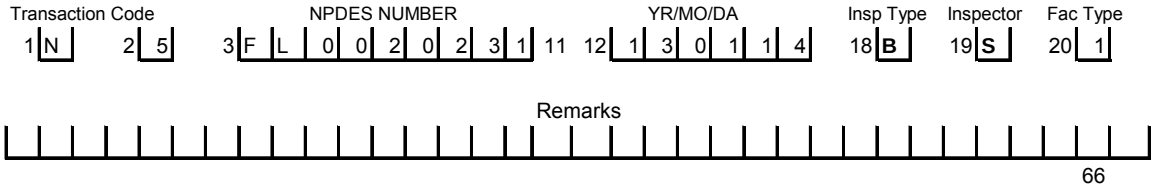
Thank you for your order.

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

EPA End Sheet

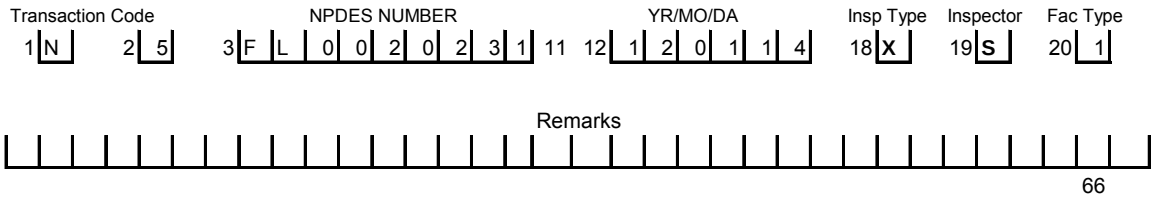
The Bioassay of the Jacksonville Beach WWTF effluent sampled on January 14, 16 and 18, 2013, NPDES #FL0020231

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



The Priority Pollutants Analysis of the Jacksonville Beach WWTF effluent sampled on January 14, 2013, NPDES #FL0020231

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



Biological Analyses of the Jacksonville Beach. WWTF effluent sampled on January 14, 2013, NPDES #FL0020231

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

