

Effluent Quality Assessment

Atlantic Beach Wastewater Treatment Facility

Duval County

NPDES #FL0038776

Sampled January 28 and 30, and February 1, 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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Atlantic Beach Wastewater Treatment Facility (WWTF), 1100 Sandpiper Lane, Atlantic Beach, Duval County, Florida, 32233. NPDES #FL0038776.

Facility Overview

Atlantic Beach WWTF is a domestic wastewater treatment plant which previously used an extended aeration process to treat domestic wastewater and is in the process of reconfiguring to a four-stage biological nutrient removal process. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent composite samples for toxicity testing were collected on January 28, 2013, January 30, 2013, and February 1, 2013. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on January 28, 2013. All samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Sharon Piltz, Eesa Ali, and Jacob Mast (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 7-day chronic definitive toxicity tests and algal growth potential test 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 was not detected in the bioassay samples in the bioassay laboratory. Total ammonia was not measured in the bioassay samples due to meter failure. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.048 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.
- Copper, nickel and zinc were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Arsenic and chromium -III, were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

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

- The effluent Algal Growth Potential (AGP) was 110 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). To determine actual nutrient limitation, a limiting-nutrient algal growth potential test with associated nutrient chemistry should be performed (Miller et al. 1978).
- An aliquot of the AGP sample was salinity adjusted from an apparent salinity of approximately 0.37 parts per thousand (ppth) to a salinity of approximately 7.5 ppth by the addition of artificial sea salts to meet the salinity requirements of the test species.
- The salinity adjusted effluent algal growth potential (AGP) was 78.0 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 D- F)

- Tests were performed January 29 – February 6, 2013.

Ceriodaphnia dubia 7-day chronic definitive bioassay – IC25: >100%
NOEC: 100%

Pimephales promelas 7-day chronic definitive bioassay – IC25: >100%
NOEC: 100%

- The bioassay samples were not chronically toxic to the test organisms.
- Bioassay samples 1-3 were aerated for 10, 30, and 15 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 9.2, 10.3, and 11.3 mg/L to 8.2, 7.8, and 8.2 mg/L, respectively.

Conclusion

The effluent sample collected from the EFD-1 NPDES sampling point for this facility on January 28 and 30, and February 1, 2013, was not chronically toxic to either test species during the 7-day chronic definitive bioassays. 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. Effluent water quality samples collected on January 28, 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, chemical and microbiological data, and qualifiers.

Atlantic Beach WWTF	Class III Criteria	Effluent Limits	Effluent Grab	Effluent Composite
Metals (µg/L unless otherwise noted)				
Arsenic	≤ 50	-	-	0.46 I
Cadmium	≤ 8.8	-	-	0.05 U
Chromium-III	-	-	-	0.35 I
Copper	≤ 3.7	≤ 3.7 s	-	1.98
Iron	≤ 300	-	-	30 U
Lead	≤ 8.5	-	-	0.2 U
Nickel	≤ 8.3	-	-	1.85
Silver	≤ 2.3	-	-	0.025 U
Zinc	≤ 86	-	-	48
Nutrients (mg/L)				
Ortho-phosphate	-	Report	2.6	-
Total Phosphorus	-	Report	-	3.5
Total Ammonia	-	Report	0.048	-
Un-ionized Ammonia	-	-	≤ 0.02 c	-
Nitrate and Nitrite	-	Report	-	3.1
Total Kjeldahl Nitrogen	-	Report	-	0.93
Organic Nitrogen	-	-	-	0.882 c
Total Nitrogen	-	Report	-	4.03 c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	9.1	-
pH (SU)	6.5 - 8.5	6.5 - 8.5	6.9	-
Conductivity (µmhos/cm)	-	-	954	-
Temperature (°C)	-	-	22.3	0.7
Salinity	-	-	≤ 0.50 c	-
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	≤ 0.03 UQ£	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.62 U	-
Phaeophytin (µg/L)	-	-	0.45 U	-
Total Suspended Solids (mg/L)	-	≤ 60.0 p	-	2 U
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0 p	-	2.2 A
Chloride (mg/L)	-	-	-	110
Cyanide (µg/L)	≤ 1.0	≤ 1.0 s	0.005 U	-
Fluoride (mg/L)	≤ 5.0	-	-	0.69
Sulfate (mg/L)	-	-	-	160
Flow (MGD)	-	3.0 a	-	1.51 a*
Hardness (mg $CaCO_3$)	-	-	- c	- c
Microbiology (Number of colony forming units/100ml) ¥				
Fecal Coliforms	≤ 400s #	-	2 U	-
Enterococci (MPN/100 mL)	-	-	1 U	-

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
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
L - Actual value is known to be greater than value given
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - 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
* - Data collected from 1-31-2012 - 1-31-2013

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

Atlantic Beach WWTF					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio*	Total N:P ratio*
Effluent Grab	110	119.6 ± 23.9	153.1 ± 30.6	1.2	1.2
* nutrient ratios calculated from data of both composite & grab samples.					

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

Atlantic Beach WWTF			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent Grab	78.0*	1.2	1.2
* - 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: Kyle Watson	Contact Number: 904-256-1624
Facility Name (as it appears on permit): Atlantic Beach WWTF	Former Names:
NPDES Permit Number: FL0038776	Permit Expiration Date: 5/4/2014
Physical Address: 1100 Sandpiper Lane Atlantic Beach, FL 32233	
District: Northeast	County: Duval
Function of Facility:	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD): 3.0
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 2012 Calendar Year - 55%	
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):

Monitoring Location Site Number	Description of Monitoring Location
INF-1	Sample point to the treatment train prior to any biological, chemical, physical treatments or dilution.
EFA-1	Sample point immediately after chlorination and prior to discharge to D-001
EFD-1	Sample point immediately after dechlorination and prior to discharge to outfall D-001
EFA-2	Sample point immediately after chlorination but prior to discharge to D-002
EFD-2	Sample point immediately after dechlorination prior to discharge to D-002
SWA-1	Ambient surface water sample – St. Johns River, STORET Site 20030464, approximate at latitude 30° 23' 04.4" N, longitude 81° 26' 19.5"W
SWA-2	Ambient surface water sample – St. Johns River, STORET Site 20030465, approximate at latitude 30° 22' 57.9" N, longitude 81° 26' 27.2"W

Description of Permitted Outfall(s):

D-001 is a common discharge outfall for three wastewater facilities: Neptune Beach WWTF, Atlantic Beach WWTF, and Jacksonville Beach WWTF. The Sherman point outfall line is 24 inches in diameter, approximately 230 feet in length, and discharges at a depth of approximately 8 feet. The point of discharge is located approximately at latitude 30° 22' 58" N, longitude 81° 26' 20" W.

D-002 is a backup discharge and is utilized only during emergencies. The Pablo Creek (Class III marine waters WBID 2205C) outfall line is approximately 250 feet in length and discharges at a depth of approximately 8 feet. D-002 is a. The point of discharge is located approximately at latitude 30° 20' 07" N, longitude 81° 24' 00" W.

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

New treatment process. Completion of construction 11/2012.

1. **Addition of two 1.0 MGD design capacity static screens with clear openings of 0.060 inches.**
2. **Conversion of the extended aeration process configuration into a four-stage biological nutrient removal process configuration. The four existing aeration basins will be converted into two identical BNR treatment units with alternating anoxic/aerobic/anoxic/aerobic stages. The conversion includes the addition of baffle walls, mixers, fine bubble diffusers, and re-circulating pumps. The first anoxic zone consists of one 192,000-gallon compartment. The compartment is equipped with a 7.5 horsepower floating mixer and measures 36 feet by 42.5 feet by 16.9 feet (length by width by height). The first aerobic zone is 362,000 gallons, measures 68 feet by 42.5 feet by 16.75 feet, and is equipped with fine bubble diffusion. The second anoxic zone consists of three compartments and has a total volume of 192,000 gallons. Each compartment is equipped with a vertical turbine mixer. Two of the zones measure 20.3 feet by 13.0 feet by 6.6 feet and the other zone measures 20.3 feet by14.5 feet by 16.6 feet. The second aerobic zone is 8400 gallons, measures 42.5 feet by 12 feet by 16.5 feet, and is equipped with fine bubble diffusion.**
3. **Installation of a supplemental carbon feed system. Installation of the system will occur in two phases. The first phase includes installation of the electrical system, piping, concrete pad, and canopy. The second phase includes installation of the chemical pumps. Using Biowin simulations, methanol and MicroC^{TM} were shown to effectively support nitrogen removal for the selected BNR process configuration. The model also shows that the BNR process can effectively remove nitrogen without a supplemental carbon source. The supplemental carbon feed system may remain idle until needed (the model predicts the system may be needed as the facility approaches full capacity). One or two chemical pumps, to feed one or two of the fours basins, may be installed at any given time to test the system; the pumps may then be shelved until needed.**
4. **Construction of a 6.30 MGD peak hourly flow (PHF) design capacity cloth-disc filtration system. The system includes two filtration units with six-disc filters per unit.**
5. **Installation of higher efficiency blowers to support the new oxygen demands of the WWTF.**
6. **Refurbishment or replacement of the chlorination and dechlorination facilities. The facilities will be capable of handling a peak flow rate of 6.30 MGD.**
7. **Interconnection of the Buccaneer WWTF outfall pipe to the Combined Beaches outfall pipe (Atlantic Beach WWTF outfall pipe). The interconnected pipes will be capable of discharging the combined flows (4.9 MGD AADF total) from the two plants.**
8. **Modifications of miscellaneous pumping, yard piping, and improvements to the electrical system and instrumentation.**

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 Outfall D-001	**MGD**	**Maximum**	**3.0**	**Report**	-	-	**Continuous**	**Recording flow meters and totalizers**	**EFD-1**	**See Cond.I.A. 5**
BOD, Carbonaceous 5 day, 20C	**MG/L**	**Maximum**	**20.0**	**25.0**	**40.0**	**60.0**	**Weekly**	**24-hour flow proportioned composite**	**EFD-1**	
CBOD, % Removal, 5-day	**PERCENT**	**Minimum**	-	**85.0**	-	-	**Monthly**	**Calculated**	**CAL-1**	**See Cond. I.A.11**
Solids, Total Suspended	**MG/L**	**Maximum**	**20.0**	**30.0**	**40.0**	**60.0**	**Weekly**	**24-hour flow proportioned composite**	**EFD-1**	
Solids, Suspended, % Removal	**PERCENT**	**Minimum**	-	**85.0**	-	-	**Monthly**	**Calculated**	**CAL-1**	**See Cond. I.A.11**
pH	**SU**	**Range**	-	-	-	**6.5 to 8.5**	**Continuous**	**Meter**	**EFD-1**	**See Cond.I.A. 4**
Coliform, Fecal	**#/100ML**	**Maximum**					**Weekly**	**Grab**	**EFA-1**	**See Permit Condition I.A.6**
Enterococci	**#/100ML**	**Maximum**						**Grab**	**EFA-1**	**See Permit Condition I.A.7**
Total Residual Chlorine (For Disinfection)	**MG/L**	**Minimum**	-	-	-	**0.5**	**Continuous**	**Meter**	**EFA-1**	**See Cond.I.A. 4 & I.A.8**
Total Residual Chlorine (For Dechlorination)	**MG/L**	**Maximum**	-	-	-	**0.01**	**Daily**	**Grab**	**EFD-1**	
Oxygen, Dissolved (DO)	**MG/L**	**Minimum**	-	-	-	**4.0**	**Daily**	**Grab**	**EFD-1**	**See Cond.I.A. 9**

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
Copper, Total Recoverable	**UG/L**	**Maximum**	**Final Permitted Limit**			**3.7**	**Monthly**	**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A. 12& I.A.13**
			Limit During AO			**15.0**	**Monthly**		**EFD-1**	
			Sample During AO			**Report**	**Monthly**	**Grab**	**SWA-1 SWA-2**	
Cyanide, Total (as CN)	**UG/L**	**Maximum**	**Final Permitted Limit**			**1.0**	**Monthly**	**Grab**	**EFD-1**	**See Cond.I.A. 12& I.A.13**
			Limit During AO			**9.0**	**Monthly**	**Grab**	**EFD-1 EFD-2**	
			Sampling During AO			**Report**	**Monthly**	**Grab**	**INF-1**	
Nitrogen, Total (as N)	**MG/L**	**Maximum**	**Report**	**Report**	-	**Report**	**Weekly**	**24-hour flow proportioned composite**	**EFD-1**	
Nitrogen, Total (as N)- (Mass Loading Rates)	-	**Maximum**	**Summation of Total Nitrogen Discharged from Outfalls D-001 and D-002 ()**					**Calculated**	**CAL-2**	**See Permit Condition I.B**
Nitrogen, Kjeldahl, Total (as N)	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A. 14**
Nitrite plus Nitrate, Total 1 det. (as N)	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A. 14**
Nitrogen, Ammonia, Total (as N)	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A. 14**
Phosphorus, Total (as P)	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**24-hour flow proportioned composite**	**EFD-1**	**See Cond.I.A. 14**
Phosphate, Ortho (as P)	**MG/L**	**Maximum**	-	-	-	**Report**	**Quarterly**	**Filtered Grab**	**EFD-1**	**See Cond.I.A. 14**

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
Stream Monitoring		-								**See Permit Condition I.A.14**
Whole Effluent Toxicity (Chronic)									**EFD-1**	**See Permit Condition I.A.16**

Section 1.A below;

4. **Hourly measurement of pH and total residual chlorine for disinfection during the period of required operator attendance may be substituted for continuous measurement.** ***[Chapter 62-601, Figure 2]***

5. **Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually.** ***[62-601.200(17) and .500(6)]***

6. **The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected (the 90th percentile value) during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. Note: To report the 90th percentile value, list the fecal coliform values obtained during the month in ascending order. Report the value of the sample that corresponds to the 90th percentile (multiply the number of samples by 0.9). For example, for 30 samples, report the corresponding fecal coliform number for the 27th value of ascending order.** ***[62-600.440(4)(c)]***

7. **The maximum monthly geometric mean of the enterococci values for a minimum of every 6 days or 5 samples of effluent each collected on nonconsecutive days during a period of 30 consecutive days (monthly) shall not exceed 35 per 100 mL of sample. EPA Methods 1106.1 and 1600 are the recommended methods for monitoring enterococci in the effluent.** ***[62-302.500(1)(a)6. and 40 CFR Part 131(Federal Register/Vol. 69, No. 220, pages 67218-67243)]***

8. **A minimum of 0.5 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow.** ***[62-600.440(4)(b)]***

9. **The average DO level shall not be less than 5.0 mg/L in a 24-hour period and shall never less than 4.0 mg/L. Normal daily and seasonal fluctuations above these levels shall be maintained. The lower St. Johns River has an SSAC for DO in accordance with the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008.** ***[62-302.530(30)] and [62-650.400(2)]***

10. **Florida water quality criteria and standards shall not be violated as a result of the discharge.** ***[62-620.320(9), 06-01-01][62-302.510(5), 2-27-95]***

11. **The monthly average effluent carbonaceous biochemical oxygen demand 5-day (CBOD5) and total suspended solids concentrations shall not exceed 15% of the respective influent values (85% removal).** ***[62-620.620(1)(0) and (3), 06-01-01]***

12. **The final limits for total cyanide and total recoverable copper are held in abeyance until the final compliance date listed in Section VI.1. of the permit.**

13. **The permittee shall be deemed in compliance with the Surface Water Quality Standards for total cyanide and total recoverable copper when the concentrations in the effluent meet the permit limits specified Condition I.A.1&2 or is undetectable or less than the method detection limit (MDL) level established by the Department corresponding to an approved analytical method.** ***[62-4.246, 62-302.530(24), F.A.C.]***

14. Ambient stream monitoring and reporting shall be conducted in accordance with the locations, frequencies, and parameters in the latest, Department approved, version of JEA's Ambient Stream Monitoring Plan. The ambient stream sample event shall coincide with or within the week of the quarterly effluent-nutrients sample event collected at EFD-1 as described in Condition I.A.1. JEA will submit to the Department's Northeast District (NED) office a report with stream sample data results and graphical analyses for each sample location. Data qualifiers and any important comments concerning the sample event and sample results will be included. The annual report (calendar year monitoring period) shall be submitted to the NED wastewater permitting section by March 1, of the following year. The quarterly effluent-nutrients sample event collected at EFD-1 and EFD-2 as described in Condition I.A.1 and I.A.2 shall coincided with the ambient stream sample event.

15. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001 and D-002.

    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.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th ed., EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (*Ceriodaphnia dubia*) and Section 11.11 (*Pimephales promelas*). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship and the percent minimum significant difference (PMSD)as required by EPA-821-R-02-013, Section 10.2.6 and 10.2.8, respectively, and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements

(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as the calculated IC_{25} for each test species.

(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and e-mailed or mailed to the Department at the address below within 30 days after the last day of the test.

(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and e-mailed or mailed within 30 days after the last day of the second valid additional follow-up test.

(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.

(5) The same bioassay data shall not be reported as the results of more than one test.

(6) All bioassay laboratory reports shall be e-mailed or mailed to ***Jacksonville***:

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

g. **Test Failures**

(1) A test fails when the test results do not meet the limits in 16.a.

(2) Additional Follow-up Tests:

(a) If a routine test does not meet the chronic toxicity limitation in 16.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 16.d.

(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.

(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 75%, 50%, 25%, and 12.5% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.

(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.

(b) The Department shall review and approve the plan before initiation.

(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.

(d) Progress reports shall be submitted quarterly to the Department at the address above.

(e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 16.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 16.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.

(f) Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in 16.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive valid routine whole effluent toxicity tests.

(g) If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive valid tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in 16.(a)(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity test failures.

16. The Department reserves the right to require the Permittee to conduct a reconnaissance sediment sampling event to include up to six transects with a minimum of three transects located (1) along the outfall, D-001, and approximately 300 feet upstream and 300 feet downstream of the outfall, D-001, for the purpose of establishing final sampling locations for permit monitoring. The Department may also require the sediment and water quality sampling to occur at the alternative discharge point, outfall D-002.

PART I: Continued	
Receiving Waters: St Johns River	Classification (indicate whether fresh or marine): Class III marine waters WBID 2213A
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): IC_{25} STATRE 7-DAY CHRONIC – Semi Annually *Ceriodaphnia dubia* (Routine) *Pimephales promelas* (Routine)	

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): AO 117 NE

10/1/2009	Submit a plan of action to identify sources of cyanide and a plan of action to reduce effluent concentrations of total cyanide	10/2009
4/1/2010	Implement the Plan of Action	4/2010
10/1/2010	Submit first report summarizing the progress toward compliance with final total recoverable cyanide.	9/27/2010
4/1/2011	Submit second report summarizing the progress toward compliance with final total recoverable cyanide.	4/6/2011
10/1/2011	Submit third report summarizing the progress toward compliance with final total recoverable cyanide.	9/28/2011
4/1/2012	Submit fourth report summarizing the progress toward compliance with final total recoverable cyanide.	4/2/2012
10/1/2012	Submit fifth report summarizing the progress toward compliance with final total recoverable cyanide.	9/19/2012
4/1/2013	Submit sixth report summarizing the progress toward compliance with final total recoverable cyanide.	Not Due
12/31/2013	Comply with final limits for total cyanide or obtain Department approved regulatory relief	Not Due
7/1/2009	Submit a plan or a description of the ongoing copper evaluation.	8/3/2009
12/31/2009	Initiate implement the plan of action.	1/31/2010
7/1/2010	Submit first report summarizing the progress toward compliance with final total recoverable copper.	7/6/2010
12/31/2010	Submit second report summarizing the progress toward compliance with final total recoverable copper.	12/4/2010
7/1/2011	Submit third report summarizing the progress toward compliance with final total recoverable copper.	6/9/2011
12/31/2011	Submit fourth report summarizing the progress toward compliance with final total recoverable copper	12/13/2011
7/1/2012	Submit fifth report summarizing the progress toward compliance with final total recoverable copper.	6/14/2012
12/31/2012	Submit sixth report summarizing the progress toward compliance with final total recoverable copper.	Not Due
7/1/2013	Submit seventh report summarizing the progress toward compliance with final total recoverable copper.	Not Due
10/1/2013	Obtain operational level of the LSJR TMDL improvements	Not Due
12/31/2013	Comply with final limits for total recoverable copper or obtain Department approved regulatory relief	Not Due

Facility Mixing Zone Details (if applicable):

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

Date	Parameter and Units	Limit	Result
1/2012	Fecal Coliform (#/100mL)	800	TNTC
3/2012, 4/2012	Total Recoverable Copper (ug/L)	15.0	15.2, 15.8
S1	IC25 Statre 7 day CHR - Parm Code TRP3B (%)	100 (Min)	92

Describe previous FYI and WQBEL study:
7/2006 – FYI3 – No Effluent exceedances. Algae growth potential tested for.

Describe previous or current Enforcement Actions (including WLs):

N/A

Describe any violations or problems noted in previous inspection:

No issues from 2012 inspection

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

Improving, AOs are helping with problem parameters.

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

SWP 2012-2532 – Had 200 gallons overtop the wet well into a ditch. Situation was resolved.

Three SSOs resulting from Tropical Storm Debby;
SWP 2012-4575 – 100 gallons from a manhole near David St
SWP 2012-4576 – 300 gallons from a manhole near Ahern St
SWP 2012-4577 – 300 gallons from a manhole near Selva Marina Dr

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:	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-01-28-17
FYI3 Atlantic Beach WWTF Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: S.P. Itz

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

Collected By: E.Ali / S.P. Itz
Sampling Agency: DEP NED
Send Final Report To: Tom Rauth

Lab ID *	Locat / Field: FL0038776 ATL Bch WWTF 24HR	☑ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date 1/27/13 Time 0930 Central	Composite end Eastern Date 1/28/13 Time 0930 Central	Bottle Group(s)**
			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	B
	Matrix (include type e.g. Salt, Fresh, etc): EFF	Temp (C): 8.7	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: How 1.0 MGD Temp was that of the sampler when Picked up
Lab ID *	Locatio / Field ID: FL0038776 ATL Bch WWTF EFD 1	☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 1/28/13 Time 0938 Central	Composite end Eastern Date Time Central	Bottle Group(s)**
			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 9.08	Storet Station Number	A
	Matrix (include type e.g. Salt, Fresh, etc): EFF	Temp (C): 22.31	pH 6.92	Sample Depth ☑ m 0.6 ☐ ft	☑ Salinity (PPTh) 0.47 ☑ Sp Conductance (umho/cm) 9.54	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments
Lab ID *	Location / Field ID: FL0038776 Field blank	☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 1/28/13 Time 1045 Central	Composite end Eastern Date Time Central	Bottle Group(s)**
			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	C
	Matrix (include type e.g. Salt, Fresh, etc): ~~EFF~~ DI ~~8~~	Temp (C): ~~22.31~~	pH ~~6.92~~	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 Eastern Date Time 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

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* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 Biweekly Trips
10/7 1-29-2013
M Faircloth

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-01-28-17
FYI3 Atlantic Beach WWTF Sampling Inspection

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

Requester: Michelle Fish
Collected By: J. Mast / S. Piltz
Sampling Agency: FDEP NED

Field Report Prepared By: S. Piltz
Send Final Report To: Tom Rauth

Lab ID *	Lo Fi FL0038776 ATL Bch WWTF 24FI1			☑ Comp ☐ Grab	Collection (comp begin or grab) Eastern Central Date 1/29/13 Time 0930	Composite end Eastern Central Date 1/30/13 Time 0930	Bottle Group(s)**
				Tot Res Chlorine (mg/L) 0.0	Diss Oxygen (mg/L)	Storet Station Number	B
	Matrix (include type e.g. Salt, Fresh, etc) Eff	Temp (C) Fridge 0.6	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments			

Lab ID *	Location Atlantic Beach WWTP			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Central Date 1/30/13 Time 0936	Composite end Eastern Central Date Time	Bottle Group(s)**
	Field ID FL0038776			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.98	Storet Station Number	—
	Matrix (include type e.g. Salt, Fresh, etc) Eff	Temp (C) 22.7	pH 6.76	Sample Depth ☑ m ☐ ft 0.9	☑ Salinity (PPTh) 0.49 ☑ Sp Conductance (umho/cm) 998	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments			

Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Central Date Time	Composite end Eastern Central Date Time	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 Central Date Time	Composite end Eastern Central Date Time	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			

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* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Tox 2 bioassay 7qp
0938 1-31-13
M. Lindsey

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-01-28-17
FYI3 Atlantic Beach WWTF Sampling Inspection

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

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

Collected By: E. Ali / S. Piltz
Send Final Report To: Tom Rauth

Sampling Agency: DEP NED

Lab ID *	Location FL0038776 ATL Beach WWTF 24Hr			☑ Comp ☐ Grab	Collection (comp begin or grab) Eastern Central Date 7/31/13 Time 0930	Composite end Eastern Central Date 2/1/13 Time 0930	Bottle Group(s)** B
	Field ID				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc) EFF	Temp (C) 1.2°C	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments			
Lab ID *	Location FL0038776 ATL Beach WWTF EFF 1			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Central Date 2/1/13 Time 938	Composite end Eastern Central Date Time	Bottle Group(s)** —
	Field ID				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 9.20	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc) EFF	Temp (C) 21.72	pH 6.90	Sample Depth ☑ m .8 ☐ ft	0.49 ☑ Salinity (PPTh) 995 ☑ Sp Conductance (umho/cm)		NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments Flow: Avg 0.99 max 2.84, 9:10am min 0.26, 4:44am			
Lab ID *	Location FL0038776 Equipment Blank			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Central Date 2/1/13 Time 1110	Composite end Eastern Central Date Time	Bottle Group(s)** D
	Field ID				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc) DI	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 Central Date Time	Composite end Eastern Central Date Time	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			

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* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Light Blue Cooler 0.1°C
1 Biomass Tup 3 density Bottle

Dark Blue Cooler 0.2°C
2 Biomass Tups

Appendix C
Chemical Analyses of Effluent

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 10:38	Effluent	AGP/LN	Algal Growth Potential-Salinity Adjusted	78		mg DryWt/L	3	3
1/28/2013 10:38	Effluent	AGP/LN	Algal Growth Potential	110		mg DryWt/L	0.3	0.9
1/28/2013 10:38	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.62	U	ug/L	0.62	1.9
1/28/2013 10:38	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.45	U	ug/L	0.45	1.4
1/28/2013 10:38	Effluent	Overflow	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL	2	
1/28/2013 10:38	Effluent	Overflow	ENTEROCOCCI-ENTEROLERT	1	U	MPN/100 mL	1	
1/28/2013 10:38	Effluent	Nutrients	Ammonia-N	0.048		mg N/L	0.01	0.02
1/28/2013 10:38	Effluent	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
1/28/2013 10:38	Effluent	Nutrients	O-Phosphate-P	2.6		mg P/L	0.08	0.2
1/28/2013 10:38	Effluent	Pesticides	Ethion	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Malathion	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Mevinphos	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Norflurazon	0.17	U	ug/L	0.17	0.67
1/28/2013 10:38	Effluent	Pesticides	Chlorpyrifos Methyl	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Metalaxyl	0.22	U	ug/L	0.22	0.89
1/28/2013 10:38	Effluent	Pesticides	Metolachlor	0.33	U	ug/L	0.33	1.3
1/28/2013 10:38	Effluent	Pesticides	Parathion Methyl	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Diazinon	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Butylate	0.11	U	ug/L	0.11	0.44
1/28/2013 10:38	Effluent	Pesticides	Fenamiphos	0.17	U	ug/L	0.17	0.67
1/28/2013 10:38	Effluent	Pesticides	Metribuzin	0.11	U	ug/L	0.11	0.44
1/28/2013 10:38	Effluent	Pesticides	Parathion Ethyl	0.11	U	ug/L	0.11	0.44
1/28/2013 10:38	Effluent	Pesticides	Prometryn	0.11	U	ug/L	0.11	0.44
1/28/2013 10:38	Effluent	Pesticides	Simazine	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Hexazinone	0.17	U	ug/L	0.17	0.67
1/28/2013 10:38	Effluent	Pesticides	Atrazine	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Chlorpyrifos Ethyl	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Azinphos Methyl	0.11	U	ug/L	0.11	0.44
1/28/2013 10:38	Effluent	Pesticides	Ametryn	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Naled	0.22	U	ug/L	0.22	0.89
1/28/2013 10:38	Effluent	Pesticides	Fonofos	0.056	U	ug/L	0.056	0.22
1/28/2013 10:38	Effluent	Pesticides	Ethoprop	0.028	U	ug/L	0.028	0.11

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 10:38	Effluent	Pesticides	Phorate	0.028	UJ	ug/L	0.028	0.11
1/28/2013 10:38	Effluent	Pesticides	Alachlor	0.33	U	ug/L	0.33	1.3
1/28/2013 10:38	Effluent	Pesticides	Bromacil	0.22	U	ug/L	0.22	0.89
1/28/2013 10:38	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Dimethyl phthalate	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	UJ	ug/L	1.9	7.8
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	UJ	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.8
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
1/28/2013 10:38	Effluent	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.78
1/28/2013 10:38	Effluent	Field Parameter	pH	6.92				
1/28/2013 10:38	Effluent	Field Parameter	Specific Conductance	954		umhos/cm		
1/28/2013 10:38	Effluent	Field Parameter	Sample Depth	0.6		m		
1/28/2013 10:38	Effluent	Field Parameter	Dissolved Oxygen	9.08		mg/L		
1/28/2013 10:38	Effluent	Field Parameter	Temperature	22.31		C		
1/28/2013 9:30	Composite Eff.	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.2	A	mg/L	0.2	2
1/28/2013 9:30	Composite Eff.	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	L	IC25		
1/28/2013 9:30	Composite Eff.	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
1/28/2013 9:30	Composite Eff.	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
1/28/2013 9:30	Composite Eff.	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100		NOEC		
1/28/2013 9:30	Composite Eff.	Metals	Silver	0.025	U	ug/L	0.025	0.1
1/28/2013 9:30	Composite Eff.	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/28/2013 9:30	Composite Eff.	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
1/28/2013 9:30	Composite Eff.	Metals	Zinc	48		ug/L	5	20
1/28/2013 9:30	Composite Eff.	Metals	Iron	30	U	ug/L	30	120
1/28/2013 9:30	Composite Eff.	Metals	Arsenic	0.46	I	ug/L	0.25	1

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 9:30	Composite Eff.	Metals	Nickel	1.85		ug/L	0.25	1
1/28/2013 9:30	Composite Eff.	Metals	Copper	1.98		ug/L	0.5	1
1/28/2013 9:30	Composite Eff.	Metals	Chromium	0.35	I	ug/L	0.3	1.2
1/28/2013 9:30	Composite Eff.	Nutrients	NO2NO3-N	3.1		mg N/L	0.04	0.1
1/28/2013 9:30	Composite Eff.	Nutrients	Sulfate	160		mg SO4/L	2	5
1/28/2013 9:30	Composite Eff.	Nutrients	Organic Carbon	8.7	A	mg C/L	0.4	0.8
1/28/2013 9:30	Composite Eff.	Nutrients	Kjeldahl Nitrogen	0.93		mg N/L	0.08	0.2
1/28/2013 9:30	Composite Eff.	Nutrients	Total-P	3.5		mg P/L	0.025	0.25
1/28/2013 9:30	Composite Eff.	Nutrients	TSS	2	U	mg/L	2	10
1/28/2013 9:30	Composite Eff.	Nutrients	Fluoride	0.69		mg F/L	0.035	0.1
1/28/2013 9:30	Composite Eff.	Nutrients	Chloride	110		mg Cl/L	2	5
1/28/2013 9:30	Composite Eff.	Nutrients	Alkalinity	142	A	mg CaCO3/L	0.65	2.5
1/28/2013 9:30	Composite Eff.	Field Parameter	Temperature	0.7		C		
1/28/2013 10:45	FIELD BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
1/28/2013 10:45	FIELD BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/28/2013 10:45	FIELD BLANK	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
1/28/2013 10:45	FIELD BLANK	Pesticides	Mevinphos	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Butylate	0.097	U	ug/L	0.097	0.39
1/28/2013 10:45	FIELD BLANK	Pesticides	Naled	0.19	U	ug/L	0.19	0.78
1/28/2013 10:45	FIELD BLANK	Pesticides	Parathion Ethyl	0.097	U	ug/L	0.097	0.39
1/28/2013 10:45	FIELD BLANK	Pesticides	Parathion Methyl	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Prometryn	0.097	U	ug/L	0.097	0.39
1/28/2013 10:45	FIELD BLANK	Pesticides	Azinphos Methyl	0.097	U	ug/L	0.097	0.39
1/28/2013 10:45	FIELD BLANK	Pesticides	Malathion	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Metribuzin	0.097	U	ug/L	0.097	0.39
1/28/2013 10:45	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Ethoprop	0.024	U	ug/L	0.024	0.097
1/28/2013 10:45	FIELD BLANK	Pesticides	Metalaxyl	0.19	U	ug/L	0.19	0.78
1/28/2013 10:45	FIELD BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.58
1/28/2013 10:45	FIELD BLANK	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Fonofos	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.58
1/28/2013 10:45	FIELD BLANK	Pesticides	Phorate	0.024	UJ	ug/L	0.024	0.097

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 10:45	FIELD BLANK	Pesticides	Alachlor	0.29	U	ug/L	0.29	1.2
1/28/2013 10:45	FIELD BLANK	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.58
1/28/2013 10:45	FIELD BLANK	Pesticides	Metolachlor	0.29	U	ug/L	0.29	1.2
1/28/2013 10:45	FIELD BLANK	Pesticides	Ethion	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Simazine	0.049	U	ug/L	0.049	0.19
1/28/2013 10:45	FIELD BLANK	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.78
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.9
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.99	UJ	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2	U	ug/L	2	7.9
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Phenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.9

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	UJ	ug/L	2	7.9
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.9
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.9	U	ug/L	9.9	40
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Isophorone	0.99	U	ug/L	0.99	4
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Benzidine	99	U	ug/L	99	400
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.79
1/28/2013 10:45	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
1/30/2013 9:30	Composite Eff.	Field Parameter	Total Residual Chlorine	0		mg/L		
2/1/2013 11:10	Equipment Blank	Metals	Zinc	5	U	ug/L	5	20
2/1/2013 11:10	Equipment Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
2/1/2013 11:10	Equipment Blank	Metals	Iron	30	U	ug/L	30	120
2/1/2013 11:10	Equipment Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
2/1/2013 11:10	Equipment Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/1/2013 11:10	Equipment Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
2/1/2013 11:10	Equipment Blank	Metals	Copper	0.5	U	ug/L	0.5	1
2/1/2013 11:10	Equipment Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
2/1/2013 11:10	Equipment Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/1/2013 11:10	Equipment Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
2/1/2013 11:10	Equipment Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
2/1/2013 11:10	Equipment Blank	Nutrients	Organic Carbon	0.5	U	mg C/L	0.5	1

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
2/1/2013 11:10	Equipment Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
2/1/2013 11:10	Equipment Blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
2/1/2013 11:10	Equipment Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
2/1/2013 11:10	Equipment Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
2/1/2013 11:10	Equipment Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
2/1/2013 11:10	Equipment Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
2/1/2013 9:30	Composite Eff.	Field Parameter	Temperature	1.2		C		

Appendix D
Bioassay Bench Sheets

FDEP Biology Laboratory - Chronic Definitive Bench Sheet
Ceriodaphnia dubia

Facility: Atlantic Beach WWTF
Address: 1100 Sandpiper Lane, Atlantic Beach
County: Duval 32233
NPDES Permit #: FL 0038776
Contact/District: Ali Egan / Northeast

LIMS entry: 2-15-13 MF verified: 2-15-13 BA

Diluent/ Batch: ~~20% SDMHW~~ MF / 12513 Test Days Used: 0 - 7*
~~20% SDMHW~~ MF /_____ Test Days Used: _____

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

Organism: *Ceriodaphnia dubia*
Organism Batch #: 1-29-13
Organism age : 24 hours
Feeding: Prior to Test and Daily
Food: ☒ YCT ☒ *P. subcapitata*
Food Batch: 11-14-12 1-18-13
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- 2013-01-29-03	148 0177	1-28-2013 0930	1-29-13 1017
Test Day 2	2	TLH- 2013-01-31-42	148 1117	1-30-2013 0930	1-31-13 0938
Test Day 4	3	TLH-2013-02-04-01	148 1462	2-1-2013 0930	2-2-2013 0900

Batch #	1-25-13		NA	NA	NA			
Water Quality Parameters	20% SDMHW	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	<0.03	<0.03		AP	MF
Alkalinity (mg/L as $CaCO_3$):	76		150	151	150		HW/AP	MF
Hardness (mg/L as $CaCO_3$):	89		299	289	288		HW/AP	MF
Total Ammonia (mg/L as N):	<0.017**		not measured				MF	AP
Conductivity: (µmhos) mmhos:	319		995	1136	1024		MF	AP
Salinity (ppth):								

** measured on 2/5/13 samples were not measured as meter was out until 2/5/13

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. 25.3 max. 26.1 mean —
Room B246 min. 22.0(A) max. 25.9 mean —
Test min. 24.0 max. 26.1 mean _____

Test Replicates	Loaded from culture vial
1	B3
2	B9
3	B12
4	B14
5	B15
6	B11
7	B28
8	B29
9	A11
10	A14

Results	
Control % CV:	30.8%
Dunnetts PMSD:	42.9%
Reproduction NOEC:	100%
Reproduction LOEC:	>100%
Survival NOEC:	100%
Survival LOEC:	>100%
ICP_{20}:	>100%
ICP_{25}:	>100%

Investigators' signatures
Marshall Faircloth
Adrienne Pennington
Bruce Adke

REVIEWER

Comments: * Jug A of batch 1-25-13 used Days 0-3 - Jug B used Days 4-7 MF 2-13-13

(A) Room temp. dropped below 21° overnight on Jan 31, 2013 while samples were in incubator (Room B246)

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Atlantic Beach WWTF

LIMS Sample #: 1480177 for lab sample #1

Start Date: 1-29-13 Time: 1130

End Date: 2-6-13 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	4	5	0	4	0	0	0	4	18	10	1.8
	4	0	8	7	15	0	6	0	5	4	8	38	10	3.8
	5	0	0	0	0	0	2	3 mf	9	0	1	mf 23	10	2.3
	#6 (5)	13	0	15	0	8	15	11	0	5	25	52	10	5.2
	7	5	0	0	0	4	0	0	3	0	0	12 mf	10	1.2 mf
	8	0	8	(1)	1	0	0	0	0	7	0	186 mf	10	1.86 mf
	Total	18	16	26	7	12	13	18	17	16	15	15 8	10	15 8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
6.25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	4	3	0	0	2	5	0	3	17	10	1.7
	4	0	0	0	8	0	4	0	0	0	0	12 mf	10	1.2
	5	0	8	8	mf 25	4	0	7	0	0	4	31 (5)	10	3.1 mf
	6	0	0	0	4	13	0	14	2	0	0	mf 33	10	3.3 mf
	7	5	0	0	0	16	0	(5)	2 (5)	0	9 mf	14	10	1.4
	8	10	8	5	(2)	6	4	0	4	0	0	37	10	3.7
	Total	15	16	17	17	24	8	23	13	0	16	149	10	16.6

Organisms loaded by: MF

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

Concentration	Mean neonates /adult mf	% survival
Control	15.8	100
6.25%	16.6	100
12.50%	15.6	100
25%	14.6	90
50%	18.1	100
100%	18.8	80

Test acceptability	
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 MF 2/2/13 (#) NOT counted (4th Brood) MF 2/6/13 with totals

Day 6 Rep 1 Part (5) of the 13 were larger than normal for a regular brood, hence, the brood was judged to be split MF.

*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: Atlantic Beach WWTF

LIMS Sample # : 1480177 for lab sample #1

Start Date: 1-29-13 Time: 1130

End Date: 2-6-13 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	5	2	6	1	0	0	0	4	21	10	2.1
	4	0	0	3	8	6	3(5)	0	4	6	7	34	10	3.4
	5	0	0	5	11	0	3	0	0	0	0	21	10	2.1
	6	0	0	10	0	4	0	2	1	2	0	11	10	1.1
	7	10	0	0	0	2(5)	2	0	0	0	5	24	10	2.4
	8	12	0♂	(3)	(3)	0	7(6)	5	0	12	0	29	10	2.9
	Total	22	0♂	15	21	18	16	7	5	20	16	140	1♂	15.6

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	X0	4	1	0	0	0	8	9	0.8
	4	2	8	5	2	1	4	3(5)	7	1	2	31	9	3.1
	5	6	0	0	12		0	0	4	0	4	27	9	27
	6	0	0	0	1(5)		4	2	0	0	0	6	9	0.6
	7	0	15	0	0		0	0	4	2	9	30	9	3.0
	8	0	0	12	10		(7)	14	(9)	8	(6)	44	9	4.4
	Total	8	23	17	25	0	12	20	15	11	15	146	9	14.6

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	0	1	0	2	0	0	0	0	0	0	9	10	0.9
	4	0	4(5)	0	2(5)	5	0	4	6	8	6	29	10	2.9
	5	9	10	0	8	0	0	0	0	3	11	42	10	4.2
	6	1(5)	0	7	0	7	7	11	0	0	0	32	10	3.2
	7	0	10	1	0	7	2	1(5)	11	4	9	44	10	4.4
	8	0	(7)	6	3	(6)	8*	0	8	(1)	0	25	10	2.5
	Total	10	25	14	15	19	17	15	25	15	26	181	10	18.1

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	2	0	0	0	2	0	0	4	10	0.4
	4	0	7	8	7	0	8	8	10	0X	0	48	9	4.8
	5	0	9	2	12	5	9	0	8		0	45	9	4.5
	6	5	0	0	0	0	0	3	0		0	8	9	0.8
	7	5	10	15	(9)	8	0	0	(3)		0X	38	8	3.8
	8	5	(12)	(8)	(9)	8	5	8	(13)			26	8	2.6
	Total	15	26	25	21	21	23	19	20	0	0♂	169	8 1♂	18.8

Comments: (5) = split brood MF 2/2/13 (#) = 4th brood not counted in Total- MF 2-6-13 1♂ = 1 male

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Atlantic Beach WWTF SOP TA07_05

LIMS Sample #: 1480177 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	7.9	24.0	7.7	319							
	1	6.25%	M	7.8	24.6	7.8	369							
	1	12.5%	M	7.8	24.7	7.8	413							
	1	25%	M	7.8	24.7	7.8	497							
	1	50%	M	7.7	24.6	7.9	658							
	1	100%	M	7.7	24.7	8.0	995							
	Measured by:			MF	MF	MF	MF							
	Recorded by:			MF	MF	MF	MF							
Day 1	sample:	Control	M	8.0	25.2	7.8	384 MF		M	8.0	24.0	8.0	342	
	1	6.25%	M	8.0	25.4	7.9	350		M	8.0	24.1	8.0	386	
	1	12.5%	M	8.0	25.5	7.9	392		M	8.0	24.5	8.0	411	
	1	25%	M	7.9	25.5	8.0	473		M	8.0	24.7	8.1	497	
	1	50%	M	7.8	25.6	8.0	641		M	8.0	24.8	8.1	647	
	1	100%	M	7.6	25.7	8.1	985		M	8.2	24.3	8.0	1043	
	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	7.9	24.1	8.1	304		M	8.1	24.8	8.3	380	
	2	6.25%	M	7.9	24.7	8.2	353		M	8.1	25.0	8.4	415	
	2	12.5%	M	7.9	25.0	8.3	397		M	8.0	25.2	8.4	445	
	2	25%	M	7.9	25.2	8.3	484		M	8.0	25.5	8.5	525	
	2	50%	M	7.8	25.5	8.3	652		M	8.1	25.3	8.7	717	
	2	100%	M	7.8	25.5	8.3	995		M	8.1	25.0	8.9	1119	
	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	24.3	8.1	302		M	8.2	25.0	8.1	345	
	2	6.25%	M	8.1	24.9	8.0	361		M	8.2	24.9	8.6	408	
	2	12.5%	M	8.0	24.9	8.1	409		M	8.1	25.5	8.7	424	
	2	25%	M	8.0	24.9	8.2	517		M	8.1	25.7	8.7	497	
	2	50%	M	8.0	24.9	8.2	694		M	8.1	25.8	8.7	671	
	2	100%	M	8.0	25.2	8.4	1136		M	8.2	25.3	8.7	1006	
	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: Atlantic Beach WWTF SOP TA07_05

LIMS Sample #: 1480177 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day		Concentration	New Sample: Test Replicate	New Sample: pH (su)	New Sample: Temp (°C)	New Sample: DO (mg/L)	New Sample: Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	Old Sample: pH (su)	Old Sample: Temp (°C)	Old Sample: DO (mg/L)	Old Sample: Conductivity (µmhos/cm) (mmhos/cm)
Day 4 ←	sample:	Control	M	8.0	24.3	7.7	309	M	8.0	24.8	7.8	370
	3	6.25%	M	8.1	24.2	7.9	361	M	8.1	24.6	8.2	390
	3	12.5%	M	8.1	24.4	7.9	407	M	8.1	24.8	8.3	453
	3	25%	M	8.1	24.5	7.9	492	M	8.1	25.0	8.4	539
	3	50%	M	7.9	24.5	7.9	662	M	8.2	25.2	8.4	731
	3	100%	M	7.8	24.6	7.9	991	M	8.3	25.2	8.4	1110
	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	8.1	24.0	7.1	332	M	8.2	24.0	7.4	~~337~~ 357 BA
	3	6.25%	M	8.1	24.0	7.1	379	M	8.1	24.0	7.3	413
	3	12.5%	M	8.1	24.0	7.3	428	M	8.1	24.0	7.2	436
	3	25%	M	8.0	24.0	7.3	522	M	8.1	24.0	7.2	531
	3	50%	M	8.0	24.0	7.3	704	M	8.1	24.0	7.2	713
	3	100%	M	7.9	24.0	7.4	1059	M	8.0	24.0	7.2	1167
	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	8.1	24.5	7.6	312	M	8.1	24.8	8.0	365
	3	6.25%	M	8.3	24.7	7.7	~~MF 418 358~~	M	8.1	24.8	8.0	418
	3	12.5%	M	8.3	24.8	7.7	~~MF 454~~ 402	M	8.1	25.5	8.7	454
	3	25%	M	8.3	24.8	7.7	~~MF 547~~ 496	M	8.1	25.8	8.1	547
	3	50%	M	8.3	24.9	7.7	671	M	8.1	25.7	8.0	759
	3	100%	M	8.3	24.9	7.7	1024	M	8.1	25.3	8.0	1173
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 7	sample:	Control	M	8.1	24.3	7.5	320	M	8.1	26.1	7.9	370
	3	6.25%	M	8.2	24.4	7.6	361	M	8.1	26.1	7.7	398
	3	12.5%	M	8.2	24.6	7.6	405	M	8.1	26.0	7.9	447
	3	25%	M	8.1	24.6	7.6	510	M	8.0	26.0	7.8	550
	3	50%	M	8.1	24.3	7.7	680	M	8.0	26.1	7.9	743
	3	100%	M	8.1	24.7	7.7	1045	M	8.0	26.1	7.9	1115
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

Replicate	pH	Temp	DO	Cond
CTL M	8.0	24.1	7.6	330
6.25 M	8.0	24.1	7.7	400
12.5 M	8.1	24.4	7.7	445
25 M	7.9	24.4	7.9	535
50 M	7.9	24.6	8.0	550
100 M	7.9	24.6	8.0	1130

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

Test Page 5 of 6 PAGE 00023 revised 07/15/08 MF

Test ID: Atlantic Beach WWTF Dates: January 29 – Feb 6 -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	Control No ✓
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 3-18-13

V 1.1 9/21/10 MF/jd

00024

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Atlantic Beach
Address: 1106 Sandpiper Lane, Atlantic Beach
County: Duval 32233
NPDES Permit #: FL0038776
Contact/District: Ali Essa / Northeast

Diluent/ Batch:
MHW / 1.17.13 Test Days Used: 0-7
MHW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____

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: 1.29.13 Time: 1300
End Date: ~~1.30~~ AP 2.5.13 Time: 0900

Organism age : 37 hours days
Feeding Prior to Test and Daily
Artemia Lot # : 08812
Chamber size : 1000 ml
Test volume : 500 ml

Organism Batch #:	1-29-13	
Artemia Batch #	Day 3	1-8-13
Day 0 1-5-13	Day 4	1-9-13
Day 1 1-6-13	Day 5	2-0-13
Day 2 1-7-13	Day 6	2-1-13

LIMS entry: 2-15-13 MF Entry verification: 2-15-13 BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-3013-01-29-03	1480177	1-28-13/0930	1-29-13/1017
Test Day 2	2	TLH-3013-01-31-42	1481117	1-30-13/0930	1-31-13/0938
Test Day 4	3	TLH-2913-02-04-01	1481962	2-1-2013 0930	2-2-2013 0900

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			<0.03	<0.03	<0.03	150	151	150	299	289	288
Diluent/Control:				<0.03			74			82		
Method:				Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:				AP	AP	AP	HW	AP	AP	HW	AP	AP
Verified by:	MF	MF	MF	MF	MF	MF	AP	MF	MF	AP	MF	MF

	Conductivity (circle one) (µmhos-cm mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	~~316~~ AP	1039	1032	Not measured in Bioassay Lab					
Diluent/Control:	316								
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	AP	BA	BA						
Verified by:	MF	AP	AP	MF	MF	MF			

Statistics	
Growth NOEC:	100 %
Growth LOEC:	>100 %
Growth IC_{20}:	>100 %
Growth IC_{25}:	>100 %
Ctrl % CV:	18.7 %
Dunnetts PMSD:	20.5 %
Survival NOEC:	100 %
Survival LOEC:	>100 %

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.2 max. 26.1 mean —
Water bath # ____ min. ____ max. ____ mean ____
Room B246 min. 22.0 max. 25.9 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)

MF Fedex not hand delivered.

Lims Data Entry: 2-15-13 MF Data Entry Verification: 2-15-13 BA

Investigators' signatures

	Initials: AP
Adrienne Pennington	
Marshall Faircloth	MF
Brian Akin	BA
Leigh Miller	

REVIEWER

Comments:
#conductivity sample 1: 1008 µmhos-cm AP
Ⓐ Room B246 temp dropped below 24° overnight on 1/31/13, while samples were in incubator

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revised 01/24/12 MF

Chronic Bioassay Survival Benchsheet

Facility: Atlantic Beach

LIMS Sample Number: 1480177
(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)

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	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 6.25 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	9 ID	9	9	9	9	9	9
	D	10	10	10	10	10	10	10	10
Sample 12.5 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	~~9~~ 10 AP	10	9 ID
	C	10	10	10	10	10	9 ID	9	9
	D	10	10	10	10	10	10	10	10
Sample 25 %	A	10	10	10	10	10	10	9 ID	9
	B	10	10	10	10	10	10	10	9 ID
	C	10	10	10	10	9 ID	9	9	9
	D	10	10	10	10	10	10	10	10
Sample 50 %	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	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	9 ID	9	9	9
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: AP	Checked by:		BA	AP	BA	AP	AP	BA	AP
Verified by: MF									

Comments:

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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: Atlantic Beach Start Date: 1-29-13 End Date: 2.5.13

LIMS Sample #: 480177 (for Lab sample #1) Start Time: 1300 End Time: 0900

conc = concentration rep = replicate circle umhos or mmhos

Test Day			Before Renewal						After Renewal						
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	sample:	Control	A	7.9	24.5	7.8	316							
	1	6.25%	A	7.9	24.5	7.7	350							
	1	12.5%	A	7.9	24.5	7.8	414							
	1	25%	A	8.5	24.6	7.7	527							
	1	50%	A	8.1	24.8	7.6	664							
	1	100%	A	8.0	25.3	7.7	1008							
	1		A											
	Measured by:			AP	AP	AP	AP							
	Recorded by:			AP	AP	AP	AP							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	7.8	25.8	7.6	475		B	7.4	24.0	7.7	295	
	1	6.25%	B	7.8	26.2	7.5	347		B	7.5	24.0	7.6	335	
	1	12.5%	B	7.8	25.9	7.5	~~359~~ 359 AP		B	7.5	24.0	7.6	372	
	1	25%	B	7.8	25.7	7.4	471		B	7.5	24.0	7.6	463	
	1	50%	B	7.9	25.7	7.3	639		B	7.5	24.1	7.6	629	
	1	100%	B	8.0	25.4	7.3	955		B	7.5	24.4	7.6	962	
	1		B						B					
	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 2	sample:	Control	C	7.5	26.2	7.5	339		C	7.3	24.0	6.9	297	
	2	6.25%	C	7.5	26.0	6.8	362		C	7.3	24.0	7.0	350	
	2	12.5%	C	7.5	25.8	7.0	400		C	7.3	24.0	7.0	392	
	2	25%	C	7.5	25.9	7.4	500		C	7.3	24.0	7.2	485	
	2	50%	C	7.5	25.8	7.2	672		C	7.3	24.7	7.3	657	
	2	100%	C	7.6	26.4	7.1	1031		C	7.3	26.0	7.5	1039	
	2		C						C					
	Measured by:			AP	AP	AP	AP			BA	BA	BA	BA	
	Recorded by:			AP	AP	AP	AP			BA	BA	BA	BA	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.3	25.0	6.5	299		D	7.5	24.1	7.3	299	
	2	6.25%	D	7.3	25.6	6.5	343		D	7.5	24.2	7.3	342	
	2	12.5%	D	7.3	25.0	6.4	386		D	7.6	24.1	7.2	380	
	2	25%	D	7.3	25.1	6.4	480		D	7.6	24.3	7.3	470	
	2	50%	D	7.3	25.5	6.4	646		D	7.7	24.4	7.3	633	
	2	100%	D	7.7	25.0	6.3	991		D	8.0	24.4	7.3	983	
	2		D						D					
	Measured by:			AP	BA	AP	AP			AP	AP	AP	AP	
	Recorded by:			AP	BA	AP	AP			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 00017

Chronic Bioassay Parameters Benchsheet

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

parameter pg 2

Sample Source: Atlantic Beach — Start Date: 1-29-13 — End Date: 2.5.13

LIMS Sample #: 1480177 (for Lab sample #1) — Start Time: 1300 — End Time: 0900

conc = concentration — rep = replicate

Test Day			Before Renewal						After Renewal					
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4	sample:	Control	A	7.5	26.0	7.0	354		A	7.7	24.0	7.3	309	
	3	6.25%	A	7.6	25.7	7.1	373		A	7.7	24.1	7.1	347	
	3	12.5%	A	7.6	25.8	7.0	409		A	7.7	24.2	7.1	387	
	3	25%	A	7.6	25.8	7.1	5886		A	7.7	24.0	7.2	472	
	3	50%	A	7.7	26.2	7.1	676		A	7.6	24.4	7.2	667	
	3	100%	A	7.7	26.1	7.0	1034		A	7.6	24.8	7.3	1013	
	3		A						A					
	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 5	sample:	Control	B	7.6	25.6	6.9	320		B	7.7	24.5	7.2	301	
	3	6.25%	B	7.6	25.4	6.7	361		B	7.7	24.6	7.2	350	
	3	12.5%	B	7.6	25.1	6.7	400		B	7.7	24.3	7.1	357	
	3	25%	B	7.6	25.5	6.9	479		B	7.7	24.2	7.2	483	
	3	50%	B	7.6	25.4	6.8	684		B	7.7	24.4	7.1	666	
	3	100%	B	7.9	25.3	6.7	1027		B	7.6	24.3	7.1	1004	
	3		B						B					
	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 6	sample:	Control	C	7.4	25.2	5.8	312		C	7.3	25.4	6.5	298	
	3	6.25%	C	7.3	25.1	6.1	365		C	7.3	24.2	6.5	352	
	3	12.5%	C	7.3	25.5	6.3	404		C	7.3	24.0	6.6	400	
	3	25%	C	7.3	25.1	6.3	494		C	7.3	24.0	6.7	490	
	3	50%	C	7.3	25.2	6.4	677		C	7.3	24.0	6.7	641	
	3	100%	C	7.3	25.3	6.3	1032		C	7.4	24.0	6.7	1037	
	3		C						C					
	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	7.5	26.0	6.8	317		D					
	3	6.25%	D	7.5	24.0	6.6	364		D					
	3	12.5%	D	7.5	25.3	6.6	413		D					
	3	25%	D	7.5	26.8	5.8	514		D					
	3	50%	D	7.5	25.8	5.6	659		D					
	3	100%	D	7.8	25.8	5.3	1048		D					
	3		D						D					
	Measured by:			AP	AP	AP	AP							
	Recorded by:			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

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Chronic Bioassay Weighing Benchsheet

Facility: Atlantic Beach

LIMS Sample Number: 1480177
(for Lab Sample # 1)

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

			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 # Fish	Mean wt. mg	Avg
Control	A	1	0.02279	0.02978	0.00699	10	~~6.99~~ AP 0.699	
	B	2	0.02316	0.02767	0.00451	10	0.451	
	C	3	0.02307	0.02836	0.00529	10	0.529	0.55
	D	4	0.02310	0.02851	0.00541	10	0.541	
sample 6.25 %	A	5	0.02380	0.02835	0.00455	10	0.455	
	B	6	0.02296	0.02845	0.00549	10	0.549	
	C	7	0.02290	0.02831	0.00541	10	0.541	0.519
	D	8	0.02338	0.02867	0.00529	10	0.529	
sample 12.5 %	A	9	0.02288	0.02892	0.00604	10	0.604	
	B	10	0.02263	0.02749	0.00486	10	0.486	
	C	11	0.02306	~~0.02877~~ 0.02870 AP	0.00564	10	0.564	0.551
	D	12	0.02307	~~0.02870~~ 0.02861 AP	0.0056	10	0.56	
sample 25 %	A	13	0.02306	0.02963	0.00657	10	0.657	
	B	14	0.02216	0.02922	0.00706	10	0.706	
	C	15	0.02158	0.02816	0.00658	10	0.658	0.682
	D	16	0.02219	0.02967	0.00748	10	0.748	
sample 50 %	A	17	0.02156	0.02925	0.00769	10	0.769	
	B	18	0.02271	0.03070	0.00799	10	0.799	
	C	19	0.02248	0.02998	0.0075	10	0.75	0.777
	D	20	0.02347	0.03138	0.00791	10	0.791	
sample 100 %	A	21	0.02255	0.02918	0.00663	10	0.663	
	B	22	0.02249	0.03026	0.00777	10	0.777	
	C	23	0.02292	0.03082	0.0079	10	0.79	0.704
	D	24	0.02248	0.02835	0.00587	10	0.587	
sample %	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by initials:		AP	AP		revised 7/16/08 mf		

Comments:

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: Atlantic Beach

LIMS Sample Number: 1480177
(for Lab Sample # 1)

P. promelas and M. beryllina **Bench sheet**
SOPs TA07_09, TA07_14 and TA06_21

Drying Oven ID:	ER034000
Temperature °C:	100
Hours:	8

Tare weighed by: AP
Final weighed by: AP

Tare Weighing Date: 2.4.13	Final Weighing Date: 2.7.13	Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02277 @ 0.02279	S-weights	@	0.01
Tare Pan 1 after Pan 10 (g)	0.02277 @ 0.02279	at tare	0.05001 @	0.05
Tare Pan 1 after Pan 15 (g)	0.02278 @ 0.02279	S-weights	0.00999 @	0.01
Tare Pan 1 after Pan 20 (g)	0.02278 @ 0.02279	at final	0.05001 @	0.05
Tare Pan 1 after Pan 25 (g)	0.02279 @ 0.02279			
Tare Pan 1 after Pan 30 (g)	@	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)	0.02280 @ 0.02978			
Final Pan 1 after Pan 10 (g)	0.02977 @ 0.02978			
Final Pan 1 after Pan 15 (g)	0.02976 @ 0.02978			
Final Pan 1 after Pan 20 (g)	0.02978 @ 0.02978			
Final Pan 1 after Pan 25 (g)	0.02976 @ 0.02978			
Final Pan 1 after Pan 30 (g)	@			
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 00020

Test ID: ATLANTIC Beach P. promelas chronic Dates: 1-29-13 — 2-5-13

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	#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)

2-8-13 API

V 1.1 9/21/10 MF/jd

T2000

Appendix E
Standard Reference Toxicant Data

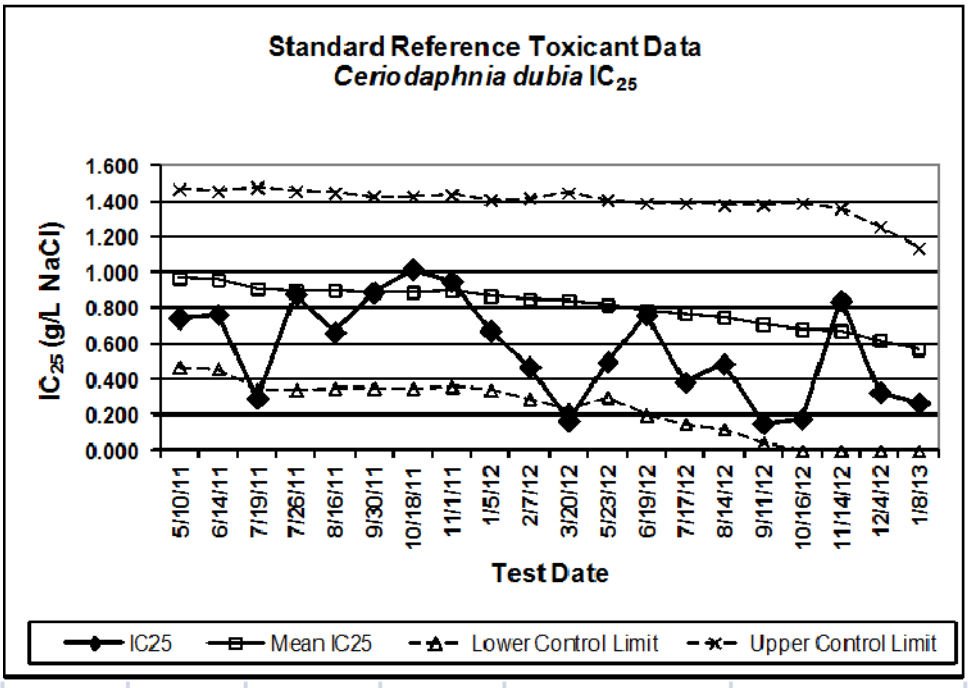
Florida Department of Environmental Protection
Bureau of Laboratories

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
5/10/11	0.744	0.97	0.25	0.47	1.47
6/14/11	0.765	0.96	0.25	0.46	1.46
7/19/11	0.293	0.91	0.28	0.34	1.48
7/26/11	0.879	0.90	0.28	0.34	1.46
8/16/11	0.665	0.90	0.27	0.35	1.45
9/30/11	0.891	0.89	0.27	0.35	1.43
10/18/11	1.020	0.89	0.27	0.35	1.43
11/1/11	0.953	0.90	0.27	0.36	1.44
1/5/12	0.674	0.87	0.27	0.34	1.41
2/7/12	0.470	0.85	0.28	0.29	1.42
3/20/12	0.169	0.84	0.31	0.23	1.45
5/23/12	0.498	0.82	0.32	0.30	1.41
6/19/12	0.760	0.79	0.30	0.20	1.39
7/17/12	0.383	0.77	0.31	0.15	1.39
8/14/12	0.489	0.75	0.31	0.12	1.38
9/11/12	0.153	0.71	0.33	0.04	1.38
10/16/12	0.179	0.68	0.35	0.00	1.39
11/14/12	0.843	0.67	0.34	0.00	1.36
12/4/12	0.328	0.62	0.28	0.00	1.26
1/8/13	0.266	0.57	0.28	0.00	1.14

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

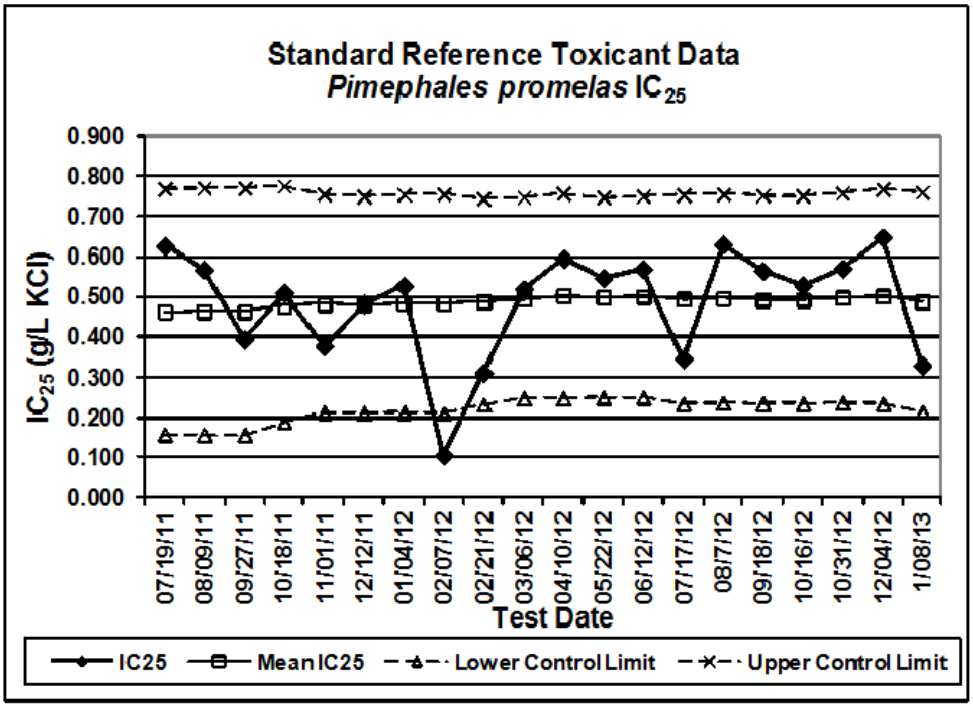
EPA 75th Percentile %CV for Reproduction **45%**
Last 20 - Lab %CV Reproduction 50.9%



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 EPA 75th %CV: 38%
Upper Confidence Limit = mean + 2 * Std Dev lab % CV: 28%



Appendix F
Organism Receipts

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	< 24 Hrs	FM 130107-0830	25	7.8	80
	150 ac	7 DAYS	FM 121231	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: 1/28/13

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						
Pimephales promelas	450	< 24 HRS	FM130127-1700	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

RECEIVED JAN 29 2013

Notes: _____

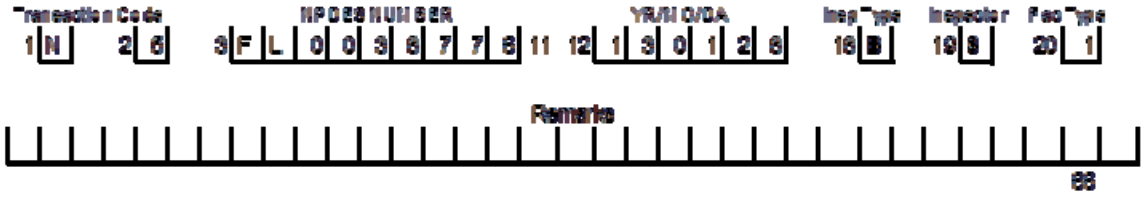
Thank you for your order.

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

EPA End Sheet

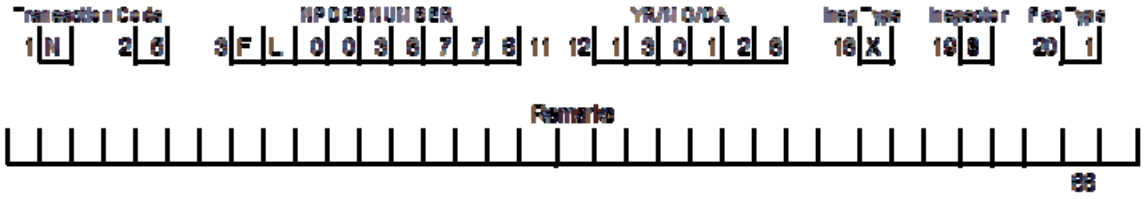
The Bioassay of Atlantic Beach WWTF effluent sampled on January 28 and 30, and February 1, 2013. NPDES #FL0038776.

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



The Priority Pollutants Analysis of Atlantic Beach WWTF effluent sampled on January 28 and February 1, 2013. NPDES #FL0038776.

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



Biological Analyses of Atlantic Beach WWTF effluent sampled on January 28, 2013. NPDES #FL0038776.

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

