

Effluent Quality Assessment

Arlington East Water Reclamation Facility

Duval County

NPDES #FL0026441

Sampled March 25, 27, and 29, 2013

July 2013

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

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Arlington East Water Reclamation Facility (WRF), 1555 Millcoe Road, Jacksonville, Duval County, Florida, 32225. NPDES #FL0026441.

Facility Overview

Arlington East WRF is a complete mix activated-sludge wastewater treatment facility which treats domestic wastewater. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent composite samples for toxicity testing were collected on March 25, 27, and 29, 2013. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on March 25, 2013. All samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Sharon Piltz and Jeremy Parrish (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix C).

The7-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 (see Appendix C).

Results

Chemistry Results (See Table 1 and Appendix D)

- Total residual chlorine and total ammonia were not detected in any of the bioassay samples in the laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.1 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.
- Atrazine, aluminum, copper, carbonaceous biochemical oxygen demand (CBOD), fluoride, and nickel were detected in the effluent at levels that comply with Class III Marine Water Quality Criteria (62-302.530, F.A.C.) and/or permitted limits. Arsenic, chromium, iron, zinc, and total suspended solids (TSS) were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Total phosphorus was detected in the field blank.

Algal Growth Potential (See Table 2 and Appendix D)

- The effluent Algal Growth Potential (AGP) was 95.9 A 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).
- A salinity- adjusted AGP test was not performed; however, the AGP result in the freshwater test in conjunction with the nutrient chemistry results was sufficient to suggest that nutrient enrichment may be an issue in marine receiving waters.

Toxicity Test Results (See Appendices D- G)

- Tests were performed March 26 – April 3, 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. The bioassay samples were aerated for 30 minutes each at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 9.8, 10.0, and 10.6 mg/L to 8.3, 7.8, and 7.8 mg/L, in samples 1, 2, and 3 respectively.

Conclusion

The effluent samples collected from the EFD-1 NPDES sampling point for this facility on March 25, 27, and 29, 2013, were not chronically toxic to either test species during the 7-day chronic definitive bioassays. The effluent AGP result in the freshwater test, in conjunction with the nutrient chemistry results, suggests that nutrient enrichment may be an issue in the Class III Marine receiving waters. Effluent water quality samples collected on March 25, 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.

Arlington East Water Reclamation Facility	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
Atrazine	-	-	0.27	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	24	
Arsenic	≤ 50	-	0.26	I
Cadmium	≤ 8.8	-	0.050	U
Calcium (mg/L)	-	-	77.2	
Chromium-III	-	-	0.44	I
Copper	≤ 3.7	≤ 16.8 p	2.95	
Iron	≤ 300	-	64	I
Lead	≤ 8.5	-	0.20	U
Magnesium (mg/L)	-	-	32.2	
Nickel	≤ 8.3	-	1.53	
Potassium (mg/L)			11.9	
Silver	≤ 2.3	-	0.025	U
Sodium	-	-	134	
Zinc	≤ 86	-	14	I
Nutrients (mg/L)				
Ortho-phosphate	-	-	1.4	
Total Phosphorus	-	Report	2.9	
Total Ammonia	-	Report	0.1	
Un-ionized Ammonia	-	-	< 0.02	c
Nitrate and Nitrite	-	Report	5.8	
Total Kjeldahl Nitrogen	-	Report	1.7	
Organic Nitrogen	-	-	1.60	c
Total Nitrogen	-	Report	7.50	c
Total Organic Carbon	-	Report	10	A
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	6.94	
pH (SU)	6.5 - 8.5	6.5 - 8.5	6.77	
Specific Conductance (µmhos/cm)	-	-	1,287	
Temperature (°C)	-	-	23.6	
Salinity	-	-	< 0.66	c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	< 0.01	
Total Suspended Solids (mg/L)	-	≤ 60.0 p	6	I
Alkalinity (mg CaCO3/L)	-	-	139	A
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0 p	3.2	AQ
Chloride (mg/L)	-	-	200	
Cyanide (µg/L)	≤ 1.0	≤ 15.5	0.005	U
Fluoride (mg/L)	≤ 5.0	-	0.62	
Sulfate (mg/L)	-	-	180	
Flow (MGD)	-	20 a	16.2	a*
Hardness (mg $CaCO_3$)	-	-	325.368	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	-	11	B

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
p - 24 hour flow proportioned composite
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Fecal coliform analysis performed by Columbia Analytical Services lab
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
* - Measured from 2-28-12 - 2-28-13

Table 2. 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

Arlington East Water Reclamation Facility					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	95.9 A	223.7 ± 44.7	285.0 ± 57.0	4.2	2.6

Appendix A
Facility Summary

ARLINGTON EAST (JEA) – FACILITY SUMMARY – FL0026441 – JANUARY-2013

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Edward Jamro	Contact Number: (904) 256-1617
Facility Name (as it appears on permit): Arlington East Water Reclamation facility (WRF)	Former Names:
NPDES Permit Number: FL0026441	Permit Expiration Date: May 5, 2014
Physical Address: 1555 Millcoe Road Jacksonville, Florida 32225	
District: NED	County: Duval
Function of Facility: Treat domestic wastewater for public access reuse or discharge to St John's River.	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD): **20.0** *(to be expanded to 25.0 when upgrades complete)*
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): *based on data in PCS on 1/16/13.* 16.76 MGD from 11/2011 – 10/2012.	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): 2.03 MGD from 11/2011 – 10/2012.	
Description of type of Discharge: Continuous operation ☒Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):
EFD-1 - Effluent sample point immediately after the final treatment, and prior discharge to the St. Johns River.
FLW-1 -- Venturi meter on river discharge pipeline

Description of Permitted Outfall(s):

An existing 25.0 MGD annual average daily flow (AADF) permitted discharge to St. Johns River (Class III marine waters, WBID 2213B) at Discharge Location (D-001) which is approximately 450 feet in length from the shore and discharges at a depth of approximately 31 feet. The point of discharge is located approximately at latitude 30° 23' 05" N, longitude 81° 33' 05" W.

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

A. Current Facility:

To operate an existing 20.0 MGD annual average daily flow (AADF) permitted capacity complete mix activated sludge wastewater treatment facility consisting of:

- **2 mechanical bar screens,1 manual bar screen with an automatic bypass,**
- **three primary clarifiers (two 68-ft diameter clarifiers with 0.33 MG capacity each, and one 105-ft diameter clarifier),**
- **two aeration trains (first aeration train containing four aeration basins with total volume of 2.32 MG; second aeration train containing four aeration basins with total volume of 2.88 MG),**
- **four secondary clarifiers (4.28 MG total),**
- **3disk filters,**
- **two chlorine contact chambers (0.98 MG total), and**
- **Two covered sludge holding tanks (1.70 MG each).**

Primary solids and secondary biosolids are collected in a holding tank and pumped to the Buckman Water Reclamation Facility (WRF) for further treatment and final disposal.

Effluent biological nutrient removal (BNR) capability is provided through a step feed process with anoxic zones within the aeration basins, internal recycle and dissolved oxygen zone control.

The final treated effluent is either discharged to the St. Johns River or reused via public access spray irrigation following high-level disinfection.

B. Proposed Modifications and Expansion to the Facility (permit modification (#14) dated July 16, 2012).

To replace the existing chlorine gas basic disinfection system with a new open-channel, gravity flow vertical UV radiation disinfection system for surface water discharges.

To replace the high-level chlorine gas disinfection system for public access reuse with a sodium hypochlorite disinfection system to improve safety, and increase effluent reuse capacity by addition of a new filter, a filter feed pump and reclaimed water pump.

After these modifications are placed into service, the WRF's permitted treatment capacity shall increase to 25 MGD AADF.

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, Surface Water Discharge from Outfall D-001 (Before Expansion)	MGD	Maximum	20.0	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-1	See Cond. I.A.5
Flow, Surface Water Discharge from Outfall D-001 (Before Expansion)	MGD	Maximum	-	-	-	35.0 (peak hour flow)	Continuous	Recording flow meters and totalizers	FLW-1	See Cond. I.A.5
BOD, Carbonaceous 5-day, 20°C (final)	mg/L	Maximum	20.0	25.0	40.0	60.0	7 Days/ Week	24-hour flow proportioned composite (24-hr FPC)	EFD-1	
BOD, Carbonaceous 5-day, 20°C	%	Minimum	-	85.0	-	-	7 Days/ Week	Calculated	CAL-1	See Cond. I.A.19
Solids, Total Suspended	mg/L	Maximum	20.0	30.0	45.0	60.0	7 Days/ Week	24-hour FPC	EFD-1	
Solids, Total Suspended, Percent removal	%	Minimum	-	85.0	-	-	7 Days/ Week	Calculated	CAL-1	See Cond. I.A.19
Total Nitrogen, as N	mg/L	Maximum	Report	Report	Report	Report	7 Days/Week	24-hr FPC	EFD-1	See Cond. I.A.26
Total Nitrogen, as N Mass loading	-	Maximum	Report (Lbs/Yr) (Annually Mass Load)	Report (Lbs/Mon) (Monthly Mass Load)	-	-	7 Days/Week	Calculated	CAL-1	See Cond. I.A.26
Oxygen, Dissolved (DO)	mg/L	Minimum	-	-	-	4.0	Daily 7 Days/Week	Instrument or Meter	EFD-1	See Cond. I.A.20

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
pH	S.U.	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-1	See Cond. I.A.4
Coliform, Fecal	#/100mL	Maximum	See Permit Condition I.A.6.				7 Days/ Week	Grab	EFD-1	
Enterococci	#/100ML	Maximum	See Permit Condition I.A.7.				Every 6 days or 5 samples on nonconsecutive days over a 30-day period.	Grab	EFD-1	
Total Residual Chlorine (For Disinfection)	mg/L	Minimum	-	-	-	0.85	Continuous	Instrument	EFA-1	See Cond. I.A.4, 8
Total Residual Chlorine (For Dechlorination)	mg/L	Maximum	-	-	-	0.01	Daily 7 Days/Week	Grab	EFD-1	
Copper, Total Recoverable	µg/L	Maximum	-	-	-	16.8 AO-110-NE	Monthly	24-hr FPC	EFD-1	See Cond. I.A.22
Total Cyanide	µg/L	Maximum	-	-	-	15.5 CO-11-1527	Monthly	Grab	EFD-1	See Cond. I.A.22 & 23
Organic Nitrogen, as N	mg/L	Maximum	Report	-	-	Report	Quarterly	24-hr FPC	EFD-1	See Cond. I.A.24
Nitrate + Nitrite (NO_2+NO_3), as N	mg/L	Maximum	Report	-	-	Report	Quarterly	24-hr FPC	EFD-1	See Cond. I.A.24

PART I: Continued										
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)										
			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Total Ammonia (NH_3&NH_4^+), as N	**mg/L**	**Maximum**	**Report**	-	-	**Report**	**Quarterly**	**Grab**	**EFD-1**	**See Cond. I.A.24**
Total Kjeldahl Nitrogen (TKN), as N	**mg/L**	**Maximum**	**Report**	-	-	**Report**	**Quarterly**	**24-hr FPC**	**EFD-1**	**See Cond. I.A.24**
Total Phosphorus, as P	**mg/L**	**Maximum**	**Report**	-	-	**Report**	**Quarterly**	**24-hr FPC**	**EFD-1**	**See Cond. I.A.24**
Chronic Whole Effluent Toxicity (WET)	**See Permit Condition I.A.25**								**EFD-1**	
Stream Monitoring	**See Permit Condition I.A.24**									
Benthic Monitoring	**See Permit Condition I.A.27**									

NOTE – Permit monitoring will change when the WWTP modifications are completed.

I.A.

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 mls 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 mls 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 mls of sample. Any one sample shall not exceed 800**

fecal coliform values per 100 mls 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 permittee is required to monitor for Enterococci in the effluent before discharge from Outfall D-001. The geometric mean of the Enterococci values for a minimum of 5 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 35per 100 mls EPA Methods 1106.1 and 1600 are the recommended methods for monitoring enterococci in the effluent. *[62-600, 62-621, 62-302.530, F.A.C.]*

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. During the construction period retrofitting the basic disinfection basin (CCC#1) to a UV chamber, a minimum of 0.85 mg/L total residual chlorine shall be maintained to meet a CT value of 7.5 min-mg/L for basic disinfection. *[62-600.440(4)(b), 62-620.320(6)]*

(Notes 9 thru 18 are related to UV disinfection. New system is currently under construction)

19. 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)]*
20. The average of DO level shall not be less than 5.0 mg/L in a 24-hour period and shall never be less than 4.0 mg/L. Normal daily and seasonal fluctuations above these levels shall be maintained. The lower St. Johns River has an SSAC for DO in accordance with the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008. *[62-302.530(31)]*
21. Florida water quality criteria and standards shall not be violated as a result of the discharge *[62-620.320(9), 11-29-94][62-302.510(5)]*
22. The final limit for total cyanide and total recoverable copper are held in abeyance until the final compliance date listed in Section VI.2. of the permit is completed.
23. The permittee shall be deemed in compliance with the Surface Water Quality Standards for total cyanide, when concentration for the total cyanide in the effluent meet permit limit specified Condition I.A.1 or I.A.2 or shall be undetectable or less than the method detection limit (MDL) level established by Department corresponding to approved analytical method. *[62-4.246, 62-302.530(24), F.A.C.]*
24. 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 and I.A.2. JEA will submit to the Department's Northeast District office a report with stream sample data results and graphical analyses for each sample location. Data qualifiers and any important comments concerning the sample event and sample results will be included. The annual report (calendar year monitoring period) shall be submitted to the Northeast District wastewater permitting section by March 1, of the following year. *[62-4.240(3)(c)]*

25. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.
    a. Effluent Limitation
        (1) Whole effluent chronic toxicity shall not result in an Inhibition Concentration 25% (IC_{25}) less than 100% effluent in any test. *[Rule 62-302.530(61), as defined in 62-302.200(14) F.A.C.]*

(2) Whole effluent acute toxicity shall not result in a 96-hour LC50 <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%, 50%, 25%, 12.5%, and 6.25% final effluent.

(2) The permittee shall conduct a daphnid, *Ceriodaphnia dubia*, Survival and Reproduction Test and a fathead minnow, *Pimephales promelas*, Larval Survival and Growth Test, concurrently.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th 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.

26. The permittee, JEA, shall meet the aggregate cap through collectively managing the total nitrogen loads from individual JEA facilities (Arlington East WRF -FL0026441; Beacon Hills WWTF – FL0026778; Buckman WWTF – FL0026000; District II WWTF – FL0026450; Jacksonville Heights WWTF – FL0023671; Julington Creek WWTF – FL0043591; Mandarin WRF- FL0023493; Monterey WWTF – FL0023604; Royal Lakes WWTF – FL0026751; San Jose WWTF – FL0023663; San Pablo WWTF – FL0024767; Southwest District WWTF – FL0026468; Woodmere WWTF – FL0026786; and JEA Power Plant - FPL), which are listed in the JEA – Aggr. Total Nitrogen (Permit ID: FL0620564). The monthly mass load and annually mass loads of total nitrogen shall be calculated as follows:

- Monthly Mass Load (MML)

$$\text{MML (Lbs/Mon)} = (\text{Flow}(\frac{MG}{Mon}) \text{x TN } (\frac{mg}{L}) \text{ x } 8.34\ (\frac{L}{MG}\ \frac{Lbs}{mg})$$

[MML Monthly mass load of total nitrogen; (Lbs/Mon)

[Flow Monthly total volume effluent discharged from D-001 in a given month; million gallons (MG))

TN [Monthly average concentration of total nitrogen monitored at EFF-1; (mg/L)

- Annual Mass Load (AML)

The annual mass load is computed using a rolling twelve (12) – month period.

The calculation shall be the sum of the twelve most recent monthly mass loads of total nitrogen starting from the second month following permit issuance month.

27. **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 along the Outfall D-001, and approximately 300 feet upstream and 300 feet downstream of the outfall D-001.**

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
St. John's River	Class III marine waters, WWIB 2213B

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

See I.A.25. on page 7 of this report.

The permittee shall conduct:

a daphnid, *Ceriodaphnia dubia*, Survival and Reproduction Test, and

a fathead minnow, *Pimephales promelas*, Larval Survival and Growth Test, concurrently.

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

5/6/2009 – AO 110 NE – Submit plan of action identifying sources of cyanide and recoverable copper, submit a plan of action proposing actions to bring these parameters down to permitted levels, implement plan with periodic reported updates. Comply with permitted limits by 12/31/2012.

4/10/12 – OGC-11-1527 – Complete WWTP modifications to reduce effluent cyanide, interim limit is 15.5 ug/l. This CO lasts until May 5, 2014.

Facility Mixing Zone Details (if applicable): NONE NOW (used to have one for copper)

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

Based on PCS data – November 2011 to October 2012 – at D001 discharge

Month / yr	Parameter – (Units)	Limit – min / max.	Result
Nov-2011	Cyanide, Total (ug/L)	12 – max.	20
Nov-2011	Coliform, fecal (# / 100mls)	800 - max.	880
August-2012	Chlorine, Total Residual (Mg / L)	0.85 – min.	0.5
Sept.-2012	Chlorine, Total Residual (Mg / L)	0.85 - min.	0.5

Describe previous FYI and WQBEL study:

A 3rd-Year sampling inspection was conducted by the Department on December 04, 2006 for the effluent discharge through Outfall D-001; the result is summarized following:

- Results of the Water Chemistry:

  ❋ Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia was detected in the bioassay sample in the laboratory at a concentration of 1.94 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 2.3 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

  ❋ Aluminum, copper, iron, nickel and zinc were detected in the effluent at levels that comply with Class III Marine water quality criteria. Atrazine, lead and silver were detected between the laboratory method detection limits (MDL) and practical quantitative limits (PQL).

- Toxicity Test Result:

  The effluent sample collected from D-001 for this facility on December 04, 2006, was not acutely toxic to either test species during the 48-hour acute screen bioassays.

- Algal Growth Potential:

  The effluent AGP results exceeded the "problem" threshold for both fresh and marine receiving waters, suggesting nutrient enrichment may be an issue.

303 (d) Lists Impaired Water:

Basin	St. Johns River Above Mouth *(Basin East/Downstream of Outfall)*		St. Johns River Above Intracoastal Waterway *(Basin Immediate Outfall)*		St. Johns River Above Dames Point *(Basin West/Upstream of Outfall)*	
WBID	2213A		2213B		2213C	
303(d) List	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)**	EPA 303(d)*	FDEP 303(d)*
Impaired Parameter	Fluoride, Total Suspended Solids	Copper, Iron, & Nickel	Coliforms, Turbidity & Total Suspended Solids	Copper, Iron, Lead & Nickel	Nutrients, Turbidity & Total Suspended Solids	Copper, Iron, & Nickel

** EPA 303 (d) List (June 11, 2003 Version)*
*** FDEP 303 (d) List (Secretarial Order dated May 27, 2004)*

The TMDL for the LSJR was adopted by the Department on June 3, 2008, and the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008.

Describe previous or current Enforcement Actions (including WLs):

Warning letter WL-11-014-DW was issued on 9/12/11 regarding cyanide violations in January and June 2011. The AO limit was 12.0 and the cyanide results were 26.0 and 17.0, respectively.
Consent Order (OGC-11-1527) was issued on 4/10/12 to the cyanide issue. The CO includes an interim limit of 15.5 ug/l for cyanide that will expire on May 5, 2014.
The AO copper limit of 16.8 ug/l is maintained by permit condition I.A.22.

ARLINGTON EAST (JEA) – FACILITY SUMMARY – FL0026441 – JANUARY-2013

Describe any violations or problems noted in previous inspection: **Inspection done on August 23, 2012 and included a CEI, a SSOP, and a reuse inspection. The inspection resulted in a rating of "In-Compliance".**
Discuss whether DMR trends within previous five years are improving or declining: **Most effluent parameters have been static over the past few years. BOD, Enterococci, and Total-N appear to be trending lower since early 2012.**
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse): **No comments.**

PART II: Sampling Event Information	
Date(s) sample collected: March 18, 2013 - planned	Sampler(s): Eesa Ali, Sharon Piltz
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID*:

Request Number: RQ-2013-03-25-08
FYI3 Arlington East WWTF Sampling Inspection

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

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

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

Lab ID*	Location: Arlington East WWTF - 24HTC			☑ Comp ☐ Grab	Collection (comp begin or grab) Eastern: Date 3/24/13 Time 0800 Central		Composite end Eastern: Date 3/25/13 Time 0800 Central		Bottle Group(s)**	
	Field ID			Tot Res Chlorine (mg/L): <0.01	Diss Oxygen (mg/L)		Storet Station Number		C	
	Matrix (include type e.g. Salt, Fresh, etc): Final Eff	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: Sampler 0.9°C @ Pick-up. Flow per Facility = 19.331 MGD From 1800 3/23/13 – 1800 3/24/13						
Lab ID*	Location: Arlington East WWTF 3YI - GRAB			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern: Date 3/25/13 Time 9:45 Central		Composite end Eastern: Date Time Central		Bottle Group(s)**	
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 6.94		Storet Station Number		A	
	Matrix (include type e.g. Salt, Fresh, etc): Final Eff	Temp (C): 23.6	pH: 6.77	Sample Depth ☑ m: 0.7 ☐ ft		☑ Salinity (PPTh): 0.64 ☑ Sp Conductance (umho/cm): 1287		NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: Time taken from bottle written in by receiving staff 3-26-13						
Lab ID*	Location: Field Blanks			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern: Date 3/25/13 Time 0950 Central		Composite end Eastern: Date Time Central		Bottle Group(s)**	
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		B	
	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: 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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	3/25/13	Fed Ex						3-26-13/9:25

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003 3.26.13 10:15am 3 bioassays AP

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-03-25-08
FYI3 Arlington East WWTF Sampling Inspection

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

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

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

Lab ID *	Location / Field ID	Collection (comp begin or grab) Eastern Central	Composite end Eastern Central	Bottle Group(s)**
	Arlington East WWTF - 24HC	☑ Comp ☐ Grab Date 3/26/13 Time 0800	Date 3/27/13 Time 0800	C
		Tot Res Chlorine (mg/L) <0.01	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc) Final Eff	Temp (C) 1.2	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
				NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments Flow from 1800 3/25/13 to 1800 3/26/13 17.925 mgd	

Lab ID *	Location / Field ID	Collection (comp begin or grab) Eastern Central	Composite end Eastern Central	Bottle Group(s)**
	Arlington East Final Eff	☐ Comp ☑ Grab Date 3/27/13 Time 0930	Date Time	—
		Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.3	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc) Final Eff	Temp (C) 22.5	pH 6.75	Sample Depth ☑ m 0.6 ☐ ft; 0.68 1362 ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
				NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location / Field ID	Collection (comp begin or grab) Eastern Central	Composite end Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time	Date Time	
		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 / Field ID	Collection (comp begin or grab) Eastern Central	Composite end Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time	Date Time	
		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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[signature]	3/27/13	Fed Ex	ABP	03/28/13 0905				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

10.28.13 9:55 AP 2 bioassays

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-03-25-08
FYI3 Arlington East WWTF Sampling Inspection

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

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

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

Lab ID * | Location: Arlington East WWTF - 24HTC | ☑ Comp ☐ Grab | Collection (comp begin or grab) Eastern: Date 3/28/13 Time 0800 Central | Composite end Eastern: Date 3/29/13 Time 0800 Central | Bottle Group(s)**: C

Field ID | Tot Res Chlorine (mg/L): <0.01 | Diss Oxygen (mg/L) | Storet Station Number

Matrix (include type e.g. Salt, Fresh, etc): Eff-1 | Temp (C): 0.6 | pH | Sample Depth ☐ m ☐ ft | ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) | NPDES Number

Latitude ☐ dd ☐ dms | Longitude ☐ dd ☐ dms | Comments: Flow from 1800 3/27/13 to 1800 3/28/13 = 18.76 MGD

Lab ID * | Location: Arlington East WWTF Grab Eff-1 | ☐ Comp ☑ Grab | Collection (comp begin or grab) Eastern: Date 3/29/13 Time 0915 Central | Composite end Eastern: Date Time Central | Bottle Group(s)**:

Field ID | Tot Res Chlorine (mg/L) | Diss Oxygen (mg/L): 5.8 | Storet Station Number

Matrix (include type e.g. Salt, Fresh, etc): Eff-1 | Temp (C): 23.0 | pH: 6.65 | Sample Depth ☑ m: 0.5 ☐ ft | ☑ Salinity (PPTh): 0.71 ☑ Sp Conductance (umho/cm): 1409 | NPDES Number

Latitude ☐ dd | Longitude ☐ dd ☐ dms | Comments

Lab ID * | Location: Equipment Blank | ☐ Comp ☑ Grab | Collection (comp begin or grab) Eastern: Date 3/29/13 Time 1035 Central | Composite end Eastern: Date Time Central | 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: 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

Appendix C
Explanation of measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedance of 62-302.500(1)a and/or a violation of facility permit limits. An inhibition concentration greater than 25% in a chronic test may constitute exceedances of 62-302.530(20), 62-302.530(61) and/or a violation of facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of 62-302.530(61) and/or a violation of facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedance of 62-302.530(6) and/or a violation of facility permit limits. Fecal coliform and enterococci results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20-60 colony forming units per plate. The B-qualifier does not affect data quality.

(5) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a “problem” threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of $\pm$ 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of 62-302.530(61), F.A.C.

(7) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate of algal biomass . High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

(8) Definition of Qualifiers

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC)

Appendix D
Chemical Analyses of Effluent

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	AGP/LN	Algal Growth Potential	95.9	A	mg DryWt/L	0.3	0.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Overflow	Fecal Coliforms-Membrane Filter	11	B	cfu/100 mL	1.6	
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Iron	64	I	ug/L	30	120
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Sodium	134		mg/L	0.5	2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Zinc	14	I	ug/L	5	20
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Arsenic	0.26	I	ug/L	0.25	1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Nickel	1.53		ug/L	0.25	1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Aluminum	24		ug/L	5	20
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Copper	2.95		ug/L	0.5	1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Calcium	77.2		mg/L	0.075	0.3
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Magnesium	32.2		mg/L	0.04	0.16
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Lead	0.20	U	ug/L	0.2	0.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Chromium	0.44	I	ug/L	0.3	1.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Metals	Potassium	11.9		mg/L	0.3	1.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	O-Phosphate-P	1.4		mg P/L	0.08	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Sulfate	180		mg SO4/L	2	5
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Organic Carbon	10	A	mg C/L	0.5	1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Fluoride	0.62		mg F/L	0.035	0.1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Ammonia-N	0.088		mg N/L	0.002	0.005
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Chloride	200		mg Cl/L	2	5
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Nutrients	Alkalinity	139	A	mg CaCO3/L	0.65	2.5
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Butylate	0.10	U	ug/L	0.1	0.4
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Naled	0.20	U	ug/L	0.2	0.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Atrazine	0.27		ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Malathion	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Simazine	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Bromacil	0.20	U	ug/L	0.2	0.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Metribuzin	0.10	U	ug/L	0.1	0.4

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Azinphos Methyl	0.10	U	ug/L	0.1	0.4
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Alachlor	0.30	U	ug/L	0.3	1.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Diazinon	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Fonofos	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Metalaxyl	0.20	U	ug/L	0.2	0.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Chlorpyrifos Ethyl	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Ethion	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Mevinphos	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Parathion Ethyl	0.10	U	ug/L	0.1	0.4
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Parathion Methyl	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Ametryn	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Chlorpyrifos Methyl	0.050	U	ug/L	0.05	0.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Metolachlor	0.30	U	ug/L	0.3	1.2
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Phorate	0.025	UJ	ug/L	0.025	0.1
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Pesticides	Prometryn	0.10	U	ug/L	0.1	0.4
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0	U	ug/L	2	7.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzidine	98	U	ug/L	98	390
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Di-n-butyl phthalate	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Naphthalene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Pentachlorophenol	2.9	UJ	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Phenanthrene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Anthracene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	UJ	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Acenaphthylene	0.20	U	ug/L	0.2	0.78

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Fluoranthene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Nitrobenzene	2.0	U	ug/L	2	7.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0	U	ug/L	2	7.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Acenaphthene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Chrysene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Fluorene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0	U	ug/L	2	7.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0	U	ug/L	2	7.8
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzo(a)anthracene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Butyl benzyl phthalate	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Dimethyl phthalate	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Pyrene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Priority Organic Pollutants	Benzo(a)pyrene	0.20	U	ug/L	0.2	0.78
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Field Parameter	Dissolved Oxygen	6.94		mg/L		
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Field Parameter	Specific Conductance	1,287		umhos/cm		
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Field Parameter	pH	6.77				
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Field Parameter	Temperature	23.6		C		
3/25/2013 9:45	Arlington East WWTF 3YI - GRAB	Field Parameter	Sample Depth	0.7		m		
3/25/2013 8:00	Arlington East WWTF - 24HTC	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	3.2	AQ	mg/L	0.2	2
3/25/2013 8:00	Arlington East WWTF - 24HTC	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	L	IC25		

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 8:00	Arlington East WWTF - 24HTC	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
3/25/2013 8:00	Arlington East WWTF - 24HTC	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100		NOEC		
3/25/2013 8:00	Arlington East WWTF - 24HTC	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
3/25/2013 8:00	Arlington East WWTF - 24HTC	Metals	Copper	2.98		ug/L	0.5	1
3/25/2013 8:00	Arlington East WWTF - 24HTC	Nutrients	TSS	6	I	mg/L	2	10
3/25/2013 8:00	Arlington East WWTF - 24HTC	Nutrients	Kjeldahl Nitrogen	1.7		mg N/L	0.08	0.2
3/25/2013 8:00	Arlington East WWTF - 24HTC	Nutrients	Ammonia-N	0.10		mg N/L	0.002	0.005
3/25/2013 8:00	Arlington East WWTF - 24HTC	Nutrients	Total-P	2.9		mg P/L	0.025	0.25
3/25/2013 8:00	Arlington East WWTF - 24HTC	Nutrients	NO2NO3-N	5.8		mg N/L	0.08	0.2
3/25/2013 8:00	Arlington East WWTF - 24HTC	Field Parameter	Total Residual Chlorine	0.01		mg/L		
3/25/2013 9:50	Field Blanks	Metals	Chromium	0.30	U	ug/L	0.3	1.2
3/25/2013 9:50	Field Blanks	Metals	Zinc	5.0	U	ug/L	5	20
3/25/2013 9:50	Field Blanks	Metals	Aluminum	5.0	U	ug/L	5	20
3/25/2013 9:50	Field Blanks	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/25/2013 9:50	Field Blanks	Metals	Calcium	0.075	U	mg/L	0.075	0.3
3/25/2013 9:50	Field Blanks	Metals	Magnesium	0.040	U	mg/L	0.04	0.16
3/25/2013 9:50	Field Blanks	Metals	Iron	30	U	ug/L	30	120
3/25/2013 9:50	Field Blanks	Metals	Potassium	0.30	U	mg/L	0.3	1.2
3/25/2013 9:50	Field Blanks	Metals	Copper	0.50	U	ug/L	0.5	1
3/25/2013 9:50	Field Blanks	Metals	Nickel	0.25	U	ug/L	0.25	1
3/25/2013 9:50	Field Blanks	Metals	Lead	0.20	U	ug/L	0.2	0.8
3/25/2013 9:50	Field Blanks	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
3/25/2013 9:50	Field Blanks	Metals	Arsenic	0.25	U	ug/L	0.25	1
3/25/2013 9:50	Field Blanks	Metals	Sodium	0.50	U	mg/L	0.5	2
3/25/2013 9:50	Field Blanks	Nutrients	Organic Carbon	0.50	U	mg C/L	0.5	1
3/25/2013 9:50	Field Blanks	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
3/25/2013 9:50	Field Blanks	Nutrients	Chloride	0.20	U	mg Cl/L	0.2	0.5
3/25/2013 9:50	Field Blanks	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
3/25/2013 9:50	Field Blanks	Nutrients	Sulfate	0.20	U	mg SO4/L	0.2	0.5
3/25/2013 9:50	Field Blanks	Nutrients	Ammonia-N	0.002	U	mg N/L	0.002	0.005
3/25/2013 9:50	Field Blanks	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
3/25/2013 9:50	Field Blanks	Nutrients	Cyanide	0.005	U	mg CN/L	0.005	0.02
3/25/2013 9:50	Field Blanks	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Metribuzin	0.098	U	ug/L	0.098	0.39
3/25/2013 9:50	Field Blanks	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.59
3/25/2013 9:50	Field Blanks	Pesticides	Alachlor	0.30	U	ug/L	0.3	1.2
3/25/2013 9:50	Field Blanks	Pesticides	Azinphos Methyl	0.098	U	ug/L	0.098	0.39
3/25/2013 9:50	Field Blanks	Pesticides	Mevinphos	0.049	U	ug/L	0.049	0.2

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 9:50	Field Blanks	Pesticides	Metalaxyl	0.20	U	ug/L	0.2	0.79
3/25/2013 9:50	Field Blanks	Pesticides	Malathion	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.098
3/25/2013 9:50	Field Blanks	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.59
3/25/2013 9:50	Field Blanks	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Prometryn	0.098	U	ug/L	0.098	0.39
3/25/2013 9:50	Field Blanks	Pesticides	Phorate	0.025	UJ	ug/L	0.025	0.098
3/25/2013 9:50	Field Blanks	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Parathion Ethyl	0.098	U	ug/L	0.098	0.39
3/25/2013 9:50	Field Blanks	Pesticides	Naled	0.20	U	ug/L	0.2	0.79
3/25/2013 9:50	Field Blanks	Pesticides	Metolachlor	0.30	U	ug/L	0.3	1.2
3/25/2013 9:50	Field Blanks	Pesticides	Parathion Methyl	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Fonofos	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.59
3/25/2013 9:50	Field Blanks	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Chlorpyrifos Methyl	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Butylate	0.098	U	ug/L	0.098	0.39
3/25/2013 9:50	Field Blanks	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
3/25/2013 9:50	Field Blanks	Pesticides	Bromacil	0.20	U	ug/L	0.2	0.79
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	44
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzo(k)fluoranthene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Butyl benzyl phthalate	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Di-n-butyl phthalate	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	3,3'-Dichlorobenzidine	44	U	ug/L	44	180
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,4-Dinitrophenol	17	U	ug/L	17	67
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Acenaphthylene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzidine	110	U	ug/L	110	440
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzo(a)pyrene	0.22	U	ug/L	0.22	0.89

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.2	U	ug/L	2.2	8.9
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Dimethyl phthalate	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Pyrene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.2	U	ug/L	2.2	8.9
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzo(b)fluoranthene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Fluorene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.2	U	ug/L	2.2	8.9
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Naphthalene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Benzo(a)anthracene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Fluoranthene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2	U	ug/L	2.2	8.9
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Pentachlorophenol	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Hexachlorobutadiene	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Hexachloroethane	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Nitrobenzene	2.2	U	ug/L	2.2	8.9
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	4-Nitrophenol	17	U	ug/L	17	67
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Acenaphthene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Anthracene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Chrysene	0.22	U	ug/L	0.22	0.89
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.4
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.3	U	ug/L	3.3	13
3/25/2013 9:50	Field Blanks	Priority Organic Pollutants	Phenanthrene	0.22	U	ug/L	0.22	0.89
3/27/2013 8:00	Arlington East WWTF - 24HTC	Field Parameter	Total Residual Chlorine	0.01		mg/L		
3/27/2013 8:00	Arlington East WWTF - 24HTC	Field Parameter	Temperature	1.2		C		
3/29/2013 8:00	Arlington East WWTF-24HTC	Field Parameter	Total Residual Chlorine	0.01		mg/L		

Date Sampled	Field ID	Analysis Group	Component	Result	Remark	Units	MDL	PQL
3/29/2013 8:00	Arlington East WWTF-24HTC	Field Parameter	Temperature	0.6		C		
3/29/2013 10:35	Equipment Blank	Metals	Copper	0.50	U	ug/L	0.5	1
3/29/2013 10:35	Equipment Blank	Nutrients	Kjeldahl Nitrogen	0.080	U	mg N/L	0.08	0.2
3/29/2013 10:35	Equipment Blank	Nutrients	Ammonia-N	0.002	U	mg N/L	0.002	0.005
3/29/2013 10:35	Equipment Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
3/29/2013 10:35	Equipment Blank	Nutrients	Total-P	0.002	I	mg P/L	0.002	0.005

Appendix E
Bioassay Bench Sheets

FDEP Biology Laboratory - Chronic Definitive Bench Sheet
Ceriodaphnia dubia

Facility: Arlington East WWTF
Address: 1555 McCoe Rd Jacksonville
County: Duval
NPDES Permit #: FL 0038822 MF 26441
Contact/District: Evan ali / Northeast MF

LIMS entry: 4-11-13 MF verified: BA 4.11.13

Diluent/ Batch: MHWCD / 3-15-13 Test Days Used: 0 – 3
MHWCD / 3-27-13 Test Days Used: 4-7

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

Organism: *Ceriodaphnia dubia*
Organism Batch #: 3-26-13
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-2013-03-26-29	1491409	3/25/13 0800	3/26/13 1015
Test Day 2	2	TLH-2013-03-28-67	1491923	3/27/13 0800	3/28/13 0955
Test Day 4	3	TLH-2013-04-09-08	1493879	3/29/13 0800	3/30/13 0935 BA

Batch #	3-15-13	3-27-13	NA	NA	NA			
Water Quality Parameters	MHWCD	MHWCD	Sample 1	Sample 2	Sample 3	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	<0.01	<0.01	<0.01		at facility	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	<0.03	<0.03	<0.03	MF/CR/AP →	JS	MF
Alkalinity (mg/L as $CaCO_3$):	71	74	153	156	151		AP/CR/JS	MF
Hardness (mg/L as $CaCO_3$):	91	108	325	313	320		AP/CR/JS	MF
Total Ammonia (mg/L as N):	<0.017	<0.017	<0.017	<0.017	<0.017		MF	AP
Conductivity: ~~µmhos~~ mmhos:	324	332	1344	1387	1415		MF/BA/AP	MF BA
Salinity (ppth):								

Test Incubated in: Incubator #: 3

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 # 3 min: 25.2 max 27.3
Room B246 min: 24.1 max: 25.5
Test min. 23.3 max. 25.2

Loaded by: MF

Test Replicates	Loaded from culture vial
1	B1
2	B1
3	B13
4	B14
5	A8
6	A23
7	A24
8	A25
9	B25
10	B11

Results	
Control % CV:	5.13%
Dunnetts PMSD:	57.1% MF
Reproduction NOEC:	~~100%~~ 100%
Reproduction LOEC:	>100%
Survival NOEC:	100%
Survival LOEC:	>100%
ICP_{20}:	>100%
ICP_{25}:	>100%

Investigators' signatures

	Initials
Marshall Faircloth	MF
Adrienne Pennington	AP
~~Evan Ali~~	~~EA~~
Cassidy Rowland	CR
Jackie Savage	JS
Liz Mallon	LM

REVIEWER

Comments:

Test Page 1 of 6 PAGE 1

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Arlington East WWTF

LIMS Sample #: 1491409 for lab sample #1

Start Date: 3-26-13 Time: 1245

End Date: 4-3-13 Time: 1400

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organisms	Neonates per female
Control	0*											0	10	0
	1											0	10	0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0(AP)	1(#)	0	3	0	0	2	6	10	0.6
	4	5	0	0	8	0	0	10	8(#)	0	0	31	10	3.1
	5	0	0	10	0	X	0	0	0	4	5	19	9	2.1
	6	6	9	7	9	1	0	13	0	0	0	44	9	4.9
	7	0	2	12	5	1	0	0	0	5	0	24	9	2.7
	8	13	12	0	0	1	0	(11)	3	0	10	38	9	4.2
	Total	24	23	29	22	2(#)	0	26	11	9	17	162	9	18

Page 2

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organisms	Neonates per female
6.25%	0*											0	10	
	1											0	10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	2	0	0	2	4	0	0	0	0	8	10	0.8
	4	0	9	3	8	0	7	0	0	X	0	27	9	2.7
	5	0	0	0	0	0	0	3	5	|	4	12	9	1.2
	6	3	8	0	9	11	13	2	0	|	0	46	9	4.6
	7	1	M(12)	5	9	9	(13)	5	0	|	X0	35	8	3.5
	8	1	0	12	0	0	0	6(#)	11	|	1	24	8	2.4
	Total	54	19	20	26	22	24	16	16	0	4	152	8	15.2

MF

Organisms loaded by: _____

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

Concentration	Mean neonates /female	% survival
Control	18	90
6.25%	15.2	MF 9080
12.50%	17	90
25%	19.3	90
50%	17.9	80
100%	20.8	100

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

Comments: (#) = 4th brood not counted MF 4-3-13

(5) = split brood

*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: Arlington East WWTF

LIMS Sample # : 1491409 for lab sample #1

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organism	Neonates per female
	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	2	0	0	2	0	2	0	0	0	0	6 mf	10	0.6 mf
(A) 12.50%	4	5	0	0	0	0	3	3	5	0	4	14	10	1.4
	5	0	0	0	0	8	2	10	0	8	8	24	10	2.4
	6	11	0	13	5	0	10	11	7	5	2	64	10	6.4
	7	(5)	X5	4	12	10	(1)	8	0	0	0	39	9	3.9
	8	0	0	0	(9)	10	(0)	(14)	0	13	(2)	23 mf	9	2.3 mf
	Total	18	5	17	19	28	15	23	8	26	11	179 2	9	17.82

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organism	Neonates per female
	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	2	0	0	0	0	0	0	0	2	10	0.2
25%	4	2	3	2	0	3	5	7	0	0	3	25	10	2.5
	5	0	0	0	0	0	0	0	0	7	11	MF 18	10	1.8
	6	6	9	10	4	0	0	15	0	10	6	62	10	6.2
	7	2(6)	11	(6)	7	8	0	10	5	0	0	41	10	4.1
	8	12	(10)	0	15	1	X0	(4)	6	11	(1)	45 mf	9	4.5
	Total	22	23	14	26	12	5	32	11	28	20	193	9	19.3

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organism	Neonates per female
	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	2	0	0	3	5	10	0.5
50%	4	0	5	(6)	6	7	11	6	X	2	0	37	9 mf	3.7
	5	X	0	9	0	0	0	0	-	7	6	22 mf 28	8	2.2
	6		0	7	13	8	8	14		0	13	63	8	6.3
	7		0	8	11	6	15	(2)		0	0	40	8	4.0
	8		8	0	0	(9)	0	(17)	1	4	0	12	8	1.2
	Total	0	13	24	30	21	34	22	0	13	22	179	8	17.9

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving orginal organism	Neonates per female
	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
100%	4	0	6	10	8	2	5	6	0	0	0	37	10	3.7
	5	0	0	0	8	0	10	0	0	6	7	31	10	3.1
	6	10	11	14	0	8	0	10	7	0	7	68	10	6.8
	7	7	9	13	0	11	2	15	0	0	6	48 mf 52	10	5.2
	8	5	(14)	0	15	(15)	4(9)	0	0	0	(4)	20	10	2
	Total	22	26	37	31	21	21	17	7	6	20	208	10	20.8

Comments: (A) Day 4, Rep 6, 7, 8 had 3.5, 3.1 Neonates respectively BS 3.30.13

(S)- split (#) = 4th brood not counted

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Arlington SOP TA07_05

LIMS Sample #: 491409 for lab sample 1

4 mf

Circle µmhos-cm or mmhos-cm

Test Day ←		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	8.0	24.0	8.0	324					
	1	6.25%	M	8.0	24.2	8.0	393					
	1	12.5%	M	7.9	24.2	8.0	460					
	1	25%	M	7.8	24.2	8.0	589					
	1	50%	M	7.6	24.2	8.0	846					
	1	100%	M	7.5	24.0	8.0	1344					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	8.0	25.7	7.8	330	M	8.2	24.1	7.8	356
	1	6.25%	M	8.0	25.7	8.1	408	M	8.2	24.2	7.9	437
	1	12.5%	M	8.0	25.4	8.3	477	M	8.2	24.2	7.9	508
	1	25%	M	7.8	24.4	8.4	609	M	8.2	24.3	8.0	618
	1	50%	M	7.7	25.2	8.5	851	M	8.2	24.7	8.1	871
	1	100%	M	7.5	25.2	8.7	1394	M	8.0	24.5	8.1	1390
	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	7.8	23.7	8.1	432	M	8.1	24.4	8.1	345
	2	6.25%	M	7.9	23.6	8.2	386	M	8.1	24.8	8.2	398
	2	12.5%	M	8.0	23.7	8.2	448	M	8.1	24.6	8.0	475
	2	25%	M	8.0	23.7	8.2	577	M	8.1	24.7	8.0	607
	2	50%	M	8.1	24.2	8.2	835	M	8.1	24.7	8.0	867
	2	100%	M	8.2	24.8	8.2	1337	M	8.2	24.7	8.0	1369
	Measured by:			AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:			AP	AP	AP	AP		AP	AP	AP	AP
Day 3	sample:	Control	M	7.9	24.0	7.8	500	M	8.1	23.3	8.0	402
	2	6.25%	M	7.9	24.1	7.8	390	M	8.1	23.7	8.0	403
	2	12.5%	M	7.9	24.3	7.9	457	M	8.1	24.3	8.0	450
	2	25%	M	7.9	24.3	7.9	589	M	8.1	24.5	7.9	630
	2	50%	M	7.9	24.5	7.9	828	M	8.2	24.7	8.0	894
	2	100%	M	8.0	25.0	8.0	1333	M	8.3	24.5	7.9	1472
	Measured by:			AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:			AP	AP	AP	AP		AP	AP	AP	AP

Comments:

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

Test Page 4 of 6 PAGE 4 revised 02/15/13 MF

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Arlington East SOP TA07_05

LIMS Sample #: 1491409 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4 ←	sample:	Control	M	7.2	25.1	6.9	332	M	7.7	24.0	7.3	383
	3	6.25%	M	7.3	24.7	7.0	400	M	7.7	24.0	7.4	435
	3	12.5%	M	7.3	24.5	7.2	471	M	7.7	24.0	7.5	521
	3	25%	M	7.3	24.4	7.3	610	M	7.7	24.0	7.5	690
	3	50%	M	7.3	24.3	7.3	876	M	7.7	24.0	7.6	978
	3	100%	M	7.3	24.2	7.4	1407	M	7.9	24.0	7.8	1618
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 5	sample:	Control	M	7.2	25.6	6.9	313	M	7.7	24.1	7.3	368
	3	6.25%	M	7.2	25.2	6.8	382	M	7.7	24.0	7.2	484
	3	12.5%	M	7.3	24.7	6.8	450	M	7.7	24.0	7.1	545
	3	25%	M	7.3	24.6	6.9	577	M	7.7	24.0	7.1	656
	3	50%	M	7.3	24.4	6.9	845	M	7.7	24.0	7.1	990
	3	100%	M	7.3	24.2	6.9	1396	M	7.7	24.0	7.2	1670
	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	24.4	7.5	324	M	8.2	24.6	7.5	339
	3	6.25%	M	8.1	24.9	7.5	401	M	8.1	24.8	7.6	408
	3	12.5%	M	8.0	24.9	7.4	471	M	8.1	24.8	7.6	480
	3	25%	M	8.0	24.8	7.6	605	M	8.0	24.8	7.8	619
	3	50%	M	7.9	24.7	7.6	869	M	8.0	24.7	7.8	918
	3	100%	M	7.8	24.5	7.7	1415	M	8.0	24.8	7.9	1446
	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	7.8	24.2	7.6	315	M	7.8	24.2	7.5	354
	3	6.25%	M	7.8	24.3	7.5	379	M	7.8	24.0	7.7	436
	3	12.5%	M	7.7	24.4	7.5	449	M	7.8	24.2	7.8	496
	3	25%	M	7.7	24.3	7.4	578	M	7.8	24.7	7.7	618
	3	50%	M	7.7	24.3	7.4	835	M	7.8	24.6	7.7	863
	3	100%	M	7.6	24.2	7.4	1345	M	7.9	24.5	7.6	1482
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 8	sample:	Control	M					M	8.1	24.2	7.5	338
	3	6.25%	M					M	8.1	24.3	7.6	403
	3	12.5%	M					M	8.1	24.2	7.5	469
	3	25%	M					M	8.0	24.2	7.6	606
	3	50%	M					M	8.0	24.2	7.6	884
	3	100%	M					M	8.1	24.5	7.6	1481
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF

Comments:

Test Page 5 of 6

PAGE 5

revised 02/15/13 MF

Test ID: Arlington East Unit F Dates: 3-26-13 — 4-3-13

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #4
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

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

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

Entered By: M. Faircloth 4-4-13

V 1.3 2/15/13 MF

PAGE 6

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Arlington East WWTF
Address: 15554 Millcoe Rd Jacksonville, FL 32225
County: Duval
NPDES Permit #: FL0026441
Contact/District: Teresa Ali / Northeast

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

Start Date: 3.26.13 Time: 1300
End Date: 4.2.13 Time: 900

Diluent/ Batch:
MHW / 3.20.13 Test Days Used: 0-6
MHW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____

Organism age : <24 hrs ~~days~~
Feeding Prior to Test and Daily
Artemia Lot # : 38812
Chamber size : 1000 ml
Test volume : 500 ml

Organism Batch #:	
Artemia Batch #	Day 3 57.13
Day 0 54.13	Day 4 58.13
Day 1 55.13	Day 5 59.13
Day 2 56.13	Day 6 60.13

LIMS entry: 4-11-13 MF Entry verification: 4.11.13 BR

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2013-03-26	1491409	3-25-13/800	3-26-13/10:15
Test Day 2	2	TLH-2013-03-28-6701	1491923	3-27-13/8:00	3-28-13/9:55
Test Day 4	3	TLH-2013-04-01-08	1493879	3-29-13/0800	3-30-13/9:40

Water Quality Parameters	Batch # 3-20-13 MHW ~~ASW~~ (circle one)	MHWCD ASW (circle one)	Sample 1 NA	Sample 2 NA	Sample 3 NA	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	<0.01	<0.01	<0.01		at facility	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	<0.03	<0.03		MF/AP/CR	CR/MF
Alkalinity (mg/L as $CaCO_3$):	71	153 AP	~~153~~	156	151		AP/JS	MF/AP
Hardness (mg/L as $CaCO_3$):	83	AP	~~325~~	313	326		AP/JS	MF/AP
Total Ammonia (mg/L as N):	<0.017	<	<0.017	<0.017	<0.017		MF	AP
Conductivity ~~µmhos~~ mmhos:	351		1380	1336	1347		AP	MF
Salinity (ppth):								

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min 25.1 max 26.1
Water bath # ____ min._____ max._____
Room B246 min 24.1 max 25.5

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)

Statistics	
Growth NOEC:	100%
Growth LOEC:	>100%
Growth IC_{20}:	>100%
Growth IC_{25}:	>100%
Ctrl % CV:	7.87%
Dunnetts PMSD:	22.1%
Survival NOEC:	100%
Survival LOEC:	>100%

Investigators' signatures
Adrienne Brumley Initials: AP
Cassidy Reichelt CR
Marshall Goodwin MF
Bruce Alder BA
Jackie Lange JL
_____
Shannon SM
REVIEWER

Comments:

PAGE 1

revised 03/28/13 MF

Chronic Bioassay Survival Benchsheet

Facility: Arlington East

LIMS Sample Number: 1491409
(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	9 [1D]
Sample 6.25%	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 12.5 %	A	10	10	10	10	10	9 [1D]	8 [1D]	8
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 25 %	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 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	9 [1D]	9
Sample 100 %	A	10	10	10	10	10	10	10	10
	B	10	10	9 [1D]	9	9	9	8 [1D]	8
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: AP	Checked by:		AP	AP	AP	AP	BA	AP/CR	BA
Verified by: MF									

Comments:

Page 00002

Chronic Bioassay Parameters Benchsheet

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

Sample Source: Arlington East

LIMS Sample #: 1491409 (for Lab sample #1)

conc = concentration rep = replicate circle umhos or mmhos

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0 sample:	Control	A	7.5	23.9	8.0	351							
1	6.25%	A	7.5	24.2	8.0	419							
1	12.5%	A	7.7	24.2	7.9	455							
1	25%	A	7.8	24.3	7.9	588							
1	50%	A	7.8	24.8	8.0	862							
1	100%	A	7.8	24.5	8.0	1386							
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	7.5	24.9	7.9	367		B	7.5	23.6	7.9	333	
1	6.25%	B	7.6	25.6	8.0	434		B	7.6	23.5	7.8	367	
1	12.5%	B	7.6	26.0	7.8	487		B	7.6	23.5	7.6	427	
1	25%	B	7.7	25.8	7.6	605		B	7.8	23.6	7.7	551	
1	50%	B	7.8	26.0	7.5	876		B	7.9	23.4	7.7	808	
1	100%	B	8.0	25.2	7.4	1390		B	7.9	23.7	7.5	1270	
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	25.7	7.2	466		C	7.5	23.7	7.7	409	
2	6.25%	C	7.5	25.9	7.2	396		C	7.5	23.8	7.6	371	
2	12.5%	C	7.5	25.6	6.9	460		C	7.6	23.7	7.6	434	
2	25%	C	7.5	26.0	6.8	590		C	7.6	23.7	7.5	579	
2	50%	C	7.6	26.0	6.8	860		C	7.8	24.0	7.4	843	
2	100%	C	7.8	25.8	6.6	1357		C	8.0	24.5	7.4	1336	
2		C						C					
Measured by:			AP	AP	AP	AP			AP	AP	AP	AP	
Recorded by:			AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3 sample:	Control	D	7.9	25.1	7.1	303		D	7.4	24.5	7.5	319	
2	6.25%	D	7.9	25.5	7.1	375		D	7.4	24.3	7.4	375	
2	12.5%	D	7.8	25.6	7.0	451		D	7.5	24.4	7.3	447	
2	25%	D	7.8	25.1	7.0	585		D	7.6	24.4	7.3	583	
2	50%	D	7.8	26.0	6.7	857		D	7.8	24.3	7.3	867	
2	100%	D	7.9	25.4	6.7	1381		D	7.9	24.2	6.7	1405	
2		D						D					
Measured by:			AP	AP	AP	AP			CR	AP	CR	CR	
Recorded by:			AP	AP	AP	AP			AP	CR	AP	AP	

Comments:
3-28-13 Employees reminded to ensure dilutant and sample temperature are ≥ 24°C prior to renewal, BPJ temperature range (low ~~18°C~~ to high)(23.4-26.6) did not affect outcome of Test. Incubator temperature range 25.1-26.1°C MF 4-17-13

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

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Chronic Bioassay Parameters Benchsheet

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

parameter pg. 2

Sample Source: AP E Arlington East

LIMS Sample #: 1491409 (for Lab sample #1)

conc = concentration rep = replicate

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos mmhos)	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos mmhos)	Salinity ppth
Day 4	sample:	Control	A	7.4	24.4	6.8	393		A	7.8	24.1	7.5	312	
	3	6.25%	A	7.4	25.9	6.4	382		A	7.8	24.2	7.3	364	
	3	12.5%	A	7.4	25.8	6.4	449		A	7.8	24.2	7.1	436	
	3	25%	A	7.3	25.7	6.4	593		A	7.7	24.2	7.2	582	
	3	50%	A	7.5	25.7	6.1	864		A	7.7	24.3	7.2	852	
	3	100%	A	7.7	25.8	6.0	1375		A	7.8	24.3	7.1	1347	
	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	7.2	25.8	6.1	318		B	7.2	25.6	6.7	300	
	3	6.25%	B	7.3	25.8	6.0	394		B	7.2	24.7	6.6	374	
	3	12.5%	B	7.2	25.8	6.2	463		B	7.2	24.6	6.6	453	
	3	25%	B	7.2	25.3	6.2	614		B	7.2	24.5	6.7	588	
	3	50%	B	7.2	24.8	6.1	907		B	7.3	24.3	6.8	874	
	3	100%	B	7.5	25.0	6.1	1409		B	7.4	24.3	6.8	1392	
	3		B						B					
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.4	26.3	6.1	386		C	7.4	24.7	7.2	362	
	3	6.25%	C	7.4	26.5	6.6	373		C	7.5	24.6	7.2	361	
	3	12.5%	C	7.4	26.6	6.5	452		C	7.5	24.6	7.1	426	
	3	25%	C	7.4	26.0	6.3	584		C	7.5	24.6	7.1	561	
	3	50%	C	7.5	25.8	6.0	860		C	7.5	24.5	7.1	823	
	3	100%	C	7.8	26.0	6.0	1391		C	7.7	24.5	7.1	1331	
	3		C						C					
	Measured by:			CR	CR	CR	CR			AP	AP	AP	AP	
	Recorded by:			AP	AP	AP	AP			CR	CR	CR	CR	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control	D	7.4	25.9	6.2	312		D					
	3	6.25%	D	7.4	24.9	6.1	392		D					
	3	12.5%	D	7.4	25.9	6.2	446		D					
	3	25%	D	7.3	26.0	6.0	593		D					
	3	50%	D	7.3	25.8	5.7	842		D					
	3	100%	D	7.4	25.8	5.7	1392		D					
	3								D					
	Measured by:			BA	BA	BA	BA							
	Recorded by:			BA	BA	BA	BA							

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: Arlington East

LIMS Sample Number: 1491409
(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	0.02268	0.02733	0.00465	10	0.465	
	B	2	0.02783	0.03338 (3CR)	0.00555	10	0.555	0.503
	C	3	0.02727	0.03238	0.00511	10	0.511	
	D	4	0.02281	0.02762	0.00481	10	0.481	
sample 6.25 %	A	5	0.02315	0.02881	0.00566	10	0.566	
	B	6	0.02198	0.02777	0.00579	10	0.579	
	C	7	0.02329	0.02989	0.00660	10	0.660	0.59
	D	8	0.02376	0.02952	0.00576	10	0.576	
sample 12.5 %	A	9	0.02337	0.02770	0.00433	10	0.433	
	B	10	0.02296	0.02956	0.00660	10	0.660	
	C	11	0.02291	0.02915	0.00624	10	0.624	0.56
	D	12	0.02279	0.02833	0.00554	10	0.554	
sample 25 %	A	13	0.02320	0.02816	0.00496	10	0.496	
	B	14	0.02247	0.02905	0.00658	10	0.658	
	C	15	0.02354	0.02987	0.00633	10	0.633	0.59
	D	16	0.02399	0.02980	0.00581	10	0.581	
sample 50 %	A	17	0.02399	0.03035	0.00636	10	0.636	
	B	18	0.02446	0.03027	0.00581	10	0.581	
	C	19	0.02342	0.03060	0.00718	10	0.718	0.62
	D	20	0.02440	0.02984	0.00544	10	0.544	
sample 100%	A	21	0.02278	0.02873 (2CR)	0.00595	10	0.595	
	B	22	0.02403	0.02903	0.00500	10	0.500	
	C	23	0.02297	0.02841	0.00544	10	0.544	0.54
	D	24	0.02382	0.02932	0.00550	10	0.550	
sample %	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by initials:		BA	CR/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: Arlington East

LIMS Sample Number: 1491409
(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: BA
Final weighed by: AP/CR

Tare Weighing Date: 4.1.13 Final Weighing Date: 4.3.13

			Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02269	@0.02268	S-weights	@	
Tare Pan 1 after Pan 10 (g)	0.02267	@0.02268	at tare	@	
Tare Pan 1 after Pan 15 (g)	0.02267	@0.02268	S-weights	@	
Tare Pan 1 after Pan 20 (g)	0.02267	@0.02268	at final	@	
Tare Pan 1 after Pan 25 (g)	0.02266	@0.02268			
Tare Pan 1 after Pan 30 (g)		@			
Tare Pan 1 after Pan 35 (g)		@			
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)	0.02732	@0.02733			
Final Pan 1 after Pan 10 (g)	0.02737	@0.02733			
Final Pan 1 after Pan 15 (g)	0.02734	@0.02733			
Final Pan 1 after Pan 20 (g)	0.02733	@0.02733			
Final Pan 1 after Pan 25 (g)	0.02735	@0.02733			
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)		@			

S-weights at tare	0.01001	@	0.01
	0.03000	@	0.03
S-weights at final	0.01003	@	0.01
	0.05002	@	0.05

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

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

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Test ID: Arlington East WWTF Dates: March 26-April 2, 2013

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #4
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓

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

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

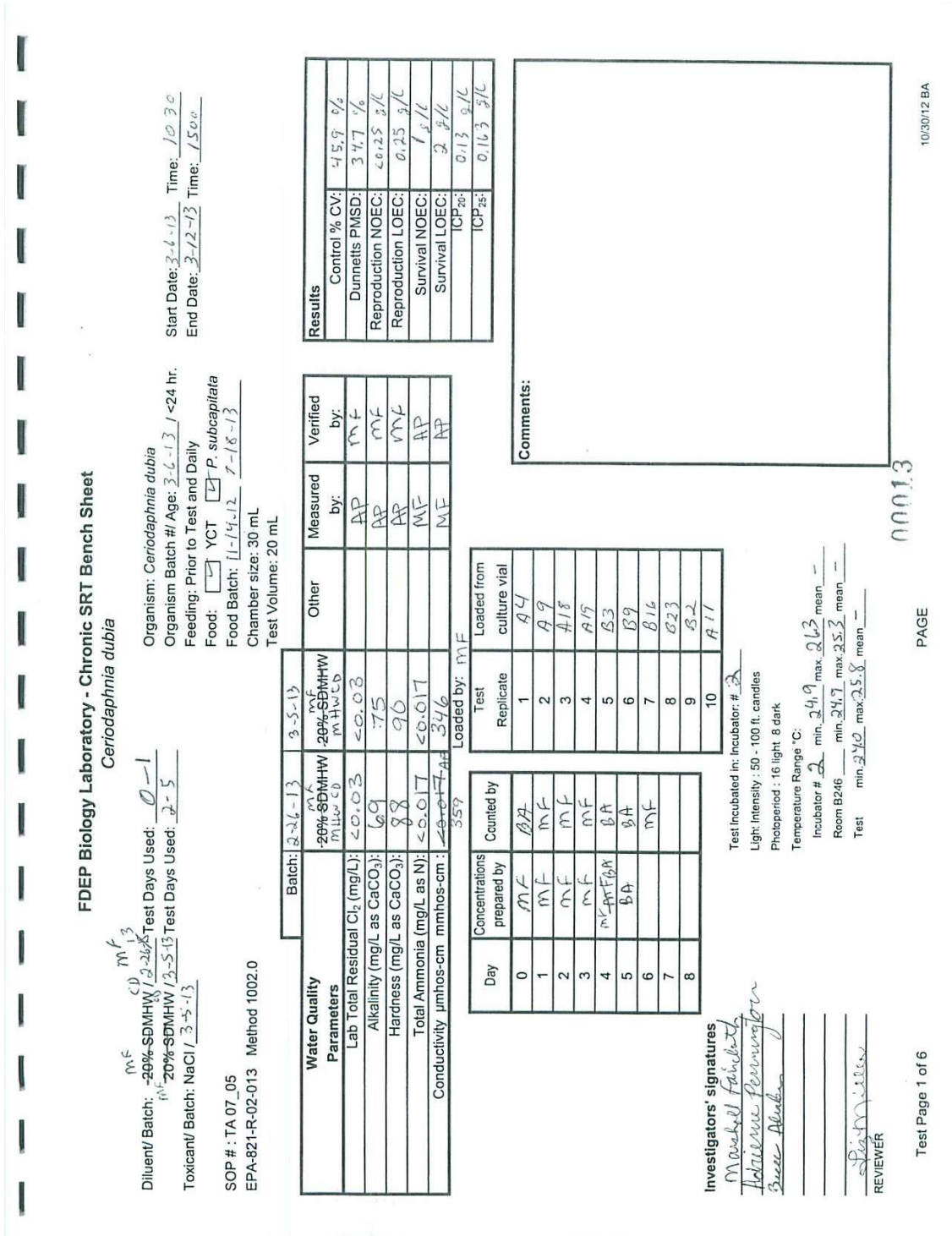
Entered By: 4.4.13 AP

V 1.3 2/15/13 MF

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Appendix F
Standard Reference Toxicant Data



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: ~~20% SDMHW~~ / 2-26-13 Test Days Used: 0-1

Toxicant/ Batch: NaCl / 3-5-13 Test Days Used: 2-5

Organism: *Ceriodaphnia dubia*

Organism Batch #/ Age: 3-6-13 / <24 hr.

Feeding: Prior to Test and Daily

Food: ☐ YCT ☐ *P. subcapitata*

Food Batch: 11-14-12 2-18-13

Chamber size: 30 mL

Test Volume: 20 mL

Start Date: 3-6-13 Time: 1030

End Date: 3-12-13 Time: 1500

SOP # : TA 07_05

EPA-821-R-02-013 Method 1002.0

Water Quality Parameters	Batch:	2-26-13	3-5-13	Other	Measured by:	Verified by:
		~~20% SDMHW~~ MHWCO	~~20% SDMHW~~ MHWCO			
Lab Total Residual Cl_2 (mg/L):		<0.03	<0.03		AP	MF
Alkalinity (mg/L as $CaCO_3$):		69	75		AP	MF
Hardness (mg/L as $CaCO_3$):		88	90		AP	MF
Total Ammonia (mg/L as N):		<0.017	<0.017		MF	AP
Conductivity µmhos-cm mmhos-cm :		359	346		MF	AP

Loaded by: MF

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

Test Replicate	Loaded from culture vial
1	A4
2	A9
3	A18
4	A15
5	B3
6	B9
7	B16
8	B23
9	B2
10	A11

Results	
Control % CV:	45.9 %
Dunnetts PMSD:	34.7 %
Reproduction NOEC:	<0.25 g/L
Reproduction LOEC:	0.25 g/L
Survival NOEC:	1 g/L
Survival LOEC:	2 g/L
IC_{20}:	0.13 g/L
IC_{25}:	0.163 g/L

Comments:

Investigators' signatures

Test Incubated in: Incubator: # 3

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 24.9 max. 26.3 mean –

Room B246 ___ min. 24.7 max. 25.3 mean –

Test min. 24.0 max. 25.8 mean –

REVIEWER

Test Page 1 of 6

PAGE

10/30/12 BA

Ceriodaphnia dubia Survival and Reproduction

Start Date: 3-6-13 Time: 1030 Loaded by: MF
End Date: 3-12-13 Time: 1500 Verified by: BA

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
g/L (wed) (ppth) NaCl thurs fri SAT SUN Control mon tues	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	4	4	0	4	0	0	0	0	12	10	1.2
	4	2	9	7	8	6	9	1	8	3	5	59	10	5.9
	5	6	9	0	10	9	0	0	9	9	6	48	10	4.8
	6	0	9	12	11	7	10	1	10	11	0	71	10	7.1
	7													
	8													
	Total	8	27	23	24	22	23	2	27	23	11	190	10	19.0
0.25 ~~0.59~~ ppth MF	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	0	0	0	0	0	0	0	0	0	4	10	0.4
	4	6	3	2	5	3	3	4	7	1	5	39	10	3.9
	5	0	6	1	0	4	0	6	4	0	0	21	10	2.1
	6	8	0	0	7	13	X0	11	3	8	0	50	9	5.0
	7													
	8													
	Total	18	9	3	12	20	3	21	14	9	5	114	9	11.4
0.5 ~~0.89~~ ppth MF	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	X0	0	9	0
	3	0	0	4	0	0	4	0	2	1		11	9	1.1
	4	4	4	8	6	0	7	0	9	5		43	9	4.3
	5	0	9	0	0	5	0	2	0	0		16	9	1.6
	6	5	4	8	6	8	7	2	5	5		50	9	5.0
	7													
	8													
	Total	9	17	20	12	13	18	4	16	11		120	9	12.0

Comments: (S) = split brood

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
g/L 1.0 mf ~~2 mf~~ ~~1.3~~ ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	3	X0	0	0	0	0	0	X	X	3	7	0.3
	4	5	4	|	2	2	0	2	4	|	|	19	7	1.9
	5	0	0	|	3	4	3	6	0	|	|	16	7	1.6
	6	5 1mf	5	|	5	7	6	4	5	|	|	37	7	3.7
	7			|						|	|			
	8			|						|	|			
	Total	10	12	0	10	13	9	12	9	0	0	75	7	7.5
g/L 2.0 mf ~~2 mf~~ ~~2.0~~ ppth	0												10	
	1	X0	X0	0	0X	X0	0	X0	X0	0	X0	0	3	
	2	|	|	0	|	|	0	0mf	0mf	X	0mf	0	2	0
	3	|	|	0	|	|	0	|	|	|	|	0	2	0
	4	|	|	0	|	|	0	|	|	|	|	0	2	0
	5	|	|	0	|	|	0	|	|	|	|	0	2	0
	6	|	|	0	|	|	0	|	|	|	|	0	2	0
	7	|	|	|	|	|	|	|	|	|	|			
	8	|	|	|	|	|	|	|	|	|	|			
	Total	0	0	0	0	0	0	0	0	0	0	0	2	0
g/L ~~4 mf~~ ~~3.0~~ ppth	0												10	
	1	X	X	X	X	X	X	X	X	X	X	0	0	
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0 ←	Control	M	8.0	24.0	8.1	359					
	0.25 MF 0.59 ppth	M	7.9	24.3	8.1	868					
	0.5 MF 0.89 ppth	M	7.9	24.5	8.2	1384					
	1 MF 1.3ppth	M	7.9	24.5	8.2	2360					
	2.0 ppth	M	7.9	24.4	8.2	4250					
	4 MF 3.0 ppth	M	7.9	24.4	8.2	7940					
	Measured by:		MF	MF	MF	MF					
	Recorded by:		MF	MF	MF	MF					
Day 1	Control	M	7.9	24.1	8.0	339	A	8.0	25.1	8.3	397
	0.25 MF 0.59 ppth	M	7.9	24.5	8.0	864	A	8.0	25.2	8.4	985
	0.5 MF 0.89 ppth	M	7.9	24.4	8.1	1350	A	8.0	25.9	8.4	1452
	1 MF 1.3ppth	M	7.9	24.5	8.0	2310	A	8.0	25.6	8.4	2580
	2.0 ppth	M	7.9	24.6	8.1	4150	A	8.0	24.9	8.3	4500
	4 MF 3.0 ppth	M					A	8.0	24.4	8.3	8510
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 2	Control	M	8.0	24.2	8.3	326	A	8.0	25.5	7.9	346
	0.25 MF 0.59 ppth	M	8.0	24.5	8.2	828	A	8.0	25.6	8.0	872
	0.5 MF 0.89 ppth	M	8.0	24.3	8.0	1273	A	8.0	257	7.9	1348
	1 MF 1.3ppth	M	8.0	24.3	8.1	2150	A	8.0	25.4	7.9	2360
	2.0 ppth	M	8.0	24.3	8.1	4080	C	8.0	25.2	8.0	4170
	4 MF 3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 3	Control	M	7.8	24.0	7.9	342	A	7.8	25.2	8.0	380
	0.25 MF 0.59 ppth	M	7.8	24.3	8.0	912	A	7.8	25.4	8.1	960
	0.5 MF 0.89 ppth	M	7.8	24.2	8.0	1397	A	7.8	25.5	8.0	1440
	1 MF 1.3ppth	M	7.9	24.1	8.1	2300	A	7.9	25.3	8.1	2440
	2.0 ppth	M	7.9	24.1	8.1	4000	C	7.9	25.8	8.2	4230
	4 MF 3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF

Comments:

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

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	7.9	24.0	6.3	~~1260~~ 231	A	7.6	24.7	7.4	340
	0.25 mf 0.59 ppth	M	7.4	24.0	6.4	850	A	7.6	24.6	7.0	899
	0.5 mf 0.89 ppth	M	7.4	24.0	6.9	1322	A	7.6	24.5	7.0	1399
	0 mf 1.3ppth	M	7.3	24.0	7.0	2270	A	7.6	24.4	7.1	2330
	2.0 ppth	M	7.3	24.0	7.1	4010	C	7.6	24.4	7.1	4090
	4 mf 3.0 ppth	M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 5	Control	M	7.3	25.2	7.0	325	A	7.3	25.6	7.4	377
	0.25 mf 0.59 ppth	M	7.3	25.0	7.0	814	A	7.4	25.1	7.2	923
	0.5 mf 0.89 ppth	M	7.3	24.9	7.1	1301	A	7.4	25.0	7.2	1437
	0 mf 1.3ppth	M	7.3	24.8	7.2	2180	A	7.4	24.9	7.2	2540
	2.0 ppth	M	7.4	24.7	7.2	3910	C	7.4	24.8	7.3	4430
	4 mf 3.0 ppth	M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 6	Control	M					A	8.2	25.3	7.8	385
	0.25 mf 0.59 ppth	M					A	8.2	25.0	7.7	924
	0.5 mf 0.89 ppth	M					A	8.2	25.3	7.7	1432
	0 mf 1.3ppth	M	Not Renewed				A	8.2	25.3	7.6	2420
	2.0 ppth	M	on DAY 6				C	8.2	25.1	7.6	4320
	4 mf 3.0 ppth	M									
	Measured by:							MF	MF	MF	MF
	Recorded by:							MF	MF	MF	MF
Day 7	Control	M									
	0.25 mf 0.59 ppth	M									
	0.5 mf 0.89 ppth	M									
	0 mf 1.3ppth	M									
	2.0 ppth	M									
	4 mf 3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	0.25 mf 0.59 ppth	M									
	0.5 mf 0.89 ppth	M									
	0 mf 1.3ppth	M									
	2.0 ppth	M									
	4 mf 3.0 ppth	M									
	Measured by:										
	Recorded by:										

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

Ceriodaphnia dubia Chronic SrT 2-6-13 — 3-12-13

BIOASSAY INSTRUMENT ID

METER / DEVICE	ID	SOP	Parameter	Method	
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5750 SN 05J1720	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Thermometer	BIOLAB #1 BIOLAB #2 BIOLAB #3 ~~BIOLAB #4~~ BIOLAB #5	MF TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	MF ~~#4~~ NO
Traceable Thermometer	EC#1-SN101686412 EC #2-SN221295527 EC#3-SN240116020 ~~EC#4-SN80361795~~ EC#5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	#4
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	NO
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

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

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

Entered By: M. Faircloth 3-18-13

V 1.1 9/21/10 MF/jd

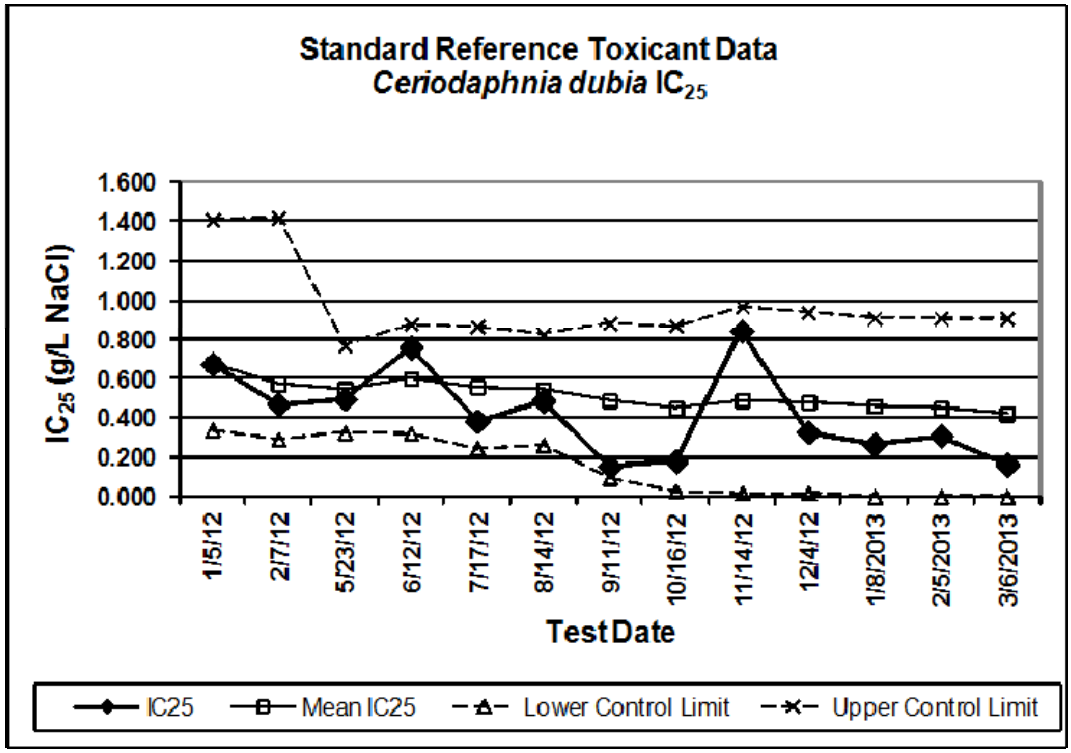
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
1/5/12	0.674	0.67	0.14	0.34	1.41
2/7/12	0.470	0.57	0.11	0.29	1.42
5/23/12	**0.498**	0.55	**0.11**	0.33	0.77
6/12/12	**0.760**	0.60	**0.14**	0.32	0.88
7/17/12	**0.383**	0.56	**0.15**	0.25	0.87
8/14/12	**0.489**	0.55	**0.14**	0.26	0.83
9/11/12	**0.153**	0.49	**0.20**	0.10	0.88
10/16/12	**0.179**	0.45	**0.21**	0.03	0.87
11/14/12	**0.843**	0.49	**0.24**	0.02	0.97
12/4/12	**0.328**	0.48	**0.23**	0.02	0.94
1/8/2013	**0.266**	0.46	**0.23**	0.00	0.91
2/5/2013	**0.309**	0.45	**0.23**	0.00	0.91
3/6/2013	**0.163**	0.42	**0.24**	0.00	0.91

Means are of the last 10 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

EPA 75th Percentile %CV for Reproduction **45%**
Last 10 - Lab %CV Reproduction 51.8%



FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

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

Diluent/ Batch: MHW/2.20.13 Test Days Used: 0-0

Diluent/ Batch: MHW/3.5.13 Test Days Used: 1-6

Toxicant/ Batch # : 29/L KCl/3.5.13

Artemia Lot # : 08812

Start Date: 3.5.13 Time: 1300

End Date: 3.12.13 Time: 08:00

Organism Batch #/ Age: 3.5.13/<24 hrs

Artemia Batch # ~~08812~~ 88		Day 2	42.13	Day 5	45.13
Day 0	40.13	Day 3	43.13	Day 6	46.13
Day1	41.13	Day 4	44.13		

Chamber size : 1000 ml

Test volume : 500 ml

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

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

Water Quality Parameters	Diluent MHW 2.20.13	Diluent 3.5.13 (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	AP	MF
Alkalinity (mg/L as $CaCO_3$):	71	70	HACH	AP	MF
Hardness (mg/L as $CaCO_3$):	81	84	HACH	AP	MF
Total Ammonia (mg/L as N):	<0.017	<0.017	DENVER	MF	AP
Conductivity (µmhos-cm) mmhos-cm:	365	MP#2319	METTLER	AP	MF

Statistics	
Growth NOEC:	0.5g/L
Growth LOEC:	1.0g/L
Growth IC_{20}:	0.5738
Growth IC_{25}:	0.6005
Ctrl % CV:	12.08%
Dunnetts PMSD:	26.9%
Survival NOEC:	0.5g/L
Survival LOEC:	1.0g/L

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Test incubated in : Temperature Range °C:

Incubator # 2 min 24.9 max 26.3

Water bath # ____ min.____ max.____

Room B246 min. 24.9 max. 25.3

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

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

Investigators' signatures

Adrienne Pennington

Bruce Aeria

Marshall Painter

REVIEWER Liz Miller

Comments:

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revised 8/6/12 JD

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

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

Concentration: µg/L g/L (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	A1	10	10	10	10	10	10	10	10
	B	A2	10	10	9 1D	9	9	9	9	9
	C	A3	10	8 2D	8	8	8	8	8	8
	D	A4	10	10	10	10	10	10	10	10
0.125	A	A5	10	10	10	10	10	10	10	10
	B	A6	10	10	10	9 1D	9	9	9	9
	C	A7	10	10	9 1D	8 1D	8	8	8	8
	D	A8	10	10	9 1D	8 1D	8	8	8	8
0.25	A	A9	10	9 1D	9	9	9	8 1D	8	8
	B	A10	10	9 1D	9	9	9	9	9	9
	C	A11	10	10	10	10	10	10	10	10
	D	A12	10	10	10	10	10	9 1D	9	9
0.5	A	A13	10	10	9 1D	8 1D	8	8	8	8
	B	A14	10	10	10	10	10	10	9 1D	9
	C	A15	10	10	10	9 1D	9	9	9	~~9~~ 8 1D AP
	D	A16	10	10	10	10	~~BAG 10~~	10	10	10
1.0	A	A17	10	1 9D	1	1	0 1D			
	B	A18	10	0 10D	—	—				
	C	A19	10	1 9D	0 1D	—				
	D	A20	10	1 9D	1	0 1D				
2.0	A	A21	10	0 10D						
	B	A22	10	0 10D						
	C	A23	10	0 10D						
	D	A24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): AP		Checked by:		BA	AP	AP	MF	BA	AP	AP
Verified by (0 hr): BA										
Concentrations prepared by:				BA	BA	AP	BA	BA	BA	AP

Comments:

Chronic SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg. 1

Start Date: 3.5.13 End Date: 3.12.13

Start Time: 1300 End Time: 08:00

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	Control	A	7.8	24.1	8.0	365							
	0.125	A	7.8	24.1	8.2	510							
	0.25	A	7.8	24.1	8.2	719							
	0.5	A	7.9	24.1	8.3	1141							
	1.0	A	8.0	24.0	8.2	2020							
	2.0	A	8.4	24.0	8.3	3680							
		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	Control	B	7.4	25.3	7.5	319		B	7.4	24.1	7.0	301	
	0.125	B	7.4	25.7	7.6	550		B	7.4	24.0	7.0	520	
	0.25	B	7.4	25.6	7.3	755		B	7.4	24.0	7.1	753	
	0.5	B	7.4	25.8	7.4	1202		B	7.4	24.0	7.1	1194	
	1.0	B	7.5	25.3	7.3	2050		B	7.5	24.0	6.8	1991	
	2.0	B	7.7	24.9	7.2	3850		B					
		B						B					
	Measured by		BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by		BA	BA	BA	BA			BA	BA	BA	BA	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	7.5	25.2	7.8	412		C	7.7	24.0	6.6	352	
	~~NP~~ 0.125	C	7.5	25.0	7.8	525		C	7.6	24.0	6.5	551	
	0.25	C	7.5	24.9	7.8	741		C	7.6	24.0	6.8	791	
	0.5	C	7.6	25.1	7.7	1170		C	7.6	24.0	6.8	1240	
	1.0	C	7.7	25.8	7.7	1988		~~BA~~ CD	7.7	24.1	6.9	2110	
		C						C					
		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	Control	D	7.4	26.1	7.1	446		D	7.4	24.3	7.1	307	
	0.125	D	7.4	26.0	7.3	651		D	7.4	24.3	7.0	526	
	0.25	D	7.5	25.7	7.6	1042		D	7.4	24.3	7.0	768	
	0.5	D	7.6	26.0	7.8	1535		D	7.4	24.2	6.9	1201	
	1.0	D	7.7	26.2	7.6	2330		A ~~D~~	7.5	24.1	6.9	2030	
		D						D					
		D						D					
	Measured by		AP	AP	AP	AP			BA	BA	BA	BA	
	Recorded by		AP	AP	AP	AP			BA	BA	BA	BA	

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 SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg 2

Start Date: 3.5.13 End Date: 3.12.13

Start Time: 1300 End Time: 8:00

conc = concentration rep = replicate

g/L

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4	Control	A	7.7	25.0	6.9	331		A	7.9	24.8	7.3	335	
	0.125	A	7.7	25.3	6.9	577		A	7.9	24.7	7.8	565	
	0.25	A	7.7	25.4	6.9	815		A	7.9	24.7	7.8	810	
	~~MF 0.5~~	A	7,7	25.0	6.8	1268		A	7,9	24.7	7.4	1274	
	1.0	A	7.8	25.0	6.8	2111		A	—	—	—	—	
		A						A					
		A						A					
	Measured by		MF	MF	MF	MF			MF	MF	MF	MF	
	Recorded by		MF	MF	MF	MF			MF	MF	MF	MF	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	Control	B	7.3	26.0	6.6	325		B	7.2	24.6	7.3	320	
	0.125	B	7.3	26.0	6.5	561		B	7.2	24.7	7.0	546	
	0.25	B	7.3	25.9	6.6	804		B	7.2	24.6	6.9	786	
	0.5	B	7.3	25.8	6.6	1260		B	7.2	24.5	6.8	1245	
		B						B					
		B						B					
		B						B					
	Measured by		BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by		BA	BA	BA	BA			BA	BA	BA	BA	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	Control	C	7.5	26.1	7.0	404		C	7.5	24.9	7.3	350	
	0.125	C	7.5	26.1	6.9	534		C	7.5	24.6	7.3	516	
	0.25	C	7.5	26.0	6.7	765		C	7.5	24.6	7.2	750	
	0.5	C	7.6	25.7	6.6	1201		C	7.6	24.5	7.1	1180	
		C						C					
		C						C					
		C						C					
	Measured by		AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	Control	D	7.4	25.6	7.4	354		D					
	0.125	D	7.4	26.0	7.3	541		D					
	0.25	D	7.5	26.0	7.2	781		D					
	0.5	D	7.5	25.6	7.1	1213		D					
		D						D					
		D						D					
		D						D					
	Measured by		AP	AP	AP	AP							
	Recorded by		AP	AP	AP	AP							

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

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FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

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

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)	Avg.
Control	A	1	0.02302	0.02581	0.00279	10	0.279	
	B	2	0.02344	0.02648	0.00304	10	0.304	0.306
	C	3	0.02251	0.02532	0.00281	10	0.281	
	D	4	0.02241	0.02599	0.00358	10	0.358	
0.125	A	5	0.02171	0.02444	0.00273	10	0.273	
	B	6	0.02402	0.02724	0.00322	10	0.322	0.293
	C	7	0.02239	0.02472	0.00233	10	0.233	
	D	8	0.02374	0.02716	0.00342	10	0.342	
0.25	A	9	0.02205	0.02545	0.0034	10	0.34	
	B	10	0.02365	0.02648	0.00283	10	0.283	
	C	11	0.02300	0.02607	0.00307	10	0.307	0.312
	D	12	0.02205	0.02522	0.00317	10	0.317	
0.5	A	13	0.02206	0.02521	0.00315	10	0.315	
	B	14	0.02221	0.02538	0.00317	10	0.317	0.287
	C	15	0.02402	0.02574	0.00172	10	0.172	
	D	16	0.02365	0.02708	0.00343	10	0.343	
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
		Weighed by:	AP	AP				

Comments:

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

PAGE 00019 revised 8/24/06 MF/SP

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 3.11.13 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02302	@ 0.02302
after Pan 10	0.02301	@ 0.02302
after Pan 15	0.02298	@ 0.02302
after Pan 20	0.02301	@ 0.02302
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01001	@ 0.01
	0.02991	@ 0.03

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 3.13.13 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02580	@ 0.02581
after Pan 10	0.02582	@ 0.02581
after Pan 15	0.02581	@ 0.02581
after Pan 20	0.02580 AP	@ 0.02581
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01003	@ 0.01
	0.05003	@ 0.05

Drying Oven ID: ER034000

Temperature °C: 100

Drying Hours: 8

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

Comments:

PAGE 00020

revised 7/16/08 MF

Test ID: Chronic P. Promelas SRT Dates: 3/5/13 - 3-12-13

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	#4
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓

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

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

Entered By: BR 3.8.13

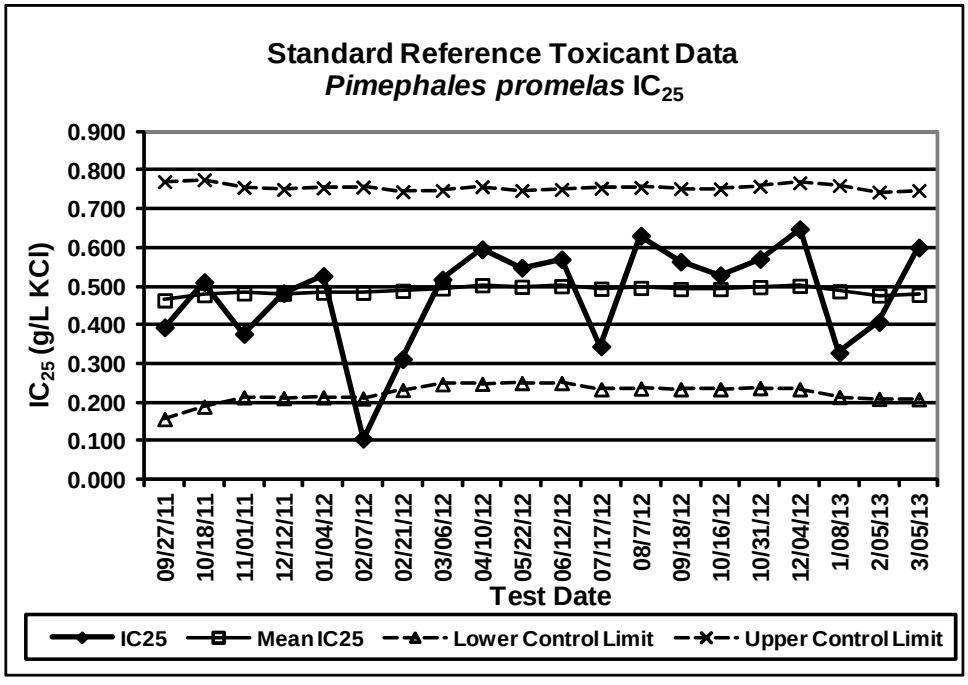
V 1.2 2/20/11 MF/jd

T2000

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
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
2/05/13	0.408	0.477	0.13	0.209	0.744
3/05/13	0.601	0.478	0.14	0.208	0.748

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:28.2%



Appendix G
Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 3/4/13

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi	150 ac	10 days	CL130222	25	7.8	80
Pimephales promelas	300	<24	FM130303-1615	25	7.8	80
	150 ac	7 days	FM130225-1630	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM / AB

Shipped Via: FedEx

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: 3/25/13

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina	150 ac	12 days	SS130313	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	300	<24HRS	FM130324-1605	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

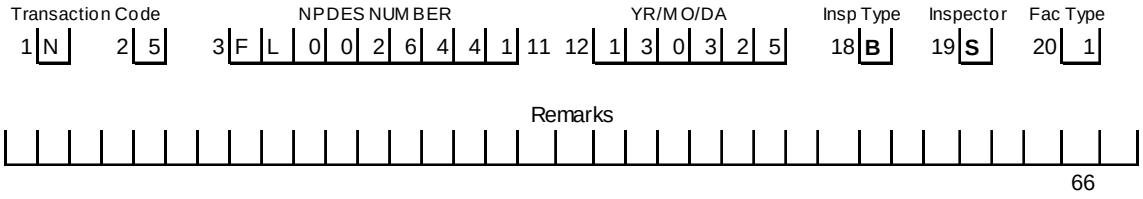
Thank you for your order.

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EPA End Sheet

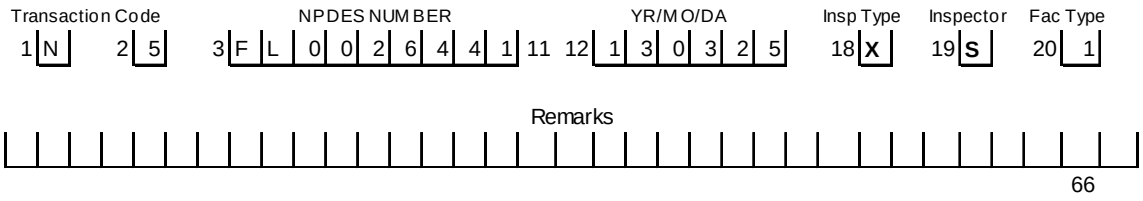
The Bioassay of Arlington East Water Reclamation Facility effluent sampled on March 25, 27, and 29, 2013. NPDES #FL0026441.

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



The Priority Pollutants Analysis of Arlington East Water Reclamation Facility effluent sampled on March 25, 2013. NPDES #FL0026441.

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



Biological Analyses of Arlington East Water Reclamation Facility effluent sampled on March 25, 2013. NPDES #FL0026441.

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

