

Effluent Quality Assessment

Florida Power and Light – Fort Myers Power Plant

Lee County

NPDES #FL0001490

Sampled February 11, 2013

May 2013

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

CONTENTS

Facility Overview

Methods

Results

Conclusion

Literature Cited

Tables

Table 1	Effluent limits, Class III Freshwater Criteria and chemical data and qualifiers
Table 2	Measured and predicted freshwater algal growth potential (AGP)

Appendices

Appendix A	Facility Summary
Appendix B	Chain of Custody
Appendix C	Explanation of measurements
Appendix D	Chemical Analyses of Effluent
Appendix E	Bioassay Bench Sheets
Appendix F	Standard Reference Toxicant Data
Appendix G	Organism Receipts

EPA End Sheet

Florida Power and Light – Fort Myers Power Plant, 10650 State Road 80, Fort Myers, Lee County, Florida, 33902. NPDES #FL0001490.

Facility Overview

Florida Power and Light – Fort Myers Power Plant is an electric power generating plant which is authorized to discharge once-through non-contact cooling water, auxiliary equipment cooling water, intake screen water, and reverse osmosis reject water from Outfall D-010 to the Orange River. A description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information were not available on the facility summary (Appendix A).

Methods

Effluent grab samples for biological and chemical analyses for this facility were collected on February 11, 2013. All samples were collected from the EFF-1 NPDES sampling point for Outfall D-010 by Alyssa Mork (FDEP South District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix C).

The 96-hour acute definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, 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 the bioassay sample in the laboratory. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.11 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.
- Arsenic, copper, iron, and zinc were detected in the effluent at levels that comply with Class III Fresh Water Quality Criteria (62-302.530, F.A.C.). Atrazine, chromium, lead, and nickel were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

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

- The effluent Algal Growth Potential (AGP) was 12.6 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 ratio of total soluble inorganic nitrogen to ortho-phosphate suggests that the effluent is nitrogen limited; whereas, the ratio of total nitrogen to total phosphorus suggests that the effluent is co-limited by both nitrogen and phosphorus. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test with associated nutrient chemistry should be performed (Miller et al. 1978).

Toxicity Test Results (See Appendices D- G)

- Tests were performed February 12 - 16, 2013.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute definitive bioassay –	LC_{50} > 100%, 2.5%* mortality in 100% sample at 96 hours

*NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1)

(a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

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

Conclusion

The effluent sample collected from the EFF-1 NPDES sampling point for this facility on February 11, 2013, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on February 11, 2013, did 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 Freshwater Criteria and chemical data.

FPL Fort Myers FL0001490	Class III Criteria	Effluent Limits	Effluent Grab	
Organic Constituents (µg/L)				
Atrazine	-	-	0.14	I
Metals (µg/L unless otherwise noted)				
Arsenic	≤ 50	-	1.26	
Cadmium	≤ 0.8 b	-	0.05	U
Calcium (mg/L)	-	-	70.1	
Chromium-III	≤ 268.2 b	-	0.49	I
Copper	≤ 30.5 b	-	1.28	
Iron	≤ 1,000	-	140	
Lead	≤ 18.6 b	-	0.27	I
Magnesium (mg/L)	-	-	76.7	
Nickel	≤ 168.5 b	-	0.48	I
Silver	≤ 0.07	-	0.025	U
Zinc	≤ 387.8 b	-	33	
Nutrients (mg/L)				
Ortho-phosphate	-	Report	0.055	
Total Phosphorus	-	Report	0.073	
Total Ammonia	-	Report	0.11	
Un-ionized Ammonia	≤ 0.02 s	Report	< 0.02	c
Nitrate and Nitrite	-	Report	0.18	
Total Kjeldahl Nitrogen	-	Report	1.2	
Organic Nitrogen	-	-	1.09	c
Total Nitrogen	-	Report	1.38	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	-	10.3	
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.5	
Conductivity (µmhos/cm)	≤ 1,275	-	3808	
Temperature (°C)	-	Report	28.3	
Salinity	-	-	1.87	c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	0	
Chlorophyll *a* (µg/L) - Corrected	-	-	2.7	
Phaeophytin (µg/L)	-	-	2	
Total Suspended Solids (mg/L)	-	-	2	I
Oils and Greases (mg/L)	≤ 5.0	-	0.75	U
Chloride (mg/L)	-	Report	1100	
Flow (MGD)	-	Report	418.58	m
Hardness (mg $CaCO_3$)	-	-	490.89	c

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness
c - Value is calculated
m - Monthly average
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit

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

FPL Fort Myers FL0001490							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Grab	12.6	11.0 ± 2.2	23.7 ± 4.7	48.3 ± 9.7	31.4 ± 6.3	5.3	17.4

Appendix A
Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Alyssa Mork	Contact Number: 239-344-5673
Facility Name (as it appears on permit): Florida Power and Light-Fort Myers Power Plant	Former Names:
NPDES Permit Number: FL0001490	Permit Expiration Date: Dec 9 2015
Physical Address: 10650 state rd 80 Fort Myers FL 33902	
District: South District	County: Lee
Function of Facility: Once through cooling water system	
Facility Type: Industrial Wastewater	Permitted Capacity (MGD): No PermittedCapacity
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): Will follow up with this info	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): Will follow up with this info	
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):
Description of Permitted Outfall(s):

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

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

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	
Parameter	**Max/Min**	**Annual Total Mass Load**	**Monthly Total Mass Load**	**Weekly mass Load**	**Daily Mass Load**	**Monitoring Frequency**	**Sample Type**	**Monitoring Location Site Number**	**Notes**		

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Orange River	Class III, fresh or estuarine WBID3240K

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):
Chronic WET
Americamysis bahia, salinity adjust to 20ppt
Menadia beryllina, adjust to 5ppt

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
None

Facility Mixing Zone Details (if applicable): NONE

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

none

	Parameter and Units	Limit	Result
NONE	NONE	NONE	NONE

Describe previous FYI and WQBEL study:

Describe previous or current Enforcement Actions (including WLs): NONE

None

Describe any violations or problems noted in previous inspection:

None in past year. Facility is in compliance

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

No trends

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

PART II: Sampling Event Information	
Date(s) sample collected:	Sampler(s): Alyssa Mork
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L): No chlorine used	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: None	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-02-11-23
FYI3 FPL Fort Myers Plant Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: Alyssa Mork
Collected By: Alyssa Mork
Send Final Report To: Deanna Newburg
Sampling Agency: FDEP

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

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	FPL-Fort Myers Outfall	☐ Comp ☒ Grab Date 2/11/13 Time 2:10 P.M. Central	Date Time Central	A
	Field ID 021113-FPL-01	Tot Res Chlorine (mg/L) 0.0 / Diss Oxygen (mg/L) 10.30	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) Fresh / Temp (C) 28.32 / pH 7.50	Sample Depth ☐ m ☒ ft 4 / ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm) 3808	NPDES Number FL0001490	
	Latitude ☐ dd ☐ dms / Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	FPL-Fort Myers Outfall	☐ Comp ☐ Grab Date 2/11/13 Time 3:00 P.M. Central	Date Time Central	B
	Field ID 021113-FPL-02	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	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Central	Date Time Central	
	Field ID	Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) / Temp (C) / pH	Sample Depth ☐ m ☐ ft / ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms / Longitude ☐ dd ☐ dms	Comments		

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Alyssa Mork	2/11/13 6:00 PM	FEDEX	ABB	02/12/13 09:05				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Received 7 Bacteria Jugs
M. Faircloth 0937 2/12/13

From container.
ABB 02-12-13.

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	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 14:10	Effluent	AGP/LN	Algal Growth Potential	12.6		mg DryWt/L	3	3
2/11/2013 14:10	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	2		ug/L	0.4	1.2
2/11/2013 14:10	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.7		ug/L	0.55	1.7
2/11/2013 14:10	Effluent	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
2/11/2013 14:10	Effluent	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
2/11/2013 14:10	Effluent	Metals	Arsenic	1.26		ug/L	0.25	1
2/11/2013 14:10	Effluent	Metals	Copper	1.28		ug/L	0.5	1
2/11/2013 14:10	Effluent	Metals	Iron	140		ug/L	30	120
2/11/2013 14:10	Effluent	Metals	Zinc	33		ug/L	5	20
2/11/2013 14:10	Effluent	Metals	Chromium	0.49	I	ug/L	0.3	1.2
2/11/2013 14:10	Effluent	Metals	Calcium	70.1		mg/L	0.075	0.3
2/11/2013 14:10	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
2/11/2013 14:10	Effluent	Metals	Lead	0.27	I	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Metals	Potassium	27.5		mg/L	1.5	6
2/11/2013 14:10	Effluent	Metals	Nickel	0.48	I	ug/L	0.25	1
2/11/2013 14:10	Effluent	Metals	Magnesium	76.7		mg/L	0.04	0.16
2/11/2013 14:10	Effluent	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Metals	Sodium	600		mg/L	2.5	10
2/11/2013 14:10	Effluent	Nutrients	Ammonia-N	0.11		mg N/L	0.01	0.02
2/11/2013 14:10	Effluent	Nutrients	Kjeldahl Nitrogen	1.2		mg N/L	0.08	0.2
2/11/2013 14:10	Effluent	Nutrients	Total-P	0.073		mg P/L	0.005	0.05
2/11/2013 14:10	Effluent	Nutrients	Chloride	1100		mg Cl/L	4	10
2/11/2013 14:10	Effluent	Nutrients	TSS	2	I	mg/L	2	10
2/11/2013 14:10	Effluent	Nutrients	NO2NO3-N	0.18		mg N/L	0.004	0.01
2/11/2013 14:10	Effluent	Nutrients	O-Phosphate-P	0.055		mg P/L	0.004	0.01
2/11/2013 14:10	Effluent	Overflow	Oil and Grease	0.75	U	mg/L	0.75	2.7
2/11/2013 14:10	Effluent	Pesticides	Naled	0.2	UJ	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
2/11/2013 14:10	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
2/11/2013 14:10	Effluent	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6

Date	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 14:10	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
2/11/2013 14:10	Effluent	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
2/11/2013 14:10	Effluent	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
2/11/2013 14:10	Effluent	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
2/11/2013 14:10	Effluent	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
2/11/2013 14:10	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
2/11/2013 14:10	Effluent	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
2/11/2013 14:10	Effluent	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
2/11/2013 14:10	Effluent	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Atrazine	0.14	I	ug/L	0.05	0.2
2/11/2013 14:10	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
2/11/2013 14:10	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	1	U	ug/L	1	4

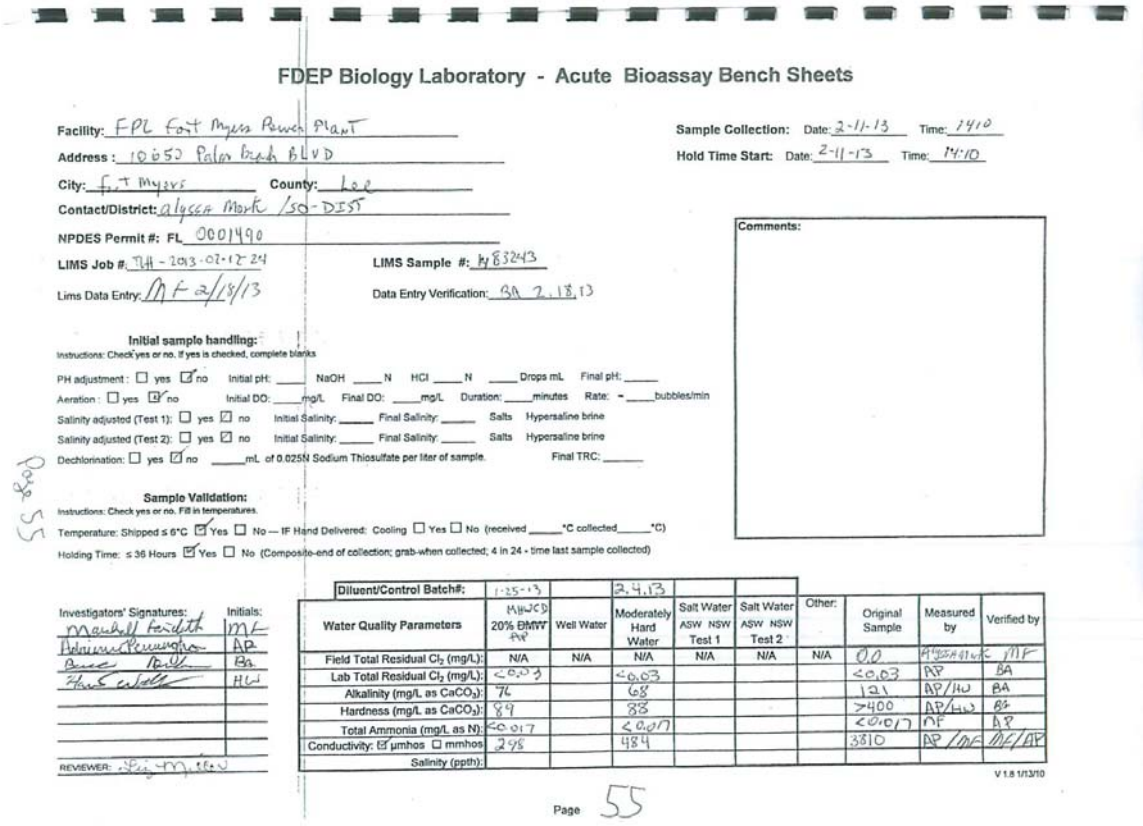
Date	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2	U	ug/L	2	8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	UJ	ug/L	2	8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Dimethyl phthalate	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
2/11/2013 14:10	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8

Date	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 14:10	Effluent	Field Parameter	Dissolved Oxygen	10.3		mg/L		
2/11/2013 14:10	Effluent	Field Parameter	Sample Depth	1		ft		
2/11/2013 14:10	Effluent	Field Parameter	Specific Conductance	3808		umhos/cm		
2/11/2013 14:10	Effluent	Field Parameter	Total Residual Chlorine	0		mg/L		
2/11/2013 14:10	Effluent	Field Parameter	pH	7.5				
2/11/2013 14:10	Effluent	Field Parameter	Temperature	28.32		C		
2/11/2013 15:00	Blank	Metals	Iron	30	U	ug/L	30	120
2/11/2013 15:00	Blank	Metals	Potassium	0.3	U	mg/L	0.3	1.2
2/11/2013 15:00	Blank	Metals	Calcium	0.23	I	mg/L	0.075	0.3
2/11/2013 15:00	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
2/11/2013 15:00	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
2/11/2013 15:00	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
2/11/2013 15:00	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
2/11/2013 15:00	Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
2/11/2013 15:00	Blank	Metals	Copper	0.5	U	ug/L	0.5	1
2/11/2013 15:00	Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
2/11/2013 15:00	Blank	Metals	Zinc	5	U	ug/L	5	20
2/11/2013 15:00	Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
2/11/2013 15:00	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
2/11/2013 15:00	Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
2/11/2013 15:00	Blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
2/11/2013 15:00	Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
2/11/2013 15:00	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
2/11/2013 15:00	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
2/11/2013 15:00	Blank	Overflow	Oil and Grease	0.74	U	mg/L	0.74	2.6
2/11/2013 15:00	Blank	Pesticides	Diazinon	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.61
2/11/2013 15:00	Blank	Pesticides	Parathion Methyl	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Atrazine	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
2/11/2013 15:00	Blank	Pesticides	Chlorpyrifos Methyl	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Ametryn	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Simazine	0.051	U	ug/L	0.051	0.2

Date	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 15:00	Blank	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
2/11/2013 15:00	Blank	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
2/11/2013 15:00	Blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.61
2/11/2013 15:00	Blank	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.81
2/11/2013 15:00	Blank	Pesticides	Ethion	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Mevinphos	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Naled	0.2	UJ	ug/L	0.2	0.81
2/11/2013 15:00	Blank	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.61
2/11/2013 15:00	Blank	Pesticides	Chlorpyrifos Ethyl	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
2/11/2013 15:00	Blank	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
2/11/2013 15:00	Blank	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
2/11/2013 15:00	Blank	Pesticides	Malathion	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Fonofos	0.051	U	ug/L	0.051	0.2
2/11/2013 15:00	Blank	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
2/11/2013 15:00	Blank	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.81
2/11/2013 15:00	Blank	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
2/11/2013 15:00	Blank	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2	U	ug/L	2	8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2	UJ	ug/L	2	8
2/11/2013 15:00	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4

Date	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
2/11/2013 15:00	Blank	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
2/11/2013 15:00	Blank	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
2/11/2013 15:00	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Dimethyl phthalate	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
2/11/2013 15:00	Blank	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
2/11/2013 15:00	Blank	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
2/11/2013 15:00	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
2/11/2013 15:00	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
2/11/2013 15:00	Blank	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4

Appendix E.
Bioassay Bench Sheets



FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: FPL Fort Myers Power Plant
Address: 10650 Palm Beach BLVD
City: Fort Myers County: Lee
Contact/District: alyssa Mark / SO-DIST
NPDES Permit #: FL 0001490
LIMS Job #: TH-2013-02-12-24
LIMS Sample #: IN83243
Lims Data Entry: MF 2/13/13
Data Entry Verification: BA 2.18.13

Sample Collection: Date: 2-11-13 Time: 1410
Hold Time Start: Date: 2-11-13 Time: 14:10

Comments:

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

PH adjustment: ☐ yes ☑ no Initial pH: ____ NaOH ____ N HCl ____ N ____ Drops mL Final pH: ____
Aeration: ☐ yes ☑ no Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~ ____bubbles/min
Salinity adjusted (Test 1): ☐ yes ☑ no Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Salinity adjusted (Test 2): ☐ yes ☑ no Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Dechlorination: ☐ yes ☑ no ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Sample Validation:
Instructions: Check yes or no. Fill in temperatures.
Temperature: Shipped ≤ 6°C ☑ Yes ☐ No — IF Hand Delivered: Cooling ☐ Yes ☐ No (received ____°C collected ____°C)
Holding Time: ≤ 36 Hours ☑ Yes ☐ No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures:	Initials:
Marshall Faircloth	MF
Adrian Pennington	AP
Brian Ball	BA
Hunt Wells	HW
REVIEWER: Peg Mylton	

Diluent/Control Batch#:	1-25-13		2.4.13							
Water Quality Parameters	MBWCD 20% DMW PW	Well Water	Moderately Hard Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	0.0	ALYSSA MARK	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03				<0.03	AP	BA
Alkalinity (mg/L as $CaCO_3$):	76		68				121	AP/HW	BA
Hardness (mg/L as $CaCO_3$):	89		88				>400	AP/HW	BA
Total Ammonia (mg/L as N):	<0.017		<0.017				<0.017	MF	BA
Conductivity: ☑ µmhos ☐ mmhos	298		484				3810	BA	MF/AP
Salinity (ppth):									

V 1.8 1/13/10

Page 55

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1483243 **SOP#: TA 07** 01 **Test #** 1 **of** 2

Test Species:
Batch #: 2-12-13 Age: 24hr
- [x] *Ceriodaphnia dubia*
- [ ] *Cyprinella leedsi*
- [ ] *Pimephales promelas*
- [ ] *Menidia beryllina*
- [ ] *Americamysis bahia*
- [ ] Other:

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

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

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

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

Test Started: Date 2-12-13 Time 1045

Test Ended: Date 2-16-13 Time 0815

Chamber Size: 30 ml
Test Volume: 20 ml

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

Food
- [x] ~~YCT~~ Batch# 11-14-12
- [x] ~~P. subcapitata~~ Batch# 1-18-13
- [ ] Artemia Lot#_____

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

Temperature Range (°C)
Incubator # 3
min. 26.2 max. 28.1 mean –

Incubator #___
min._____max._____mean_____

Waterbath #___
min._____max._____mean_____

Room B246
min. 25.1 max. 25.5 mean –

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

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

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

Comments:

V. 2.5 1-13-10

Page 56

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

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1483243 SOP#: TA 07 02 Test # 2 of 2

Test Species:
Batch #: 2.12.13 Age: 24hrs
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☑ *Pimephales promelas*
- ☐ *Menidia beryllina*
- ☐ *Americamysis bahia*
- ☐ Other:_____

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

Diluent (Batch # 2.6.13)
☐ ASW ☐ 20% DMW ☑ MHW ☐ Well

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

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 2.12.13 Time 1400

Test Ended: Date 2-16-13 Time 0900

Chamber Size 1000 ml
Test Volume: 500 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
C+/	A	B1	10	10	10	10	10	10
	B	B2	10	10	10	10	10	10
	C	B3	10	10	10	10	10	10
	D	B4	10	10	10	10	10	10
6.25%	A	B5	10	10	10	10	10	10
	B	B6	10	10	10	10	10	10
	C	B7	10	10	10	10	10	9 10
	D	B8	10	10	10	10	10	10
12.5%	A	B9	10	10	10	10	10	10
	B	B10	10	10	10	10	10	10
	C	B11	10	10	10	10	10	10
	D	B12	10	10	10	10	10	10
25%	A	B13	10	10	10	10	10	10
	B	B14	10	10	10	10	10	10
	C	B15	10	10	10	10	10	10
	D	B16	10	10	10	10	10	10
50%	A	B17	10	10	10	10	10	9 10
	B	B18	10	10	10	10	10	10
	C	B19	10	10	10	10	10	10
	D	B20	10	10	10	10	10	10
100%	A	B21	10	10	10	10	10	10
	B	B22	10	10	10	10	10	10
	C	B23	10	10	10	10	10	9 10
	D	B24	10	10	10	10	10	10
Checked or Verified by:			AP	BA	BA	MH	ML	ML

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 0881J

Feeding and Artemia Batch #
- ☑ 0 hr 27.13 AP ☑ Prior to Test
- ☐ 24 hr
- ☑ 48 hr 29.13 ☑ Prior to Renewal
- ☐ 72 hr____

Temperature Range (°C)
Incubator # 2 min. 25.5 max. 26.9 mean —
Incubator #___ min.____ max.____ mean____
Waterbath #___ min.____ max.____ mean____
Room B246 min. 25.1 max. 25.5 mean —

Light Intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

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

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 5% LC50: >100 %
Calculated LC50 (Definitive) 95% CI — Method —
2.5%

Comments:

Page 57

V. 2.5 1-13-10

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

Page 57

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1483243 Test # 1 of 2

Test Species:

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

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

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☑ µmhos ☐ mmhos	Salinity* (ppth)
CTL	M	0 hr	8.1	24.3	7.7	298	
		24 hr					
	A	48 hr BR	8.2	24.6	8.0	355	
	M	48 hr AR	8.0	24.2	7.7	305	
		72 hr					
	A	96 hr BMF	8.1	25.4	7.7	343	
6.25%	M	0 hr	8.1	24.7	7.7	548	
		24 hr					
	A	48 hr BR	8.1	24.6	8.0	590	
	M	48 hr AR	7.9	24.8	7.8	550	
		72 hr					
	A	96 hr	8.0	25.6	7.6	600	
12.5%	M	0 hr	8.0	24.9	7.7	788	
		24 hr					
	A	48 hr BR	8.1	24.5	7.9	MF 800	
	M	48 hr AR	7.9	24.8	7.7	MF ~~550~~ 783	
		72 hr					
	A	96 hr	8.0	25.8	7.4	860	
25%	M	0 hr	7.9	24.7	7.6	1228	
		24 hr					
	A	48 hr BR	8.1	24.5	8.0	1310	
	M	48 hr AR	7.8	24.8	7.7	MF ~~783~~ 1250	
		72 hr					
	A	96 hr	8.0	25.8	8.0	1305	
50%	M	0 hr	7.9	24.8	7.7	2120	
		24 hr					
	A	48 hr BR	8.1	24.5	8.0	2190 MF	
	M	48 hr AR	7.8	24.8	7.8	2150	
		72 hr					
	A	96 hr	8.0	25.9	8.0	2180	
100%	M	0 hr	8.0	24.9	7.8	3850	
		24 hr					
	A	48 hr BR	8.1	24.6	8.1	3910	
	M	48 hr AR	7.9	24.4	7.7	3900	
		72 hr					
	A	96 hr	8.0	26.1	8.1	3920 MF	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

Measured By:
0 hr: ML
24 hr:
48 hr BR: ML
48 hr AR: MF
72 hr:
96 hr: MF

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 14832483 bm Test # 2 of 2

Test Species:

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

Test aerated: (if DO is < 4.0 mg/L)

☐ Yes ☑ No

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☑ µmhos ☐ mmhos	Salinity* (ppth)
Control	A	0 hr	7.9	25.8	7.3	484	
	B	24 hr	7.8	25.6	7.5	415	
	C	48 hr BR	7.3	24.7	7.6	305	
	C	48 hr AR	7.9	24.2	7.5	302	
	D	72 hr	8.2	25.5	7.1	313	
	A	96 hr	7.9	25.6	7.4	336	
6.25%	A	0 hr	8.0	25.1	7.4	553	
	B	24 hr	7.8	25.8	7.3	592	
	C	48 hr BR	7.3	25.2	6.7	582	
	C	48 hr AR	7.9	24.0	7.5	547	
	D	72 hr	8.1	25.6	7.1	567	
	A	96 hr	AP 7.9	25.7	7.0	610	
12.5%	A	0 hr AP 8	8.0	25.1	7.6	778	
	B	24 hr	7.8	25.5	7.3	766	
	C	48 hr BR	7.3	25.5	6.5	806	
	C	48 hr AR	7.9	23.9	7.5	785	
	D	72 hr	8.0	25.9	7.1	816	
	A	96 hr	7.8	24.9	7.0	842	
25%	A	0 hr	8.0	26.0	7.6	1181	
	B	24 hr	8.0	26.0	7.4	1148	
	C	48 hr BR	7.9	25.9	6.7	1269	
	C	48 hr AR	7.9	24.0	7.5	1240	
	D	72 hr	8.0	25.6	7.3	1307	
	A	96 hr	7.8	25.7	6.9	1300	
50%	A	0 hr	8.1	26.6	7.5	2090	
	B	24 hr	8.1	25.9	7.3	2000	
	C	48 hr BR	7.4	25.1	6.7	2160	
	C	48 hr AR	7.9	23.8	7.5	2130	
	D	72 hr	7.9	26.0	7.4	2200	
	A	96 hr	7.7	25.1	6.9	2230	
100%	A	0 hr	8.2	25.8	7.6	3810	
	B	24 hr	8.1	25.4	7.3	3700	
	C	48 hr BR	7.5	25.2	7.1	3960	
	C	48 hr AR	8.1	23.8	7.6	3890	
	D	72 hr	8.0	25.6	7.4	4010	
	A	96 hr	7.7	25.4	6.8	4060	
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

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

V. 2.3 1-13-10

Test ID: FPL FT. Myers Power Plant Dates: Feb 12-16, 2012

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

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

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

entered by M. Faircloth 2/18/13

V 1.1 9/21/10 MF/jd

Page 60

Appendix F.
Standard Reference Toxicant Data

FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☑ renewal

Test Page 1 of 2

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

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

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

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

Artemia Batch:
0 hr:
24 hr:
48 hr:
72 hr:

Concentrations prepared by: MF
Test Incubated in: Incubator # 3 Waterbath # ____
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark

Temperature Range °C:(if used)
Incubator # 3 min. 26.3 max. 28.1 mean. –
Waterbath # ___ min.____ max.____ mean.____
Room B246 min. 24.9 max. 25.7 mean. –

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

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

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

Loading Verified by: AP AR = after renewal
m = missing d = dead BR = before renewal hr = hour

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

Comments:

Investigators' Signatures
Marshall Faircloth
Adrienne Pennington
Bryce Hall
Hans Wilke

Reviewer: Elizabeth Allen

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: –	–	–
96 hour: 1.73	1.39	2.16

PAGE 41

Revised 7/15/2008 mf

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

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

Test Page 2 of 2

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

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

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

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

Investigators Signatures

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

Reviewed By:

Measure/record salinity for marine tests

Comments:

PAGE 42

Revised 07/15/2008 MF

FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☑ renewal
Test Page 1 of 2

Diluent/ Batch #: MHW 12-1-13
Toxicant/ Batch#: NaCl 12-5-13
Organism Batch: 2-5-13 Age: 7dy
Test Beginning: Date: 2-5-13 Time: 1300
Test Ending: Date: 2-9-13 Time: 9:30

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

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

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

Chamber size: 1000 mL
Test volume: 400 mL per replicate

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

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

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

H. azteca 0 hr and 48 hr

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

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

Loading Verified by: BA
AR = after renewal
m = missing d = dead BR = before renewal hr = hour

Comments:

Investigators' Signatures
Marshall Faircloth
Adrienne Pennington
Brec Abel
Jackie Savage

Reviewer: Liz Mellow

Method: TSK

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

PAGE 45

Revised 7/15/2008 mf

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

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

Test Page 2 of 2

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

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

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☑ mmhos	Salinity (ppth)
Control	A	0 hr	7.8	24.3	7.8	0.293	
	B	24 hr	7.7	24.7	7.6	0.326	
	A	48 hr BR	7.8	25.0	8.1	0.323	
	A	48 hr AR	7.8	24.8	6.6	0.307	
	B	72 hr	7.6	24.8	7.5	0.301	
	A	96 hr	7.8	25.0	8.0	0.333	
5	A	0 hr	7.8	24.5	7.9	8.90	
	B	24 hr	7.7	24.7	~~6.8~~ AP 7.6	9.06	
	A	48 hr BR	7.9	25.4	7.8	9.61	
	A	48 hr AR	7.7	24.7	6.8	9.11	
	B	72 hr	7.7	24.4	6.9	8.91	
	A	96 hr	7.8	25.2	7.4	9.61	
6	A	0 hr	7.9	24.6	7.8	10.4	
	B	24 hr	7.8	24.6	~~6.8~~ AP 7.6	10.8	
	A	48 hr BR	7.9	25.2	7.8	10.9	
	A	48 hr AR	7.7	24.8	7.1	10.6	
	B	72 hr	7.7	24.8	6.9	10.6	
	A	96 hr	7.8	25.3	7.5	11.3	
7	A	0 hr	7.9	24.6	7.7	12.0	
	B	24 hr	7.8	25.1	7.4	12.3	
	A	48 hr BR	7.9	24.9	7.9	12.7	
	A	48 hr AR	7.7	24.8	7.4	12.3	
	B	72 hr	7.7	24.5	7.0	12.2	
	A	96 hr	7.7	25.1	7.2	12.8	
8	A	0 hr	7.9	24.6	7.7	13.8	
	B	24 hr	7.8	25.1	7.5	14.1	
	A	48 hr BR	7.8	24.8	7.9	14.4	
		48 hr AR					
		72 hr					
		96 hr					
10	A	0 hr	7.9	24.6	7.7	17.2	
	B	24 hr	7.8	24.8	7.5	17.4	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Marshall Faircloth
Adrienne Pennington
Ben Davis
Jackie Savage

Reviewed By: Liz Miller

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

Measure/record salinity for marine tests

Comments:

PAGE 46

Revised 07/15/2008 MF

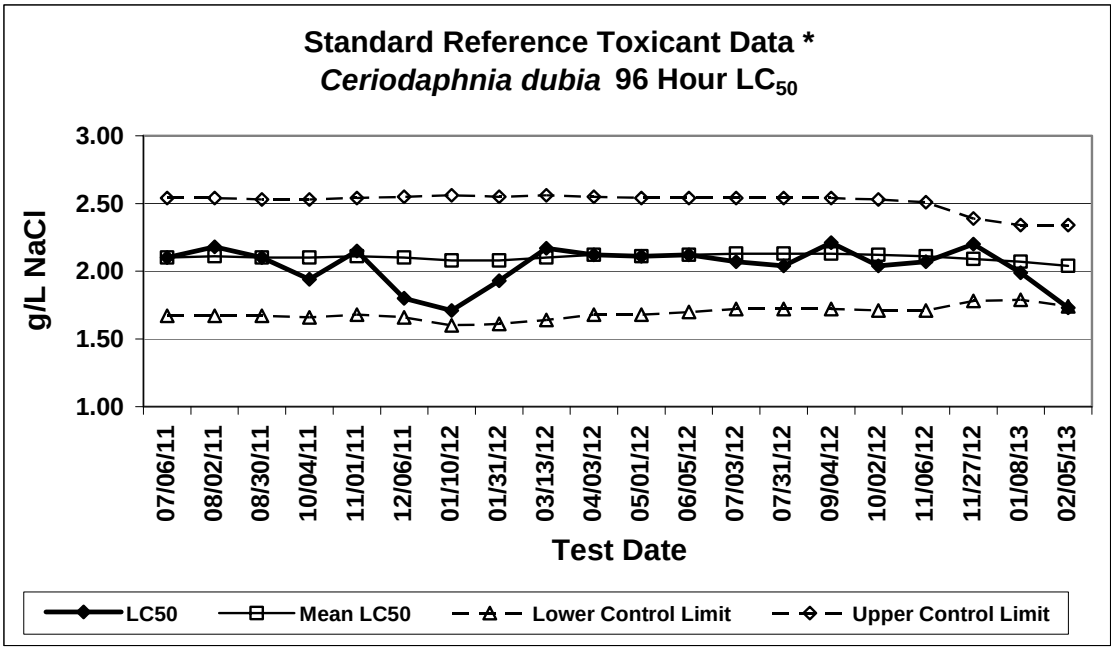
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
07/06/11	2.10	2.10	0.22	1.67	2.54
08/02/11	2.18	2.11	0.22	1.67	2.54
08/30/11	2.10	2.10	0.22	1.67	2.53
10/04/11	1.94	2.10	0.22	1.66	2.53
11/01/11	2.15	2.11	0.22	1.68	2.54
12/06/11	1.80	2.10	0.22	1.66	2.55
01/10/12	1.71	2.08	0.24	1.60	2.56
01/31/12	1.93	2.08	0.24	1.61	2.55
03/13/12	2.17	2.10	0.23	1.64	2.56
04/03/12	2.12	2.12	0.22	1.68	2.55
05/01/12	2.11	2.11	0.22	1.68	2.54
06/05/12	2.12	2.12	0.21	1.70	2.54
07/03/12	2.07	2.13	0.21	1.72	2.54
07/31/12	2.04	2.13	0.20	1.72	2.54
09/04/12	2.21	2.13	0.21	1.72	2.54
10/02/12	2.04	2.12	0.20	1.71	2.53
11/06/12	2.07	2.11	0.20	1.71	2.51
11/27/12	2.20	2.09	0.15	1.78	2.39
01/08/13	1.99	2.07	0.14	1.79	2.34
02/05/13	1.73	2.04	0.15	1.74	2.34

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

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



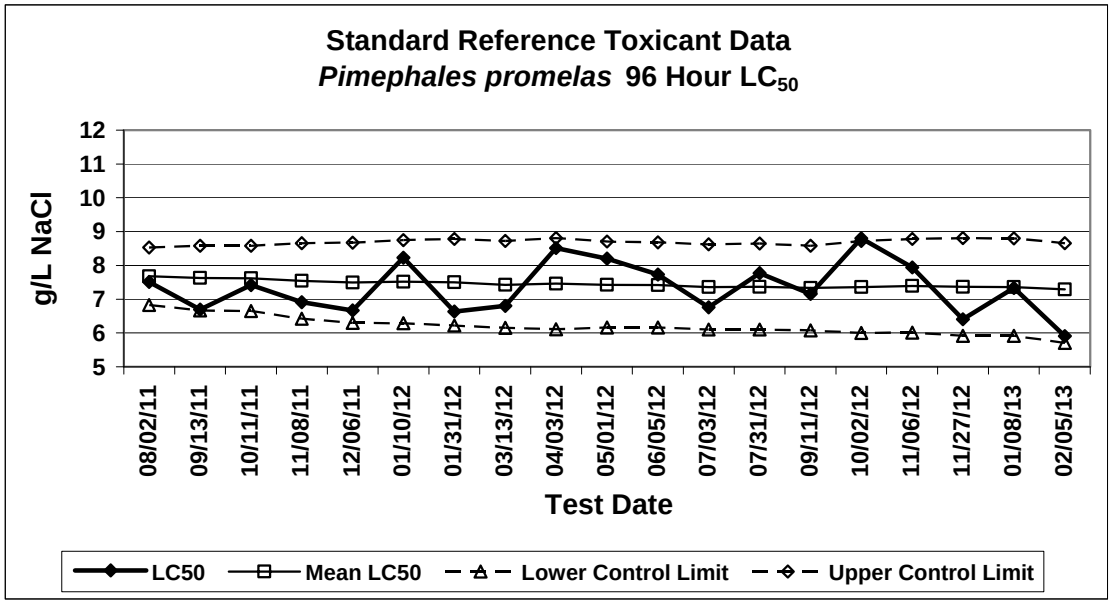
Florida Department of Environmental Protection
Bureau of Laboratories

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

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

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

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



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: 2/4/13

Ship to: FDEP

P.O. No: _____

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

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

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

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 2/11/13

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	300	< 24 Hrs	FM130210-1630	25	7.8	30
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

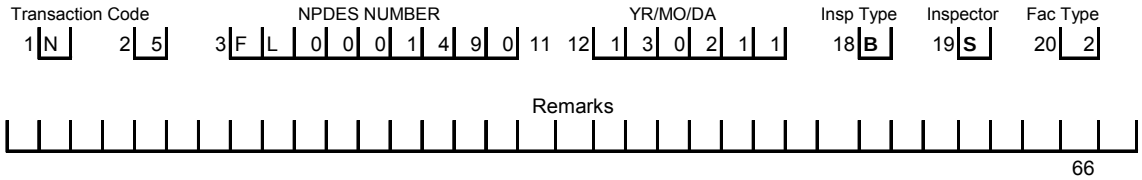
Thank you for your order.

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

EPA End Sheet

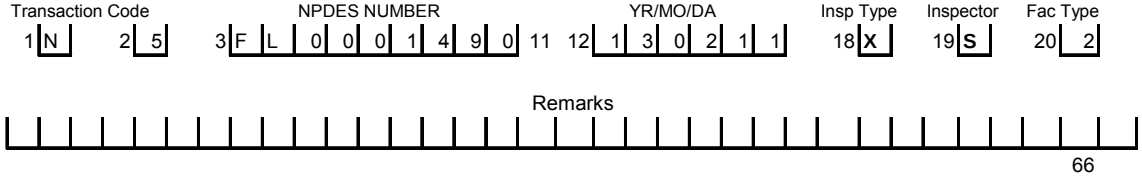
The Bioassay of FPL-Fort Myers Plant effluent sampled on February 11, 2013. NPDES #FL0001490.

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



The Priority Pollutants Analysis of FPL-Fort Myers Plant effluent sampled on February 11, 2013. NPDES #FL0001490.

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



Biological Analyses of FPL-Fort Myers Plant effluent sampled on February 11, 2013. NPDES #FL0001490.

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

