

Effluent Quality Assessment

Cape Canaveral Energy Center

(Formerly FPL Cape Canaveral)

Brevard County

NPDES #FL0001473

Sampled June 24, 2013

November 2013

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

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Cape Canaveral Energy Center (CCEC), 6000 US Highway 1, Titusville, Brevard County, Florida. NPDES #FL0001473.

Facility Overview

Cape Canaveral Energy Center is a newly constructed power plant built to replace the FPL Cape Canaveral Power Plant. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for toxicity testing were collected on June 24, 2013. Effluent grab samples for biological and chemical analyses for this facility were collected on June 24, 2013. All samples (except oil & grease, collected from the I-019 internal discharge point) were collected from the EFF-1 NPDES sampling point for Outfall D-011 by Phil Kane and Jason Seyfert (FDEP Central 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_03, TA07_04, 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 0.13 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.03 mg/L.
- Effluent turbidity and fluoride were detected in the effluent at levels that comply with Class II Marine Water Quality Criteria (62-302.530, F.A.C.). Arsenic, atrazine and nickel were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Algal Growth Potential (See Table 2 and Appendix D)

- The effluent Algal Growth Potential (AGP) was 3.00 AU mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz determined that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The ratio of total nitrogen to total phosphorus suggests that the effluent is phosphorus-limited (Maloney et al. 1974).

Toxicity Test Results (See Appendices D- G)

- Tests were performed June 25 - 29, 2013.

Americamysis bahia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Menidia beryllina 96-hour acute definitive bioassay –	LC_{50} > 100%, 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.
- The sample was aerated for 30 minutes at a rate of approximately 100 bubbles per minute to increase the dissolved oxygen (DO) from 5.0 mg/L to 6.7 mg/L.

Conclusion

The effluent sample collected from the EFF-1 NPDES sampling point for this facility on June 24, 2013, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The AGP result is less than the "problem" threshold for marine waters. Effluent water quality samples collected on June 24, 2013 did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

Table 1. Effluent limits, Class II Criteria for predominantly marine waters, chemical data, and qualifiers.

Cape Canaveral Energy Center	Class II Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
Atrazine	-	-	0.02	I
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	180	U
Arsenic	≤ 50	-	1.7	I
Cadmium	≤ 8.8	-	0.15	U
Calcium (mg/L)	-	-	408	
Chromium-III	-	-	1.1	I
Copper	≤ 3.7	-	1.5	U
Iron	≤ 300	-	90	U
Lead	≤ 8.5	-	0.60	U
Magnesium (mg/L)	-	-	1,320	
Nickel	≤ 8.3	-	0.90	I
Selenium	≤ 71	-	0.60	U
Silver	≤ 2.3	-	0.075	U
Sodium	-	-	10,400	
Zinc	≤ 86	-	15	U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.004	U
Total Phosphorus	-	-	0.031	Y
Total Ammonia	-	-	0.13	
Un-ionized Ammonia	-	-	0.03	c
Nitrate and Nitrite	-	-	0.008	IY
Total Kjeldahl Nitrogen	-	-	1.1	Y
Organic Nitrogen	-	-	0.9700	c
Total Nitrogen	-	-	1.1080	c
Total Organic Carbon	-	-	13	
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	4.31	
pH (SU)	6.5 - 8.5	-	8.36	
Specific Conductance (µmhos/cm)	-	-	50,555	
Temperature (°C)	-	Report	34.87	
Salinity	-	-	27	c
Total Residual Chlorine (mg/L)	≤ 0.01	-	< 0.03	QU£
Chlorophyll *a* (µg/L) - Corrected	-	-	3.0	
Phaeophytin (µg/L)	-	-	1.1	I
Total Suspended Solids (mg/L)	-	-	6	I
Turbidity (NTU)	< 29 t	-	2.7	
Color (true, PCU)	-	-	2.5	U
Alkalinity (mg CaCO3/L)	-	-	112	
CBOD, 5 day (mg/L), N - inhibited	-	-	1.3	I
Oils and Greases (mg/L)	≤ 5.0	-	0.76	U
Chloride (mg/L)	-	-	19,000	
Fluoride (mg/L)	≤ 5.0	-	1.2	
Sulfate (mg/L)	-	-	2,700	
Flow (MGD)	-	Report	-	
Hardness (mg $CaCO_3$)	-	-	6454.54	c

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

c - Value is calculated

t - Shall not exceed 29 NTUs above background

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

Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.

£ - measurement taken in the FDEP laboratory

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

Cape Canaveral Energy Center			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	3.0 AU	34.5	35.7

A - Value reported is the mean of two or more determinations

U - Material analyzed for but not detected; value reported is the method detection limit

Appendix A
Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event		
Prepared By: William Hesser		Contact Number: 407-897-4170
Facility Name (as it appears on permit): Cape Canaveral Energy Center (CCEC)		Former Names: FPL Cape Canaveral
NPDES Permit Number: 48-FL0001473	Permit Expiration Date: February 10, 2016	
Physical Address: 6000 US Highway 1, Titusville, Brevard County, Florida		
District: Central District	County: Brevard	
Function of Facility: Generation of Electricity		
Facility Type: Power Plant	Permitted Capacity (MGD): 822 MGD	
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): N/A this is a newly constructed power plant.		
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A		
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify		

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

- An combined discharge to Indian River Lagoon (Class II Marine waters), D-011 and D-012 (OTCW).
- A storm water discharge to Indian River Lagoon (Class II Marine waters), D-028, D-029 (tank farm secondary containment, on-site detention).
- A discharge of non-equipment area storm water to the plant's intake canal (Class II Marine waters), D-024, D-025, D-026, and D-027.

The compliance sampling location EFF-1 is the end of the Outfall D-011 discharge pipe.
The compliance sampling location EFF-2 is the end of the Outfall D-012 discharge pipe.
D-024, D-025, D-026, D-027, D-028 and D-029 are not monitored.

Description of Permitted Outfall(s):

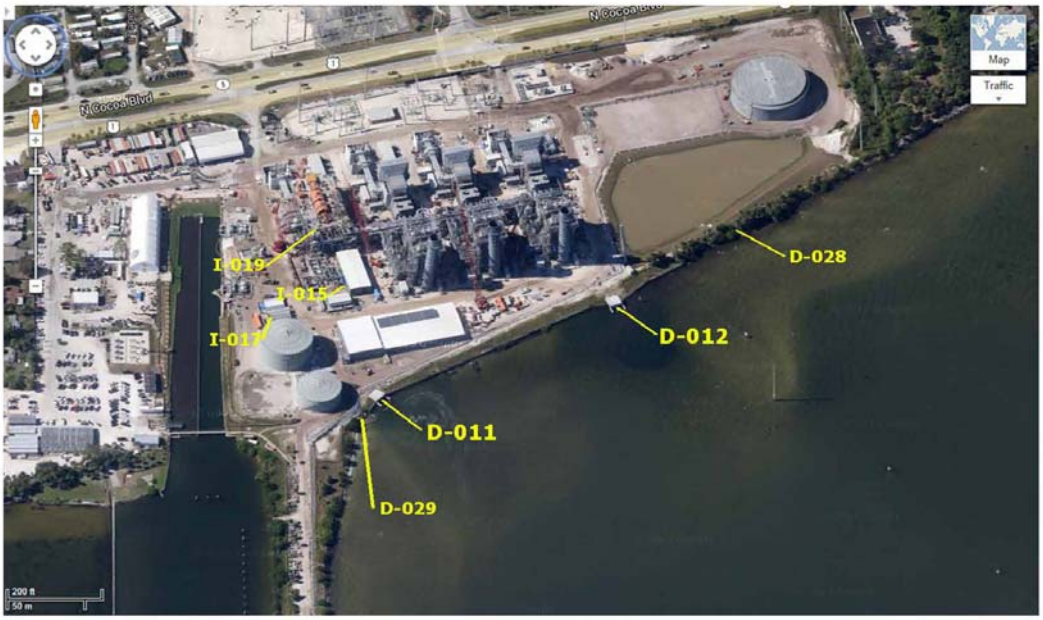
Once-through condenser cooling water and auxiliary equipment cooling water are chlorinated followed by dechlorination prior to discharge. Metal cleaning wastewater and reverse osmosis membrane cleaning wastewater will be disposed of off-site. Regeneration of mixed bed ion exchange units will be performed offsite. Plant/Equipment drains that receive washdown water from cleaning and maintenance activities are routed through an oil/water separator prior to an internal discharge to the Once-Through Cooling Water (OTCW) conduits and hence to Outfalls D-011 and D-012. When possible, Heat Recovery Steam Generator (HRSG) blowdown will be reused as make-up water to the on-site water treatment system. Alternatively, HRSG blowdown will be discharged via internal discharge to the once-through cooling water conduits and hence to Outfalls D-011 and D-012. Water treatment plant wastewater (RO reject and multimedia filter backwash) will be discharged from internal Outfall I-017 to the OTCW conduits and hence to Outfalls D-011 and D-012.

Equipment area stormwater from the power block and transformer containment areas is routed through an oil/water separator and then to a series of connected on-site retention ponds prior to discharge. The on-site retention ponds also receive some non-equipment stormwater. The stormwater management system is designed to discharge via Outfalls D-028 and D-029. Outfall D-028 is a shared discharge structure that regularly releases stormwater from the on-site retention ponds as well as infrequent releases of stormwater from the fuel oil storage containment area.

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

The converted plant is named the Cape Canaveral Energy Center (CCEC). The CCEC consists of a nominal 1,250 MW natural gas-fueled combined cycle unit (Unit 3). CCEC Unit 3 consist of three nominal 250 MW combustion turbine-electrical generators, three supplementary-fired heat recovery steam generators (HRSG) with selective catalytic reduction (SCR), and one common nominal 500 MW steam-electrical generator. CCEC Unit 3 will use ultralow sulfur distillate fuel oil as backup fuel.

- Once-through cooling water (OTCW) is returned to the Indian River via combined plant discharge outfalls D-011 and D-012.
- Equipment / non-equipment stormwater discharged to the Indian River via outfalls D-028 and D-029.
- Internal outfall I-015 auxiliary equipment cooling water; internal outfall I-017 water treatment plant wastewater; internal outfall I-019 HRSG blowdown.



A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge the combined plant discharge (consisting of once-through and auxiliary equipment cooling water, plant/equipment drain wastewater, water treatment plant wastewater, and heat recovery steam generator blowdown) from Outfalls D-011and D-012 to Indian River Lagoon. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/ Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow	MGD	Max Max	Report Report	Instant.Maximum Monthly Average	Continuous	Calculated	FLW-1	
Chlorination Duration	min/day	Max	120	Instant. Maximum	Daily; 24 hours	Calculated	OTH-1	
Oxidants, Total Residual	mg/L	Max	0.01	Maximum Daily Average	Weekly	Grab	EFF-1 EFF-2	See I.A.3
Temp. Difference between Intake and Discharge	Deg F	Max Max Max Max	Report 14.2 Report Report	Daily Average Monthly Average Daily Average Monthly Average	6 times per day	Meter	EFF-1 EFF-2	May – Sept May – Sept Oct – Apr Oct - Apr
Temperature (F), Water	Deg F	Max Max	Report Report	Daily Average Monthly Average	6 times per day	Meter	EFF-1 EFF-2	
Oxygen, Dissolved (DO)	mg/L	Min	4.0	Single Sample	Monthly	Meter	EFF-1 or EFF-2	See I.A.5
Oxygen, Dissolved (DO)	mg/L	Max	Report	Single Sample	Monthly	Meter	INT-1	See I.A.5
Chronic Whole Effluent Toxicity, 7-Day IC25 (Mysidopsis bahia)	percent	Min	100	Single Sample	Quarterly	24-hr Composite	EFF-1 EFF-2	See I.A.4 and I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Menidia beryllina)	percent	Min	100	Single Sample	Quarterly	24-hr Composite	EFF-1 EFF-2	See I.A.4 and I.A.6

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-1	Flow monitoring location for the combined discharge from Outfall D-011 and D-012.
OTH-1	At the point of chlorine addition for Unit 3 OTCW
EFF-1	End of pipe once-through cooling water discharge from Outfall D-011
EFF-2	End of pipe once-through cooling water discharge from Outfall D-012
INT-1	Once-through cooling water intake for Unit 3

3. Grab samples shall consist of multiple samples collected at approximately the beginning, middle, and end a chlorination period. The total daily chlorination duration of 120 minutes per day may consist of multiple chlorination periods of less than 120 minutes.

4. Toxicity sampling shall consist of individual composite samples from each outfall combined in equal proportions to create a single sample for analysis.

5. Insitu dissolved oxygen monitoring for both the intake and discharge shall be performed concurrently every 4 hours, for 24 hours, once month. Monitoring during a monthly event is only required from one outfall (D-011 or D-012) but shall be alternated (between the two outfalls) every other month.

6. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-011 and D-012.

   a. Effluent Limitation
      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rules 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every three months, the first starting within 60 days of the issuance date of this permit and lasting for the duration of this permit.
      (2) Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in 6.a.(1) above, the permittee may submit a written request to the Department for a reduction in monitoring frequency to once every six months. The request shall include a summary of the data and the complete bioassay laboratory reports for each test used to demonstrate compliance. The Department shall act on the request within 45 days of receipt. Reductions in monitoring shall only become effective upon the Department's written confirmation that the facility has completed four consecutive valid routine tests that demonstrate compliance with the effluent limitation in 6.a.(1) above.

(3) If a test within the sequence of the four is deemed invalid based on the acceptance criteria in EPA-821-R-02-014, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive valid tests for the purpose of evaluating the reduction of monitoring frequency.

c. Sampling Requirements
   (1) For each routine test or additional follow-up test conducted, a total of three 24-hour composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-014, 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 7-day survival and growth chronic toxicity tests with a mysid shrimp, Americamysis (Mysidopsis) bahia, Method 1007.0, and an inland silverside, Menidia beryllina, Method 1006.0, 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 Marine and Estuarine Organisms, 3rd Edition, EPA-821-R-02-014. 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 used shall be artificial sea salts as described in EPA-821-R-02-014, Section 7.2. The test salinity shall be determined as follows:
      (a) For the Americamysis bahia bioassays, the effluent shall be adjusted to a salinity of 20 parts per thousand (ppt) with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 20 ppt. If the salinity of the effluent is greater than 20 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.
      (b) For the Menidia beryllina bioassays, if the effluent salinity is less than 5ppt, the salinity shall be adjusted to 5 ppt with artificial sea salts. The salinity of the control/dilution water (0% effluent) shall be 5 ppt. If the salinity of the effluent is greater than 5 ppt, no salinity adjustment shall be made to the effluent and the test shall be run at the effluent salinity. The salinity of the control/dilution water shall match the salinity of the effluent.
      (c) If the salinity of the effluent requires adjustment, a salinity adjustment control should be prepared and included with each bioassay. The salinity adjustment control is intended to identify toxicity resulting from adjusting the effluent salinity with artificial sea salts. To prepare the salinity adjustment control, dilute the control/dilution water to the salinity of the effluent and adjust the salinity of the salinity adjustment control at the same time and to the same salinity that the salinity of the effluent is adjusted using the same artificial sea salts.

e. Quality Assurance Requirements
   (1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
   (2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or any test does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-014, Section 14.12 (Americamysis bahia) and Section 13.12 (Menidia beryllina). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-014, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
(a) Routine and Additional Follow-up Test Results: The calculated IC25 for each test species shall be entered on the DMR.
(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-014, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-014, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
(5) The same bioassay data shall not be reported as the results of more than one test.
(6) All bioassay laboratory reports shall be sent to:
Florida Department of Environmental Protection
Tallahassee Office
2600 Blair Stone Road, M.S. 3545
Tallahassee, Florida 32399-2400

g. Test Failures
(1) A test fails when the test results do not meet the limits in 6.a.(1).
(2) Additional Follow-up Tests:
(a) If a routine test does not meet the chronic toxicity limitation in 6.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 6.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-014.
(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
(b) The Department shall review and approve the plan before initiation.
(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
(d) Progress reports shall be submitted quarterly to the Department at the address above.
(e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 6.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 6.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-014, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
(f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in 6.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the

facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests. If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in 6.(a)(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

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

[62-4.241, 62-620.620(3)

7. The discharge shall not contain components that settle to form putrescent deposits or float as debris, scum, oil, or other matter. *[62-302.500(1)(a)]*

8. Discharges from Outfalls D-011 and D-012 are subject to thermal limitations established by Rule 62-302.520(1), F.A.C.

9. OTCW and AECW limitations and monitoring requirements for TRO are not applicable for any week in which chlorine is not added to Unit 3.

PART I: Continued	
Receiving Waters: **Indian River Lagoon D-011, D-012**	Classification (indicate whether fresh or marine): **Class II Marine waters**

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

Toxicity testing is required. Please see detailed description above.

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

The facility has no Administrative Orders (AO) or Consent Orders (CO). The facility has historical and continuing noncompliance issues with groundwater contamination.

Facility Mixing Zone Details (if applicable):
N/A

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

Date	Parameter and Units	Limit	Result
None			

Describe previous FYI and WQBEL study:

None

Describe previous or current Enforcement Actions (including WLs):

None

Describe any violations or problems noted in previous inspection:

None. This is a newly constructed facility replacing the previous FPL Cape Canaveral Power Plant.

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

N/A

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse): None	
PART II: Sampling Event Information	
Date(s) sample collected:	Sampler(s):
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2013-06-24-17
FYI3 FPL Cape Canaveral Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: KANE, SEYFERT
Collected By: KANE, SEYFERT
Send Final Report To: ~~David Smicherko~~ PK P. KANE
Sampling Agency: FDEP CENTRAL

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

Lab ID *	Location: CAPE CANAVERAL CLEAN ENERGY CENTER 6000 N. US HWY 1 COCOA, FL 32927			☐ Comp ☑ Grab	Collection (comp begin or grab) ~~Eastern~~ ~~Central~~ Date ~~Time~~ PK		Composite end Date 6/24/13 Time 0900 Eastern ~~Central~~	Bottle Group(s)**
	Field ID: CAPE			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 4.31		Storet Station Number	A
	Matrix (include type e.g. Salt, Fresh, etc): EFFLUENT	Temp (C) 34.87	pH 8.36	Sample Depth ☐ m SURFACE ☐ ft	50555	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number FL0020541	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: used submersable pump with rubber hose. Flushed 7 minutes before sampling. D011 DISCHARGE POINT				CHECKED PH
Lab ID *	Location: CAPE CANAVERAL CLEAN ENERGY CENTER 6000 N. US HWY 1 COCOA, FL. 32927			☐ Comp ☑ Grab	Collection (comp begin or grab) ~~Eastern~~ ~~Central~~ Date ~~Time~~ PK		Composite end Date 6/24/13 Time 0900 Eastern ~~Central~~	Bottle Group(s)**
	Field ID: CAPE			Tot Res Chlorine (mg/L) N/A	Diss Oxygen (mg/L) 4.31		Storet Station Number	A CHECKED PH
	Matrix (include type e.g. Salt, Fresh, etc): EFFLUENT	Temp (C) 34.87	pH 8.36	Sample Depth ☐ m SURFACE ☐ ft	50555	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number FL0020541	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: BIOASSAY D011 DISCHARGE POINT				
Lab ID *	Location: CAPE CANAVERAL CLEAN ENERGY CENTER 6000 N. US HWY 1 COCOA, FL. 32927			☐ Comp ☑ Grab	Collection (comp begin or grab) ~~Eastern~~ ~~Central~~ Date ~~Time~~ PK		Composite end Date 6/24/13 Time ~~Central~~ Eastern	Bottle Group(s)**
	Field ID: CAPE			Tot Res Chlorine (mg/L) N/A	Diss Oxygen (mg/L) N/A		Storet Station Number	C CHECKED PH
	Matrix (include type e.g. Salt, Fresh, etc): BLANK	Temp (C) N/A	pH N/A	Sample Depth ☐ m SURFACE ☐ ft	N/A	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number FL0020541	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: BLANK (BLANK OIL & GREASE DISCARDED)				
Lab ID *	Location: CAPE CANAVERAL CLEAN ENERGY CENTER 6000 N. US HWY 1 COCOA, FL. 32927			☐ Comp ☑ Grab	Collection (comp begin or grab) ~~Eastern~~ ~~Central~~ Date ~~Time~~ PK		Composite end Date 6/24 Time 1030 Eastern ~~Central~~	Bottle Group(s)**
	Field ID: CAPE – Internal			Tot Res Chlorine (mg/L) N/A	Diss Oxygen (mg/L) N/A		Storet Station Number	A CHECKED PH
	Matrix (include type e.g. Salt, Fresh, etc): EFFLUENT	Temp (C) N/A	pH N/A	Sample Depth ☐ m SURFACE ☐ ft	N/A	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number FL0020541	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments: OIL & GREASE FROM BLOW DOWN INTERVAL DISCHARGE POINT. THEIR SAMPLING POINT.				IOW DISCHARGE POINT

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
KANE, SEYFERT	6/24/13	FEDEX	ARB	6-25-13 0930				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

6.25.13 4 bottles CR 1030

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Pet customer (Dr. P. Kane)

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	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 9:00	Effluent	AGP/LN	Algal Growth Potential	3.00	AU	mg DryWt/L	3	3
6/24/2013 9:00	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	3.0		ug/L	0.62	1.9
6/24/2013 9:00	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.3	I	mg/L	0.2	2
6/24/2013 9:00	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.1	I	ug/L	0.45	1.4
6/24/2013 9:00	Effluent	Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	100	L	LC50		
6/24/2013 9:00	Effluent	Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	L	LC50		
6/24/2013 9:00	Effluent	Metals	Calcium	408		mg/L	0.22	0.9
6/24/2013 9:00	Effluent	Metals	Cadmium	0.15	U	ug/L	0.15	0.6
6/24/2013 9:00	Effluent	Metals	Copper	1.5	U	ug/L	1.5	3
6/24/2013 9:00	Effluent	Metals	Magnesium	1,320		mg/L	2	8
6/24/2013 9:00	Effluent	Metals	Nickel	0.90	I	ug/L	0.75	3
6/24/2013 9:00	Effluent	Metals	Sodium	10,400		mg/L	50	200
6/24/2013 9:00	Effluent	Metals	Silver	0.075	U	ug/L	0.075	0.3
6/24/2013 9:00	Effluent	Metals	Aluminum	180	U	ug/L	180	720
6/24/2013 9:00	Effluent	Metals	Arsenic	1.7	I	ug/L	0.75	3
6/24/2013 9:00	Effluent	Metals	Chromium	1.1	I	ug/L	0.9	3.6
6/24/2013 9:00	Effluent	Metals	Selenium	0.60	U	ug/L	0.6	2.4
6/24/2013 9:00	Effluent	Metals	Iron	90	U	ug/L	90	360
6/24/2013 9:00	Effluent	Metals	Zinc	15	U	ug/L	15	60
6/24/2013 9:00	Effluent	Metals	Lead	0.60	U	ug/L	0.6	2.4
6/24/2013 9:00	Effluent	Nutrients	Total-P	0.031	Y	mg P/L	0.004	0.01
6/24/2013 9:00	Effluent	Nutrients	Chloride	19,000		mg Cl/L	40	100
6/24/2013 9:00	Effluent	Nutrients	Organic Carbon	13		mg C/L	1	2
6/24/2013 9:00	Effluent	Nutrients	Ammonia-N	0.13		mg N/L	0.002	0.005
6/24/2013 9:00	Effluent	Nutrients	Sulfate	2,700		mg SO4/L	40	100
6/24/2013 9:00	Effluent	Nutrients	NO2NO3-N	0.008	IY	mg N/L	0.004	0.01
6/24/2013 9:00	Effluent	Nutrients	Fluoride	1.2		mg F/L	0.18	0.5
6/24/2013 9:00	Effluent	Nutrients	Alkalinity	112		mg CaCO3/L	0.65	2.5
6/24/2013 9:00	Effluent	Nutrients	Kjeldahl Nitrogen	1.1	Y	mg N/L	0.16	0.4
6/24/2013 9:00	Effluent	Nutrients	Turbidity	2.7		NTU	0.1	0.1
6/24/2013 9:00	Effluent	Nutrients	Color (true)	2.5	U	PCU	2.5	6
6/24/2013 9:00	Effluent	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
6/24/2013 9:00	Effluent	Nutrients	TSS	6	I	mg/L	3	10
6/24/2013 9:00	Effluent	Pesticides	Ametryn	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Bromacil	0.038	U	ug/L	0.038	0.15
6/24/2013 9:00	Effluent	Pesticides	Chlorpyrifos Methyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Parathion Ethyl	0.019	U	ug/L	0.019	0.076

Date Sampled	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 9:00	Effluent	Pesticides	Fenamiphos	0.029	U	ug/L	0.029	0.11
6/24/2013 9:00	Effluent	Pesticides	Hexazinone	0.029	UJ	ug/L	0.029	0.11
6/24/2013 9:00	Effluent	Pesticides	Metribuzin	0.019	U	ug/L	0.019	0.076
6/24/2013 9:00	Effluent	Pesticides	Phorate	0.0048	U	ug/L	0.0048	0.019
6/24/2013 9:00	Effluent	Pesticides	Diazinon	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Fonofos	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Malathion	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Metalaxyl	0.038	U	ug/L	0.038	0.15
6/24/2013 9:00	Effluent	Pesticides	Mevinphos	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Naled	0.038	UJ	ug/L	0.038	0.15
6/24/2013 9:00	Effluent	Pesticides	Butylate	0.019	U	ug/L	0.019	0.076
6/24/2013 9:00	Effluent	Pesticides	Prometryn	0.019	U	ug/L	0.019	0.076
6/24/2013 9:00	Effluent	Pesticides	Atrazine	0.020	I	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Azinphos Methyl	0.019	U	ug/L	0.019	0.076
6/24/2013 9:00	Effluent	Pesticides	Ethion	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Metolachlor	0.057	U	ug/L	0.057	0.23
6/24/2013 9:00	Effluent	Pesticides	Norflurazon	0.029	U	ug/L	0.029	0.11
6/24/2013 9:00	Effluent	Pesticides	Alachlor	0.057	UJ	ug/L	0.057	0.23
6/24/2013 9:00	Effluent	Pesticides	Chlorpyrifos Ethyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Ethoprop	0.0048	U	ug/L	0.0048	0.019
6/24/2013 9:00	Effluent	Pesticides	Parathion Methyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Pesticides	Simazine	0.0095	U	ug/L	0.0095	0.038
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Hexachloroethane	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	56
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Phenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzidine	93	U	ug/L	93	370
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.4
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.74

Date Sampled	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Dimethyl phthalate	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.4
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.4
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.4
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Isophorone	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.4
6/24/2013 9:00	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	56
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.3	U	ug/L	9.3	37
6/24/2013 9:00	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8	U	ug/L	2.8	11
6/24/2013 9:00	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	37	U	ug/L	37	150
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.93	U	ug/L	0.93	3.7
6/24/2013 9:00	Effluent	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.74
6/24/2013 9:00	Effluent	Field Parameter	Specific Conductance	50,555		umhos/cm		
6/24/2013 9:00	Effluent	Field Parameter	Temperature	34.87		C		
6/24/2013 9:00	Effluent	Field Parameter	Specific Conductance	50,555		umhos/cm		
6/24/2013 9:00	Effluent	Field Parameter	Temperature	34.87		C		
6/24/2013 9:00	Effluent	Field Parameter	Dissolved Oxygen	4.31		mg/L		
6/24/2013 9:00	Effluent	Field Parameter	pH	8.36				
6/24/2013 9:00	Effluent	Field Parameter	pH	8.36				
6/24/2013 9:00	Effluent	Field Parameter	Dissolved Oxygen	4.31		mg/L		
6/24/2013 10:30	Internal	Overflow	Oil and Grease	0.76	U	mg/L	0.76	2.7
6/24/2013 10:00	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/24/2013 10:00	Blank	Metals	Lead	0.20	U	ug/L	0.2	0.8

Date Sampled	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:00	Blank	Metals	Magnesium	0.040	U	mg/L	0.04	0.16
6/24/2013 10:00	Blank	Metals	Sodium	0.50	U	mg/L	0.5	2
6/24/2013 10:00	Blank	Metals	Copper	0.76	I	ug/L	0.5	1
6/24/2013 10:00	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
6/24/2013 10:00	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/24/2013 10:00	Blank	Metals	Aluminum	60	U	ug/L	60	240
6/24/2013 10:00	Blank	Metals	Chromium	0.30	U	ug/L	0.3	1.2
6/24/2013 10:00	Blank	Metals	Cadmium	0.061	I	ug/L	0.05	0.2
6/24/2013 10:00	Blank	Metals	Selenium	0.20	U	ug/L	0.2	0.8
6/24/2013 10:00	Blank	Metals	Zinc	5.0	U	ug/L	5	20
6/24/2013 10:00	Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
6/24/2013 10:00	Blank	Metals	Iron	30	U	ug/L	30	120
6/24/2013 10:00	Blank	Nutrients	Chloride	0.20	U	mg Cl/L	0.2	0.5
6/24/2013 10:00	Blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
6/24/2013 10:00	Blank	Nutrients	Ammonia-N	0.004	I	mg N/L	0.002	0.005
6/24/2013 10:00	Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
6/24/2013 10:00	Blank	Nutrients	Organic Carbon	0.93	I	mg C/L	0.5	1
6/24/2013 10:00	Blank	Nutrients	Kjeldahl Nitrogen	0.080	U	mg N/L	0.08	0.2
6/24/2013 10:00	Blank	Nutrients	Turbidity	0.10	U	NTU	0.1	0.1
6/24/2013 10:00	Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
6/24/2013 10:00	Blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
6/24/2013 10:00	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
6/24/2013 10:00	Blank	Nutrients	Sulfate	0.20	U	mg SO4/L	0.2	0.5
6/24/2013 10:00	Blank	Overflow	Oil and Grease	0.76	U	mg/L	0.76	2.7
6/24/2013 10:00	Blank	Pesticides	Alachlor	0.058	UJ	ug/L	0.058	0.23
6/24/2013 10:00	Blank	Pesticides	Parathion Methyl	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Norflurazon	0.029	U	ug/L	0.029	0.12
6/24/2013 10:00	Blank	Pesticides	Metolachlor	0.058	U	ug/L	0.058	0.23
6/24/2013 10:00	Blank	Pesticides	Ethion	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Parathion Ethyl	0.019	U	ug/L	0.019	0.077
6/24/2013 10:00	Blank	Pesticides	Metribuzin	0.019	U	ug/L	0.019	0.077
6/24/2013 10:00	Blank	Pesticides	Hexazinone	0.029	UJ	ug/L	0.029	0.12
6/24/2013 10:00	Blank	Pesticides	Metalaxyl	0.038	U	ug/L	0.038	0.15
6/24/2013 10:00	Blank	Pesticides	Fonofos	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Prometryn	0.019	U	ug/L	0.019	0.077
6/24/2013 10:00	Blank	Pesticides	Phorate	0.0048	U	ug/L	0.0048	0.019
6/24/2013 10:00	Blank	Pesticides	Ethoprop	0.0048	U	ug/L	0.0048	0.019
6/24/2013 10:00	Blank	Pesticides	Diazinon	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Butylate	0.019	U	ug/L	0.019	0.077
6/24/2013 10:00	Blank	Pesticides	Azinphos Methyl	0.019	U	ug/L	0.019	0.077
6/24/2013 10:00	Blank	Pesticides	Simazine	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Naled	0.038	UJ	ug/L	0.038	0.15
6/24/2013 10:00	Blank	Pesticides	Bromacil	0.038	U	ug/L	0.038	0.15

Date Sampled	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:00	Blank	Pesticides	Malathion	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Fenamiphos	0.029	U	ug/L	0.029	0.12
6/24/2013 10:00	Blank	Pesticides	Chlorpyrifos Methyl	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Chlorpyrifos Ethyl	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Atrazine	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Ametryn	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Pesticides	Mevinphos	0.0096	U	ug/L	0.0096	0.038
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
6/24/2013 10:00	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Dimethyl phthalate	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
6/24/2013 10:00	Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	2.0	I	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8

Date Sampled	Source	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:00	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
6/24/2013 10:00	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9	U	ug/L	1.9	7.6
6/24/2013 10:00	Blank	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
6/24/2013 10:00	Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
6/24/2013 10:00	Blank	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.76
6/24/2013 10:00	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
6/24/2013 10:00	Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: FPL Cape Canaveral Plant
Address: 6000 N US Highway 1
City: Cocoa County: Brevard
Contact/District: Phil Lane / Central

Sample Collection: Date: 6-24-13 Time: 0900
Hold Time Start: Date: 6-24-13 Time: 0900

NPDES Permit #: FL 0001473

LIMS Job #: ILH-2013-06-25-07 LIMS Sample #: ~~151206~~ CR 1512506

Lims Data Entry: 7-1-13 MF Data Entry Verification: 7-1-13 CR

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: 5.0 mg/L Final DO: 6.7 mg/L Duration: 30 minutes Rate: ~100 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:
Cassidy Nesbitt	CR
Autumn Bennington	AP
Marshall Faircloth	MF
Brian Nelson	BN
REVIEWER: Liz Mercer	

Diluent/Control Batch#:				5.29.13	6.25.13				
Water Quality Parameters	20% DMW	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			
Lab Total Residual Cl_2 (mg/L):				<0.03	<0.03		<0.03	CR/AP	AP/CR
Alkalinity (mg/L as $CaCO_3$):				179	203		140	CR	AP
Hardness (mg/L as $CaCO_3$):									
Total Ammonia (mg/L as N):				<0.034	<0.034		<0.068	MF	AP
Conductivity: ☐ µmhos ☐ mmhos				44.7	44.9	51.2 ~~48.0~~ AP		BA/CR	AP
Salinity (ppth):				29.1	29.4	33.6 ~~31.8~~ AP		BA/CR	AP

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FDEP Biology Laboratory - Acute Bioassay Survival Bench Sheet

LIMS Sample # 1512506 **SOP#: TA 07** 03 ~~01~~ fm **Test #** 1 of 2

Test Species:
Batch #: 6.25.13 Age: 5 days
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☐ *Pimephales promelas*
- ☐ *Menidia beryllina*
- ☑ *Americamysis bahia*
- ☐ Other:_____

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

Diluent (Batch # 6.25.13 5.29.13 **)**
☑ ASW ☐ MHWCD ☐ MHW ☐ Well

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

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 6.25.13 Time 1400

Test Ended: Date 6-29-13 Time 1340

Chamber Size 500 ml
Test Volume: 250 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	L1	5	5	5	5	5	5
	B	L2	5	5	5	5	5	5
	C	L3	5	5	5	5	5	5
	D	L4	5	5	5	5	5	5
6.25%	A	L5	5	5	5	5	5	5
	B	L6	5	5	5	5	5	5
	C	L7	5	5	5	5	5	5
	D	L8	5	5	5	5	5	5
12.5%	A	L9	5	5	5	5	5	5
	B	L10	5	5	5	5	5	5
	C	L11	5	5	5	5	5	5
	D	L12	5	5	5	5	5	5
25%	A	L13	5	5	5	5	5	5
	B	L14	5	5	5	5	5	5
	C	L15	5	5	5	5	5	5
	D	L16	5	5	5	5	5	5
50%	A	L17	5	5	5	5	5	5
	B	L18	5	5	5	5	5	5
	C	L19	5	5	5	5	4[1]	4
	D	L20	5	5	5	5	5	5
100%	A	L21	5	5	5	5	5	5
	B	L22	5	5	5	5	5	5
	C	L23	5	5	5	5	5	5
	D	L24	5	5	5	5	5	5
Checked or Verified by:			CR	AP	AP	AP	AP	MA

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 08812

Feeding and Artemia Batch #
- ☑ 0 hr 124.13 ☐ Prior to Test
- ☑ 24 hr 125.13
- ☑ 48 hr 126.13 ☑ Prior to Renewal
- ☑ 72 hr 127.13

Temperature Range (°C)
Incubator # 3
min. 24.0 max. 26.8 mean —

Incubator #___
min._____ max._____ mean_____

Waterbath #___
min._____ max._____ mean_____

Room B246
min. 24.5 max. 25.4 mean —

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: BA / CR
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. 2.6 2-15-13

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

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...Biology Laboratory - Acute Bioassay Survival Bench Sheet

LIMS Sample # 1512506 SOP#: TA 07 04 Test # 2 of 2

Test Species:
Batch #: 6.25.13 Age: 13 days
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☐ *Pimephales promelas*
- ☑ *Menidia beryllina*
- ☐ *Americamysis bahia*
- ☐ Other:

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

Diluent (Batch # 6.25.13) 5.29.13
☑ ASW ☐ MHWCD ☐ MHW ☐ Well

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

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 6.25.13 Time 1415

Test Ended: Date 6.29.13 Time 0840

Chamber Size 1000ml
Test Volume: 500ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	D13	10	9 1D	9	9	9	9
	B	D14	10	9 1D	9	9	9	9
6.25%	A	D15	10	10	10	10	10	10
	B	D16	10	8 2D	8	8	8	8
12.5%	A	D17	10	10	9 1D	9	9	9
	B	D18	10	10	9 1D	9	9	9
25%	A	D19	10	9 1D	9	9	9	9
	B	D20	10	7 3D	7	7	7	7
50%	A	D21	10	10	10	10	10	10
	B	D22	10	9 1D	8 1D	8	8	8
100%	A	D23	10	10	10	10	10	10
	B	D24	10	10	9 1D	9	9	9
Checked or Verified by:			CR	AP	CR	AP	AP	MF

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

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 08812

Feeding and Artemia Batch #
- ☑ 0 hr 6.24.13 ☑ Prior to Test
- ☐ 24 hr___
- ☑ 48 hr 6.26.13 ☑ Prior to Renewal
- ☐ 72 hr___

Temperature Range (°C)
Incubator # 3 6.25.13-6.27.13 1400
min 24.0 max 26.6 mean ___

Incubator # 5 6.27.13-6.29.13 AP
min 24.5 max 25.7 mean ___

Waterbath #___
min.___ max.___ mean___

Room B246
min 24.5 max 25.4 mean ___

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

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

Comments:

V. 2.6 2-15-13

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

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LIMS Sample # 1512506 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)
Control	A	0 hr	8.2	24.5	6.2	44.7	29.1
	B	24 hr	8.0	24.9	6.0	45.3	29.5
	C	48 hr BR	7.8	24.5	5.1	46.2	30.0
	C	48 hr AR	8.0	24.2	6.0	44.9	29.4
	D	72 hr	7.9	26.0	4.7	47.1	30.8
	A	96 hr	7.9	25.3	5.1	48.0	31.8
6.25%	A	0 hr	8.2	24.7	6.1	45.8	29.7
	B	24 hr	8.1	24.6	6.0	46.1	29.9
	C	48 hr BR	7.8	24.5	5.1	46.4	30.2
	C	48 hr AR	8.1	24.2	5.9	46.2	30.5
	D	72 hr	8.0	25.7	4.7	48.1	31.6
	A	96 hr	7.9	25.3	5.1	48.0	31.8
12.5%	A	0 hr	8.2	24.7	6.2	46.2	29.9
	B	24 hr	8.1	24.8	6.0	46.4	30.2
	C	48 hr BR	7.9	24.6	4.9	47.1	30.7
	C	48 hr AR	8.1	24.3	5.9	46.7	30.8
	D	72 hr	8.0	25.8	4.9	48.5	31.8
	A	96 hr	7.9	25.3	5.0	47.9	31.7
25%	A	0 hr	8.2	24.7	6.4	46.8	30.4
	B	24 hr	8.1	25.3	6.1	47.5	30.9
	C	48 hr BR	7.8	24.5	4.8	48.1	31.4
	C	48 hr AR	8.0	24.3	5.9	47.5	31.4
	D	72 hr	7.9	25.8	5.0	49.3	32.4
	A	96 hr	7.9	25.1	5.1	49.4	32.8
50%	A	0 hr	8.2	24.7	6.2	48.3	31.3
	B	24 hr	8.1	25.0	6.1	48.6	31.8
	C	48 hr BR	7.8	24.5	4.7	49.2	32.3
	C	48 hr AR	8.0	24.5	5.9	48.7	32.2
	D	72 hr	7.9	25.8	4.9	51.3	33.8
	A	96 hr	7.9	25.2	5.4	50.2	33.4
100%	A	0 hr	8.2	24.9	6.3	51.2	33.6
	B	24 hr	7.9	25.0	6.1	52.3	34.6
	C	48 hr BR	7.7	24.8	4.7	53.0	35.0
	C	48 hr AR	8.0	24.9	5.9	51.9	34.5
	D	72 hr	7.9	25.4	5.2	54.2	35.9
	A	96 hr	7.8	25.2	5.5	53.9	36.1
		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: BA
24 hr: AP/CR
48 hr BR: AP/CR
48 hr AR: AP/CR
72 hr: AP/CR
96 hr: MF

00082

Page

V. 2.3 1-13-10

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1512506 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	8.2	24.5	6.2	44.7	29.1
	B	24 hr	8.1	24.9	6.5	44.9	+AP24
	A	48 hr BR	8.1	26.0	6.1	46.3	30.0
	A	48 hr AR	8.1	24.6	6.3	45.3	29.4
	B	72 hr	8.0	25.3	6.2	47.0	30.4
	A	96 hr	8.0	24.2	6.5	47.4	31.2
6.25%	A	0 hr	8.2	24.7	6.1	45.8	29.7
	B	24 hr	8.2	24.9	6.5	46.3	29.8
	A	48 hr BR	8.1	26.0	6.1	46.8	30.6
	A	48 hr AR	8.2	24.6	6.3	46.3	30.4
	B	72 hr	8.0	24.9	5.9	47.8	31.3
	A	96 hr	8.0	24.9	6.6	48.0	31.6
12.5%	A	0 hr	8.2	24.7	6.7	46.2	29.9
	B	24 hr	8.2	24.8	6.5	46.7	30.1
	A	48 hr BR	8.1	26.0	6.2	47.1	30.8
	A	48 hr AR	8.1	24.6	6.4	46.7	30.7
	B	72 hr	8.0	24.5	5.8	47.9	31.4
	A	96 hr	8.0	24.5	6.6	48.5	31.9
25%	A	0 hr	8.2	24.7	6.4	46.8	30.4
	B	24 hr	8.1	24.9	6.5	47.6	30.8
	A	48 hr BR	8.1	25.9	6.1	48.0	31.4
	A	48 hr AR	8.1	24.6	6.3	47.4	31.1
	B	72 hr	8.0	24.6	5.7	49.1	32.3
	A	96 hr	8.0	25.0	6.6	48.9	32.2
50%	A	0 hr	8.2	24.7	6.2	48.3	31.3
	B	24 hr	8.1	24.5	6.5	48.6	31.6
	A	48 hr BR	8.1	26.1	6.1	49.4	32.4
	A	48 hr AR	8.1	24.7	6.3	48.7	32.0
	B	72 hr	8.0	25.0	5.8	50.2	33.0
	A	96 hr	8.0	24.6	6.6	50.7	33.5
100%	A	0 hr	8.2	24.9	6.3	51.2	33.6
	B	24 hr	8.0	24.8	6.5	51.9	34.0
	A	48 hr BR	8.0	26.0	6.1	52.8	34.9
	A	48 hr AR	8.0	25.2	6.3	51.9	34.4
	B	72 hr	7.9	25.3	5.9	53.2	35.2
	A	96 hr	7.9	24.5	6.6	53.8	35.8
		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: BA
24 hr: AP/CR
48 hr BR: AP/CR
48 hr AR: AP/CR
72 hr: AP/CR
96 hr: MF

Test ID: FPL Cape Canaveral Plant Dates: 6.25.13 - 6.29.13

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: 7-2-13 AP

V 1.3 2/15/13 MF

PAGE

Appendix F
Standard Reference Toxicant Data

Florida Department of Environmental Protection
Bureau of Laboratories

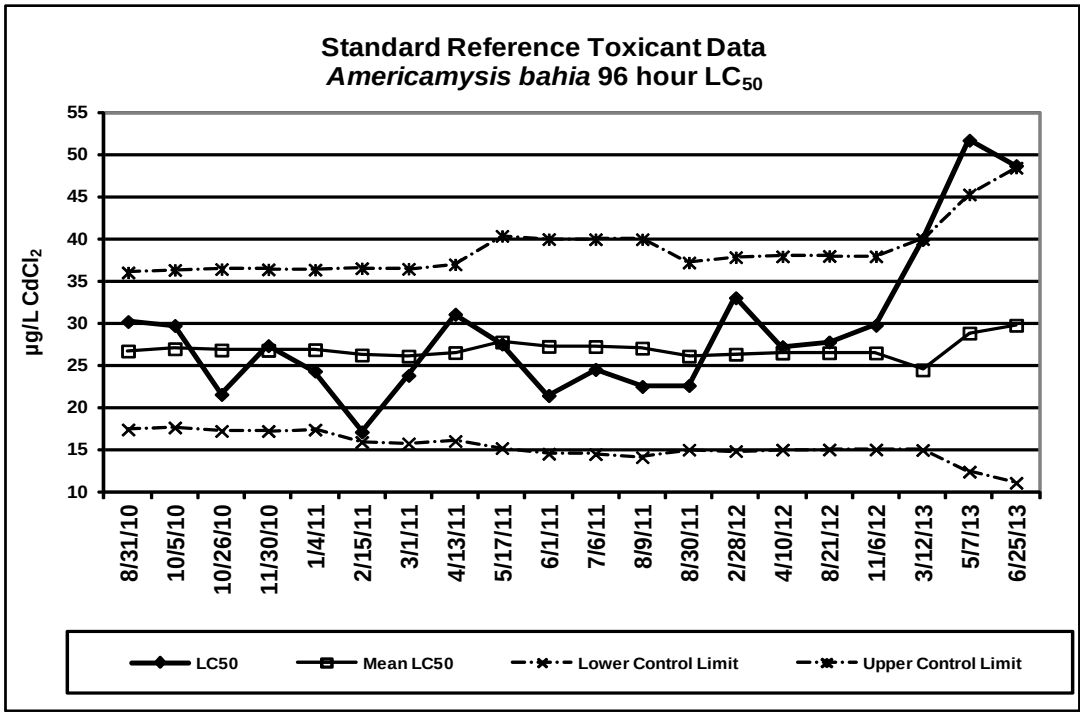
Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
8/31/10	30.17	26.68	4.66	17.37	35.99
10/5/10	29.70	26.94	4.67	17.60	36.29
10/26/10	21.53	26.80	4.80	17.20	36.39
11/30/10	27.31	26.76	4.79	17.18	36.35
1/4/11	24.29	26.83	4.74	17.35	36.32
2/15/11	17.08	26.19	5.15	15.88	36.49
3/1/11	23.78	26.07	5.18	15.71	36.43
4/13/11	31.04	26.48	5.24	16.00	36.95
5/17/11	27.50	27.75	6.29	15.16	40.33
6/1/11	21.40	27.22	6.36	14.49	39.95
7/6/11	24.49	27.20	6.37	14.45	39.94
8/9/11	22.46	27.01	6.46	14.09	39.93
8/30/11	22.59	26.07	5.55	14.96	37.17
2/28/12	32.99	26.30	5.75	14.80	37.80
4/10/12	27.19	26.44	5.73	14.97	37.90
8/21/12	27.74	26.47	5.74	14.99	37.95
11/6/12	29.73	26.45	5.73	15.00	37.90
3/12/13	39.90	24.44	6.25	14.94	39.95
5/7/13	51.68	28.80	8.22	12.36	45.25
6/25/13	48.66	29.73	9.35	11.04	48.42

CV = 31.44

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

EPA reference 75th quartile CV = 26%



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 #: ASW 1.5.29.13
Toxicant/ Batch#: KCl ug/L Cdl2 / 6.25.13
Organism Batch: 6.25.13 Age: 5 days
Test Beginning: Date: 6.25.13 Time: 1200
Test Ending: Date: 6-29-13 Time: 0830

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	CR
Alkalinity (mg/L as $CaCO_3$):	179	TA06_08	CR
Hardness (mg.L as $CaCO_3$):		TA06_09	
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos (mmhos)	30.8	TA06_25	BA
Salinity (ppth):	19.1	TA06_25	BA

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☑ Artemia Lot # 08817	

Artemia Batch:
0 hr: 124.13
24 hr: 125.13
48 hr: 126.13
72 hr: 127.13

Chamber size: 500 mL
Test volume: 250 mL per replicate

Concentrations prepared by: BA
Test Incubated in: Incubator # 2 Waterbath # ____
Temperature Range °C:(if used) Incubator # 2 min 24.4 max 25.7 mean –
Light Intensity: 50-100 Ft. candles
Waterbath # ___ min.____ max.____ mean____
Photoperiod: 16 hours Light / 8 hours dark
Room B246 min 24.1 max 25.4 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	Y1	5	5	5	5	5	5
	B	Y2	5	5	5	5	5	5
	C	Y3	5	5	5	5	5	5
	D	Y4	5	5	5	5	5	5
20	A	Y5	5	4 1D	4	4	4	5 4 3M
	B	Y6	5	5	5	5	5	5
	C	Y7	5	5	5	5	5	5
	D	Y8	5	5	5	5	5	5
30	A	Y9	5	5	5	5	5	5
	B	Y10	5	5	5	5	5	5
	C	Y11	5	5	5	5	5	5
	D	Y12	5	5	5	5	5	4 1D
45	A	Y13	5	5	5	5 4 1D CR	4 1D	4
	B	Y14	5	5	4 1D	4	4	4
	C	Y15	5	5	4 1D	(CR 3 1D) 4	3 1D	2 1D
	D	Y16	5	5	5	5	5	4 1D
67	A	Y17	5	5	1 4D	1 0 1D CR	0 1D	—
	B	Y18	5	5	2 3D	2	2	0 2D
	C	Y19	5	5	1 4D	1	1	0 1D
	D	Y20	5	5	4 1D	4 1 1D CR	1 3D	1
100	A	Y21	5	4 1D	1 3D	(CR 1 1D) 1	0 1D	
	B	Y22	5	5	0 5D	0	0	
	C	Y23	5	5	0 5D	0	0	
	D	Y24	5	5	1 4D	(CR 1 1D) 1	0 1D	
Organisms loaded by: BA		Checked by:	AP	CR	CR	CR	CR	MF
Loading Verified by: AP								

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

Investigators' Signatures
Ben Abraham
Cassidy Rexroat
Rhiannon Pennington
Marshall Faircloth

Reviewer: Lisa Mercer

Comments:

Method: TSK

Statistics: LC50 MF	95% confidence intervals Lower	Upper
48 hour: ~~48.66~~	–	–
96 hour: 48.66	44.06	53.74

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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: 6.25.13 Time: 1200
Test Ending: Date: 6.29-13 Time: 0830

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	8.0	24.5	6.1	30.8	19.1
	B	24 hr	8.0	24.2	6.5	30.6	18.5
	CR/AC	48 hr BR	7.9	24.0	6.1	30.4	19.7
	C	48 hr AR	8.2	24.3	6.8	30.4	19.6
	D	72 hr	8.1	24.9	6.5	33.3	21.0
	A	96 hr	7.9	24.9	6.7	33.8	21.1
20	A	0 hr	8.0	24.6	6.3	31.1	19.3
	B	24 hr	8.0	24.2	6.5	31.0	18.8
	CR/AC	48 hr BR	7.8	23.6	6.0	30.9	20.0
	C	48 hr AR	8.2	24.3	6.8	30.7	20.1
	D	72 hr	8.0	25.1	6.5	32.5	20.9
	A	96 hr	8.0	25.5	6.5	34.2	21.2
30	A	0 hr	8.0	24.6	6.5	31.2	19.4
	B	24 hr	8.0	24.0	6.4	31.1	18.9
	CR/AC	48 hr BR	7.9	23.8	5.8	30.5	19.7
	C	48 hr AR	8.1	24.2	6.7	30.8	20.1
	D	72 hr	8.1	25.1	6.2	33.1	20.8
	A	96 hr	8.0	25.1	6.3	33.8	21.0
45	A	0 hr	8.0	24.6	6.6	31.1	19.4
	B	24 hr	8.0	24.9	6.3	31.7	19.1
	CR/AC	48 hr BR	7.9	23.8	5.7	30.6	19.7
	C	48 hr AR	8.1	24.3	6.6	30.3	19.8
	D	72 hr	8.0	24.8	6.1	32.8	20.6
	A	96 hr	8.0	24.8	6.3	33.1	20.5
67	A	0 hr	8.0	24.5	6.8	31.0	19.3
	B	24 hr	8.0	24.3	6.3	31.1	18.8
	CR/AC	48 hr BR	7.9	24.1	5.8	30.8	19.8
	C	48 hr AR	8.1	24.4	6.6	30.3	19.8
	D	72 hr	8.1	24.6	6.3	32.6	20.4
	B	96 hr	8.0	25.1	6.3	32.9	20.4
100	A	0 hr	8.1	24.5	6.8	31.2	19.4
	B	24 hr	8.0	24.2	6.3	31.2	19.0
	CR/AC	48 hr BR	7.9	24.1	5.9	30.7	19.7
	D	48 hr AR	8.1	24.4	6.7	30.5	19.8
	D	72 hr	8.0	24.5	6.3	32.0	20.0
		96 hr					

Investigators Signatures
Bree Adams
Cassidy Peacock
Adrienne Pennington
Marshall Faircloth

Reviewed By: Liz Moore

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

Measure/record salinity for marine tests

Comments:

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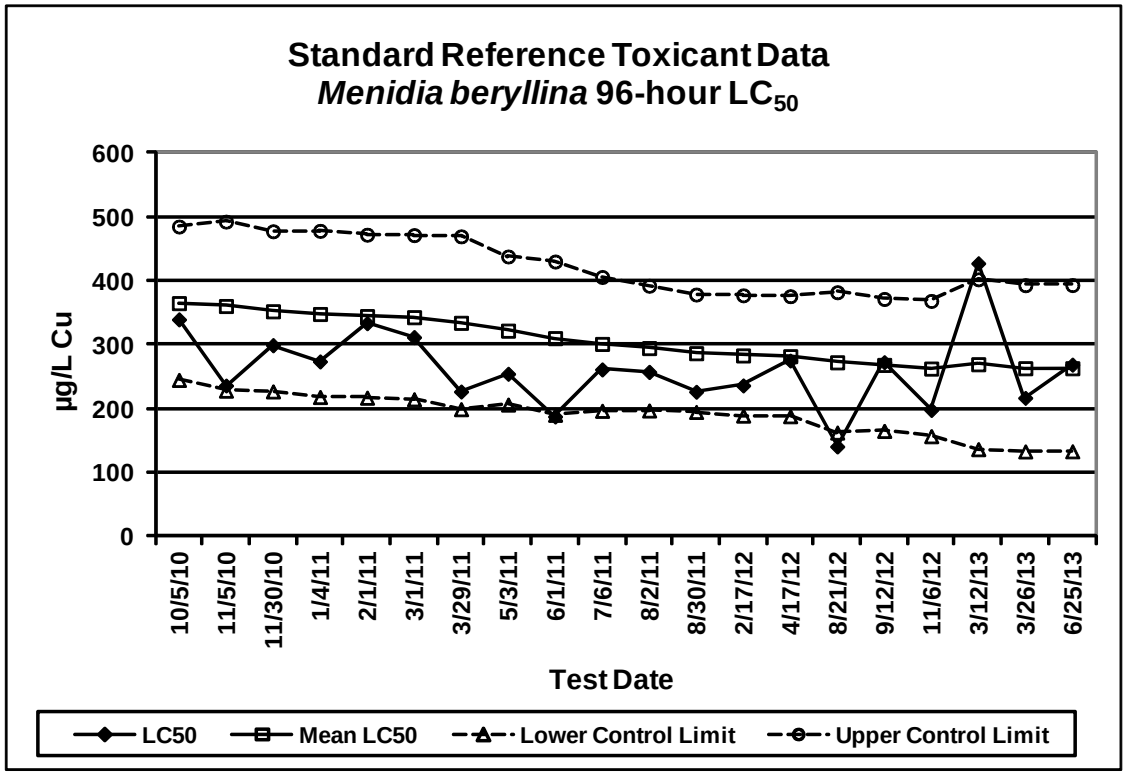
Revised 07/15/2008 MF

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Menidia beryllina (inland silverside) - Copper Chloride ($CuCl_2$) as Cu

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
10/5/10	340.06	365.40	60.01	245.39	485.42
11/5/10	236.68	360.93	66.11	228.71	493.15
11/30/10	299.75	352.65	62.62	227.41	477.89
1/4/11	274.39	348.59	65.00	218.58	478.60
2/1/11	334.16	345.13	63.77	217.60	472.66
3/1/11	312.31	343.58	64.19	215.20	471.96
3/29/11	227.2	334.81	67.59	199.62	470.00
5/3/11	255.03	322.69	57.93	206.82	438.55
6/1/11	188.24	310.77	59.92	190.93	430.62
7/6/11	261.89	301.82	52.33	197.15	406.48
8/2/11	257.93	295.20	48.81	197.58	392.81
8/30/11	226.9	287.16	45.93	195.30	379.02
2/17/12	236.77	283.69	47.03	189.63	377.76
4/17/12	275.73	282.54	46.92	188.69	376.38
8/21/12	141.42	272.92	54.90	163.12	382.71
9/12/12	273.15	268.94	51.60	165.74	372.14
11/6/12	198.5	263.29	52.87	157.56	369.03
3/12/13	427.86	269.96	66.44	137.08	402.85
3/26/13	217.38	263.62	65.02	133.58	393.66
6/25/13	269.29	263.77	65.03	133.71	393.84

CV = 24.65
EPA reference 75th quartile CV = 21%



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 #: AGW 1.5.29.13
Toxicant/ Batch#: $CuCl_2$ 1.6.25.13
Organism Batch: 6.25.13 Age: 13 days
Test Beginning: Date: 6.25.13 Time: 1300
Test Ending: Date: 6-29-13 Time 0800

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	CR
Alkalinity (mg/L as $CaCO_3$):	179	TA06_08	CR
Hardness (mg.L as $CaCO_3$):		TA06_09	
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos ~~mmhos~~	31.2	TA06_25	BA
Salinity (ppth):	19.3	TA06_25	BA

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

Artemia Batch:
- 0 hr: 124.13
- 24 hr:
- 48 hr: 126.13
- 72 hr:

Chamber size: 1000 mL
Test volume: 500 mL per replicate

Concentrations prepared by: BA
Test Incubated in: Incubator # 2 Waterbath # ___
Temperature Range °C:(if used) Incubator # 2 min 24.4 max 25.7 mean – 6.25.13-6.27.13 1400
~~Waterbath~~ Incubator # 5 min 24.5 max 25.7 mean – 6.27.13-6.29.13
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Room B246 min 24.5 max 25.4 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	D1	10	10	10	10	10	10
	B	D2	10	9 1D	9	9	9	9
100	A	D3	10	9 1D	9	9	9	9
	B	D4	10	10	10	10	10	10
200	A	D5	10	9 1D	8 1D	8	8	8
	B	D6	10	9 1D	9	9	8 1D	8
300	A	D7	10	6 4D	5 1D	5	5	4 1D
	B	D8	10	4 6D	3 1D	3	3	3
400	A	D9	10	5 5D	3 2D	3	1 2D	1
	B	D10	10	5 5D	4 1D	4	3 1D	3
500	A	D11	10	0 10D				
	B	D12	10	0 10D				
Organisms loaded by: BA		Checked by:	AP	CR	CR	CR	CR	MF
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
Bruce Alkstein
Sandra Reboli
Brandon Pennington
Marshall Faircloth

Reviewer: Liz Miller

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: –	–	–
96 hour: 269.29	237.49	305.33

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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: 6.25.13 Time: 1300
Test Ending: Date: 6.29.13 Time: 0800

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	8.1	25.1	6.7	31.2	19.3
	B	24 hr	8.0	24.8	7.2	31.3	19.3
	A	48 hr BR	8.0	24.4	6.6	30.9	19.5
	A	48 hr AR	8.1	24.4	6.9	30.8	~~18.7~~ 19.5 AP
	B	72 hr	8.1	25.1	6.4	33.0	20.6
	A	96 hr	8.0	24.8	6.6	33.6	20.9
100	A	0 hr	8.1	25.0	6.6	31.5	19.6
	B	24 hr	8.1	25.3	7.0	31.6	19.7
	A	48 hr BR	8.0	25.0	6.7	31.3	19.7
	A	48 hr AR	8.2	24.3	6.8	31.1	19.9
	B	72 hr	8.1	24.9	6.4	33.0	20.8
	A	96 hr	8.0	24.6	6.8	33.5	20.9
200	A	0 hr	8.1	25.0	6.7	31.3	19.5
	B	24 hr	8.1	24.9	7.0	31.3	19.6
	A	48 hr BR	8.1	25.2	6.7	31.1	19.6
	A	48 hr AR	8.2	24.3	6.7	31.2	19.9
	B	72 hr	8.1	25.3	6.5	33.1	20.8
	A	96 hr	8.0	24.8	6.9	33.1	20.7
300	A	0 hr	8.1	24.9	6.8	31.3	19.5
	B	24 hr	8.1	25.0	7.0	31.2	19.5
	A	48 hr BR	8.1	25.1	6.7	31.0	19.5
	A	48 hr AR	8.2	24.2	6.7	30.8	19.6
	B	72 hr	8.1	25.3	6.6	32.3	20.3
	A	96 hr	8.0	24.5	7.0	32.5	20.2
400	A	0 hr	8.1	24.7	6.9	31.1	19.4
	B	24 hr	8.1	25.4	7.1	31.6	19.6
	A	48 hr BR	8.1	24.9	6.7	31.3	19.7
	A	48 hr AR	8.2	24.3	6.8	30.9	19.7
	B	72 hr	8.1	25.6	6.4	32.4	20.3
	A	96 hr	8.0	24.8	7.1	32.7	20.4
500	A	0 hr	8.1	24.6	6.9	31.3	19.5
	B	24 hr	8.1	25.2	7.1	31.5	19.5
	~~CR~~ A	48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Becca Bruckler
Cassidy Nesenti
Adrienne Brunnenkant
Marshall Faircloth

Reviewed By: Steve Miller

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

Measure/record salinity for marine tests

Comments:

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Revised 07/15/2008 MF

Appendix G
Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 6/24/13

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	400 ac	4 days	MS130620	25	7.9	20
Menidia beryllina	400 ac	12 days	SS130612	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM / AB

Shipped Via: Fed Ex

Notes: _____

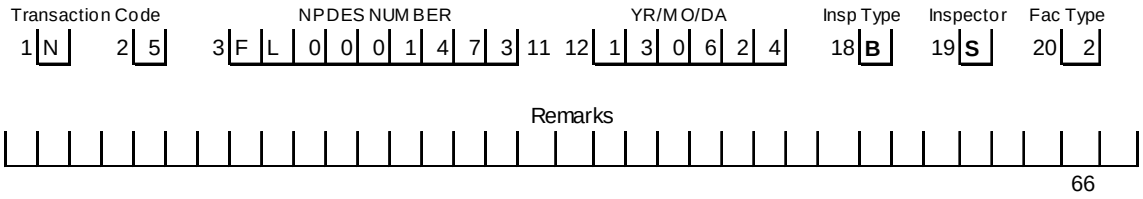
Thank you for your order.

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

EPA End Sheet

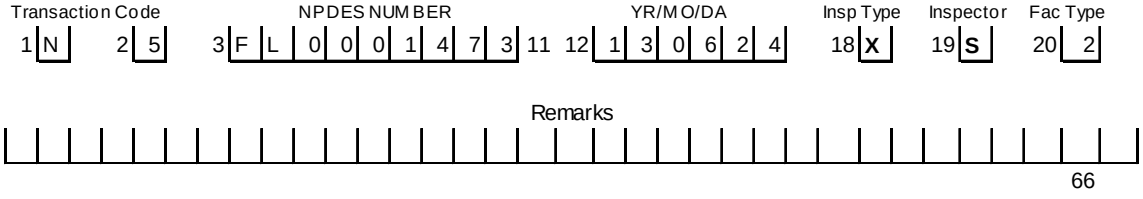
The Bioassay of Cape Canaveral Energy Center effluent sampled on June 24, 2013. NPDES #FL0001473.

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



The Priority Pollutants Analysis of Cape Canaveral Energy Center effluent sampled on June 24, 2013. NPDES #FL0001473.

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



Biological Analyses of Cape Canaveral Energy Center effluent sampled on June 24, 2013. NPDES #FL0001473.

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

