

Effluent Quality Assessment

Tampa Electric Company (TECO) Bayside Power Station

Hillsborough County

NPDES #FL0000809

Sampled November 5, 2012

March 2013

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Tampa Electric Company (TECO) Bayside Power Station, 3602 Port Sutton Road, Tampa, Hillsborough County, Florida, 33619. NPDES #FL0000809. Effluent grab samples for biological and chemical analyses for this facility were collected on November 5, 2012.

Introduction

TECO Bayside Power Station is an electric generating plant which discharges once-through condenser cooling water. Infrequently, boiler cycle blowdown is combined with the cooling water and discharged. (See Appendix F for detailed facility information provided by Pete Wenner of FDEP Southwest District.)

Methods

Samples were collected from the EFF-1 NPDES sampling point for Outfall D-001 by Pete Wenner (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.dep.state.fl.us/water/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The 96-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_03, TA07_04, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.dep.state.fl.us/labs/library/lab_sops.htm.

Results and Discussion

- **Toxicity Test Results**
  Tests were performed November 6-10, 2012.

Americamysis bahia 96-hour acute screening bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Menidia beryllina 96-hour acute screening bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

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

  *NOTE: In a 96-hour acute screening 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.).

  See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

- **Algal Growth Potential**
  The effluent Algal Growth Potential (AGP) was 3.37 A (A -Value reported is the mean of two or more determinations) 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 (3.4:1) of total nitrogen to total phosphorus suggests that the effluent is nitrogen limited (Maloney et al. 1974).

  See Table 1 for AGP results and qualifiers.

- **Chemistry Results**
  Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the effluent grab sample collected and preserved for chemical analysis was 0.032 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. Total organic carbon was detected in the equipment blank between the laboratory method detection limit (MDL) and practical quantitation limit (PQL).

  Effluent sample iron (620 µg/L) exceeded Class III Marine Water Quality Criterion (62-304.530(38), F.A.C.). Aluminum, fluoride, and radium 226+228 were detected in the effluent sample at levels that comply with Class III Marine Water Quality Criterion (62-302.530(2), F.A.C.) and/or effluent permit limits. Arsenic and lead were detected between the MDL and PQL. The effluent's dissolved oxygen and pH complied with Class III Marine Water Quality Criterion and/or effluent permit limits. Compliance with effluent permit limits for temperature cannot be determined because an intake temperature was not recorded. Compliance with the permit for chlorides cannot be determined because a background measurement was not collected at the time of this sampling.

  See Table 2 for results of analytes detected in the effluent, corresponding limits, and qualifiers. See Appendix E for a complete list of chemical analyses performed. See Appendix B for bioassay lab equipment.

Conclusion

The effluent sample collected from the EFF-1 NPDES sampling point for this facility on November 5, 2012, was not acutely toxic to either test species during the 96-hour acute screening bioassays. The effluent AGP result was less than the "problem" threshold for marine receiving waters. Effluent sample iron (620 µg/L) exceeded Class III Marine Water Quality Criterion (62-304.530(38), F.A.C.). Other effluent water quality samples collected were within applicable water quality standards and did not violate permit conditions.

Literature Cited

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.

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. Measured and predicted algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from TECO Bayside Power Station on November 5, 2012

TECO Bayside Power Station NPDES#FL0000809			
Location	**AGP (measured)**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent	3.37 A	**	3.4

A - Value reported is the mean of two or more determinations
**-not calculable; ortho-phosphate was not collected.

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical data for samples collected from TECO Bayside Power Station on November 5, 2012

TECO Bayside Power Station NPDES#FL0000809	Class III Criteria	Effluent Limits	Effluent	Equipment Blank
Organic Constituents (µg/L)				
None Detected	-	-	None Detected	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1,500	-	75	5 U
Antimony	-	-	0.75 U	0.25 U
Arsenic	≤ 50	≤ 50	1.7 I	0.25 U
Beryllium	-	-	0.12 U	0.025 U
Cadmium	≤ 8.8	-	0.15 U	0.05 U
Calcium (mg/L)	-	-	297	0.075 U
Chromium-III	-	-	0.9 U	0.3 U
Copper	≤ 3.7	≤ 3.7	1.5 U	0.5 U
Iron	≤ 300	≤ 300	620	30 U
Lead	≤ 8.5	≤ 8.5	0.69 I	0.2 U
Magnesium (mg/L)	-	-	886	0.04 U
Nickel	≤ 8.3	≤ 8.3	0.75 U	0.25 U
Selenium	≤ 71	≤ 71	0.6 U	0.2 U
Silver	≤ 2.3	-	0.075 U	0.025 U
Sodium (mg/L)	-	-	7,100	0.5 U
Thallium	≤ 6.3	≤ 6.3	0.3 U	0.1 U
Zinc	≤ 86	≤ 86	15 U	5 U
Nutrients (mg/L)				
Total Phosphorus	-	-	0.17	0.002 U
Total Ammonia	-	Report	0.032	0.01 U
Un-ionized Ammonia	-	-	≤ 0.02 c	-
Nitrate and Nitrite	-	Report	0.012	0.004 U
Total Kjeldahl Nitrogen	-	Report	0.57	0.08 U
Organic Nitrogen	-	-	0.538 c	0.04 c
Total Nitrogen	-	Report	0.582 c	0.04 c
Total Organic Carbon	-	-	6.3	0.42 I
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	-	6.2	-
pH (SU)	6.5 - 8.5	-	8.0	-
Conductivity (µmhos/cm)	-	-	36,947	-
Temperature (°C)	-	Report*	31.3	-
Salinity	-	-	20.5 c	-
Sample Depth (m)	-	-	0.2	-
Alkalinity(mg CaCO3/L)	-	-	122 Q	0.65 U
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	≤ 0.03 UQ£	-
Chlorophyll *a* (µg/L) - Corrected	-	-	4.4	-
Phaeophytin (µg/L)	-	-	1.1 I	-
Total Suspended Solids (mg/L)	-	-	3 I	2 U
Color-true (PCU)	-	-	16 A	2.5 U
CBOD, 5 day (mg/L), N - inhibited	-	-	0.6 I	-
Oils and Greases (mg/L)	≤ 5.0		0.73 U	0.79 U
Chloride (mg/L)	-	≤ 10% above background	11,000	0.2 U
Fluoride (mg/L)	≤ 5.0	≤ 5.0	1.1	0.035 U
Sulfate (mg/L)	-	-	1,500	0.2 U
Radium 226 (pCi/L)	-	-	0.9	0.1
Radium 226-Counting Error (pCi/L)	-	-	0.2	0.1
Radium 228 (pCi/L)	-	-	0.9 U	0.9 U
Radium 228-Counting Error (pCi/L)	-	-	0.6	0.6
Radium 226 + 228 (pCi/L)	≤ 5	≤ 5	0.9 c	0.1 c
Flow (MGD)	-	Report	537.25 a	-
Hardness (mg $CaCO_3$)	-	-	4,390 c	0.35 c

"-" Sample/measurement was not collected or criterion/limit does not exist

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

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

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Q - Sample held beyond normal holding time

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

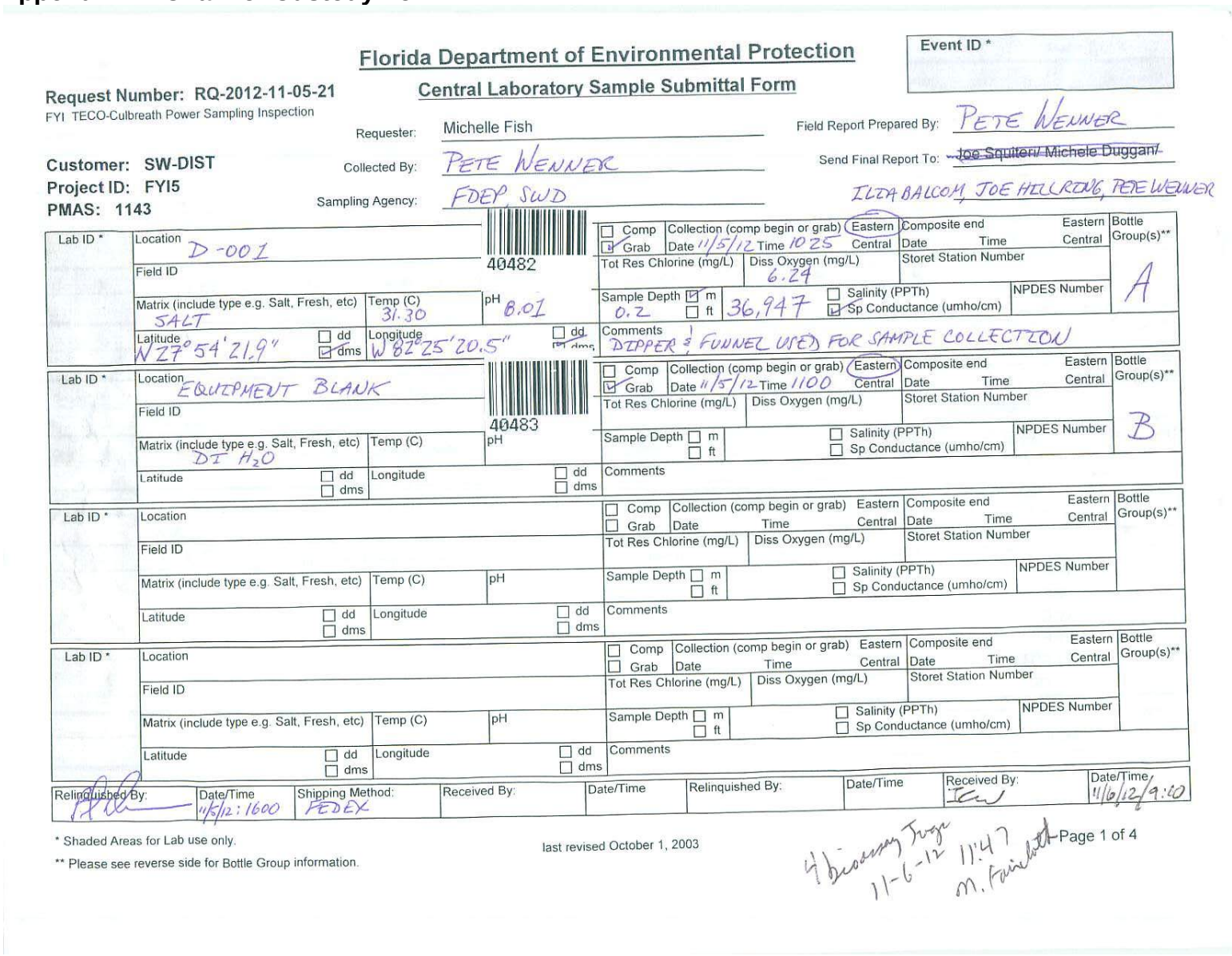
* - Temperature difference between the intake and discharge should be ≤ 17.0°F. An intake temperature was not recorded during sampling.

£ - measurement taken in the FDEP laboratory

J - Estimated value (appears in Appendix E)

L - Actual value is known to be greater than value given (appears in Appendix E)

Appendix A. Chain of Custody Form



Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-11-05-21
FYI TECO-Culbreath Power Sampling Inspection

Customer: SW-DIST
Project ID: FYI5
PMAS: 1143

Requester: Michelle Fish
Collected By: PETE WENNER
Sampling Agency: FDEP, SWD

Field Report Prepared By: PETE WENNER
Send Final Report To: ~~Joe Squiter/ Michele Duggan/~~ ILZA BALCOM, JOE HELLRUNG, PETE WENNER

Lab ID *	Location	Field ID	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Collection (comp begin or grab)	Composite end	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Bottle Group(s)**	Comments
40482	D-001		SALT	31.30	8.01	N 27° 54' 21.9" (dms)	W 82° 25' 20.5" (dms)	☐ Comp ☑ Grab Date 11/5/12 Time 1025 Eastern Central	Date Time Eastern Central		6.24		0.2 m ☐ ft	☐ Salinity (PPTh) ☑ Sp Conductance 36,947		A	DIPPER & FUNNEL USED FOR SAMPLE COLLECTION
40483	EQUIPMENT BLANK		DI H_2O					☐ Comp ☑ Grab Date 11/5/12 Time 1100 Eastern Central	Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		B	
								☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			
								☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern Central				☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	11/5/12 1600	FEDEX						11/6/12 9:40

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

4 Broadway Tuga 11-6-12 11:47 M. Fairchild

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FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: Tesco Bayside Power Station

Address : 3602 Port Sutton Road

City: Tampa **County:** Hillsborough 33619

Contact/District: Pete Wenner / Southwest

NPDES Permit #: FL 0000809

LIMS Job #: 7LH-2012-11-06-60 **LIMS Sample #:** 1465965

Lims Data Entry: 11-13-12 MF Data Entry Verification: 11.13.12 BA

Sample Collection: Date: 11-5-12 Time: 1025

Hold Time Start: Date: 11-5-12 Time: 1025

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:
~~Bruce Abrahe~~	BA
Marshall Faircloth	MF
Mark Wells	HW
REVIEWER: Liz Muller	

Diluent/Control Batch#:				11-6-12	11-6-12				
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	~~Not measured~~		MF
Lab Total Residual Cl_2 (mg/L):				<0.03	<0.03		<0.03	HW	MF
Alkalinity (mg/L as $CaCO_3$):							NA measured by HW	HW	—
Hardness (mg/L as $CaCO_3$):				—	—		—	~~HW~~	—
Total Ammonia (mg/L as N):				<0.051	<0.051		<0.051	MF	BA
Conductivity: ☐ µmhos ☑ mmhos				36.5	36.5		36.5	BA	MF
Salinity (ppth):				23.3	23.3		23.3	BA	MF

V 1.8 1/13/10

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1465965 SOP#: TA 07 03 Test # 1 of 2

Test Species:
Batch #: 11-6-12 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 # ASW 11.5.12)
☑ ASW ☐ 20% DMW
☐ MHW ☐ Well

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

Test Duration:
☐ 48 hr
☑ 96 hr
☐ __hr

Chamber Size 400 ml
Test Volume: 350 ml

Test Started:
Date 11.6.12 Time 13 45

Test Ended:
Date 11.10.12 Time 10 30

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	J1	5	5	5	5	5	5
	B	J2	5	5	5	5	5	5
	C	J3	5	5	5	5	5	5
	D	J4	5	5	5	5	5	5
100%	A	J5	5	5	5	5	5	5
	B	J6	5	5	5	5	5	5
	C	J7	5	5	5	5	5	5
	D	J8	5	5	5	5	5	5
Checked or Verified by:			MF	BA	[illegible]	BA	BA	BA

Loaded/ Verified by [illegible] / MF

m = missing, d = dead, BR/AR Before/ After Renewal

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

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

Feeding and Artemia Batch #
- ☑ 0 hr 149-12 ☑ Prior to Test
- ☑ 24 hr 150-12
- ☑ 48 hr 151-12 ☑ Prior to Renewal
- ☑ 72 hr 152-12

Temperature Range (°C)

Incubator # 3
min. 24.4 max. 26.3 mean –

Incubator #___
min.______max.______mean_____

Waterbath #___
min.______max.______mean_____

Room B246
min. 24.8 max 25.3 mean –

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Comments:

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

Page

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample # 1465965 | SOP#: TA 07_04 | Test # 2 of 2

Test Species:
Batch #: 11-6-12 Age: 13days
- ☐ 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 # ASW 11.5.12)
☑ ASW ☐ 20% DMW ☐ MHW ☐ Well

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

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 11.6.12 Time 1415

Test Ended: Date 11.10.12 Time 1000

Chamber Size 1000 ml
Test Volume: 400 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
ctrl	A	C1	5	5	5	5	5	5
	B	C2	5	5	5	5	5	5
	C	C3	5	5	5	5	5	5
	D	C4	5	5	5	5	5	5
100%Z	A	C5	5	5	5	5	5	5
	B	C6	5	5	5	5	5	5
	C	C7	5	5	5	5	5	5
	D	C8	5	5	5	5	5	5
Checked or Verified by:			MF	BA	BA	BA	BA	BA

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

Feeding and Artemia Batch #
- ☑ 0 hr 149-12 ☑ Prior to Test
- ☐ 24 hr____
- ☑ 48 hr 151-12 ☑ Prior to Renewal
- ☐ 72 hr____

Temperature Range (°C)
Incubator #3
min. 24.4 max. 26.3 mean —

Incubator #___
min.____max.____mean____

Waterbath #___
min.____max.____mean____

Room B246
min. 24.8 max. 25.5 mean —

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: BA / MF

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:

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

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FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1465965 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)
Ctrl	A	0 hr	8.2	24.0	5.6	36.5	23.3
	B	24 hr	8.2	24.4	5.5	37.9	23.7
	C	48 hr BR	8.1	24.9	5.8	38.8	24.6
	C	48 hr AR	8.2	24.4	6.8	35.5 ~~32.7~~ 34	23.2
	D	72 hr	8.2	24.0	6.4	36.0	22.6
	A	96 hr	8.1	24.8	6.2	36.1	22.7
100%	A	0 hr	7.9	25.2	7.7	36.6	23.1
	B	24 hr	8.1	24.6	5.9	37.6	~~23.8~~ → 23.8 BA
	C	48 hr BR	8.0	25.0	5.7	38.9	24.8
	C	48 hr AR	8.1	24.0	6.5	37.1	23.4
	D	72 hr	8.1	24.0	5.3	36.1	23.1
	A	96 hr	8.1	24.5	5.9	39.0	25.3
		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					
		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					
		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: BA
48 hr BR: BA
48 hr AR: BA
72 hr: BA
96 hr: BA

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LIMS Sample # 1465965

FDEP Biology Laboratory - Bioassay Parameter Sheet

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)
Ctrl	A	0 hr	8.2	24.0	5.8	36.5	23.3
	B	24 hr	8.3	24.2	6.1	37.4	23.7
	C	48 hr BR	8.2	24.3	5.9	38.6	24.4
	C	48 hr AR	8.2	24.2	6.7	36.9	24.2
	D	72 hr	8.2	25.0	5.6	36.7	23.2
		96 hr	8.2	24.6	6.0	37.2	23.5
100%	A	0 hr	7.9	25.2	7.7	36.6	23.1
	B	24 hr	8.1	24.0	6.1	37.3	23.6
	C	48 hr BR	8.1	24.6	6.14	38.7	24.6
	C	48 hr AR	8.2	24.1	6.14	37.2	23.5
	D	72 hr	8.1	25.1	5.7	38.3	24.3
		96 hr	8.2	24.7	6.0	38.1	24.1
		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					
		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					
		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: BA
48 hr BR: BA
48 hr AR: BA
72 hr: BA
96 hr: BA

V. 2.3 1-13-10

Test ID: Teco Bayside Power Station Dates: November 6-10, 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 11-20-12

V 1.1 9/21/10 MF/jd

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Appendix C. SRT Bench Sheets and Statistical Analysis

Florida Department of Environmental Protection
Bureau of Laboratories

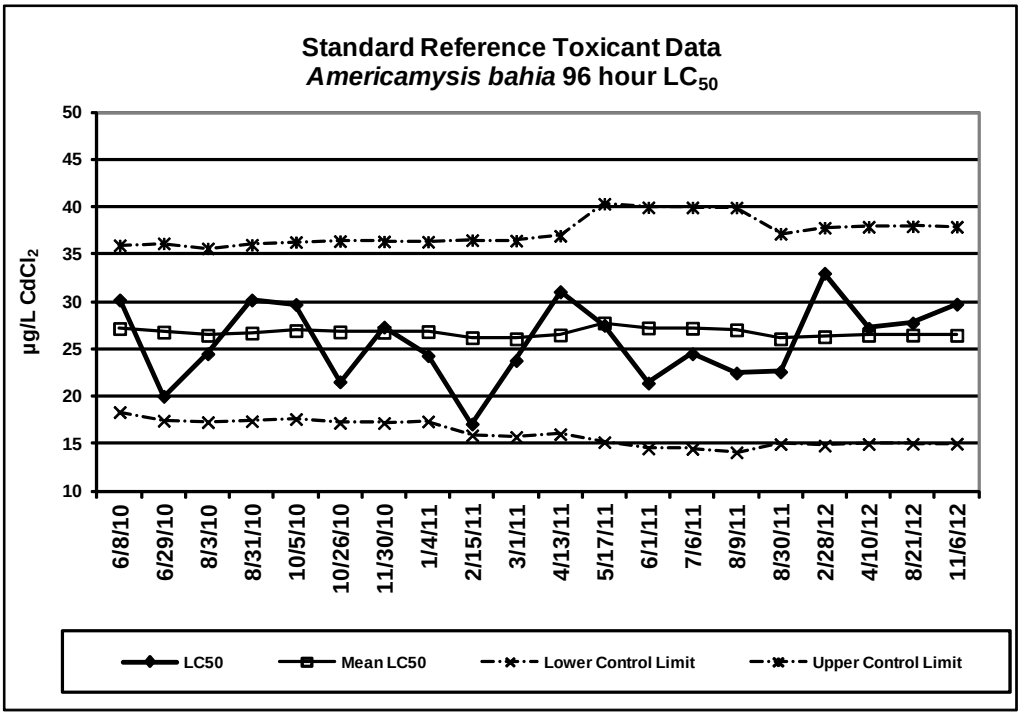
Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
6/8/10	30.17	27.15	4.40	18.34	35.95
6/29/10	20.00	26.78	4.68	17.42	36.15
8/3/10	24.49	26.45	4.59	17.27	35.62
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

CV = 21.65

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)
- [x] *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 [x] renewal

Test Page 1 of 2

Diluent/ Batch #: ASW 11-5-12
Toxicant/ Batch#: CdCl 11-5-12
Organism Batch: 11-6-12, Age: 5 days
Test Beginning: Date: 11.6.12 Time: 1330
Test Ending: Date: 11-10-12 Time: 1020

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	HW
Alkalinity (mg/L as $CaCO_3$):	167	TA06_08	MF
Hardness (mg.L as $CaCO_3$):	—	TA06_09	—
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos (mmhos)	3.32	TA06_25	BA
Salinity (ppth):	20.7	TA06_25	BA

Food:	Batch
[ ] YCT	
[ ] *P. subcapitata*	
[x] Artemia Lot #	08812

Artemia Batch:
0 hr: 1149-12
24 hr: 1150-12
48 hr: 1151-12
72 hr: 1152-12

Chamber size: 300 mL
Test volume: 400 mL per replicate

Concentrations prepared by: MF/HW
Temperature Range °C:(if used)
Test Incubated in: Incubator # 2 Waterbath # ____ Incubator # 2 min. 21.6 max 26.5 mean —
Light Intensity: 50-100 Ft candles Waterbath # ___ min. ____ max. ____ mean ____
Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.8 max 25.5 mean —

Feeding: √ as needed

[x]	Before test
[x]	24 hr
[x]	48 hr
[x]	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	T1	5	5	5	5	5	5
	B	T2	5	5	5	5	5	5
	C	T3	5	5	5	5	5	5
	D	T4	5	5	5	5	5	5
6.25	A	T5	5	5	5	5	5	5
	B	T6	5	5	5	5	5	5
	C	T7	5	5	5	5	5	5
	D	T8	5	5	5	5	5	5
12.5	A	T9	5	5	5	5	5	5
	B	T10	5	4 1D	4	4	4	4
	C	T11	5	5	5	5	5	5
	D	T12	5	5	5	5	5	5
25	A	T13	5	5	4 1D	4	4	4
	B	T14	5	5	5	5	5	5
	C	T15	5	5	5	5	5	4 1D
	D	T16	5	5	5	5	5	2 3D
50	A	T17	5	5	0 5D	—	—	—
	B	T18	5	5	0 5D	—	—	—
	C	T19	5	5	0 5D	—	—	—
	D	T20	5	5	3 2D	3	1 2D	1
100	A	T21	5	5	0 5D	—	—	
	B	T22	5	4 1D	0 4D	—	—	
	C	T23	5	5	0 5D	—	—	
	D	T24	5	5	0 5D	—	—	
Organisms loaded by: HW		Checked by:	MF	BA	BA	BA	BA	BA

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

Investigators' Signatures
Marshall Fairchild
Bruce Neal
Mark Watts

Reviewer: Liz Miller

Comments:

Method: TSK

Statistics: LC50		95% confidence intervals Lower	Upper
48 hour:	—	—	—
96 hour:	29.73	25.21	35.06

Revised 7/15/2008 mf

TDEP 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: 11.6.12 Time: 13:30

Test Ending: Date: 11-10-12 Time: 10:20

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	8.3	24.0	6.5	33.2	20.7
	B	24 hr	8.2	25.0	6.4	34.2	21.5
	BA ~~A~~ C	48 hr BR	8.1	24.8	6.1	34.5	21.9
	C	48 hr AR	8.2	24.1	6.7	32.4	20.2
	D	72 hr	8.2	25.0	4.8	33.4	21.0
	A	96 hr	8.1	24.1	6.2	34.2	21.6
6.25	A	0 hr	8.3	24.0	6.4	33.1 ~~20~~ BA	20.6
	B	24 hr	8.2	24.6	6.3	34.2	21.4
	C	48 hr BR	8.2	25.0	6.0	34.3	21.5
	C	48 hr AR	8.2	24.2	6.6	32.8	20.5
	D	72 hr	8.2	24.6	4.8	33.6	21.1
	A	96 hr	8.2	24.0	5.9	33.6	21.1
12.5	A	0 hr	8.3	24.0	6.6	33.0	20.6
	B	24 hr	8.2	24.6	6.4	33.9	21.3
	C	48 hr BR	8.2	25.6	6.1	34.2	21.5
	C	48 hr AR	8.2	24.2	6.5	32.8	20.5
	D	72 hr	8.2	24.6	4.8	33.1	20.7
	A	96 hr	8.2	24.4	5.8	33.4	20.8
25	A	0 hr	8.3	24.0	6.7	32.8	20.5
	B	24 hr	8.2	25.4	6.4	34.5	21.7
	C	48 hr BR	8.2	25.2	6.2	34.3	21.5
	C	48 hr AR	8.2	24.3	6.5	32.2	20.1
	D	72 hr	8.2	24.8	4.8	32.8	20.5
	A	96 hr	8.1	24.2	5.8	33.1	20.7
50	A	0 hr	8.3	24.0	6.8	32.5	20.3
	B	24 hr	8.2	25.2	6.4	33.7	21.1
	C	48 hr BR	8.2	25.0	6.2	33.5	20.9
	D	48 hr AR	8.3	24.5	6.5	32.5	20.3
	D	72 hr	8.2	24.3	4.7	32.6	20.3
	D	96 hr	8.2	24.0	5.7	34.2	21.4
100	A	0 hr	8.3	24.0	6.9	32.0	19.9
	B	24 hr	8.2	24.6	6.4	32.6	20.4
	C	48 hr BR	8.2	24.8	6.2	33.1	20.7
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures

Marshall Faircloth III

Reviewed By: Liz Miller

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

Measure/record salinity for marine tests

Comments:

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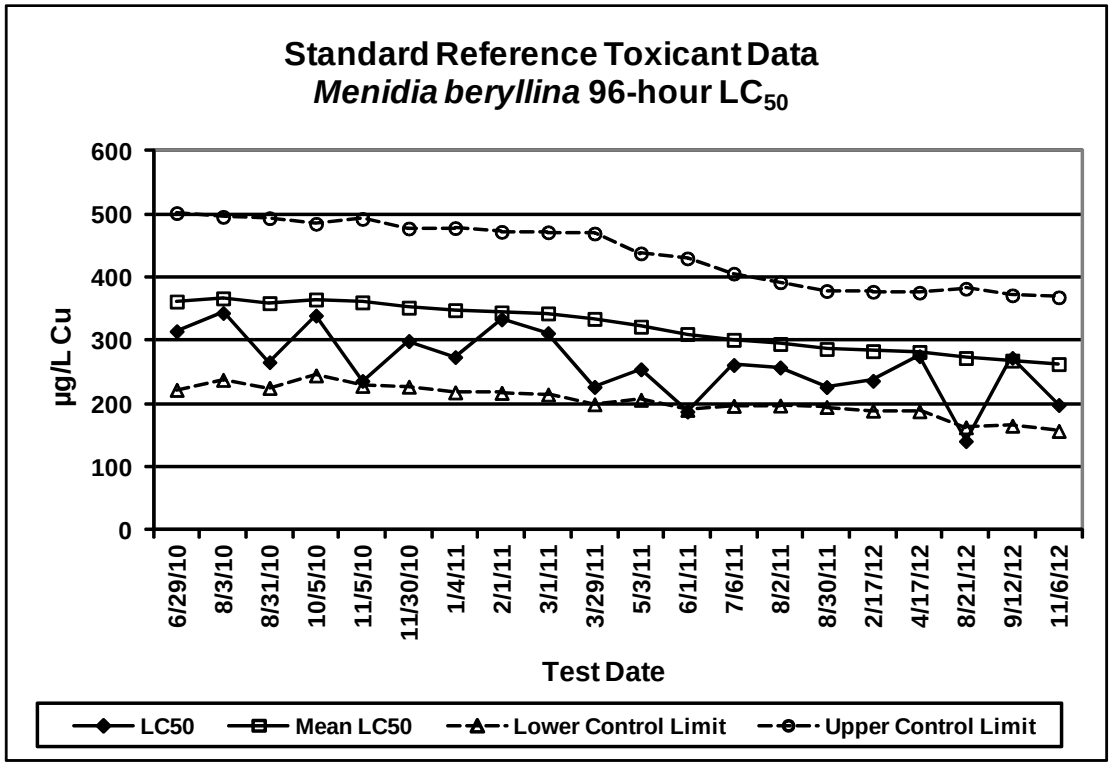
Revised 07/15/2008 MF

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
6/29/10	315.29	362.43	69.94	222.56	502.31
8/3/10	344.21	367.37	64.53	238.31	496.42
8/31/10	266.23	359.85	67.19	225.46	494.23
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

CV = 20.08
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 ☑ *Monidia 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 1.15-12
Toxicant/ Batch#: $CaCl_2$ 1.11-12
Organism Batch: 11-6-12 Age: 13 days
Test Beginning: Date: 11.6.12 Time: 19:00
Test Ending: Date: 11-10-12 Time: 0940

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	HW
Alkalinity (mg/L as $CaCO_3$):	167	TA06_08	MF
Hardness (mg/L as $CaCO_3$):	—	TA06_09	—
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: ~~µmhos~~ mmhos:	33.6	TA06_25	BA
Salinity (ppth):	21.1	TA06_25	BA

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

Artemia Batch:
0 hr: 1149-12
24 hr:
48 hr: 1151-12
72 hr:

Concentrations prepared by: BA MF HW
Temperature Range °C: (if used)
Chamber size: 1000 mL
Test volume: 400 mL per replicate

Test Incubated in: Incubator # 3 Waterbath # ___ Incubator # 2 min. 24.2 max 26.3 mean —
Light Intensity: 50-100 Ft. candles MF 2 Waterbath # ___ min. ___ max. ___ mean ___
Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.9 max 25.5 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	C1	10	9 ID	9	9	9	9
	B	C2	10	10	10	10	10	10
100	A	C3	10	10	10	10	9 ID	9
	B	C4	10	10	10	10	10	10
200	A	C5	10	6 ID	5 ID	5	5	5
	B	C6	10	5 ID	5 ID	5	5	5
300	A	C7	10	1 ID	1	1	1	1
	B	C8	10	1 ID	1	1	1	1
400	A	C9	10	0 IDD	0	0	-	—
	B	C10	10	2 ID	2	2	1 ID	1
500	A	C11	10	0 IDD	0	—		
	B	C12	10	0 IDD	0	—		

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

Organisms loaded by: BA Checked by: MF BA HW HW BA BA
Loading Verified by: MF AR = after renewal
m = missing d = dead BR = before renewal hr = hour

Comments:

Investigators' Signatures
Marshall Faircloth
Brett Alpin
Hans Walter

Reviewer: Liz Miller

Method: TSK
Statistics: LC50

95% confidence intervals	Lower	Upper
48 hour:	—	—
96 hour:	173.6	~~215.9~~ 226.9 MF

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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: 11.6.12 Time: 1400

Test Ending: Date: 11-10-12 Time: 0940

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	24.0	6.9	33.6	21.1
	B	24 hr	8.2	24.0	6.3	32.6	20.9
	A	48 hr BR	8.2	24.3	6.7	34.4	21.5
	A	48 hr AR	8.3	24.0	6.5	32.3	20.1
	B	72 hr	8.2	24.0	5.1	34.2	21.3
	A	96 hr	8.2	25.0	6.0	34.7	21.6
100	A	0 hr	8.2	24.0	6.9	33.5	21.0
	B	24 hr	8.3	24.0	6.2	33.3	20.9
	A	48 hr BR	8.3	24.4	6.6	33.8	21.1
	A	48 hr AR	8.3	24.2	6.3	32.6	20.3
	B	72 hr	8.2	24.0	5.5	33.3	20.9
	A	96 hr	8.3	24.8	6.0	34.1	21.4
200	A	0 hr	8.3	24.0	6.8	33.2	20.7
	B	24 hr	8.3	24.3	6.3	33.3	20.9
	A	48 hr BR	8.3	24.4	6.6	33.7	21.2
	A	48 hr AR	8.3	24.2	6.5	32.6	20.4
	B	72 hr	8.3	24.0	5.4	33.2	20.7
	A	96 hr	8.3	25.5	6.1	33.9	21.2
300	A	0 hr	8.3	24.0	6.7	32.1 ~~20.4~~ BA	20.4
	B	24 hr	8.3	24.0	6.4	32.9	20.5
	A	48 hr BR	8.3	24.8	6.8	33.5	20.9
	A	48 hr AR	8.3	24.3	6.6	32.2	20.1
	B	72 hr	8.3	24.0	5.4	32.4	20.2
	A	96 hr	8.3	25.6	6.1	33.4	20.9
400	A	0 hr	8.3	24.0	6.8	32.5	20.2
	B	24 hr	8.3	24.0	6.4	32.8	20.5
	B	48 hr BR	8.3	24.5	6.6	32.8	20.5
	B	48 hr AR	8.3	24.4	6.6	32.1	20.0
	B	72 hr	8.3	24.1	5.4	32.5	20.2
500 ↓	B	96 hr	8.3	24.7	6.1	33.6	21.0
	A	0 hr	8.3	24.0	6.8	32.1	20.0
	B	24 hr	8.3	24.0	6.5	32.5	20.2
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures

Marshall Faircloth

Bryce Nesbitt

Mark Walker

Reviewed By: Liz Molen

Measured by:

0 hr: BA

24 hr: BA

48 hr BR: BA

48 hr AR: BA

72 hr: BA

96 hr: BA

Measure/record salinity for marine tests

Comments:

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Revised 07/15/2008 MF

Appendix D. Test Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 11/5/12

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	200 ac	4 DAYS	MS 121101	25	7.9	20
Menidia beryllina	200 ac	12 DAYS	SS 12 1024	25	7.9	20
						Hardness mg/L
Cyprinella leedsi	150 ac	11 DAYS	CL 12 1025	25	7.8	80
Pimephales promelas	150 ac	7 DAYS	FM 12 1029	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

Appendix E. Chemical Analyses performed on the effluent from the TECO Bayside Power Station Outfall D-001, sampled on November 5, 2012.

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 10:25	D-001	AGP/LN	Algal Growth Potential	3.37	A	mg DryWt/L	3	3
11/5/2012 10:25	D-001	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.6	I	mg/L	0.2	2
11/5/2012 10:25	D-001	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.1	I	ug/L	0.4	1.2
11/5/2012 10:25	D-001	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	4.4		ug/L	0.55	1.7
11/5/2012 10:25	D-001	Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	L	LC50		
11/5/2012 10:25	D-001	Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	L	LC50		
11/5/2012 10:25	D-001	Metals	Arsenic	1.7	I	ug/L	0.75	3
11/5/2012 10:25	D-001	Metals	Chromium	0.9	U	ug/L	0.9	3.6
11/5/2012 10:25	D-001	Metals	Lead	0.69	I	ug/L	0.6	2.4
11/5/2012 10:25	D-001	Metals	Thallium	0.3	U	ug/L	0.3	1.2
11/5/2012 10:25	D-001	Metals	Iron	620		ug/L	90	360
11/5/2012 10:25	D-001	Metals	Cadmium	0.15	U	ug/L	0.15	0.6
11/5/2012 10:25	D-001	Metals	Sodium	7100		mg/L	25	100
11/5/2012 10:25	D-001	Metals	Selenium	0.6	U	ug/L	0.6	2.4
11/5/2012 10:25	D-001	Metals	Aluminum	75		ug/L	15	60
11/5/2012 10:25	D-001	Metals	Antimony	0.75	U	ug/L	0.75	3
11/5/2012 10:25	D-001	Metals	Copper	1.5	U	ug/L	1.5	3
11/5/2012 10:25	D-001	Metals	Silver	0.075	U	ug/L	0.075	0.3
11/5/2012 10:25	D-001	Metals	Beryllium	0.12	U	ug/L	0.12	0.5
11/5/2012 10:25	D-001	Metals	Zinc	15	U	ug/L	15	60
11/5/2012 10:25	D-001	Metals	Nickel	0.75	U	ug/L	0.75	3
11/5/2012 10:25	D-001	Metals	Calcium	297		mg/L	0.22	0.9
11/5/2012 10:25	D-001	Metals	Magnesium	886		mg/L	2	8
11/5/2012 10:25	D-001	Nutrients	Total-P	0.17		mg P/L	0.004	0.01
11/5/2012 10:25	D-001	Nutrients	Organic Carbon	6.3		mg C/L	0.8	1.6
11/5/2012 10:25	D-001	Nutrients	Color (true)	16	A	PCU	2.5	6
11/5/2012 10:25	D-001	Nutrients	NO2NO3-N	0.012		mg N/L	0.004	0.01
11/5/2012 10:25	D-001	Nutrients	Kjeldahl Nitrogen	0.57		mg N/L	0.16	0.4
11/5/2012 10:25	D-001	Nutrients	Chloride	11000		mg Cl/L	20	50

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 10:25	D-001	Nutrients	Sulfate	1500		mg SO4/L	20	50
11/5/2012 10:25	D-001	Nutrients	TSS	3	I	mg/L	3	10
11/5/2012 10:25	D-001	Nutrients	Fluoride	1.1		mg F/L	0.18	0.5
11/5/2012 10:25	D-001	Nutrients	Alkalinity	122	Q	mg CaCO3/L	0.65	2.5
11/5/2012 10:25	D-001	Nutrients	Ammonia-N	0.032		mg N/L	0.01	0.02
11/5/2012 10:25	D-001	Overflow	Oil and Grease	0.73	U	mg/L	0.73	2.6
11/5/2012 10:25	D-001	Overflow	Radium 228-Counting Error	0.6		pCi/L		
11/5/2012 10:25	D-001	Overflow	Radium 228	0.9	U	pCi/L		
11/5/2012 10:25	D-001	Overflow	Radium 226-Counting Error	0.2		pCi/L		
11/5/2012 10:25	D-001	Overflow	Radium 226	0.9		pCi/L		
11/5/2012 10:25	D-001	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
11/5/2012 10:25	D-001	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
11/5/2012 10:25	D-001	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
11/5/2012 10:25	D-001	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Metribuzin	0.1	UJ	ug/L	0.1	0.4
11/5/2012 10:25	D-001	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
11/5/2012 10:25	D-001	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
11/5/2012 10:25	D-001	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
11/5/2012 10:25	D-001	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
11/5/2012 10:25	D-001	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
11/5/2012 10:25	D-001	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
11/5/2012 10:25	D-001	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
11/5/2012 10:25	D-001	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
11/5/2012 10:25	D-001	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 10:25	D-001	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
11/5/2012 10:25	D-001	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
11/5/2012 10:25	D-001	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Dimethyl phthalate	11	U	ug/L	11	42
11/5/2012 10:25	D-001	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.4
11/5/2012 10:25	D-001	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.4
11/5/2012 10:25	D-001	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	3,3'-Dichlorobenzidine	42	U	ug/L	42	170
11/5/2012 10:25	D-001	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.2	U	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	UJ	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	63
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Butyl benzyl phthalate	5.3	U	ug/L	5.3	21
11/5/2012 10:25	D-001	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.2	U	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2	UJ	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzidine	110	UJ	ug/L	110	420

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.2	U	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	Di-n-butyl phthalate	5.3	U	ug/L	5.3	21
11/5/2012 10:25	D-001	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.4
11/5/2012 10:25	D-001	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Hexachlorobutadiene	3.2	U	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	42
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L	16	63
11/5/2012 10:25	D-001	Priority Organic Pollutants	Hexachloroethane	3.2	U	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.4
11/5/2012 10:25	D-001	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.84
11/5/2012 10:25	D-001	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L	16	63
11/5/2012 10:25	D-001	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Priority Organic Pollutants	Pentachlorophenol	3.2	UJ	ug/L	3.2	13
11/5/2012 10:25	D-001	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.2
11/5/2012 10:25	D-001	Field Parameter	Sample Depth	0.2		m		
11/5/2012 10:25	D-001	Field Parameter	Temperature	31.3		C		
11/5/2012 10:25	D-001	Field Parameter	pH	8.01				
11/5/2012 10:25	D-001	Field Parameter	Specific Conductance	36947		umhos/cm		
11/5/2012 10:25	D-001	Field Parameter	Dissolved Oxygen	6.24		mg/L		
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Zinc	5	U	ug/L	5	20
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Aluminum	5	U	ug/L	5	20
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Sodium	0.5	U	mg/L	0.5	2
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Thallium	0.1	U	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Antimony	0.25	U	ug/L	0.25	1
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Metals	Iron	30	U	ug/L	30	120
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Color (true)	2.5	U	PCU	2.5	6
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Organic Carbon	0.42	I	mg C/L	0.4	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	TSS	2	U	mg/L	2	10
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
11/5/2012 11:00	EQUIPMENT BLANK	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
11/5/2012 11:00	EQUIPMENT BLANK	Overflow	Radium 226-Counting Error	0.1		pCi/L		
11/5/2012 11:00	EQUIPMENT BLANK	Overflow	Oil and Grease	0.79	U	mg/L	0.79	2.8
11/5/2012 11:00	EQUIPMENT BLANK	Overflow	Radium 228-Counting Error	0.6		pCi/L		
11/5/2012 11:00	EQUIPMENT BLANK	Overflow	Radium 228	0.9	U	pCi/L		
11/5/2012 11:00	EQUIPMENT BLANK	Overflow	Radium 226	0.1		pCi/L		
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Fenamiphos	0.15	U	ug/L	0.15	0.6
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Phorate	0.025	U	ug/L	0.025	0.1
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Ethoprop	0.025	U	ug/L	0.025	0.1
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Metribuzin	0.1	UJ	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
11/5/2012 11:00	EQUIPMENT BLANK	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L	16	64
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5.3	U	ug/L	5.3	21
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.5
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	UJ	ug/L	1.1	4.3

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5.3	U	ug/L	5.3	21
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	64
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzidine	110	UJ	ug/L	110	430
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	43	U	ug/L	43	170
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Hexachloroethane	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.5
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	43
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.5
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L	16	64
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.5
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Dimethyl phthalate	11	U	ug/L	11	43

Date Sampled	Station	Analysis	Component	Result	Remark	Units	MDL	PQL
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Pentachlorophenol	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.3
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2	U	ug/L	3.2	13
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.85
11/5/2012 11:00	EQUIPMENT BLANK	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.85

Appendix F. Facility Summary, Effluent Limits, and Permit Violations Recorded on Discharge Monitoring Report

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Peter Wenner	**Contact Number:** 813-632-7600 x442
Facility Name (as it appears on permit): TECO Bayside Power Station	**Former Names:**
NPDES Permit Number: FL0000809	**Permit Expiration Date:** August 6, 2013
Physical Address: 3602 Port Sutton Road, Tampa FL 33619	
District: Southwest	**County:** Hillsborough
Function of Facility: Provide electric power	
Facility Type: Power Plant	**Permitted Capacity (MGD):** 1.346.3 MGD
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 9/2011-8/2012: 538.9 MGD	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

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

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

Sample Point	Description of Monitoring Location
INT-1	At the combined point of unit intakes.
EFF-1	At the combined point of unit outfalls.

7. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.6 and as described below:

Sample Point	Description of Monitoring Location
EFF-3	Boiler cycle blowdown log.
EFF-4	Sample sink, or hotwell of units 1 through 6.

10. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.9 and as described below:

Sample Point	Description of Monitoring Location
EFF-6	Outlet valve of the recycle tank.

Description of Permitted Outfall(s):

EFFLUENT DISPOSAL:

Surface Water Discharge:

An existing 1,346.3 MGD average daily flow (ADF) discharge to Hillsborough Bay (Class III Marine waters), **D-001**. The once-through non-contact cooling water discharges at a depth of approximately 15 feet and the point of discharge is located approximately at latitude 27° 54' 20" N, longitude 82° 25' 23" W.

Internal Outfalls:

This permit authorizes discharge from existing internal outfalls I-031, I-032, I-033, I-034, I-035, I-036, and I-038 (previously I-037 and I-040) to the flume junction box. Currently, Outfalls I-035 and I-036 are in use.

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

WASTEWATER TREATMENT:

Wastewater currently consists of once-through condenser cooling water from Units 1 and 2, and boiler cycle blowdown from Units 1 and 2. No chemicals are added and no treatment is provided for the once-through cooling water which is withdrawn from Hillsborough Bay on the north side of the station and discharged back to Hillsborough Bay on the south side of the station via a common discharge flume. Boiler cycle blowdown from Units 1 and 2 is infrequently discharged from their corresponding hotwells and/or from other points in the boiler cycle to be combined with the once-through cooling water in the discharge flume.

During normal operations, boiler blowdown from Units 1 and 2 is discharged to the on-site industrial wastewater treatment pond system. As an infrequent but necessary boiler operation, boiler cycle blowdown from Units 1 and 2 will be discharged from their corresponding hotwells and/or from other points in the boiler cycle to be combined with the once-through cooling water in the discharge flume.

Other wastewater streams including equipment washes, floor drains, water treatment washwater, equipment cooling, metal cleaning wastes, reverse osmosis reject wastewater, polisher waste, oily water separator streams, HRSG blowdown, cooling tower blowdown, contact stormwater and sanitary wastewater are discharged to the industrial wastewater treatment pond system.

Recycle tank effluent, consisting of treated wastewater from the industrial wastewater treatment pond system, discharges to Outfall D-001 at a maximum daily flow of 0.2 MGD, and reverse osmosis (RO) effluent concentrate discharges to Outfall D-001 at a maximum daily flow of 0.15 MGD from Outfall I-038 (previously I-037 and I-040). The discharge flow rate may be intermittently increased to 0.67 MGD as specified in the permit.

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)

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 non-contact once-through condenser cooling water (OTCW) and process wastewaters from Internal Outfall I-038 through **OUTFALL D-001, ONCE-THROUGH NON-CONTACT COOLING WATER.** Such discharge shall be limited and monitored by the permittee as specified below:

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Average**	**Daily Maximum**	**Daily Minimum**	**Monitoring Frequency**	**Sample Type**	**Sample Point**
Flow (MGD)	Report	Report	--	Continuous	Pump logs	INT-1
Chlorine, Total Residual (MG/L)[1]	Report	0.01	--	Weekly[1]	Grab	EFF-1
Chlorides, (Background) (MG/L)	Report	Report	--	Weekly	Grab	INT-1
Chlorides (MG/L)	Report	Report[2]	--	Weekly	Grab	EFF-1
Discharge Temperature (DEG.F)	Report (See Condition I.A.4.)	Report (See Condition I.A.4.)	--	6/Day (See Condition I.A.5.)	Logs	EFF-1
Intake Temperature (DEG.F)	Report	Report	--	6/Day (See Condition I.A.5.)	Logs	INT-1
Temp. Diff. between Intake and Discharge (DEG.F)	17.0 (See Condition I.A.4.)	Report (See Condition I.A.4.)	--	6/Day	Calculated	INT-1 EFF-1
Nitrogen, Ammonia (as N) (MG/L)[3]	Report	Report	--	Monthly	Grab	EFF-1
Nitrogen, Kjeldahl (as N) (MG/L)[3]	Report	Report	--	Monthly	Grab	EFF-1
Nitrogen, Nitrate/Nitrite (as N) (MG/L)[3]	Report	Report	--	Monthly	Grab	EFF-1
Nitrogen, Total (as N) (MG/L)[3]	Report	Report	--	Monthly	Calculated	EFF-1
Copper, Total Recoverable (UG/L)	--	3.7[4]	--	Weekly	Grab	EFF-1

[1] When discharging from internal outfall I-038.
[2] Not increased more than 10 percent above normal background.
[3] After twelve months of reporting the permittee may request by minor permit revision a reduction of monitoring for these parameters.
[4] The actual limit shall be the water quality standard set forth in Rule 62-302.530, F.A.C., for Class III Marine waters as specified here or the concentration of the intake cooling water, whichever is greater. If the concentration of copper in the discharge sampled at EFF-1 exceeds the intake concentration sampled at INT-1 (and the intake

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	Monthly Average	Daily Maximum	Daily Minimum	Monitoring Frequency	Sample Type	Sample Point
Iron, Total Recoverable (MG/L)	--	0.3	--	Weekly	Grab	EFF-1
Acute Whole Effluent Toxicity	See Condition I.A.3					EFF-1
Alpha, Gross Particle Activity (PCI/L)	Report	15	--	1 / Occurrence[5]	Grab	EFF-1
Radium 226 + Radium 228, Total (PCI/L)	Report	5	--	1 / Occurrence[5]	Grab	EFF-1
Arsenic, Total Recoverable (UG/L)	Report	50	--	1 / Occurrence[5]	Grab	EFF-1
Fluorides (MG/L)	Report	5.0	--	1 / Occurrence[5]	Grab	EFF-1
Iron, Total Recoverable (MG/L)	Report	0.3	--	1 / Occurrence[5]	Grab	EFF-1
Lead, Total Recoverable (UG/L)	Report	8.5	--	1 / Occurrence[5]	Grab	EFF-1
Nickel, Total Recoverable (UG/L)	Report	8.3	--	1 / Occurrence[5]	Grab	EFF-1
Selenium, Total Recoverable (UG/L)	Report	71	--	1 / Occurrence[5]	Grab	EFF-1
Thallium, Total Recoverable (UG/L)	Report	6.3	--	1 / Occurrence[5]	Grab	EFF-1
Zinc, Total Recoverable (UG/L)	Report	86	--	1 / Occurrence[5]	Grab	EFF-1

6. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge process wastewater from **INTERNAL OUTFALLS I-031, I-032, I-033, I-034, I-035, AND I-036, HOTWELL OVERBOARD,** to the flume junction box where it mixes internally with once-through cooling water. Such discharge shall be limited and monitored by the permittee as specified below:

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	Monthly Average	Daily Maximum	Daily Minimum	Monitoring Frequency	Sample Type	Sample Point
Flow (MGD)	Report	Report	--	1/Occurrence	Logs	EFF-3
Oil and Grease (MG/L)	--	5.0	--	1/Occurrence	Grab	EFF-4
Solids, Total Suspended (MG/L)	30.0	100.0	--	1/Occurrence	Grab	EFF-4
Copper, Total Recoverable (UG/L)	--	Report	--	1/Occurrence	Grab	EFF-4
Iron, Total Recoverable (MG/L)	--	Report	--	1/Occurrence	Grab	EFF-4
Phosphorus, Total (as P) (UG/L)	--	Report	--	1/Occurrence	Grab	EFF-4
pH (SU)	--	8.5	6.5	1/Occurrence	Grab	EFF-4

9. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge from **INTERNAL OUTFALL I-038, RECYCLE TANK BLOWDOWN or REVERSE OSMOSIS CONCENTRATE BLOWDOWN** (formerly I-037 and I-040), to the flume junction box where it mixes internally with once-through cooling water. Such discharge shall be limited and monitored by the permittee as specified below:

	Discharge Limitations		Monitoring Requirements		
Parameters (units)	**Monthly Average**	**Daily Maximum**	**Monitoring Frequency**	**Sample Type**	**Sample Point**
Flow (MGD)	Report	0.2[6] 0.15[7] (See Condition I.A.15)	Continuous	Meter	EFF-6
Oil and Grease (MG/L)	Report	Report	Weekly	Grab	EFF-6
Solids, Total Suspended (MG/L)	Report	Report	Weekly	Grab	EFF-6
Antimony, Total Recoverable (UG/L)	--	Report	Monthly	Grab	EFF-6
Arsenic, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Beryllium, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Cadmium, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Chromium, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Copper, Total Recoverable (UG/L)	Report	Report	Weekly	Grab	EFF-6
Iron, Total Recoverable (MG/L)	Report	Report	Weekly	Grab	EFF-6
Lead, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Mercury, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6

Nickel, Total Recoverable (UG/L)	Report	Report	Weekly	Grab	EFF-6
Selenium, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Silver, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Thallium, Total Recoverable (UG/L)	Report	Report	Monthly	Grab	EFF-6
Zinc, Total Recoverable (UG/L)	Report	Report	Weekly	Grab	EFF-6
Alpha, Gross Particle Activity (PCI/L)	Report	Report	1 / Occurrence[5]	Grab	EFF-6
Radium 226 + Radium 228, Total (PCI/L)	Report	Report	1 / Occurrence[5]	Grab	EFF-6
Fluorides (MG/L)	Report	Report	1 / Occurrence[6]	Grab	EFF-6

[6] When discharging from the recycle tank under normal operating conditions.
[7] When discharging reverse osmosis concentrate under normal operating conditions.
[8] Monitoring and reporting required only when intermittent flow rate increased through internal outfall I-038 as described in permit conditions I.A.15 and I.A.17.

	Discharge Limitations		Monitoring Requirements		
Parameters (units)	Monthly Average	Daily Maximum	Monitoring Frequency	Sample Type	Sample Point
METALS, TOX PRIORITY POLLUTANTS, TOTAL (LBS/DY)	See Conditions I.A.11 and I.A.12.		--	Calculated	EFF-6
METALS, TOX PRIORITY POLLUTANTS, TOTAL (LBS/DY)	See Conditions I.A.11 and I.A.13.		--	Calculated	EFF-6
METALS, TOX PRIORITY POLLUTANTS, TOTAL (LBS/DY)	Report	See Conditions I.A.11 and I.A.14.	--	Calculated	EFF-6

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Hillsborough Bay (part of Tampa Bay)	Class III Marine

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):
See attached pdf entitled: TECO BAYSIDE WET TEST REQUIREMENTS

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

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
7/31/2012	Chloride, (mg/L)	0 (Daily Max)	60
8/31/2012	Chloride, (mg/L)	0 (Daily Max)	2,780

Describe previous FYI and WQBEL study:
The last FYI3 of this facility was conducted in July 1984.

Describe previous or current Enforcement Actions (including WLs):

Describe any violations or problems noted in previous inspection:

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

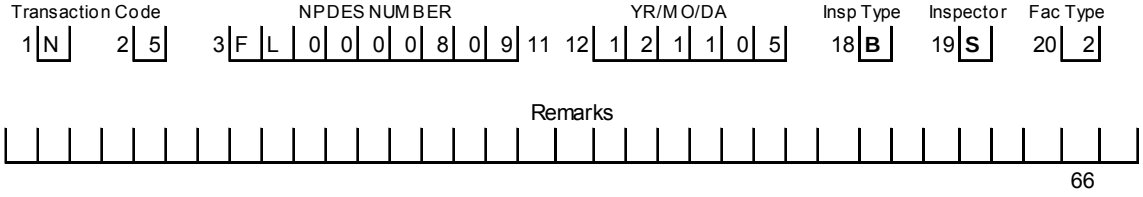
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

TECO-H.L Culbreath Bayside Power Station, Permit #: FL0000809; FYI3 PART II: Sampling Event Information	
Date(s) sample collected: 5 November 2012	**Sampler(s):** Peter Wenner, Judy Ashton
Temperature (Deg C): 31.30	**pH (SU):** 8.01
Dissolved Oxygen (mg/L): 6.24	**Conductivity (umhos/cm):** 36,947
Total Residual Chlorine (mg/L): N/A	**Total Residual Chlorine - after Disinfection (mg/L):** N/A
Method of Chlorination: N/A	**Method of De-chlorination:** N/A
Flow During Sample Collection for each outfall(MGD): D-001: Flow for 12/17/2012 during time of sample collection: 503.2 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): D-001 (12/2011-11/2012): 529.5 MGD	
Describe Discharge during Sampling Event: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix G. EPA End Sheet

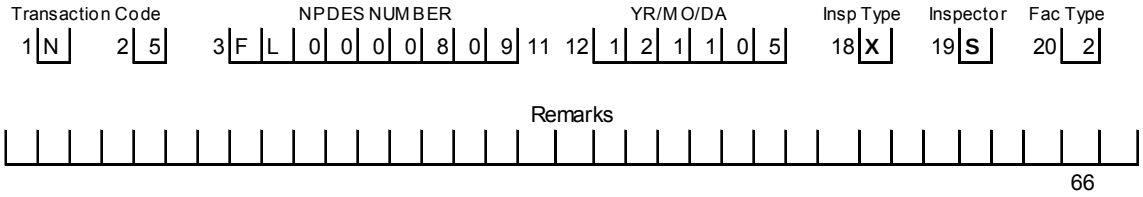
The Bioassay of Tampa Electric Company Bayside Power Station effluent sampled on November 5, 2012. NPDES #FL0000809

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



The Priority Pollutants Analysis of Tampa Electric Company Bayside Power Station effluent sampled on November 5, 2012. NPDES #FL0000809

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



Biological Analyses of Tampa Electric Company Bayside Power Station effluent sampled on November 5, 2012. NPDES #FL0000809

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

