

Bioassays of

Florida Power & Light Company
Port Everglades Plant

Fort Lauderdale, Broward County, Florida

NPDES #FL0001538

Sampled 2/18/02

May 2002

Biology Section
Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Introduction

Florida Power and Light Company-Port Everglades Plant, 8100 Eisenhower Boulevard, Fort Lauderdale, Broward County, Florida, NPDES #FL0001538, tests performed on 19 to 21 February 2002.

This power generating plant has a design flow of 1,442 MGD and an annual average flow of 1.225 MGD. The wastewater is once-through non-contact cooling water from the Intracoastal Waterway. There is no treatment of the effluent prior to being discharged into the Class III marine waters of the Intracoastal Waterway, approximately one mile south of the entrance channel (facility summary provided by Stanley Ganthier, FDEP, West Palm Beach).

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1993, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition, EPA/600/4-90/027F.

Results and Discussion

The FDEP Biology Section performed two 48-hour static acute screening toxicity bioassays on a sample of effluent collected from this facility using the mysid shrimp, *Americamysis bahia*, and the inland silverside, *Menidia beryllina.* The apparent salinity (based on conductivity and temperature) of the sample was approximately 33 parts per thousand (ppt). The control water was natural seawater (NSW). The test results did not indicate toxicity to either test species within 48 hours (Tables 1).

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. Further chemical analyses were performed on the sample, and several metals and a herbicide were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on February 18, 2002, did not show acute toxicity to either test species within 48 hours.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Florida Power and Light Company-Port Everglades Plant, 8100 Eisenhower Boulevard, Fort Lauderdale, Broward County, Florida, NPDES# FL0001538 performed from 19 to 21 February 2002.

Facility:	**FPL-Port Everglades Plant**		**NPDES #**	**FL0001538**	Facility Type:	**Electric Generating Plant**	**Analysts:** Della Parker-Hanson, Joshua Ayres, Gary Hardie, Marshall Faircloth
Location:	8100 Eisenhower Blvd.		Contact/District:	T. Davis/Southeast			
County:	Broward		Test type:	static acute screen			
Sample Collection Date:	2/18/02	Time: 1145	# tests:	2	Receiving Water:	Intercoastal waterway	
Test Beginning Date:	2/19/02	Time: 1335	Chlorination Type:	Non-chlorinated			
Test Ending Date:	2/21/02	Time: 1550				**Page 1 of 1**	**Reviewer:** David Whiting

Organism: ***Americamysis bahia*** Life stage: 5 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected mmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/500	5	5	5	7.5	7.9	7.8	23.6	23.8	24.1	5.0	6.1	4.7	45.5	49.5
Control B	0/500	5	5	5	7.5	7.9	7.8	23.9	23.8	24.3	4.6	5.4	4.6	47.4	50.4
Control C	0/500	5	5	5	7.5	7.9	7.7	23.6	23.9	23.8	4.9	6.0	4.0	47.8	49.7
Cotnrol D	0/500	5	5	5	7.5	7.9	7.7	23.7	24.1	23.8	5.0	6.0	4.2	47.8	49.9
100% A	500/0	5	5	5	8.1	8.1	7.9	23.5	24.1	24.2	6.2	6.2	4.6	48.1	52.2
100% B	500/0	5	5	5	8.1	8.1	7.9	23.6	23.6	24.5	6.4	6.1	3.9	48.6	51.2
100 % C	500/0	5	5	5	8.1	8.2	7.9	23.0	23.8	24.5	6.3	6.1	3.9	48.1	51.2
100% D	500/0	5	5	5	8.1	8.2	7.9	23.1	23.9	25.2	6.4	6.1	4.0	48.3	51.5

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.5-26.0°C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

Organism: ***Menidia beryllina*** Life stage: 11 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected mmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/500	5	5	5	7.5	7.9	7.9	23.5	23.8	23.7	5.2	6.0	5.3	47.7	48.9
Control B	0/500	5	5	5	7.5	7.9	7.8	23.4	23.5	24.0	5.1	6.0	5.3	48.0	50.2
Control C	0/500	5	5	5	7.5	7.9	7.9	23.3	23.4	23.7	5.0	6.0	5.0	47.8	49.9
Cotnrol D	0/500	5	5	5	7.5	7.9	7.8	23.1	23.3	23.9	5.1	6.0	5.1	47.4	49.6
100% A	500/0	5	5	5	8.1	8.1	8.1	23.2	24.0	23.7	6.0	5.9	5.9	48.0	51.6
100% B	500/0	5	5	5	8.1	8.1	8.1	23.4	23.8	23.9	6.2	5.9	6.1	48.4	50.6
100 % C	500/0	5	5	5	8.1	8.1	8.1	23.3	23.5	24.4	6.2	6.0	6.0	48.5	49.6
100% D	500/0	5	5	5	8.1	8.1	8.1	23.1	23.5	25.1	6.3	6.1	6.1	48.5	51.6

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.5-26.0°C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

LIMS	
Job number:	TLH-2002-02-19-02
Sample number:	577607

Data Transcription Verification	
date:	4/8/02
by:	Cathy Oaks Della Parker-Hanson

Total Residual CL2	mg/L	Method
Field:	-	-
Lab:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
NSW	<0.051	<0.051
100% Sample:	<0.051	<0.051

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
NSW	141	-
100% Sample:	148	-

Salinity [C]	ppt
NSW	33
100% sample:	33

[C] Salinity based on conductivity and temperature.

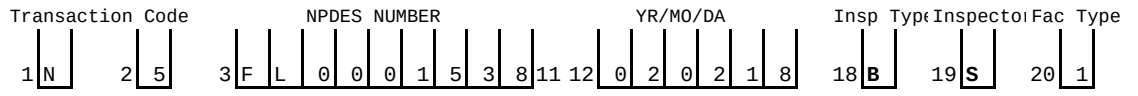
Table 2. Results of chemical analyses on the effluent from Florida Power and Light Company-Port Everglades Plant sampled on February 18, 2002.

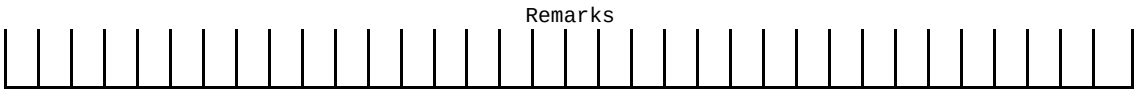
Metals		
Calcium	394	mg/L
Copper	2	µg/L [I]
Magnesium	1280	mg/L
Pesticides and Herbicides		
Atrazine	0.066	µg/L [I]
Base, Neutral, & Acid Extractable Organics		
None detected		

[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

The Bioassay of Florida Power and Light Company-Port Everglades Plant effluent sampled on February 18, 2002, NPDES #FL0001538.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X

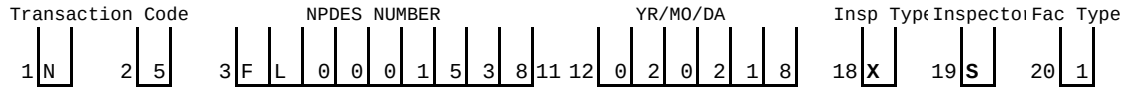


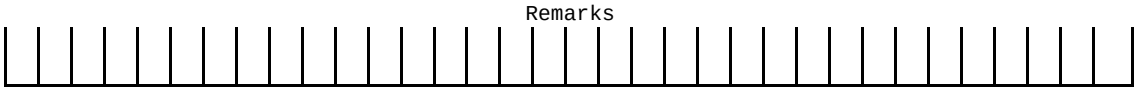


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The Priority Pollutants Analysis for Bioassay of Florida Power and Light Company-Port Everglades Plant effluent sampled on February 18, 2002, NPDES #FL0001538.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X





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