Florida
Department of Environmental Protection

Bioassays of

Florida Power Corporation
Anclote Electric Generating Plant

Tarpon Springs, Pasco County, Florida

NPDES #FL0002992

Sampled 5/3/93

August 1993

Biology Section
Division of Technical Services

Bioassays of

Florida Power Corporation
Anclote Electric Generating Plant

Tarpon Springs, Pasco County, Florida

NPDES #FL0002992

Biology Section
Bureau of Laboratories
August 1993

Introduction

Florida Power Corporation Anclote Electric Generating Plant, Tarpon Springs, Pasco County, Florida, NPDES #FL0002992, tests performed on 4 to 6 May, 1993.

The electric power generating plant is located on the Anclote River, one mile northwest of Tarpon Springs. Once-through cooling water from a turbine unit was sampled at outfall 002 prior to release into the discharge canal then to Anclote Sound (personal communication, Kathy Hicks, FDEP SW District office).

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1991, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition (EPA/600/4-90/027).

Results and Discussion

The FDEP Biology Section performed two 48-hour static acute screening toxicity bioassays on a sample of effluent from this facility. The salinity of the sample was 27 ppt, therefore, the test species used for these bioassays were the mysid shrimp, *Mysidopsis bahia*, and the inland silverside, *Menidia beryllina*. The control water for the tests was prepared from an artificial sea salt mixture (Forty Fathoms®); the salinity of the sample was not altered.

The test results indicated 100% and 90% survival (1 death) in 100% effluent for *M. bahia* and *M. beryllina*, respectively. Total residual chlorine and total ammonia were not detected in the sample.

Conclusion

The sample of effluent collected from this facility on 3 May, 1993, showed minimal toxicity (1 death).

Table 1. Concentration series and volumes used for the 48-hour static acute screening bioassays of the Florida Power Corporation Anclote electric generating plant effluent performed on 4 to 6 May, 1993.

Mysidopsis bahia (mysid shrimp)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100 %	0 mL	500 mL	500 mL

Menidia beryllina (inland silverside)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100 %	0 mL	500 mL	500 mL

Table 2. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Florida Power Corporation, Anclote electric generating plant, Tarpon Springs, Pasco County, Florida, NPDES# FL0002992, performed on 4-6 May, 1993.

Facility:	**Florida Power Anclote**		NPDES #	FI0002992	Facility Type: **Electric Generating Plant**
Location:	Tarpon Springs		Contact / District:	Kathy Hicks/SW	
County:	Pasco		Test type:	static acute screen	
Sample Collection Date:	**5/3/93**	Time: 1220	# tests:	2	Receiving Water: **Anclote Sound**
Test Beginning Date:	5/4/93	Time: 1300	Chlorination Type:	**not chlorinated**	**Gulf of Mexico**
Test Ending Date:	5/6/93	Time: 1300			**Page 1 of 1**

Total Residual Cl2	mg/l	Method
Field:	not measured	
Lab:	<0.03	DR-100

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	< 0.017	0
20% Dilute Mineral Water (cladocerans):	< 0.017	0
100% Sample:	< 0.017	0

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water:	140	-
100% Sample:	135	-

Salinity (ppt)	
Control Water:	23
100% Sample:	27

Organism: ***Menidia beryllina*** Life stage: 12 days

	SURVIVAL			pH			Temperature			Dissolved Oxygen			mmhos Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	8.2	8.0	7.9	23.7	23.1	23.2	7.2	6.0	6.1	34.3	34.3
Control	5	5	5	8.2	8.0	7.9	-	-	-	7.2	6.0	6.0	34.3	34.3
100%	5	5	5	8.2	8.1	8.0	24.8	23.2	23.1	6.1	6.1	6.0	41.6	40.5
100%	5	4	4	8.2	8.1	8.0	-	-	-	6.1	6.0	6.0	41.6	40.6

Organism: ***Mysidopsis bahia*** Age: 4 days

	SURVIVAL			pH			Temperature			Dissolved Oxygen			mmhos Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	8.2	8.0	7.9	23.8	23.2	23.5	7.2	6.0	5.7	34.4	34.4
Control	5	5	5	8.2	8.0	7.9	-	-	-	7.2	6.0	5.8	34.3	34.6
100%	5	5	5	8.2	8.1	8.0	24.8	23.2	23.3	6.1	6.0	6.1	41.5	40.6
100%	5	5	5	8.2	8.1	8.0	-	-	-	6.1	6.0	6.1	41.6	40.9

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Florida Power Anclote
Location:
County: Pasco
Contact/District: Kathy Hicks / SW
NPDES Permit #: FL0002992 Outfall #: 002
93MAY0430 54738

Sample Collection: Date 5-3-93 Time 12:20
Test Beginning: Date 5-4-93 Time 13:00
Test Ending: Date 5-5-93 Time 13:00
Organism Batch #: 16 Diluent Batch #: 28
Organism Age: 4 days
Test Organism: Mysidopsis Bahia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 1 of 2
Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.8 @ 23.9	8.4 @ 24.1	985 @ 1,000 9920 @ 10,000 @ 24.
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.4 @ 23.5	8.4 @ 23.5	980 @ 1,000 9880 @ 10,000 @ 23.
48 hr	7.0 @ 7.0 9.0 @ 9.0	23.7 @ 23.8	8.4 @ 24.0	980 @ 1,000 9900 @ 10,000 @ 23.

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			Cond. (mmhos/cm) ~~Cond. (µmhos/cm)~~		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	74	5	5	5	8.2	8.0	7.9	23.8	23.2	23.5	8.4	6.0	5.7	34.4	34.1	34.4
Control	77	5	5	5	8.2	8.0	7.9				7.2	6.0	5.8	34.3	34.2	34.6
100%A	39	5	5	5	8.2	8.1	8.0	24.8	23.2	23.3	6.1	6.0	6.1	41.5	40.2	40.6
100%B	20	5	5	5	8.2	8.1	8.0				6.1	6.0	6.1	41.6	40.4	40.9
											*7.2 recorded wrong TR					
Measured/Loaded by:		TM	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM
Recorded by:		MF	TM	TM	TM	TR	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR

Investigators' Signatures

Robin C. Rider
Tina Mikulsky

Reviewer

form updated 10/20/92

(Salt Water) **Water Quality Parameters**

	Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			not measured		
Lab Total Residual Cl2:	<0.03	<.003	<0.03	PR-100	TM
Alkalinity:	140	70	135	Hach	TR
Hardness:	—	80	—	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Cl_2 Blank: _____ Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 27 ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Florida Power Anclote
Location:
County: Pasco
Contact/District: Kathy Hicks / SCW
NPDES Permit #: FL0002992 Outfall #: 002
54738

Sample Collection: Date 5-3-93 Time 12:20
Test Beginning: Date 5-4-93 Time 13:00
Test Ending: Date 5-6-93 Time 1300
Organism Batch #: Diluent Batch #: 28
Organism Age: 12~~8~~ days Wrong # recorded TR
Test Organism: Menidia Beryllina

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 2 of 2

Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.8 @ 23.9	8.4 @ 24.1	985 @ 1,000 @ 24.1 9920 @ 10,000
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.4 @ 23.5	8.4 @ 23.5	980 @ 1,000 @ 23.8 7880 @ 10,000
48 hr	7.0 @ 7.0 9.0 @ 9.0	23.7 @ 23.8	8.4 @ 24.0	980 @ 1,000 @ 23.9 9900 @ 10,000

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			Cond. (mmhos/cm) ~~Cond. (µmhos/cm)~~		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control A	682	5	5	5	8.2	8.0	7.9	23.7	23.1	23.2	7.2	6.0	6.1	34.3	33.9	34.3
Control B	2	5	5	5	8.2	8.0	7.9				7.2	6.0	6.0	34.3	34.0	34.3
100% A	69	5	5	5	8.2	8.1	8.0	24.8	23.2	23.1	6.1	6.1	6.0	41.6	40.2	40.5
100% B	44	5	4	4	8.2	8.1	8.0				6.1	6.0	6.0	41.6	40.2	40.6
Measured/Loaded by:		TR	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM
Recorded by:		MF	TM	TM	TM	TR	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR

Investigators' Signatures
Robin A Rader
Tina Mikulski

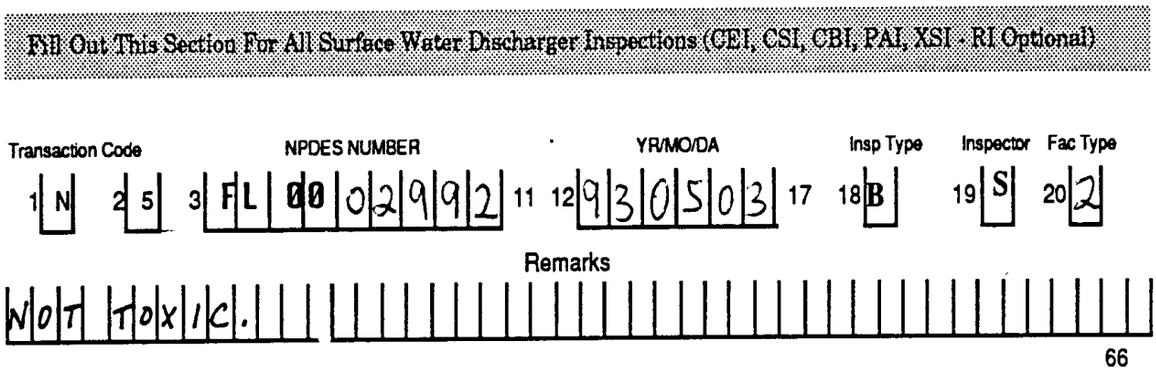
Reviewer

form updated 10/20/92

	Salt Water/ Well Water	Water Quality Parameters: 20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			not	measured	
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TM
Alkalinity:	140	70	135	Hach	TR
Hardness:	—	80	—	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Cl_2 Blank: ____ Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 27 ppt

The Bioassay of the Florida Power Corporation Anclote electric generating plant effluent sampled on May 3, 1993, NPDES# FL0002992.



The Priority Pollutants Analyses for the the Florida Power Corporation Anclote electric generating plant effluent sampled on May 3, 1993, NPDES# FL0002992.

