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Bioassays of

Jacksonville Electric Authority (JEA)
Northside Generating Station

Jacksonville, Duval County, Florida

NPDES #FL0001031

Sampled 6/1/92

July 1992

Biology Section
Division of Technical Services

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Bureau of Laboratories
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Introduction

Jacksonville Electric Authority (JEA) Northside Generating Station, Jacksonville, Duval County, Florida, NPDES #FL0001031, tests performed on 2 to 4 June, 1992.

This facility is an electric power generating station located at 21West Church Street in Jacksonville. The sample was collected from outfall 001 which carries cooling tower blowdown. The effluent is discharged to the St. Johns River.

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 FDER Biology Section performed a static acute screening toxicity bioassay on a sample of effluent from this facility. The salinity of the sample was 25 ppt. The bioassay test species used for this tests was the mysid shrimp, *Mysidopsis bahia*. The control water for the test was adjusted with Forty Fathoms® sea salts to a similar salinity. The test results did not indicate toxicity.

Total residual chlorine and total ammonia were not detected in the sample. Further chemical analyses were performed on the sample and indicated the presence of aluminum (141 µg/L) and iron (172 µg/L). Chlorinated pesticides, organics, and petroleum hydrocarbons were not detected.

Conclusion

The sample of effluent from this facility, which was collected on 1 June, 1992, did not show toxicity.

Table 1. Concentration Series and Volumes Used for the Static Acute Screening Bioassay of the JEA Northside Generating Station on 2 to 4 June, 1992.

Mysidopsis bahia (mysid shrimp)

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

Table 2. Results of chemical analyses on the sample of effluent from the JEA Northside Generating Station, Duval County, on 1 June, 1992.

Base-Neutral & Acid Extractables

not detected

Petroleum Hydrocarbons

not detected

Chlorinated Pesticides

not detected

Metals

Aluminum	141	µg/L
Iron	172	µg/L

Table 3. Data recorded during the static acute screening bioassay of a sample of cooling tower blowdown effluent from the JEA Northside Generating Station, Jacksonville, Duval County, Florida, NPDES# FL0001031, on 2 to 4 June, 1992.

Facility:	**JEA Northside Generating Station**		NPDES #	FL0001031	Facility Type:	**power plant**	
Location:	21 West Church Street, Jacksonville		Contact/District:	Scott Bulgrin / NE		cooling tower blowdown	
County:	Duval		Test type:	static acute screen			
Sample Collection Date:	**6/1/92**	Time: 1020	# tests:	1	Receiving Water:	St. Johns River	
Test Beginning Date:	6/2/92	Time: 1400	Chlorination Type:	**not chlorinated**			
Test Ending Date:	6/4/92	Time: 1400				**Page 1 of 1**	

Total Residual Cl2	mg/l	Method
Field:	not measured	-
Lab:	0.0	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water:	0.00	0.00
100% Sample:	0.00	0.00

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water:	artificial sea water	
100% Sample:	103	

Salinity (ppt)	
Control Water:	25.3
100% Sample:	27.3

Organism: ***Mysidopsis bahia*** Age: 3 days

	SURVIVAL			pH			Temperature			Dissolved Oxygen			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	8.6	8.5	8.3	23.3	23.5	23.3	7.9	6.7	6.9	-	-
Control	5	5	5	8.6	8.5	8.3	-	-	-	7.9	6.7	6.9	38,300	39,200
100%	5	5	5	7.9	8.0	8.0	22.4	23.7	23.3	7.8	6.8	7.0	-	-
100%	5	5	5	7.9	8.0	8.0	-	-	-	7.8	6.8	7.0	40,400	41,900

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: JEA Northside - COOLING TOWER BLOWDOWN
Address/City:
County: DUVAL
Contact/District: S. Bulgin / NE
NPDES Permit #: FL0001031 Outfall #: 001

Sample Collection: Date 6/1/92 Time 10:20 AM
Test Beginning: Date 6/2/92 Time 1400
Test Ending: Date 6/4/92 Time 1400
Test Organism: Mysidopsis bahia
Life Stage/Age: 3 day

Test Number: 1 of 1 Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

92 JUN 02 26 35159
entered 6/25/92

Remarks:
Control salinity adjusted to ~26‰.
Sample salinity ~ 27‰

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7@7, 10@10	8.5@24°C	23.6@23.6	13580 237. 11980 110
24 hr	7@7; 10@10	8.5@24	24.0@24.2	1380@238
48 hr	7@7, 10@10	8.4@25°C	24.4@24.3	1374@24.2

6/4/92 MF wrote wrong chamber #'s

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	DO (mg/L) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	C62/147	5	5	5	8.6	8.5	8.3	23.3	23.5	23.3	7.9	6.7	6.9			
Control	~~8~~ 26	5	5	5	8.6	8.5	8.3				7.9	6.7	6.9	38,300	38800	39200
100%	149	5	5	5	7.9	8.0	8.0	22.4	23.7	23.3	7.8	6.8	7.0			
100%	55	5	5	5	7.9	8.0	8.0				7.8	6.8	7.0	40,400	41700	41900
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF

Investigators' Signatures
Marshall Faircloth
Kim Pearce

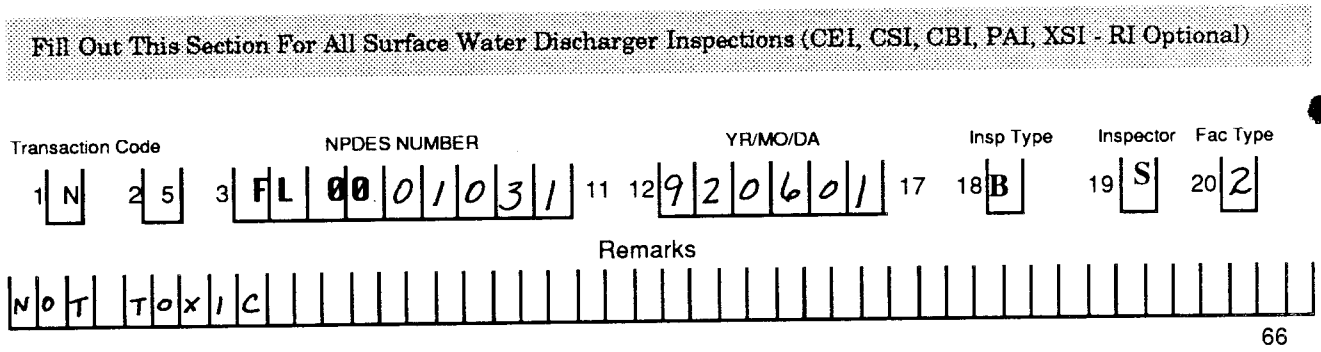
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:	[illegible]		not measured		
Lab Tot. Resid. Cl2:			0.0	Hach	MF
Alkalinity:			163	Hach	DK
Hardness:	ASW control		>1000	Hach	KP
Total Ammonia:	0.0		0.0	Hach	DK & MF

Ammonia Meter Slope: _____ Ammonia Blank: 0.0 Salinity Sample: ~27 ppt

The Bioassays of the JEA Northside Generating Station, NPDES# FL0001031, effluent sampled on June 1, 1992.



The Priority Pollutants Analysis for the Bioassay of the JEA Northside Generating Station, NPDES# FL0001031, effluent sampled on June 1, 1992.

