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Bioassays of

Jacksonville Electric Authority
Kennedy Generating Station

Jacksonville, Duval County, Florida

NPDES #FL0001023

Sampled 12/19/94

February 1995

Biology Section
Division of Administrative and Technical Services
Comprehensive Quality Assurance Plan #870346G

Bioassays of

Jacksonville Electric Authority
Kennedy Generating Station

Jacksonville, Duval County, Florida

NPDES #FL0001023

Biology Section
Bureau of Laboratories
February 1995

Introduction

Jacksonville Electric Authority-Kennedy Generating Station, Jacksonville, Duval County, Florida, NPDES #FL0001023, tests performed on 20 to 22 December, 1994.

This power plant, located at 4215 Tallyrand Drive in Jacksonville, has a permitted flow of 222 MGD. The facility had an average flow of 46 MGD from July, 1993, to July, 1994, but the average flow increased to 110 MGD during the five months prior to December, 1994. Influent is treated with sodium hypochlorite as an antifouling agent. Wastewater is intermittently treated by chlorination and the addition of sodium hypochlorite prior to discharge to the St. Johns River (facility summary provided by Michael Dunbar, FDEP Jacksonville).

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 four 48-hour static acute screening toxicity bioassays on a sample of effluent from this facility. Two tests were performed with the freshwater test species, the waterflea *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. Two tests were also performed with the saltwater test species, the mysid shrimp, *Mysidopsis bahia* and the inland silverside, *Menidia beryllina*. Both freshwater and saltwater test species were used because the conductivity (corrected for temperature) of the sample indicated a salinity of 1.9 ppt, but it was unknown if this was a result of true salinity or conductivity resulting from non-seawater constituents.

To accommodate the salinity requirement of 1–32 ppt for *Menidia*, the control water for the *Menidia* test was adjusted to 1.9 ppt using an artificial sea salt mixture (Forty Fathoms) to match the apparent salinity of the effluent as collected. The salinity of the effluent sample was not adjusted for the *Menidia* tests. To accommodate the salinity requirement of 5–30 ppt for *Mysidopsis bahia*, artificial sea salts were used to adjust the salinity of the control water and an aliquot of the effluent sample to the minimum required for the mysid test (5 ppt).

Test results indicated that the sample was not toxic to either *Ceriodaphnia dubia* or *Cyprinella leedsi*. Toxicity was indicated in both of the salt water tests with the *Menidia beryllina* test showing 30% mortality and the *Mysidopsis bahia* test showing 10% mortality in the 100% sample (Table 1).

Total residual chlorine of the sample was $\leq$ 0.03 mg/L in the laboratory and 0.03 mg/L in the field. Total ammonia was not detected in the sample. Further chemical analyses were performed on the sample and several metals were identified (Table 2). Fluoride was also identified in the sample. None of the metals appear to be in concentrations known to be acutely toxic to the test species. The aluminum (2,800 µg/L) and iron (3,570 µg/L) concentrations exceeded their respective Class III Marine surface water criteria of $\leq$ 1,500 µg/L and $\leq$ 300 µg/L (FAC 62-302.530).

The cause of the toxicity of the sample to the saltwater test species was not determined. We suspect the conductivity of the sample was at least partially due to non-seawater ions, thus the salinity of the sample was likely less than the minimum needed to prevent marine test organism death. This conclusion is bolstered by the 100% survival of the *C. dubia* at a nominal salinity that would be expected to reduce survival.

Conclusion

The sample of effluent collected from this facility on 19 December, 1994, did not show toxicity to the freshwater test species but did show toxicity to the saltwater test species. The cause of toxicity to *Menidia beryllina* and *Mysidopsis bahia* was not determined, but salinity below the required minimums for the test species was suspected.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample effluent from the Jacksonville Electric Authority Kennedy Generation Station, Jacksonville, Duval County, Florida, NPDES# FL0001023, performed on 20 to 22 December, 1994.

Freshwater Species Test

Facility:	**JEA-Kennedy Generating Station**			**NPDES #**	**FL0001023**	Facility Type:	**Power Plant**
Location:	4215 Tallyrand Drive, Jacksonville			Contact/District:	M. Dunbar/Northeast		
County:	Duval			Test type:	static acute screen	Receiving Water:	St. Johns River
Sample Collection Date:	**12/19/94**	Time:	1115	# tests:	4		
Test Beginning Date:	12/20/94	Time:	1430	Chlorination Type:	**Chlorinated**		
Test Ending Date:	12/22/94	Time:	1430		**no dechlorination at plant**		**Page 1 of 2**

Organism: ***Ceriodaphnia dubia*** Life stage: < 24 hours old

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature			Dissolved Oxygen			Conductivity Uncorrected µmhos/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	0/20	5	5	5	8.1	-	8.2	21.6	-	23.6	8.1	-	8.3	165	190
Control B	0/20	5	5	5	-	-	8.2	-	-	23.6	-	-	8.2	-	180
Control C	0/20	5	5	5	-	-	8.2	-	-	23.3	-	-	8.2	-	180
Control D	0/20	5	5	5	-	-	8.3	-	-	23.2	-	-	8.2	-	180
100% A	20/0	5	5	5	7.8	-	8.1	21.6	-	23.6	8.1	-	8.2	3180	3500
100% B	20/0	5	5	5	-	-	8.1	-	-	23.5	-	-	8.1	-	3500
100% C	20/0	5	5	5	-	-	8.1	-	-	23.4	-	-	8.2	-	3600
100% D	20/0	5	5	5	-	-	8.1	-	-	23.1	-	-	8.1	-	3600

Organism: ***Cyprinella leedsi*** Age: 11 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature			Dissolved Oxygen			Conductivity Uncorrected µmhos/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	7.8	8.2	8.3	21.3	21.9	22.1	8.3	8.4	8.3	235	240
Control B	0/500	5	5	5	7.8	8.2	8.3	-	-	21.8	8.3	8.4	8.3	230	240
Control C	0/500	5	5	5	7.8	8.2	8.3	-	-	21.8	8.4	8.4	8.4	235	240
Control D	0/500	5	5	5	7.8	8.2	8.3	-	-	21.9	8.4	8.5	8.4	235	240
100% A	500/0	5	5	5	7.7	7.9	8.0	21.5	21.9	21.8	8.9	8.5	8.3	3400	3500
100% B	500/0	5	5	5	7.7	7.9	8.0	-	-	21.6	9.0	8.5	8.3	3400	3500
100% C	500/0	5	5	5	7.7	7.9	8.0	-	-	21.6	9.0	8.6	8.3	3400	3500
100% D	500/0	5	5	5	7.7	7.9	7.9	-	-	21.7	9.1	8.6	8.3	3400	3500

Total Residual CL2	mg/L	Method
Field:	0.03	-
Lab:	<0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	< 0.017	0.00
20% Dilute Mineral Water (cladocerans):	< 0.017	0.00
100% Sample:	<0.017	0.00

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	125	120
20% Dilute Mineral Water (cladocerans):	75	80
100% Sample:	60	400

Salinity*	(ppt)
Control Water:	0
100% Sample:	1.9

*Salinity converted from conductivity and temperature measurements

Table 1. Continued. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Jacksonville Electric Authority-Kennedy Generating Station,Jacksonville, Duval County, Florida, NPDES# FL0001023, performed on 20 to 22 December, 1994.

Salt Water Species Test

Facility:	**JEA-Kennedy Generating Station**		**NPDES #**	**FL0001023**	Facility Type: **Power Plant**
Location:	4215 Tallyrand Drive, Jacksonville		Contact/District:	M. Dunbar/Northeast	
County:	Duval		Test type:	static acute screen	Receiving Water: St. Johns River
Sample Collection Date:	**12/19/94**	Time: 1045	# tests:	4	
Test Beginning Date:	12/20/94	Time: 1530	Chlorination Type:	**Chlorinated**	
Test Ending Date:	12/22/94	Time: 1530		**no dechlorination in plant**	**Page 2 of 2**

Total Residual CL2	mg/L	Method
Field:	0.03	-
Lab:	<0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water:	< 0.017	0.00
100% Sample:	<0.017	0.00

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	130	400
100% Sample:	60	400
Control Water (mysids)	140	-
100% Sample:	60	-

Salinity (ppt)*	Fish	Mysids
Control Water:	1.9	5
100% Sample:	1.9	5

*Salinity converted from conductivity and temperature measurements

Organism: ***Menidia beryllina*** Life stage: 11-13 days old

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature			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	8.0	8.2	8.3	23.0	21.9	21.7	8.1	8.2	8.0	3.6	3.8
Control B	0/500	5	5	5	8.0	8.2	8.3	-	-	21.5	8.1	8.3	8.1	3.6	3.8
Control C	0/500	5	5	5	8.0	8.2	8.3	-	-	21.5	8.2	8.3	8.2	3.6	3.8
Control D	0/500	5	5	5	8.0	8.2	8.3	-	-	21.7	8.1	8.4	8.2	3.6	3.7
100% A	500/0	5	5	4	7.8	8.0	7.9	21.9	21.8	21.7	8.8	8.2	8.3	3.5	3.7
100% B	500/0	5	5	4	7.8	8.0	7.9	-	-	21.6	8.9	8.2	8.3	3.5	3.6
100% C	500/0	5	5	2	7.8	7.9	7.9	-	-	21.6	9.0	8.4	8.2	3.5	3.7
100% D	500/0	5	5	4	7.8	7.9	7.9	-	-	21.7	9.0	8.4	8.2	3.5	3.8

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

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature			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	8.2	8.3	8.3	23.4	21.9	22.2	8.0	8.2	7.9	8.9	8.7
Control B	0/500	5	5	5	8.2	8.3	8.3	-	-	21.5	8.1	8.2	7.9	8.9	8.7
Control C	0/500	5	5	5	8.2	8.3	8.3	-	-	21.5	8.1	8.2	7.9	8.9	8.7
Control D	0/500	5	5	4	8.2	8.3	8.3	-	-	21.6	8.1	8.3	7.9	8.9	8.7
100% A	500/0	5	5	4	8.1	8.1	8.0	22.0	22.0	22.0	8.4	8.2	7.8	8.5	8.4
100% B	500/0	5	5	5	8.1	8.1	8.0	-	-	22.1	8.5	8.3	7.8	8.5	8.4
100% C	500/0	5	5	5	8.1	8.1	7.9	-	-	22.0	8.5	8.2	7.8	8.5	8.5
100% D	500/0	5	5	4	8.1	8.1	7.9	-	-	21.8	8.4	8.3	7.6	8.5	8.5

Table 2. Results of chemical analyses on samples from the Jacksonville Electric Authority-Kennedy Generating Station sampled on December 19, 1994.

Metals

	Influent	Effluent
Aluminum	1030 µg/L[A]	2800 µg/L
Calcium	40.9 mg/L[A]	46.9 mg/L
Copper	13 µg/L[A]	not detected
Iron	1680 µg/L[A]	3570 µg/L
Magnesium	52.3 mg//L[A]	71.9 mg/L
Zinc	13.1 µg/L[I]	23 µg/L

(Effluent only)

Fluoride	0.13 mg/L

Base-Neutral & Acid Extractables

none detected

[A] Value reported is the mean of two or more determinations.

[I] Value reported is less than the minimum quantitation limit and greater than or equal to the minimum detection limit.

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: JEA Kennedy Generating Station
County: DUVAL
Contact / District: Mike Dunbar / NE
NPDES Permit #: FL0001023
LIMS Sample #: 96129 LIMS Job #: 94-DEC-20-30-01

Sample Collection: Date 12/19/94 Time 1045
Test Beginning: Date 12/20/94 Time 1530
Test Ending: Date 12/23/94 Time 1530
Organism Batch #: 48 Diluent Batch #: 49
Organism Age: < 24 hours
Test Organism: Ceriodaphnia dubia

Test Type: Screening / Definitive
Static / Static Renewal / Flow-through
Test Number: 1 of 4
Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	20.9 @ 21.0	8.8 @ 21.3 °C	939 @ 1000 9370 @ 10000 @ 22.2 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.0 @ 22.1	8.7 @ 22.2 °C	953 @ 1000 9510 @ 10000 @ 22.5 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.7 @ 21.8	8.5 @ 23.1 °C	106.2 @ 98.6 9540 @ 9846 @ 22.8 °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) ~~Cond. (µmhos/cm)~~ 0 hr	UNCORRECTED Cond. (mmhos/cm) ~~Cond. (µmhos/cm)~~ 24 h	UNCORRECTED Cond. (mmhos/cm) ~~Cond. (µmhos/cm)~~ 48 h
Control	A	5	5	5	8.1		8.2	21.6		23.6	8.1		8.3	.165		190
Control	B	5	5	5			8.2			23.6			8.2			180
Control	C	5	5	5			8.2			23.3			8.2			180
Control	D	5	5	5			8.3			23.2			8.2			180
100 %	A	5	5	5	7.8		8.1	21.6		23.6	8.1		8.2	3.18		3.5
100 %	B	5	5	5			8.1			23.5			8.1			3.5
100 %	C	5	5	5			8.1			23.4			8.2			3.6
100 %	D	5	5	5			8.1			23.1			8.1			3.6
Recorded by:		TM	MF	MF	MF		TR	MF		TR	MF		TR	MF		TR
Measured/Loaded by:		TR	MF	MF	TM		MF	TM		MF	TM		MF	TM		MF

Investigators' Signatures

Marshall Fairbanks
Debra C. Rader
Tina Mikulski

Reviewer

form updated 10/05/94

Water Quality Parameters (Salt Water)

	Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			0.03	—	MD
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03	<0.03	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	130	75	60	Hach	TM
Hardness (mg/L as $CaCO_3$):	400	80	400	Hach	TM
Total ammonia (mg/L as N):	—	<0.017	<0.017	Orion	MF

Ammonia Meter #98136 Meter Slope: -58.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 1.9 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: JEA Kennedy Generating Station
County: DUVAL
Contact / District: Michael Dunbar/NE
NPDES Permit #: FL0001023
LIMS Sample #: 96129 **LIMS Job #:** 94-DEC-20-30-01

Sample Collection: Date 12/19/94 Time 1045
Test Beginning: Date 12/20/94 Time 1530
Test Ending: Date 12/22/94 Time 1530
Organism Batch #: 51 **Diluent Batch #:** well
Organism Age: 10 days
Test Organism: Cyprinella leedsi

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through
Test Number: 2 of 4
Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	20.9 @ 21.0	8.8 @ 21.3 °C	939 @ 1000 9370 @ 10000 @ 22.2 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.0 @ 22.1	8.7 @ 22.0 °C	953 @ 1000 9510 @ 10000 @ 22.9 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.7 @ 21.8	8.5 @ 23.1 °C	1062 @ 98.6 9540 @ 9896 @ 22.8 °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
Control	18	5	5	5	7.8	8.2	8.3	21.3	21.9	22.1	8.3	8.4	8.3	235	240	240
Control	87	5	5	5	7.8	8.2	8.3			21.8	8.3	8.4	8.3	230	235	240
Control	209	5	5	5	7.8	8.2	8.3			21.8	8.4	8.4	8.4	235	235	240
Control	119	5	5	5	7.8	8.2	8.3			21.9	8.4	8.5	8.4	235	235	240
100%	196 *	5	5	5	7.7	7.9	8.0	21.5	21.9	21.8	8.9	8.5	8.3	3.4	3.4	3.5
100%	44/136 *	5	5	5	7.7	7.9	8.0			21.6	9.0	8.5	8.3	3.4	3.5	3.5
100%	44	5	5	5	7.7	7.9	8.0			21.6	9.0	8.6	8.3	3.4	3.4	3.5
100%	11	5	5	5	7.7	7.9	7.9			21.7	9.1	8.6	8.3	3.4	3.5	3.5
Recorded by:		TR	MF	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR	MF	TR	TR
Measured/Loaded by:		TR	MF	TM	MF	MF	MF	MF	MF	MF	MF	MF	MF	TM	MF	MF

* Recorded per end of test on MF 12/20/94

Investigators' Signatures

Marshall Faircloth
Robin C. Rader
Tina M. Kuhlke

Reviewer

form updated 10/05/94

Water Quality Parameters

	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			0.03	—	MD
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR-100	TMK
Alkalinity (mg/L as $CaCO_3$):	125		60	Hach	TM
Hardness (mg/L as $CaCO_3$):	120		400	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	<0.017	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: −58.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 1.9 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: JEA Kennedy Generating Station
County: Duval
Contact / District: Michael L. Dunbar
NPDES Permit #: FL0001023
LIMS Sample #: 96129 LIMS Job #: 94-Dec-20-3001

Sample Collection: Date 12/19/94 Time 1045
Test Beginning: Date 12/20/94 Time 1530
Test Ending: Date 12/22/94 Time 1530
Organism Batch #: 2273 Diluent Batch #: 30
Organism Age: 11-15 days
Test Organism: Menidia beryllina

Test Type: ~~Screening~~ / Definitive
Static / Static Renewal / Flow-through
Test Number: 3 of 4

Remarks: Salinity of Control water adjusted with 40 Fathoms sea salts and well water.

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	20.9 @ 21.0	8.8 @ 21.3 °C	939 @ 1000 9370 @ 10000 @ 22.2 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.0 @ 22.1	8.7 @ 22.0 °C	953 @ 1000 9510 @ 10000 @ 22.9 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.7 @ 21.8	8.5 @ 23.1 °C	106.2 @ 98.6 9540 @ 9896 @ ____ °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
Control	333	5	5	5	8.0	8.2	8.3	23.0	21.9	21.7	8.1	8.2	8.0	3.6	3.8	3.8
Control	413	5	5	5	8.0	8.2	8.3			21.5	8.1	8.3	8.1	3.6	3.8	3.8
Control	302	5	5	5	8.0	8.2	8.3			21.5	8.2	8.3	8.2	3.6	3.8	3.8
Control	114	5	5	5	8.0	8.2	8.3			21.7	8.1	8.4	8.2	3.6	3.6	3.7
100 %	13	5	5	4	7.8	8.0	7.9	21.9	21.8	21.7	8.8	8.2	8.3	3.5	3.7	3.7
100 %	9	5	5	4	7.8	8.0	7.9			21.6	8.9	8.2	8.3	3.5	3.6	3.6
100 %	198	5	5	2	7.8	7.9	7.9			21.6	9.0	8.4	8.2	3.5	3.7	3.7
100 %	4	5	5	4	7.8	7.9	7.9			21.7	9.0	8.4	8.2	3.5	3.8	3.8
Recorded by:		TR	MF	TR	MF	TR	TR	MF	TR	TR	MF	TR	TR	MF	TR	TR
Measured/Loaded by:		TM	MF	TM	TM	MF	MF	TM	MF	MF	TM	MF	MF	TM	MF	MF

Investigators' Signatures

Marshall Faircloth
Erin C. Rader
Tina McKulson

Reviewer

form updated 10/05/94

Water Quality Parameters	Salt Water Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			0.03	—	M. Dunbar
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	130		60	Hach	TM
Hardness (mg/L as $CaCO_3$):	400		400	Hach	TM
Total ammonia (mg/L as N):	20.017	—	<0.017	Orion	MF

Ammonia Meter #98136 Meter Slope: -58.4 Ammonia Blank: 20.017 Control Salinity: 1.9 ppt Sample Salinity: 1.9 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: JEA Kennedy Generating Station
County: Duval
Contact / District: Michael Dunbar / NE
NPDES Permit #: FL0001023
LIMS Sample #: 96129 **LIMS Job #:** 94-Dec-20-30-01

Sample Collection: Date 12/19/94 Time 1045
Test Beginning: Date 12/20/94 Time 1530
Test Ending: Date 12/22/94 Time 1530
Organism Batch #: 17 **Diluent Batch #:** 30
Organism Age: 3 days
Test Organism: Mysidopsis bahia

Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 4 of 4

Remarks: Salinity of Control water adjusted with 40 fathoms sea salts and well water. Salinity of sample adjusted with 40 fathoms sea salts.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0	20.9 @ 21.0	8.8 @ 21.3 °C	939 @ 1000
	9.0 @ 9.0			9370 @ 10000 @ 22.2 °C
24 hr	7.0 @ 7.0	22.0 @ 22.1	8.7 @ 22.0 °C	953 @ 1000
	9.0 @ 9.0			9510 @ 10000 @ 22.9 °C
48 hr	7.0 @ 7.0	21.7 @ 21.8	8.5 @ 23.1 °C	106.2 @ 98.6
	9.0 @ 9.0			9540 @ 9896 @ 22.8 °C

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
Control	85	5	5	5	8.2	8.3	8.3	23.4	21.9	22.2	8.0	8.2	7.9	8.9	8.7	8.7
Control	24	5	5	5	8.2	8.3	8.3			21.5	8.1	8.2	7.9	8.9	8.7	8.7
Control	348	5	5	5	8.2	8.3	8.3			21.5	8.1	8.2	7.9	8.9	8.7	8.7
Control	210	5	5	4	8.2	8.3	8.3			21.6	8.1	8.3	7.9	8.9	8.7	8.7
100 %	412	5	5	4	8.1	8.1	8.0	22.0	22.0	22.0	8.4	8.2	7.8	8.5	8.6	8.4
100 %	28	5	5	5	8.1	8.1	8.0			22.1	8.5	8.3	7.8	8.5	8.6	8.4
100 %	501	5	5	5	8.1	8.1	7.9			22.0	8.5	8.2	7.8	8.5	8.5	8.5
100 %	79	5	5	4	8.1	8.1	7.9			21.8	8.4	8.3	7.6	8.5	8.6	8.5
Recorded by:		TR	MF	TR	MF	TR	TR	MF	TR	TR	MF	TR	TR	MF	TR	TR
Measured/Loaded by:		TM	MF	TM	TM	MF	MF	TM	MF	MF	TM	MF	MF	TM	MF	MF

Investigators' Signatures

Marshall Faircloth
Tina M. Hulsey
John G. Rader

Reviewer

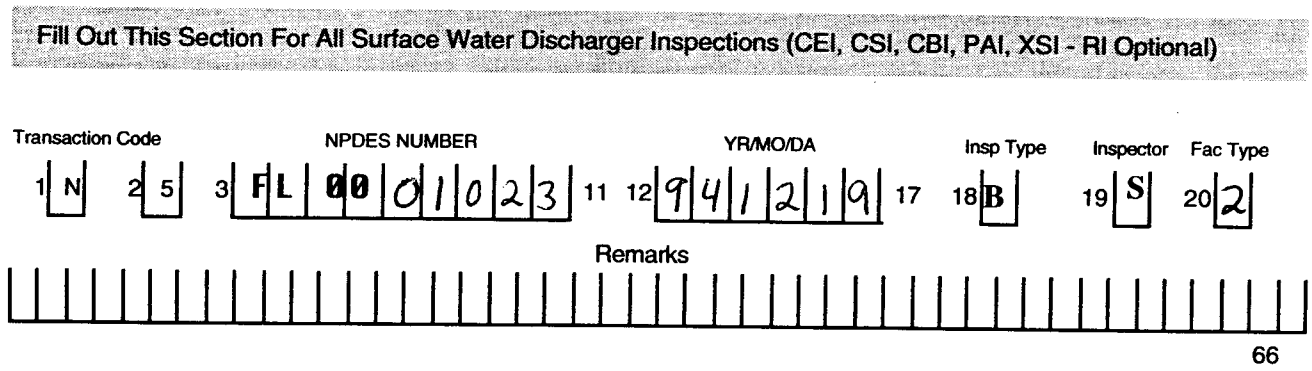
form updated 10/05/94

Water Quality Parameters

	(Salt Water) Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			0.03	—	MD
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	140		60	Hach	TM
Hardness (mg/L as $CaCO_3$):	—		400	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	<0.017	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: −58.4 Ammonia Blank: <0.017 Control Salinity: 5 ppt Sample Salinity: 5 ppt

The Bioassay of the Jacksonville Electric Authority-Kennedy Generating Station effluent sampled on December 19, 1994, NPDES #FL0001023.



The Priority Pollutants Analysis for the Bioassay of the Jacksonville Electric Authority-Kennedy Generating Station effluent sampled on December 19, 1994, NPDES #FL0001023.

