

Bioassays of

JEA-Northside Electric Generation Facility

Duval County

NPDES #FL0001031

Sampled March 22, 2004

June 2004

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

JEA-Northside Electric Generation Plant, 4377 Hecksher Dr., Jacksonville, Duval County, Florida, NPDES #FL0001031. Effluent samples for this facility were collected on March 22, 2004.

Introduction

JEA-Northside is an electric generation facility, with three steam turbine units. The facility has a design flow of 827 million gallons per day (MGD) and had an average flow of 779 MGD from December 2002 through November 2003. Wastewater is generated through once-through non-contact cooling water with a surface water discharge. Low volume wastes are treated in a Chemical Waste Treatment System (CWTS) that discharges to groundwater. The once-through non-contact cooling water is drawn from a back channel of the St. Johns River and is treated intermittently with sodium hypochlorite or sodium bromide as a biocide. After circulating through the condensers for Units 1, 2, and 3 the water goes through an approximately 20-ft wide concrete canal before going into a submerged pipe to a diffuser that discharges in the middle of the St. Johns River (a Class III marine surface water). The facility currently has no mixing zones for the surface water discharge. Up to 50 MGD of the facility's discharge is withdrawn from the concrete canal for use by the St. Johns River Power Park to supplement their cooling water supply. This water is then returned to the JEA-Northside's concrete discharge canal prior to the final outfall diffuser in accordance with NPDES permit FL0037869.

Methods

Samples were collected from the NPDES sampling point by FDEP Northeast District staff following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOP's are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

The toxicity and algal growth potential tests discussed in this report were performed following internal DEP SOP's TA07_01,TA07_02, and TA08_01 through TA08_06. All internal DEP SOP's are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Toxicity Test Results

Tests were performed March 23-25, 2004.

Americamysis bahia 48-hr acute screening bioassay – Not Toxic; LC_{50} > 100%, 0% mortality in 100% sample at 48 hours

Menidia beryllina 48-hr acute screening bioassay – Not Toxic; LC_{50} > 100%, 0% mortality in 100% sample at 48 hours

See Appendix 1 for bioassay bench sheets.

Algal Growth Potential

The effluent algal growth potential (AGP) was 4.73 mg dry wt/L of *Dunaliella tertiolecta.* Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4 1987).

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory.

The field blank was contaminated with calcium, magnesium, zinc, ortho-phosphate and nitrate+nitrite (data given in Appendix 1). None of these parameters exceeded regulatory or permit thresholds.

Aluminum and copper were detected in the effluent at levels above the practical quantitation limits (PQL), while lead was detected in the effluent at a level above the minimum detection limit (MDL) and below the PQL. The concentrations of aluminum, copper, and lead complied with Class III Marine Water Quality Criteria. However, iron (696 μg/L) was detected in the effluent at a level above the PQL and in exceedance of the Class III Marine Water Quality Criterion (62.302-530(39) F.A.C.) of 300 μg/L.

See Table 1 for results of analytes detected in the effluent.

See Appendix 2 for a complete list of chemical analyses performed.

Conclusion

Effluent samples collected from JEA-Northside Electric Generation Plant Units 1, 2, and 3 on March 22, 2004 did not show acute toxicity to either test species during the 48-hour bioassay tests. The effluent AGP result was less than the "problem" threshold for marine receiving waters. Iron was detected in the effluent in exceedance of the Class III Marine Water Quality Criterion (62.302-530(39) F.A.C.).

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.

Table 1. *Effluent limits, Class III Marine Criteria and chemical data for samples from JEA Northside Electric Generation Plant sampled on March 22, 2004.*

JEA Northside Electric Generation	Class III Marine Stds	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1,500	-	822
Arsenic	≤ 50	-	18 U
Cadmium	≤ 9.3	-	0.12 U
Calcium (mg/L)	-	-	295
Chromium-III	-	-	21 U
Copper	≤ 3.7	-	0.89
Iron	≤ 300	-	696
Lead	≤ 8.5	-	0.71 I
Magnesium (mg/L)	-	-	1040
Nickel	≤ 8.3	-	1 U
Selenium	≤ 71	-	16 U
Silver	≤ 2.3	-	0.1 U
Zinc	≤ 86	-	10 U
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.064
Total Phosphorus	-	-	0.1
Ammonia	-	-	0.048 A
Unionized Ammonia	-	-	< 0.02 c
Nitrate+Nitrite	-	-	0.061
Total Kjeldahl Nitrogen	-	-	0.07
Organic Nitrogen	-	-	0.65 c
Total Nitrogen	-	-	0.76 c
General Physical and Chemical Parameters			
Dissolved Oxygen (mg/L)	≥ 4	-	7.6
pH (S.U.)	6.5-8.5	-	7.7
Conductivity (umhos/cm)	-	-	41,700
Temperature (C)	-	Report	24.5
Flow (MGD)	-	Report	887
Total residual chlorine (biasassay)(mg/L)	≤ 0.01	-	≤ 0.03
Hardness (mg/L)	-	-	5019.3 c
AGP (mg dry weight/L) d	-	-	4.73

Value exceeds the Class II Water Quality Criteria

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

I - Value reported is < the minimum quantitation limit, and ≥ the minimum detection limit

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

c - Value is calculated.

d - Test species *Dunaliella tertiolecta* .

FDEP Biology Section - Acute Screening Bioassay Bench Sheets

Facility: JEA Northside

Address: 4377 Heckscher Drive

City: Jacksonville County: Duval

Contact/District: Melissa Long /NE

NPDES Permit #: FL 0001031

LIMS Job #: TLH-2004-03-23-18 LIMS Sample #: 743103

Sample Collection: Date: 3-22-04 Time: 12:00

Lims Data Entry: 4/2/04 MF Data Entry Verification: 4/2/04 CAP

Instructions (for below): Circle appropriate wording. If yes is circled complete blanks.

Comments:

Test Type: Screening

(Static) Static Renewal / Flow-through

Test Duration: (48) 96 Hours.

Light Intensity : 50 - 100 ft. candles.

Photoperiod : 16 hours light 8 hours dark.

Initial sample handling:

Test 1 validation:

Control survival ≥90% (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2 validation:

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

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

Temperature Range °C

Incubator # 3 Range 24.0-25.0°C

Room B246: 22.5-25.0°C

Waterbath: N/A

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No

Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures

Christa Cimini

Sarah Pinkard

James Daniel

Marshall Faircloth

Julie Eggy

REVIEWER

V.2 2/26/04

Water Quality Parameters	20% DMW	Well Water	Salt Water ASW (NSW) Test 1	Salt Water ASW (NSW) Test 2	Moderately Hard Water	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A	N/A	—	Not measured	—	CAP
Lab Total Residual Cl2 (mg/L):			<0.03	<0.03		<0.03	HACH	SP	CAP
Alkalinity (mg/L as $CaCO_3$):			160	160		117	HACH	JD	CAP
Hardness (mg/L as $CaCO_3$):			—	—		n/a	HACH	JD	CAP
Total Ammonia (mg/L as N):			<0.068	<0.068		<0.051	DENVER	MF	CAP
Salinity (ppt):			~26	~26		25.7	YSI	CAP	MF

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 743103 Test #: 1

Test Started: Date 3/23/04 Time: 2:45

Organism: A bahia

Test Ended: Date 3/25/04 Time: 2:30

Organism Batch: 77 Diluent/ Batch: NSW1 N/A

Organism Age: 5 days Food: YCT P. subcapitata Artemia

Chamber Size 1000 mL Batch: 0194025G

Test Volume 500 mL

CAP Feeding: Prior to test - Prior to renewal - Daily

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	C9	5	5	5			
	B	C10	5	5	5			
	C	C11	5	5	5			
	D	C12	5	5	5			
100%	A	C13	5	5	5			
	B	C14	5	5	5			
	C	C15	5	5	5			
	D	C16	5	5	5			

Organisms loaded by: JD

Loading Verified by: CAP

Checked by: (initials) JD JD CAP

m = missing d = dead BR = before renewal AR = after renewal

Comments: A bahia fed prior to test and daily

Test Results:

% mortality in 100% sample ∅

LC_{50}: >100% If Calculated: 95% CI ____ Method: ____

Screening Tests: Report LC50 as >100%, =100%, or <100%.

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

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 743103 **Test #:** 2 **Test Started: Date** 3/22/04 **Time:** 2:30
Organism: M. beryllina **Test Ended: Date** 3/25/04 **Time:** 2:15
Organism Batch: 10 **Diluent/ Batch:** NSW, N/A
Organism Age: 11 days **Food:** YCT P. subcapitata Artemia
Chamber Size 1000 **mL** **Batch:** ___ ___ 0194025G
Test Volume 500 **mL** **Feeding:** Prior to test - Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	D1	5	5	5			
	B	D2	5	5	5			
	C	D3	5	5	5			
	D	D4	5	5	5			
100%	A	D5	5	5	5			
	B	D6	5	5	5			
	C	D7	5	5	5			
	D	D8	5	5	5			
Organisms loaded by: JD Loading Verified by: CHP		Checked by: (initials)	JD	JD	JD			

Comments:

m = missing d = dead BR = before renewal AR = after renewal

Test Results:

% mortality in 100% sample Ø

LC_{50}: >100% If Calculated: 95% CI ______ Method: ______

Screening Tests: Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

Bioassay Parameters

LIMS Sample # : 743103 **Test # :** 1 of 2

TEST SOP: TA07_ 03 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.1	8.0	7.8			
Temperature °C	24.0	24.0	25.6			
Dissolved Oxygen mg/L	6.9	7.4	6.9 3.9.8			
Conductivity µmhos ~~mmhos~~	37.0	39.5	CAP 39.8			
(initials) Measured by:	CAP	MF	CAP			
(initials) Recorded by:	CAP	JD	CAP			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.9	7.9	7.7			
Temperature °C	24.5	24.0	25.5			
Dissolved Oxygen mg/L	6.9	7.4	6.8			
Conductivity µmhos mmhos	38.2	40.1	39.5			
(initials) Measured by:	CAP	MF	CAP			
(initials) Recorded by:	CAP	JD	CAP			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V.1 2/24/04

000028

Bioassay Parameters

LIMS Sample # : 743103 **Test # :** 2 **of** 2

TEST SOP: TA-07- 04 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas*
Americamysis bahia *Menidia beryllina* Other:

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.0	8.0	7.9			
Temperature °C	24.0	24.0	24.3			
Dissolved Oxygen mg/L	6.8	7.4	6.6			
Conductivity µmhos / mmhos	37.2	38.6	38.5			
(initials) Measured by:	CAP	MF	CAP			
(initials) Recorded by:	CAP	JD	CAP			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.9	8.0	7.9			
Temperature °C	24.5	24.0	24.0			
Dissolved Oxygen mg/L	6.7	7.4	6.7			
Conductivity µmhos / mmhos	38.0	39.1	38.9			
(initials) Measured by:	CAP	MF	CAP			
(initials) Recorded by:	CAP	JD	CAP			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos / mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos / mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

[redacted]

Appendix 2. Chemical Analyses performed on the effluent from the JEA -Northside sampled on March 22, 2004.

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:00	D001	Bio-AGP/LimNut	Algal Growth Potential	4.73	mg DryWt/L		0.1	0.3
3/22/2004 12:00	D001	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/22/2004 12:00	D001	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/22/2004 12:00	D001	Bio-Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	LC50	L		
3/22/2004 12:00	D001	Bio-Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	LC50	L		
3/22/2004 12:00	D001	BNA-Water	1,2,4-Trichlorobenzene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	1,2-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	1,3-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	1,4-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2,4,6-Trichlorophenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2,4-Dichlorophenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2,4-Dimethylphenol	47	ug/L	U	47	190
3/22/2004 12:00	D001	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
3/22/2004 12:00	D001	BNA-Water	2,4-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2,6-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2-Chloronaphthalene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2-Chlorophenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	2-Methyl-4,6-dinitrophenol	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	2-Nitrophenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
3/22/2004 12:00	D001	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	4-Bromophenyl phenyl ether	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	4-Chloro-3-methylphenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.5
3/22/2004 12:00	D001	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
3/22/2004 12:00	D001	BNA-Water	Acenaphthene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Acenaphthylene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Anthracene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Benzidine	94	ug/L	U	94	380
3/22/2004 12:00	D001	BNA-Water	Benzo(a)anthracene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Benzo(a)pyrene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Benzo(b)fluoranthene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Benzo(g,h,i)perylene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Benzo(k)fluoranthene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Bis(2-chloroethoxy)methane	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Bis(2-chloroethyl)ether	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Bis(2-chloroisopropyl)ether	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
3/22/2004 12:00	D001	BNA-Water	Butyl benzyl phthalate	4.7	ug/L	U	4.7	19
3/22/2004 12:00	D001	BNA-Water	Chrysene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Di-n-butyl phthalate	4.7	ug/L	U	4.7	19
3/22/2004 12:00	D001	BNA-Water	Di-n-octyl phthalate	0.94	ug/L	U	0.94	3.8

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:00	D001	BNA-Water	Dibenzo(a,h)anthracene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Diethyl phthalate	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Dimethyl phthalate	47	ug/L	U	47	190
3/22/2004 12:00	D001	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
3/22/2004 12:00	D001	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
3/22/2004 12:00	D001	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Endrin aldehyde	3.8	ug/L	UJ	3.8	15
3/22/2004 12:00	D001	BNA-Water	Fluoranthene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Fluorene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Heptachlor epoxide	1.4	ug/L	UJ	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	Hexachlorobenzene	0.94	ug/L	UJ	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Hexachlorobutadiene	2.8	ug/L	UJ	2.8	11
3/22/2004 12:00	D001	BNA-Water	Hexachlorocyclopentadiene	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	Hexachloroethane	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	Indeno(1,2,3-cd)pyrene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Isophorone	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.5
3/22/2004 12:00	D001	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.5
3/22/2004 12:00	D001	BNA-Water	N-Nitrosodiphenylamine	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	Naphthalene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.5
3/22/2004 12:00	D001	BNA-Water	Pentachlorophenol	2.8	ug/L	U	2.8	11
3/22/2004 12:00	D001	BNA-Water	Phenanthrene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Phenol	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	Pyrene	0.94	ug/L	U	0.94	3.8
3/22/2004 12:00	D001	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
3/22/2004 12:00	D001	GC-Water	Alachlor	0.57	ug/L	UJ	0.57	2.28
3/22/2004 12:00	D001	GC-Water	Ametryn	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Atrazine	0.047	ug/L	UJ	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Azinphos Methyl	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
3/22/2004 12:00	D001	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
3/22/2004 12:00	D001	GC-Water	Chlorpyrifos Ethyl	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Chlorpyrifos Methyl	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Diazinon	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Ethion	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Ethoprop	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
3/22/2004 12:00	D001	GC-Water	Fonofos	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Hexazinone	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
3/22/2004 12:00	D001	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:00	D001	GC-Water	Metolachlor	0.47	ug/L	UJ	0.47	1.88
3/22/2004 12:00	D001	GC-Water	Metribuzin	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Mevinphos	0.19	ug/L	UJ	0.19	0.76
3/22/2004 12:00	D001	GC-Water	Naled	0.75	ug/L	UJ	0.75	3
3/22/2004 12:00	D001	GC-Water	Norflurazon	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
3/22/2004 12:00	D001	GC-Water	Parathion Methyl	0.094	ug/L	U	0.094	0.376
3/22/2004 12:00	D001	GC-Water	Phorate	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	GC-Water	Prometryn	0.14	ug/L	UJ	0.14	0.56
3/22/2004 12:00	D001	GC-Water	Simazine	0.047	ug/L	U	0.047	0.188
3/22/2004 12:00	D001	Metals-Water	Aluminum	822	ug/L		14	56
3/22/2004 12:00	D001	Metals-Water	Arsenic	18	ug/L	U	18	72
3/22/2004 12:00	D001	Metals-Water	Cadmium	0.12	ug/L	U	0.12	0.5
3/22/2004 12:00	D001	Metals-Water	Calcium	295	mg/L		0.1	0.4
3/22/2004 12:00	D001	Metals-Water	Chromium	21	ug/L	U	21	84
3/22/2004 12:00	D001	Metals-Water	Copper	0.89	ug/L		0.2	0.8
3/22/2004 12:00	D001	Metals-Water	Iron	696	ug/L		20	80
3/22/2004 12:00	D001	Metals-Water	Lead	0.71	ug/L	I	0.25	1
3/22/2004 12:00	D001	Metals-Water	Magnesium	1.04E+03	mg/L		0.8	3.2
3/22/2004 12:00	D001	Metals-Water	Nickel	1	ug/L	U	1	4
3/22/2004 12:00	D001	Metals-Water	Selenium	16	ug/L	U	16	64
3/22/2004 12:00	D001	Metals-Water	Silver	0.1	ug/L	U	0.1	0.4
3/22/2004 12:00	D001	Metals-Water	Zinc	10	ug/L	U	10	40
3/22/2004 12:00	D001	Nutrients-Liquid	Ammonia-N	0.048	mg N/L	A	0.01	0.02
3/22/2004 12:00	D001	Nutrients-Liquid	NO2NO3-N	0.061	mg N/L		0.004	0.01
3/22/2004 12:00	D001	Nutrients-Liquid	N_KJEL_TOT	0.7	mg N/L		0.12	0.4
3/22/2004 12:00	D001	Nutrients-Liquid	O-Phosphate-P	0.064	mg P/L		0.004	0.01
3/22/2004 12:00	D001	Nutrients-Liquid	Total-P	0.1	mg P/L		0.02	0.06
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	U	39	160
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9

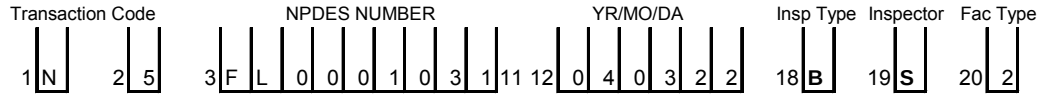
DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzidine	97	ug/L	U	97	390
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Endrin	1.5	ug/L	UJ	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Endrin aldehyde	3.9	ug/L	UJ	3.9	16
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Heptachlor epoxide	1.5	ug/L	UJ	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Hexachlorobenzene	0.97	ug/L	UJ	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Hexachlorobutadiene	2.9	ug/L	UJ	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9

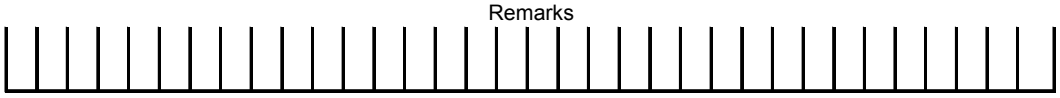
DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Alachlor	0.58	ug/L	UJ	0.58	2.32
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Atrazine	0.048	ug/L	UJ	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Ethion	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Metolachlor	0.48	ug/L	UJ	0.48	1.92
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Mevinphos	0.19	ug/L	UJ	0.19	0.76
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Naled	0.77	ug/L	UJ	0.77	3.08
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Prometryn	0.14	ug/L	UJ	0.14	0.56
3/22/2004 12:27	JEA NORTHSIDE	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Aluminum	7	ug/L	U	7	28
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Arsenic	9	ug/L	U	9	36
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Calcium	0.26	mg/L		0.05	0.2
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Chromium	3	ug/L	U	3	12
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Copper	0.2	ug/L	U	0.2	0.8
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Iron	10	ug/L	U	10	40
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Lead	0.05	ug/L	U	0.05	0.2
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Magnesium	0.14	mg/L		0.02	0.08
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Nickel	1	ug/L	U	1	4
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Selenium	1	ug/L	U	1	4
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/22/2004 12:27	JEA NORTHSIDE	Metals-Water	Zinc	5.6	ug/L	I	5	20
3/22/2004 12:27	JEA NORTHSIDE	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
3/22/2004 12:27	JEA NORTHSIDE	Nutrients-Liquid	NO2NO3-N	0.036	mg N/L	J	0.004	0.01
3/22/2004 12:27	JEA NORTHSIDE	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/22/2004 12:27	JEA NORTHSIDE	Nutrients-Liquid	O-Phosphate-P	0.009	mg P/L	I	0.004	0.01
3/22/2004 12:27	JEA NORTHSIDE	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06

The Bioassay of the J.E.A. - Northside effluent sampled on 22 March 2004, NPDES #FL0001031.

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





The Priority Pollutants Analysis for Bioassay of the J.E.A. - Northside effluent sampled on 22 March 2004, NPDES #FL0001031.

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