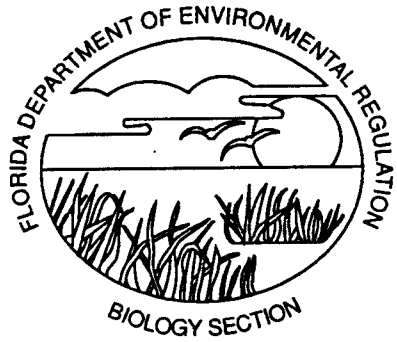


Bioassays of the City of

Atlantic Beach Wastewater Treatment Plant

Atlantic Beach, Duval County, Florida

NPDES #FL0038776

Sampled 2/26/90

March 15, 1990

Biology Section
Division of Administrative and Technical Services

Bioassays of the City of

Atlantic Beach Wastewater Treatment Plant

Atlantic Beach, Duval County, Florida

NPDES #FL0038776

Biology Section
Bureau of Laboratories
March 15, 1990

Introduction

City of Atlantic Beach WWTP, Atlantic Beach, Duval County, Florida, NPDES #FL0038776, on 27 February to 1 March, 1990.

This facility is located at 1100 Sandpiper Lane and has a design flow of 2.0 MGD with an estimated average flow of 1.42 MGD. The recovered water is discharged to the St. Johns River.

Toxicity bioassays using the bioassay test organisms, the waterflea, *Ceriodaphnia dubia*, and the fish, *Notropis leedsi*, were performed on a sample of discharge from this facility. Addition testing was performed on the sample using the Microtox® assay test organism, *Photobacterium phosphoreum*.

The toxicity tests discussed in this report were performed in accordance with methods described by Peltier and Weber, 1985, *Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms*, 3rd Edition, and by the FDER Biology Section, 1985, *Quality Assurance Manual for Performing Acute Toxicity Tests*, 2nd Edition. The Microtox® assay was performed in accordance to methods described by the Microbics Corporation, Carlsbad, California, in the *Microbics Systems Operating Manual*, 1982.

Results and Discussion

The chlorinated sample from this facility was toxic to the test organism, *C. dubia*, producing an LC_{50} of < 100%. The sample adversely affected the Microtox® assay organism, *P. phosphoreum*, producing an EC_{50} of 49.4%. The chlorinated sample was not toxic to the fish, *N. leedsi*.

Bioassay tests were also performed on a portion of the sample that was dechlorinated using the sodium thiosulfate method. Tests using the dechlorinated sample indicated that it was not toxic to the test organisms, *C. dubia* or *N. leedsi*. The dechlorinated sample was stimulatory to the Microtox® assay organism, *P. phosphoreum*.

The total residual chlorine in the sample was 0.3 mg/l (Hach). The concentrations of total and unionized ammonia were 6.47 mg/l and 0.32 mg/l, respectively. No further chemical analyses were performed.

The cause of toxicity in the sample from this facility was attributed to the total residual chlorine concentration in the sample.

Conclusion

The sample of recovered water from the City of Atlantic Beach WWTP was toxic on 26 February, 1990. The toxicity was attributed to the total residual chlorine concentration.

Table 1. Concentration Series and Volumes Used for These Static Bioassays.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	15.0 ml	0.0 ml	15 ml
10.0%	13.5 ml	1.5 ml	15 ml
30.0%	10.5 ml	4.5 ml	15 ml
50.0%	7.5 ml	7.5 ml	15 ml
70.0%	4.5 ml	10.5 ml	15 ml
85.0%	2.25 ml	12.75 ml	15 ml
100.0%	0.0 ml	15.0 ml	15 ml

Notropis leedsi (bannerfin shiner)

Concentration	Dilution Water	Sample	Total Volume
Control	500 ml	0 ml	500 ml
10.0%	450 ml	50 ml	500 ml
30.0%	350 ml	150 ml	500 ml
50.0%	250 ml	250 ml	500 ml
70.0%	150 ml	350 ml	500 ml
85.0%	75 ml	425 ml	500 ml
100.0%	0 ml	500 ml	500 ml

Table 2. Data recorded during the static screening bioassays of a sample of discharge from the City of Atlantic Beach WWTP, NPDES #FL0038776, Atlantic Beach, Duval County, Florida, on 27 February to 1 March, 1990.

Facility: **City of Atlantic Beach WWTP** | NPDES # **FL0038776** | Facility Type: **Sewage Treatment**
Location: 1100 Sandpiper Ln., Atlantic Beach | Contact/District: K. Gerard
County: Duval | Test type: Static Screen
Sample Collection Date: **2/26/90** Time: 1204 | # tests: 4 | Receiving Water: St. Johns River
Test Beginning Date: 2/27/90 Time: 1130 | Chlorination Type: **chlorinated**
Test Ending Date: 3/1/90 Time: 1130

Total Residual Cl2	mg/l	Method
Field:	0.2	Hach
Lab:	0.3	Hach
Lab:	0.4	Iodometric

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.16	0.01
Cond. Control Water (daphnids):	0.46	0.04
100% Sample:	6.47	0.32

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	115	120
Cond. Control Water (daphnids):	70	110
100% Sample:	130	260

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

Organism: ***Ceriodaphnia dubia*** Life stage: neonate
LC50: <100%

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	24 hour
Control	5	5	-	8.9	8.6	-	8.3	8.3	-	21.0	20.3	-	-	-
Control	5	5	-	8.9	8.6	-	8.3	8.3	-	-	-	-	-	-
Control	5	5	-	9.0	8.6	-	8.3	8.3	-	-	-	-	-	-
Control	5	5	-	8.9	8.6	-	8.3	8.2	-	-	-	-	325	320
100%	5	0	-	9.0	8.7	-	7.8	8.5	-	21.1	20.3	-	-	-
100%	5	0	-	9.0	8.7	-	7.8	8.5	-	-	-	-	-	-
100%	5	0	-	9.0	8.7	-	7.8	8.5	-	-	-	-	-	-
100%	5	0	-	9.0	8.7	-	7.8	8.5	-	-	-	-	860	925

Organism: ***Notropis leedsi*** Age: 17 days
LC50: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	9.0	8.3	7.8	7.9	8.3	7.8	20.8	19.7	19.7	-	-
Control	5	5	5	9.0	8.3	7.8	7.9	8.3	7.8	-	-	-	230	230
100%	5	5	5	10.2	8.4	8.0	7.5	8.4	8.0	21.4	19.8	19.7	-	-
100%	5	5	5	10.2	8.4	8.0	7.5	8.4	8.0	-	-	-	915	885

Table 3. Data recorded during the static definitive bioassays of a sample of discharge from the City of Atlantic Beach WWTP, NPDES #FL0038776, Atlantic Beach, Duval County, Florida, on 27 February to 1 March, 1990.

Facility: **City of Atlantic Beach WWTP** NPDES # **FL0038776** Facility Type: **Sewage Treatment**
Location: 1100 Sandpiper Ln., Atlantic Beach Contact/District: K. Gerard
County: Duval Test type: static definitive
Sample Collection Date: **2/26/90** Time: 1204 # tests: 4 Receiving Water: St. Johns River
Test Beginning Date: 2/27/90 Time: 1130 Chlorination Type: **dechlorinated**
Test Ending Date: 3/1/90 Time: 1130 dechlor method: lab, sodium thiosulfate **Page 1 of 2**

Organism: ***Ceriodaphnia dubia*** Life stage: neonate
LC50: - Binomial: - Moving Average: - Probit: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	9.1	-	8.4	8.2	-	8.3	21.2	-	20.8	-	-
Control	5	5	5	9.1	-	8.4	8.2	-	8.3	-	-	-	-	-
Control	5	5	4	9.1	-	8.4	8.2	-	8.3	-	-	-	-	-
Control	5	5	5	9.1	-	8.4	8.2	-	8.3	-	-	-	325	365
10%	5	5	5	9.0	-	8.5	8.2	-	8.3	21.0	-	20.2	-	-
10%	5	5	5	9.0	-	8.5	8.2	-	8.3	-	-	-	-	-
10%	5	5	5	9.0	-	8.5	8.2	-	8.3	-	-	-	-	-
10%	5	5	5	9.0	-	8.5	8.2	-	8.3	-	-	-	385	395
30%	5	5	5	8.9	-	8.5	8.2	-	8.4	21.0	-	20.0	-	-
30%	5	5	5	9.0	-	8.5	8.2	-	8.4	-	-	-	-	-
30%	5	5	5	9.0	-	8.5	8.2	-	8.4	-	-	-	-	-
30%	5	5	5	9.0	-	8.5	8.2	-	8.4	-	-	-	480	540
50%	5	5	5	8.9	-	8.4	8.2	-	8.4	20.8	-	20.2	-	-
50%	5	5	5	8.9	-	8.4	8.2	-	8.4	-	-	-	-	-
50%	5	5	5	8.9	-	8.4	8.2	-	8.4	-	-	-	-	-
50%	5	5	5	8.9	-	8.4	8.2	-	8.4	-	-	-	595	625
70%	5	5	5	8.9	-	8.4	8.1	-	8.4	20.8	-	20.0	-	-
70%	5	5	5	9.0	-	8.4	8.1	-	8.4	-	-	-	-	-
70%	5	5	5	9.0	-	8.4	8.1	-	8.4	-	-	-	-	-
70%	5	5	5	9.0	-	8.4	8.1	-	8.4	-	-	-	700	740
85%	5	5	5	8.8	-	8.4	8.1	-	8.4	21.0	-	20.1	-	-
85%	5	5	5	8.9	-	8.4	8.1	-	8.4	-	-	-	-	-
85%	5	5	5	8.9	-	8.4	8.1	-	8.4	-	-	-	-	-
85%	5	5	5	8.8	-	8.4	8.1	-	8.4	-	-	-	790	840
100%	5	5	5	8.9	-	8.4	8.0	-	8.4	21.1	-	20.1	-	-
100%	5	5	5	8.9	-	8.4	8.0	-	8.4	-	-	-	-	-
100%	5	5	2	8.9	-	8.4	8.0	-	8.4	-	-	-	-	-
100%	5	5	5	8.9	-	8.4	8.0	-	8.4	-	-	-	870	915

Total Residual Cl2	mg/l	Method
Field:	0.2	Hach
Lab:	0.3	Hach
Lab:	0.4	Iodometric

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.16	0.01
Cond. Control Water (daphnids):	0.46	0.04
100% Sample:	6.47	0.32

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	115	120
Cond. Control Water (daphnids):	70	110
100% Sample:	130	260

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

Table 3. Continued.

Facility: **City of Atlantic Beach WWTP** NPDES # **FL0038776** Facility Type: **Sewage Treatment**
Location: 1100 Sandpiper Ln., Atlantic Beach Contact/District: K. Gerard
County: Duval Test type: static definitive
Sample Collection Date: **2/26/90** Time: 1204 # tests: 4 Receiving Water: St. Johns River
Test Beginning Date: 2/27/90 Time: 1130 Chlorination Type: **dechlorinated**
Test Ending Date: 3/1/90 Time: 1130 dechlor method: lab, sodium thiosulfate **Page 2 of 2**

Organism: ***Notropis leedsi*** Age: 17 days
LC50: - Binomial: - Moving Average: - Probit: -

Concentrations	SURVIVAL # at 0 hr	Live at 24 hr	Live at 48 hr	Dissolved Oxygen 0 hour	24 hour	48 hour	pH 0 hour	24 hour	48 hour	Temperature 0 hour	24 hour	48 hour	Conductivity 0 hour	48 hour
Control	5	5	5	8.6	8.5	7.7	7.9	8.2	8.2	20.8	19.7	19.8	-	-
Control	5	5	5	8.7	8.5	7.7	7.9	8.2	8.2	-	-	-	230	230
10%	5	5	5	8.8	8.3	7.8	7.8	8.2	8.2	20.8	19.7	9.8	-	-
10%	5	5	5	8.8	8.3	7.8	7.8	8.2	8.2	-	-	-	300	295
30%	5	5	5	8.9	8.3	7.9	7.8	8.2	8.2	20.8	19.7	19.9	-	-
30%	5	5	5	8.9	8.3	7.8	7.8	8.1	8.2	-	-	-	440	430
50%	5	5	5	8.9	8.3	7.9	7.7	8.1	8.2	20.9	20.5	19.9	-	-
50%	5	5	5	9.0	8.1	7.8	7.7	8.1	8.2	-	-	-	575	570
70%	5	5	5	9.1	8.2	7.8	7.6	8.1	8.2	21.0	19.4	20.0	-	-
70%	5	5	5	9.1	8.0	7.7	7.6	8.0	8.1	-	-	-	710	705
85%	5	5	5	9.1	8.3	7.7	7.6	8.1	8.2	21.2	19.3	19.9	-	-
85%	5	5	5	9.1	8.2	7.7	7.6	8.0	8.1	-	-	-	815	800
100%	5	5	5	9.1	8.3	7.7	7.5	8.1	8.2	21.3	19.6	19.8	-	-
100%	5	5	5	9.2	8.2	7.7	7.5	8.1	8.2	-	-	-	915	915

Total Residual Cl2	mg/l	Method
Field:	0.2	Hach
Lab:	0.3	Hach
Lab:	0.4	Iodometric

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.16	0.01
Cond. Control Water (daphnids):	0.46	0.04
100% Sample:	6.47	0.32

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	115	120
Cond. Control Water (daphnids):	70	110
100% Sample:	130	260

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

Table 4. Microtox test results, Atlantic Beach WWTP, Duval County, NPDES #FL0038776, on 27 February to 1 March, 1990.

% Sample	Final Reclaimed Water			
	Chlorinated		Dechlorinated	
	5-min	15-min	5-min	15-min
0	26	15	31	17
0	24	15	26	15
0	22	14	27	14
12.38	23	15	27	17
12.38	23	14	27	16
12.38	25	14	30	17
24.75	18	11	27	17
24.75	17	12	26	16
24.75	19	13	26	17
49.5	12	09	31	20
49.5	09	06	30	18
49.5	09	06	31	19
99	04	03	28	16
99	06	02	27	16
99	03	02	26	16

EC_{50} Chlorinated (15 minute, 15 °C) = 49.40% sample
EC_{50} Dechlorinated (15 minute, 15 °C) = stimulatory

EC_{50} (15 minute, 15 °C) is calculated using the Data Reduction Computer Program developed by Microbics Corporation for the Sharp Model EL-5100 calculator (*Microbics Systems Operating Manual,* 1982, Microbics Corporation, Carlsbad, CA).

Table 5. LC_{50} Data for Bioassay of Atlantic Beach WWTP, NPDES# Fl0038776, on 27 February to 1 March, 1990.

Organism	Method of Data Analysis	48 Hour LC_{50} (95% Confidence Intervals)
Chlorinated discharge		
Ceriodaphnia dubia	noncalculated	<100% [a]

a The LC_{50} is < 100% since all the organisms died in the lowest test concentration (100%).

DER Biology Section — Acute-bioassay Bench Sheet

Sample Source: Atlantic Beach WWTP
Address/City: 1100 Sandpiper DR/LANE, Atlantic Bch.
County: DUVAL
Contact/District: KATHLEEN GERARD / NE
NPDES Permit #: FL0023248 Outfall #: EO1

Sample Collection: Date 2/26/90 Time 1245
Test Beginning: Date 2/27/90 Time 1130
Test Ending: Date 3/1/90 Time 1130
Test Organism: Ceriodaphnia dubia
Life Stage/Age: ~~1st~~ < 24 hrs

Test Number: 1 of 4 Test Type: Screening (Definitive)
(Static) Static Renewal | Flow-through

Remarks: deCl2
* 3 dead tagged in floc/algae

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7.1, 7.9	8.8@22	1340@25°C, 1313	21.1@21.3
24 hr	7.1, 7.9	8.7@23°C	1377@23°C, 1372	21.9@22.1
48 hr	7.1, 7.9	8.7@23°C	1375@23°C, 1315	22.5@22.8

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
CONTROL		5	5	5	9.1	8.4	8.3	8.2		8.3	21.2		20.8			
"		5	5	5	9.1	8.4	8.3	8.2		8.3						
"		5	5	4	9.1	8.4	8.3	8.2		8.3						
"		5	5	5	9.1	8.4	8.3	8.2		8.3				325		365
10%		5	5	5	9.0	8.5	8.3	8.2		8.3	21.0		20.2			
"		5	5	5	9.0	8.5	8.3	8.2		8.3						
"		5	5	5	9.0	8.5	8.3	8.2		8.3						
"		5	5	5	9.0	8.5	8.3	8.2		8.3				385		395
30%		5	5	5	8.9	8.5	8.4	8.2		8.4	21.0		20.0			
"		5	5	5	9.0	8.5	8.4	8.2		8.4						
"		5	5	5	9.0	8.5	8.4	8.2		8.4						
"		5	5	5	9.0	8.5	8.4	8.2		8.4				480		540
50%		5	5	5	8.9	8.4	8.4	8.2		8.4	20.8		20.2			
"		5	5	5	8.9	8.4	8.4	8.2		8.4						
"		5	5	5	8.9	8.4	8.4	8.2		8.4						
"		5	5	5	8.9	8.4	8.4	8.2		8.4				595		625
70%		5	5	5	8.9	8.4	8.4	8.1		8.4	20.8		20.0			
"		5	5	5	9.0	8.4	8.4	8.1		8.4						
"		5	5	5	9.0	8.4	8.4	8.1		8.4						
"		5	5	5	9.0	8.4	8.4	8.1		8.4				700		740
85%		5	5	5	8.8	8.4	8.4	8.1		8.4	21.0		20.1			
"		5	5	5	8.9	8.4	8.4	8.1		8.4						
"		5	5	5	8.9	8.4	8.4	8.1		8.4						
"		5	5	5	8.8	8.4	8.4	8.1		8.4				790		840
100%		5	5	5	8.9	8.4	8.4	8.0		8.4	21.1		20.1			
"		5	5	5	8.9	8.4	8.4	8.0		8.4						
"		5	5	2*	8.4	8.4	8.4	8.0		8.4						
"		5	5	5	8.9	8.4	8.4	8.0		8.4				870		915
Measured by:		SW	MF	MF	MF	MF	MF	MF		MF	MF		MF	MF		MF
Recorded by:		MF	MF	MF	SW	MC	MC	MF		MC	SW		MC	SW		MC

Slope

Investigators' Signatures
Steven H Wolfe
Marshall Faircloth
Melissa Conyers
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:	—	—	0.2		KG
Lab Tot. Resid. Cl2:			0.3/0.4	Hach/TODC	MF
Alkalinity:	115	70	130		
Hardness:	120	110	260		
Total Ammonia:	0.16	0.46	6.47	specific ion probe	SHW

slope = -59.9

DER Biology Section — Acute-bioassay Bench Sheet

Sample Source: Atlantic Beach WWTP
Address/City:
County:
Contact/District:
NPDES Permit #: _____ **Outfall #:** _____

Sample Collection: Date 2/26/90 Time 1245
Test Beginning: Date 2/27/90 Time 1125
Test Ending: Date 3/1/90 Time 11:30
Test Organism: Notropis leedsi
Life Stage/Age: 17 days

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

Remarks: dechlor

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

		Number Live			DO (mg/l)			pH			Temp. (°C)			Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
CONTROL	4	5	5	5	8.6	8.5	7.7	7.9	8.2	8.2	20.8	19.7	19.8			
"	287	5	5	5	8.7	8.5	7.7	7.9	8.2	8.2				230		230
10%	190	5	5	5	8.8	8.3	7.8	7.8	8.2	8.2	20.8	19.7	19.8			
"	39	5	5	5	8.8	8.3	7.8	7.8	8.2	8.2				300		295
30%	3	5	5	5	8.9	8.3	7.9	7.8	8.2	8.2	20.8	19.7	19.9			
"	119	5	5	5	8.9	8.3	7.8	7.8	8.1	8.2				440		430
50%	50	5	5	5	8.9	8.3	7.9	7.7	8.1	8.2	20.9	20.5	19.9			
"	63	5	5	5	9.0	8.1	7.8	7.7	8.1	8.2				575		570
70%	76	5	5	5	9.1	8.2	7.8	7.6	8.1	8.2	21.0	19.4	20.0			
"	13	5	5	5	9.1	8.0	7.7	7.6	8.0	8.1				710		705
85%	174	5	5	5	9.1	8.3	7.7	7.6	8.1	8.2	21.2	19.3	19.9			
"	19	5	5	5	9.1	8.2	7.7	7.6	8.0	8.1				815		800
100%	87	5	5	5	9.1	8.3	7.7	7.5	8.1	8.2	21.3	19.6	19.8			
"	41	5	5	5	9.2	8.2	7.7	7.5	8.1	8.2				915		915
Measured by:		MF	MF		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF		MF
Recorded by:		MF	MF		SW	MF	MC	SW	MF	MC	SW	MF	MC	SW		MC

Investigators' Signatures

Steven L Wolfe
Marshall Faircloth
Melissa Campos

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:					
Alkalinity:					
Hardness:					
Total Ammonia:					

DER Biology Section — Acute-bioassay Bench Sheet

Sample Source: Atlantic Beach WWTP
Address/City:
County:
Contact/District:
NPDES Permit #: **Outfall #:**

Sample Collection: Date 2/26/90 Time 1245
Test Beginning: Date 2/27/90 Time 1130
Test Ending: Date ~~3/1/90~~ Time 2/28 1130
Test Organism: Ceriodaphnia dubia
Life Stage/Age: < 24 hrs

Test Number: 3 of 4 **Test Type:** (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Remarks: Chlor
T3,7 to ~~mortality~~ Termination at 24 hours

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

		Number Live			DO (mg/l)			pH			Temp. (°C)			Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
CONTROL		5	5		8.9	8.6		8.3	8.3		21.0	20.3				
"		5	5		8.9	8.6		8.3	8.3							
"		5	5		9.0	8.6		8.3	8.3							
"		5	5		8.9	8.6		8.3	8.2					325	320	
100%		5	0		9.0	8.7		7.8	8.5		21.1	20.3				
"		5	0		9.0	8.7		7.8	8.5							
"		5	0		9.0	8.7		7.8	8.5							
"		5	0		9.0	8.7		7.8	8.5					860	925	
Measured by:		SW	MF		MF	MF		MF	MF		MF	MF		MF	MF	
Recorded by:		MF	MF		SW	MF		SW	MF		SW	MF		SW	MF	

Investigators' Signatures

Steven H Wolfe

Marshall Faircloth

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:					
Alkalinity:					
Hardness:					
Total Ammonia:					

DER Biology Section — Acute-bioassay Bench Sheet

Sample Source: Atlantic Beach WWTP
Address/City:
County:
Contact/District:
NPDES Permit #: ______ **Outfall #:** ______

Sample Collection: Date 2/26/90 Time 1245
Test Beginning: Date 2/27/90 Time 1130
Test Ending: Date 3/1/90 Time 11:30
Test Organism: Notropis leedsi
Life Stage/Age: 17 days

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

Remarks: Cl2

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

		Number Live			DO (mg/l)			pH			Temp. (°C)			Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	38	5	5	5	9.0	8.3	7.8	7.9	8.3	8.3	20.8	19.7	19.7			
"	12	5	5	5	9.0	8.3	7.8	7.9	8.3	8.3				230		230
100%	118	5	5	5	10.2	8.4	8.0	7.5	8.0	8.2	21.4	19.8	19.7			
"	183	5	5	5	10.2	8.4	8.0	7.5	8.0	8.2				915		885
Measured by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF		MF
Recorded by:		MF	MF	MF	SW	MF	MC	SW	MF	MC	SW	MF	MC	SW		MC

Investigators' Signatures

Steven H Wolfe
[signature]
[signature]

[signature]
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl_2:					
Lab Tot. Resid. Cl_2:					
Alkalinity:					
Hardness:					
Total Ammonia:					

D3

Kathleen Brandt-requestor

MICROTOX™ Data Reduction Sheet

SOURCE: City of Atlantic Beach WWTP

GRAPH CALC EC 50 (15 MIN, 15 °C) = 49.40 %SAMPLE mg/L

SAMPLE DATA: Chlorinated

SAMPLE TYPE (EFFLUENT, LEACHATE, ETC.):

DATE ASSAYED: 2/27/90 TIME: 11:00

VISUAL COLOR: Clear CORRECTION REQUIRED: YES NO

VISUAL TURBIDITY: None SEPARATION REQUIRED: YES NO

INITIAL pH: pH ADJUSTED TO: WITH:

OSMOTICALLY ADJUSTED WITH: MOAS DRY NaCl OTHER

PRIMARY DILUTION OF SAMPLE:

OPERATOR: MB Campos REAGENT VIAL LOT NO. M-

REMARKS:

MICROTOX™ TEST

SAMPLE CUVETTE	% SAMPLE	READINGS 5 MIN	READINGS 15 MIN	Γ5	Γ15	NOTES
A1	0	26	15	X	X	
B1		24	15			
C1		22	14			
A2	12.38	23	15		.02	
B2		23	14			
C2		25	16			
A3	24.75	18	11		.22	
B3		17	12			
C3		19	13			
A4	49.5	12	09		1.10	
B4		09	06			
C4		09	06			
A5	99	04	03		5.29	
B5		04	02			
C5		03	02			
EC_{50} (MIN, °C)					49.40	

REVIEWED BY:

DATE: 3/14/90

Kathleen Sirrend request NE JAX

MICROTOX™ Data Reduction Sheet

SOURCE: City of Atlantic Beach WWTP

GRAPH CALC EC 50 (15 MIN, 15 °C) = Stimulatory %SAMPLE mg/L

SAMPLE DATA: Declorinated

SAMPLE TYPE (EFFLUENT, LEACHATE, ETC.):

DATE ASSAYED: 2/26/90 TIME: 10:50 AM

VISUAL COLOR: clear CORRECTION REQUIRED: YES NO

VISUAL TURBIDITY: SEPARATION REQUIRED: YES NO

INITIAL pH: pH ADJUSTED TO: WITH:

OSMOTICALLY ADJUSTED WITH: MOAS (DRY NaCl) OTHER

PRIMARY DILUTION OF SAMPLE:

OPERATOR: MS Campos REAGENT VIAL LOT NO. M-

REMARKS:

MICROTOX™ TEST

SAMPLE CUVETTE	% SAMPLE	READINGS 5 MIN	READINGS 15 MIN	Γ5	Γ15	NOTES
A1	0	31	17			
B1		26	15			
C1		27	16			
A2	12.38	27	17		-.08	
B2		27	16			
C2		30	17			
A3	24.75	27	17		-.08	
B3		24	16			
C3		24	17			
A4	49.5	31	20		-.19	
B4		30	18			
C4		31	19			
A5	99	28	16		-.04	
B5		27	16			
C5		26	16			
EC_{50} (MIN, °C)					Stimulatory	

REVIEWED BY:

DATE: 3/14/90