

Bioassays of

Everglades City Wastewater Treatment Plant

Everglades City, Collier County, Florida

NPDES #FL0027618

Sampled 11/17/92

December 1992

Biology Section
Division of Technical Services

Bioassays of

Everglades City Wastewater Treatment Plant

Everglades City, Collier County, Florida

NPDES #FL0027618

Biology Section
Bureau of Laboratories
December 1992

Introduction

Everglades City WWTP, Everglades City, Collier County, Florida, NPDES #FL0027618, tests performed on 18 to 20 November, 1992.

This facility is located on State Road 29 in Everglades City. The facility is permitted to operate a 0.10 mgd capacity contact stabilization process wastewater treatment facility with chlorine disinfection. Discharge of chlorinated effluent is to a polishing pond with overflow to Lake Placid Canal (NPDES files).

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 two 48-hour static acute toxicity bioassays on a sample of effluent from this facility. The salinity of the sample was 5.5 ppt. The bioassay organisms used for these tests were the mysid shrimp, *Mysidopsis bahia,* and the bannerfin shiner, *Notropis leedsi.*

The salinity of the sample for the mysid definitive test was adjusted to 10.5 ppt using an artificial sea salt mixture (Forty Fathoms®); the control water was adjusted to a similar salinity. For the *N. leedsi* screening test, the salinity of the sample remained unaltered (5.5 ppt) and the control water was adjusted to a similar salinity. The test results did not indicate toxicity since no mortality occurred in either test.

Total residual chlorine of the sample was < 0.06 mg/L in the laboratory. No total residual chlorine was detected in the field measurement. Total ammonia was not detected in the laboratory.

Conclusion

The sample of effluent collected from this facility on 17 November, 1992, did not show toxicity.

Table 1. Concentration series and volumes used for the 48-hour static acute screening bioassays of the Everglades City WWTP effluent performed on 18 to 20 November, 1992.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20 mL	0 mL	20 mL
100 %	0 mL	20 mL	20 mL

Notropis leedsi (bannerfin shiner)

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 Everglades City WWTP, Everglades City, Collier County, Florida, NPDES# FL0027618, performed on 18 to 20 November, 1992.

Facility:	**Everglades City WWTP**			NPDES #	**FL0027618**	Facility Type:	wastewater treatment plant
Location:	Everglades City			Contact/District:	Jim Grob / S		
County:	Collier			Test type:	static acute screen		
Sample Collection Date:	**11/17/92**	Time:	1030	# tests:	2	Receiving Water:	Lake Placid Canal
Test Beginning Date:	11/18/92	Time:	1400	Chlorination Type:	**Chlorinated**		
Test Ending Date:	11/20/92	Time:	1400			**Page 1 of 1**	

Total Residual Cl2	mg/l	Method
Field:	0.0	Hach
Lab:	< 0.06	DR-100

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

Organism: ***Mysidopsis bahia*** Age: 4 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	8.5	8.0	7.4	23.2	22.9	23.0	7.6	7.8	6.3	17,100	17,460
Control	5	5	5	8.5	8.0	7.4	-	-	-	7.6	7.8	6.3	17,100	17,590
100%	5	5	5	8.3	8.3	8.2	25.2	23.0	23.0	7.9	7.9	6.3	17,810	17,530
100%	5	5	5	8.3	8.3	8.2	-	-	-	7.9	7.8	6.2	17,810	17,490

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	40	-
20% Dilute Mineral Water (cladocerans):		-
100% Sample:	240	-

Salinity (ppt) M. bahia test	
Control Water:	10.5
100% Sample:	10.5

Organism: ***Notropis leedsi*** Age: 12 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	8.5	7.8	7.3	23.0	23.0	23.1	7.6	8.4	7.8	9,520	9,480
Control	5	5	5	8.5	7.8	7.3	-	-	-	7.6	8.4	7.8	9,520	9,490
100%	5	5	5	8.1	8.3	8.3	23.8	23.0	23.0	8.0	8.2	7.2	9,440	9,350
100%	5	5	5	8.1	8.3	8.3	-	-	-	8.0	8.2	7.3	9,440	9,300

Salinity (ppt) N. leedsi test	
Control Water:	5.5
100% Sample:	5.5

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Everglades City WWTP
Address/City:
County: COLLIER
Contact/District: JIM GROB / S-FtM
NPDES Permit #: FL00 27618 Outfall #:

Sample Collection: Date 11-17-92 Time 1030
Test Beginning: Date 11-19-92 Time 1400
Test Ending: Date 11-20-92 Time 1400
Test Organism: Mysidopsis bahia
Life Stage/Age: 4 days
verified 11/20/92 KP

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

Remarks:
sample and control water salinity adjusted to ~10ppt w marine mix mf 11/18/92

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.07, 10.10	8.7 @ 23°C	22.3 @ 22.4°C	9400 @ 23.1°C
24 hr	7.07, 10.10	8.7 @ 23°C	22.9 @ 22.8°C	9450 9500 @ 23.5°C
48 hr	7.07, 10.10	8.6 @ 23°C	23.2 @ 23°C	9450 9500 @ 23.2°C

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	13	5	5	5	8.5	8.0	7.4	23.2	22.9	23.0	7.6	7.8	24*	17,100	17380	17460
Control	69	5	5	5	8.5	8.0	7.4				7.6	7.8	24*	17,100	17490	17580
100%	10	5	5	5	8.3	8.3	8.2	25.2	23.0	23.0	7.9	7.9	6.3	17,810	17410	17510
100%	74	5	5	5	8.3	8.3	8.2				7.9	7.8	6.2	17,810	17400	17490
												* - recorded pH TM				
													6.3			
													6.3			
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM

Investigators' Signatures
Tina Mikulski
Marshall Barcliff

Reviewer

Water-quality Parameters

	Well Water	Salt Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl:				0.0		JG/RM
Lab Tot. Resid. Cl:	2.08			2.00	Hach	TM DR-100 KP 12/3/92
Alkalinity:	40			240	Hach	TM
Hardness:						
Total Ammonia:	0.0			0.0	Hach	TM

Ammonia Meter Slope: _____ Ammonia Blank: _____ Salinity: 10.5 ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Everglades City WWTP
Address/City: _____
County: COLLIER
Contact/District: JIM GROB / S-FtM
NPDES Permit #: FL0027618 Outfall #: _____

Test Number: 1 of 2 Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

Remarks:

Adjusted Salt controls to ~5 ppt with forty fathoms Sea Salts, MF 11/18/92
original sample salinity ~5.5 ppt

Sample Collection: Date 11-17-92 Time 10:30
Test Beginning: Date 11/18/92 Time 1400
Test Ending: Date 11-20-92 Time 1400
Test Organism: Mysidopsis bahia
Life Stage/Age: 1-2 days
verified 11/20/92 KP

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92 NOV 18-02-01

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.07, 10.10	8.7@23°C	22.3@22.4°C	9400 @23.1°C
24 hr	7.07, 10.10	8.7@23°C	22.9@22.8°C	9500 @23.5°C
48 hr	7.07, 10.10	8.6@23.5°C	23.2@23.3°C	9500 @23.2°C

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	21	5	5	5	8.5	7.8	7.3	23.0	23.0	23.1	7.6	8.4	7.8	9520	9420	9480
Control	8	5	5	5	8.5	7.8	7.3				7.6	8.4	7.8	9520	9420	9490
100%	366	5	5	5	8.1	8.3	8.3	23.8	23.0	23.0	8.0	8.2	7.2	9440	9300	9350
100%	47	5	5	5	8.1	8.3	8.3				8.0	8.2	7.3	9440	9230	9300
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	TM	MF	MF	TM

Investigators' Signatures
Tina Mikulski
Marshall Faircloth

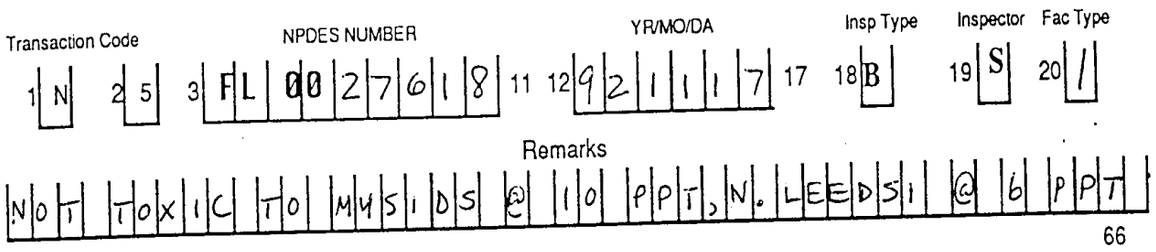
Reviewer

Water-quality Parameters

	Well Water (Salt)	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Clz:			0.0		JG/RM
Lab Tot. Resid. Clz:	<.08		<.06	Hach	TM DR100 RPT 12/3
Alkalinity:	40		240	Hach	TM
Hardness:					
Total Ammonia:	0.0		0.0	Hach	TM

Ammonia Meter Slope: _____ Ammonia Blank: _____ Salinity Sample: 5.5 ppt

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



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

