Bioassays of

Gainesville Regional Utilities
Main Street Wastewater Treatment Plant

Gainesville, Alachua County, Florida

NPDES #FL0027251

Sampled 11/9/92

January 1993

Biology Section
Division of Technical Services

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Gainesville Regional Utilities
Main Street Wastewater Treatment Plant

Gainesville, Alachua County, Florida

NPDES #FL0027251

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Bureau of Laboratories
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Introduction

Gainesville Regional Utilities (GRU) Main Street WWTP, Gainesville, Alachua County, Florida, NPDES #FL0027251, tests performed on 10 to 12 November, 1992.

This facility is located on 200 SE 16th Avenue in Gainesville. The facility is permitted to operate a 7.5 mgd capacity wastewater treatment plant which has an average flow of 5.3 mgd. Treatments consists of grit removal, two aeration basins, two secondary clarifiers, and sand filtration followed by chlorine disinfection and dechlorination. Dechlorinated effluent is discharged to Sweetwater Branch which flows into Paynes Prairie (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 screening toxicity bioassays with a sample of effluent from this facility. The bioassay organisms used for these tests were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Notropis leedsi*. The test results did not indicate toxicity since no mortality occurred in either test.

Total residual chlorine of the sample was < 0.04 mg/L in the laboratory. Total and unionized ammonia concentrations were 0.24 mg/L and < 0.01 mg/L, respectively.

Conclusion

The sample of effluent collected from this facility on 9 November, 1992, did not show toxicity.

Table 1. Concentration series and volumes used for the 48-hour static acute screening bioassays of the GRU Main Street WWTP effluent performed on 10 to 12 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 static acute screening bioassays of a sample of effluent from the Gainesville Regional Utilities Main Street WWTP, Alachua County, Florida, NPDES #FL0027251, performed on 10 to 12 November, 1992.

Facility:	**GRU Main Street WWTP**		**NPDES #**	**FL0027251**	Facility Type: **WWTP**
Location:	Gainesville		Contact / District:	Kathleen Gerard / NE	
County:	Alachua		Test type:	static acute screen	
Sample Collection Date:	**11/9/92**	Time: **1200**	# tests:	2	Receiving Water: **Sweetwater Branch**
Test Beginning Date:	11/10/92	Time: **1300**	Chlorination Type:	**Sample collected**	**to Paynes Prairie**
Test Ending Date:	11/12/92	Time: **1330**		**after dechlorination**	**Page 1 of 1**

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

LC50:

Concentrations	SURVIVAL # at 0 hr	Live at 24 hr	Live at 48 hr	pH 0 hour	pH 24 hour	pH 48 hour	Temperature 0 hour	Temperature 24 hour	Temperature 48 hour	Dissolved Oxygen 0 hour	Dissolved Oxygen 24 hour	Dissolved Oxygen 48 hour	Conductivity 0 hour	Conductivity 48 hour
Control	5	5	5	8.4	-	8.2	23.0	-	24.6	8.3	-	7.7	150	180
Control	5	5	4	-	-	8.3	-	-	24.6	-	-	7.8	-	185
Control	5	5	5	-	-	8.3	-	-	24.5	-	-	7.8	-	185
Control	5	5	5	-	-	8.3	-	-	24.2	-	-	7.8	-	190
100%	5	5	5	7.2	-	8.1	22.8	-	24.4	8.3	-	7.8	690	760
100%	5	5	5	-	-	8.0	-	-	24.5	-	-	7.7	-	800
100%	5	5	5	-	-	8.0	-	-	24.5	-	-	7.6	-	790
100%	5	5	5	-	-	8.1	-	-	24.3	-	-	7.6	-	810

Organism: ***Notropis leedsi*** Age: 10 days

Concentrations	SURVIVAL # at 0 hr	Live at 24 hr	Live at 48 hr	pH 0 hour	pH 24 hour	pH 48 hour	Temperature 0 hour	Temperature 24 hour	Temperature 48 hour	Dissolved Oxygen 0 hour	Dissolved Oxygen 24 hour	Dissolved Oxygen 48 hour	Conductivity 0 hour	Conductivity 48 hour
Control	5	5	5	7.8	8.2	7.7	22.1	22.9	23.1	8.3	8.3	7.7	235	355
Control	5	5	5	7.9	8.2	7.7	22.1	-	-	8.2	8.3	7.8	235	355
100%	5	5	5	7.2	8.1	8.2	22.3	22.8	23.1	8.4	8.3	7.8	745	760
100%	5	5	5	7.1	8.1	8.2	22.3	-	-	8.6	8.2	7.8	745	760

Total Residual Cl2	mg/l	Method
Field:	0.025	
Lab:	< 0.04	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:	0.24	< 0.01

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	137	113
20% Dilute Mineral Water (cladocerans):	65	75
100% Sample:	64	175

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

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: GRU Mainstreet
Address/City:
County: Alachua
Contact/District: C Brown / NE / K. Gerard
NPDES Permit #: FL00 ~~26646~~ 27251 KP 12/24/92 Outfall #: 001

Sample Collection: Date ~~0000~~ KP 1200 MF Time 11/9/92
Test Beginning: Date 11/10/92 Time 1300
Test Ending: Date 11/12/92 Time 1330
Test Organism: Ceriodaphnia dubia
Life Stage/Age: < 24 hours

44833 92NOV10 24
verified 11-13-92 KP

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

Remarks:
Sample taken midnight 11/9 by Plant operator. Message on field sheet by K. Gerard
true for nutrient sample KP 12/14/92
BIOASSAY SAMPLE WAS A GRAB
11/9/92 ~ 12:00 noon

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 7.0, 7.0	8.5 @ 24°C	22.8 @ 22.6°C	955 @ 23.2 / 9500
24 hr	7.0, 7.0, 7.0	8.6 @ 23.5°C	22.6 @ 22.5	967 / 9670 @ 22.6
48 hr	7.0, 7.0, 7.0	8.5 @ 24°C	23.5 @ 23.5	900 / 9550 @ 23.3

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	A	5	5	5	8.4		8.2	23.0		24.6	8.3		7.7	150		180
Control	B	5	5	4			8.3			24.6			7.8			185
Control	C	5	5	5			8.3			24.5			7.8			185
Control	D	5	5	5			8.3			24.2			7.8			190
100%	A	5	5	5	7.2		8.1	22.8		24.4	8.3		7.8	690		760
100%	B	5	5	5			8.0			24.5			7.7			800
100%	C	5	5	5			8.0			24.5			7.6			790
100%	D	5	5	5			8.1			24.3			7.6			810
Measured/Loaded by:		MF	MF	MF	TR	MF	TM	TR		TM	TR		TM	TR		TM
Recorded by:		TM	MF	MF	TM	M	TR	TM		TR	TM		TR	TM		TR

Investigators' Signatures

L. M. Faircloth
Robin C. Rader
Tina Mikulsky

Reviewer

Water-quality Parameters

	Well Water	20% ~~Cond.~~ Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			0.025		KG
Lab Tot. Resid. Cl2:			< 0.04	DR100	TM
Alkalinity:	137	65	64	Hach	TR
Hardness:	113	75	175	Hach	TR
Total Ammonia:	0.0	0.0	.24	Hach	TM

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

Sample Source: GRU Mainstreet
Address/City:
County: Alachua
Contact/District: K. Berard / NE
NPDES Permit #: FL00 ~~26646~~ 2725 / Outfall #:
KP 12/14

1200 KP

Sample Collection: Date ~~0000~~ Time 11/9/92
Test Beginning: Date 11/10/92 Time 1300
Test Ending: Date 11/12/92 Time 1330
Test Organism: Mysidopsis bahia
Life Stage/Age: 10 days

44833 92 NOV 10 24

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

Remarks:
BIOASSAY SAMPLE WAS A GRAB COLLECTED ~ 12:00 noon 11/9/92 KWP 12/14/92

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.9, 7.9	8.5 @ 24°C	22.8 @ 22.6°C	955 9500 @ 23.2
24 hr	7.9, 7.9	8.6 @ 23.5°C	22.6 @ 22.5°C	967 9620 @ 22.6
48 hr	7.9, 7.9	8.5 @ 24°C	23.5 @ 23.5°C	960 9550 @ 23.3

		Number Live			pH			Temp. (°C)			DO (mg/L)			Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	21	5	5	5	7.8	8.2	7.7	22.1	22.9	23.1	8.3	8.3	7.7	935	~~235~~ 240	355
Control	219	5	5	5	7.9	8.2	7.7	22.1	~~22.6~~	~~23.5~~	8.2	8.3	7.8	935	240	355
100%	85	5	5	5	7.2	8.1	8.2	22.3	22.8	23.1	8.4	8.3	7.8	945	630	760
100%	3	5	5	5	7.1	8.1	8.2	22.3			8.6	8.2	7.8	745	630	760
															*	
															forgot	
															to Read	
															Off	
															= 5	
															mf 11/13/92	
Measured/Loaded by:		MF	MF	TM	TR	MF	TM	TR	MF	TM	TR	MF	TM	TR	MF	TM
Recorded by:		TM	MF	TM	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF	TR

Investigators' Signatures

J. M. Faircloth
Robin C. Rader
Tina Mikulski

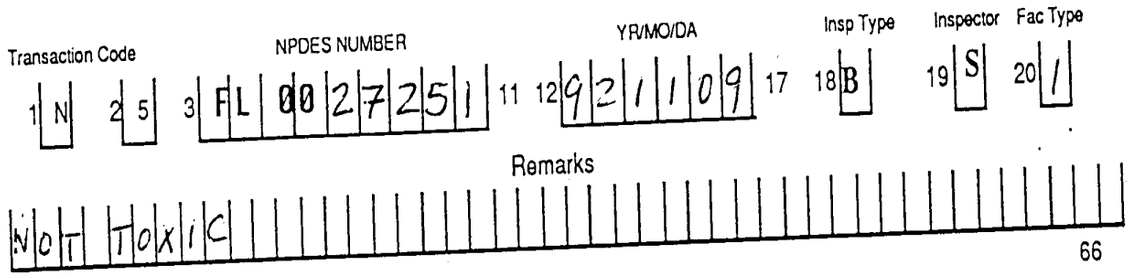
Reviewer

Water-quality Parameters

	Well Water	20% Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			0.025		KG
Lab Tot. Resid. Cl2:			< 0.04	DR-100	TM
Alkalinity:	137	65	64	Hach	TR
Hardness:	113	75	175	Hach	TR
Total Ammonia:	0.0	0.0	.24	Hach	TM

Ammonia Meter Slope: _____
Ammonia Blank: _____
Salinity Sample: _____ 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)

