

Bioassays of the Town of

Noma Wastewater Treatment Facility

Noma, Holmes County, Florida

NPDES #FL0040207

Sampled 8/21/00

December 2000

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

Bioassays of the Town of

Noma Wastewater Treatment Facility

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NPDES #FL0040207

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Bureau of Laboratories
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Introduction

Town of Noma Wastewater Treatment Facility, County Road 175, Noma, Holmes County, Florida, NPDES #FL0040207, tests performed on 22 to 24, August 2000.

This domestic wastewater treatment facility has an average flow of 0.025 MGD. Treatment of wastewater includes equalization, aeration, a mudwell, clarification, filtration, disinfection and dechlorination. Disinfection is achieved by chlorinating the wastewater, and dechlorination is accomplished using sulfur dioxide gas. The wastewater residuals are digested and transported to the City of Bonifay WWTF for further treatment. The treated effluent is discharged into the Class III fresh waters of Wrights Creek (facility summary provided by Kenny Ferguson, FDEP, Pensacola).

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 two 48-hour static acute screening toxicity bioassays on a sample of effluent from the Town of Noma WWTF. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results indicated that the sample was not toxic to the *C. dubia* or the *C. leedsi* test organisms. The sample showed no toxicity at 48 hours (Table 1).

Total residual chlorine was measured at 0.04 mg/L. Total ammonia was not detected in the sample. Further chemical analyses were performed on the sample, and several metals were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on August 21, 2000, did not show toxicity.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Town of Noma WWTF, County Road 175, Noma, Holmes County, Florida, NPDES# FL0040207 performed on 22 to 24, August 2000.

Facility:	**Town of Noma WWTF**			**NPDES #**	**FL0040207**	Facility Type:	**Domestic Wastewater**
Location:	County Road 175			Contact/District:	G. Smith/G. Butts/ Northwest		**Treatment Plant**
County:	Holmes			Test type:	static acute screen		
Sample Collection Date:	8/21/00	Time:	1030	# tests:	2	Receiving Water:	Wrights Creek
Test Beginning Date:	8/22/00	Time:	1135	Chlorination Type:	dechlorinated		
Test Ending Date:	8/24/00	Time:	1000		sample collected after dechlorination		**Page 1 of 1**

Total Residual CL2	mg/L	Method
Field:	N/A	N/A
Lab:	0.04	DR-100

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

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	126	128
20% Dilute Mineral Water (cladocerans):	73	81
100% Sample:	100	123

Salinity[C]	(ppt)
Control Water:	0
100% Sample:	0

[C] Salinity based on conductivity and temperature measurements.

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

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			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	8.3	-	8.2	25.1	-	25.3	7.9	-	7.4	180	220
Control B	0/20	5	5	5	-	-	8.3	-	-	25.0	-	-	7.3	-	180
Control C	0/20	5	5	5	-	-	8.3	-	-	24.9	-	-	7.4	-	185
Control D	0/20	5	5	5	-	-	8.3	-	-	24.3	-	-	7.4	-	195
100% A	20/0	5	5	5	7.3	-	8.3	25.3	-	25.0	6.6	-	7.5	630	635
100% B	20/0	5	5	5	-	-	8.3	-	-	24.7	-	-	7.5	-	675
100% C	20/0	5	5	5	-	-	8.3	-	-	24.4	-	-	7.6	-	670
100% D	20/0	5	5	5	-	-	8.3	-	-	24.0	-	-	7.6	-	715

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-25.0°C.
Incubator #2 temperature range for the test period was 25.0-26.0°C.

Organism: ***Cyprinella leedsi*** Age: 10 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			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	7.9	8.2	8.4	24.8	24.2	24.2	7.8	7.7	7.9	260	255
Control B	0/500	5	5	5	7.9	8.3	8.4	24.8	24.4	24.5	7.8	7.7	7.8	255	255
Control C	0/500	5	5	5	7.9	8.3	8.4	24.7	24.6	24.3	7.8	7.6	7.8	255	260
Control D	0/500	5	5	5	7.9	8.2	8.4	24.7	24.5	24.9	7.8	7.6	7.7	255	260
100% A	500/0	5	5	5	7.4	8.0	8.2	25.5	24.3	24.6	6.8	7.6	7.5	630	655
100% B	500/0	5	5	5	7.3	7.9	8.2	25.5	25.0	24.7	6.9	7.4	7.7	635	645
100% C	500/0	5	5	5	7.3	7.9	8.2	25.5	24.5	24.7	6.8	7.4	7.6	635	650
100% D	500/0	5	5	5	7.3	7.9	8.2	25.4	24.6	24.5	6.8	7.4	7.6	635	640

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-25.0°C
Incubator #3 temperature range for the test period was 24.5-25.0°C.

Table 2. Results of chemical analyses on the effluent from The Town of Noma sampled on March 20, 2000.

Metals

Arsenic	1.2	µg/L	I
Cadmium	0.14	µg/L	I
Calcium	36.9	mg/L	
Copper	4.8	µg/L	
Iron	25	µg/L	I
Lead	0.3	µg/L	I
Magnesium	8.1	mg/L	
Nickel	5.5	µg/L	I
Zinc	43.3	µg/L	I

Pesticides and Herbicides

None detected

Base, Neutral, & Acid Extractable Organics

None detected

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: Noma WWTP
County: Escambia
Contact / District: G. Smith / G. Butts / NW DIST
NPDES Permit #: FL0040207
LIMS Sample #: 475301 LIMS Job #: TLH2000-08-22-26-01
sample log 8-2510MF
Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through
Test Number: 1 of 2

Sample Collection: Date 8/21/00 Time 1030
Test Beginning: Date 8/22/00 Time 1135
Test Ending: Date 8/24/00 Time 10:00
Organism Batch #: 45 Diluent Batch #: 25
Organism Age: <24 hrs. SRT toxicant batch #: —
Test organism: C. dubia

Remarks: 8/22/00 * Temp and D.O. (SA) switched

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) 0 hr	UNCORRECTED Cond. (µmhos/cm) 24 h	UNCORRECTED Cond. (µmhos/cm) 48 h
CNTL	A	5	5	5	8.3	—	8.2	7.9*	—	25.3	25.1*	—	7.4	180	—	220
	B	5	5	5	—	—	8.3	—	7.	250	—	—	7.3	—	—	180
	C	5	5	5	—	—	8.3	—	—	24.9	—	—	7.4	—	—	185
	D	5	5	5	—	—	8.3	—	—	24.3	—	—	7.4	—	—	195
100%	A	5	5	5	7.3	—	8.3	6.6*	—	25.0	25.3*	—	7.5	630	—	635
	B	5	5	5	—	—	8.3	—	—	24.7	—	—	7.5	—	—	675
	C	5	5	5	—	—	8.3	—	—	24.4	—	—	7.6	—	—	670
	D	5	5	5	—	—	8.3	—	—	24.0	—	—	7.6	—	—	715
measured by:	MF	SG	MF	[illegible]	SG	—	MF	SG	—	MF	SG	—	MF	SG	—	MF
recorded by:	sta	SA	AL	[illegible]	SA	—	ymk	SA	—	ymk	SA	—	ymk	SA	—	ymk

Investigators' Signatures
Shannon Gerards
John Q
Marshall Faircloth
Jim Kettler
[illegible]
A H Wolfe
reviewer

Temperature Range °C
Incubator # 2 25.0°-26.0°C
Room B246 23.0°-25.0°C

Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	[redacted]		NA	NA	NA	SG
Lab Total Residual Cl2 (mg/L):		<0.03	0.04	DR100	KL	KL
Alkalinity (mg/L as $CaCO_3$):		73	100	Hach	JA/KL	SG
Hardness (mg/L as $CaCO_3$):		81	123	Hach	JA/KL	SG
Total ammonia (mg/L as N):		<0.017	<0.017	Denver	SG	SG
Salinity:		0	0	YSI	SG	SG

form updated 3/3/99

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Noma WWTP
County: Escambia
Contact / District: G. Smith / G. Butts / NW - DIST
NPDES Permit #: FL00 40207
LIMS Sample #: 475301 LIMS Job #: TH2000-08-22-26-01
sample log 8/22/00 MF
Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 2 of 2

Remarks:

Sample Collection: Date 8/21/00 Time 1050
Test Beginning: Date 8/22/00 Time 1135
Test Ending: Date 8/24/00 Time 10:00
Organism Batch #: 45 Diluent Batch #: Well
Organism Age: 10 days SRT toxicant batch #: —
Test organism: C. leedsi

* Temp. and D.O. switched 8/22/00 JA

Conc.	Chamber #	Number Live 0 hr	24 h	48 h	pH 0 hr	24 h	48 h	Temperature (°C) 0 hr	24 h	48 h	D.O. (mg/L) 0 hr	24 h	48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
CNTL. A	C1	5	5	5	7.9	8.2	8.4	24.8*	24.2	24.2	24.8*	7.7	7.9	260	260	255
B	C2	5	5	5	7.9	8.3	8.4	24.8*	24.4	24.5	24.8*	7.7	7.8	255	255	255
C	C3	5	5	5	7.9	8.3	8.4	24.8*	24.6	24.3	24.7*	7.6	7.8	255	260	260
D	C4	5	5	5	7.9	8.2	8.4	24.8*	24.5	24.9	24.8*	7.6	7.7	255	260	260
100% A	C5	5	5	5	7.4	8.0	8.2	25.5	24.3	24.6	6.8	7.6	7.5	630	630	655
B	C6	5	5	5	7.3	7.9	8.2	25.5	25.0	24.7	6.9	7.4	7.7	635	640	645
C	C7	5	5	5	7.3	7.9	8.2	25.5	24.5	24.7	6.8	7.4	7.6	635	630	650
D	C8	5	5	5	7.3	7.9	8.2	25.4	24.6	24.5	6.8	7.4	7.6	635	635	640
measured by:	MF	SG	MF	JA	SG	SG	JA	SG	SG	MF	SG	SG	MF	SG	SG	MF
recorded by:	SG	JA	MF	JA	SG	MF	JA	SG	MF	JA	JA	MF	JA	JA	MF	JA

Investigators' Signatures

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Joshua Gee
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form updated 3/3/99

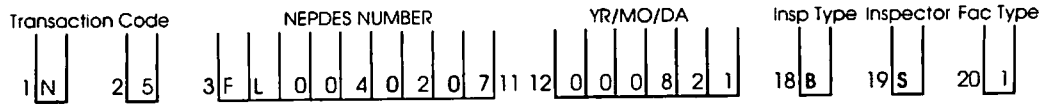
Temperature Range °C
Incubator # 3 24.5° - 25.0°C
Room ~~24.0° - 24.5°C~~ 23.0° - 25.0°C

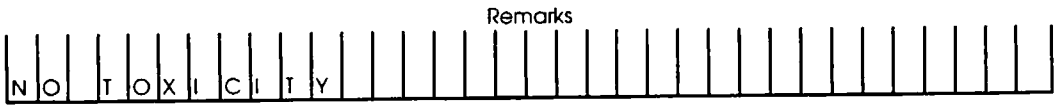
Salt Water: Well Water / 20% Min Water

Water Quality Parameters		Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):		NA	NA	NA	SG
Lab Total Residual Cl2 (mg/L):	<0.03	0.04	DR100	KL	SG
Alkalinity (mg/L as $CaCO_3$):	126	100	Hach	JA/KL	SG
Hardness (mg/L as $CaCO_3$):	128	123	Hach	JA/KL	SG
Total ammonia (mg/L as N):	<0.017	<0.017	Denver	SG	SG
Salinity:	0	0	YSI	SG	SG

The Bioassay of Town of Noma Wastewater Treatment Facility effluent sampled on August 21, 2000, NPDES #FL0040207.

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





The Priority Pollutants Analysis for Bioassay of Town of Noma Wastewater Treatment Facility effluent sampled on August 21, 2000, NPDES #FL0040207.

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

