

Bioassays of

Millville Wastewater Treatment Plant

Panama City, Bay County, Florida

NPDES #FL0170909

Sampled 9/17/01

January 2002

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Introduction

Millville Wastewater Treatment Plant, 1800 East Third Street, Panama City, Bay County, Florida, NPDES #FL0170909, tests performed on 18 to 20 September 2001.

This domestic wastewater treatment plant has a design flow of 4.00 MGD and an average flow of 2.02 MGD. The wastewater treatment process consists of influent screening, grit removal, three sequential batch reactors, post equalization, filtration, reaeration, and ultraviolet disinfection. Treated effluent is discharged into the Class III marine waters of St. Andrew's Bay (facility summary provided by Angela Schrift, 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 collected from this facility. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity to either test species within 48 hours (Table 1).

Total residual chlorine in the sample was measured to be 0.06 mg/L in the field, and 0.05 mg/L in the laboratory. This is likely due to interference within the sample, because the effluent is not chlorinated. Total and unionized ammonia were 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 September 17, 2001, did not show acute toxicity to either test species within 48 hours.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Millville Wastewater Treatment Plant, 1800 East Third Street, Panama City, Bay County, Florida, NPDES# FL0170909 performed on 18 to 20 September 2001.

Facility:	**Millville WWTP**		**NPDES #**	**FL0170909**	Facility Type:	**Wastewater**	**Analysts:** Della Parker-Hanson
Location:	1800 East Third Street, Panama City		Contact/District:	Glenn Butts/ Northeast		**Treatment Plant**	Marshall Faircloth
County:	Bay		Test type:	static acute screen			Joshua Ayres
Sample Collection Date:	9/17/01	Time: 1030	# tests:	2	Receiving Water:	St. Andrew's Bay	
Test Beginning Date:	9/18/01	Time: 1330	Chlorination Type:	Non-chlorinated			**Reviewer:** David Whiting
Test Ending Date:	9/20/01	Time: 1310				**Page 1 of 1**	

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

	Sample/Diluen	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	8.2	-	8.4	24.7	-	24.8	7.9	-	7.7	185	215
Control B	0/20	5	5	5	-	-	8.4	-	-	24.7	-	-	7.7	-	200
Control C	0/20	5	5	5	-	-	8.4	-	-	24.7	-	-	7.9	-	200
Control D	0/20	5	5	5	-	-	8.5	-	-	24.3	-	-	7.9		210
100% A	20/0	5	5	5	7.7	-	8.6	24.5	-	24.6	7.4	-	8.1	1440	1620
100% B	20/0	5	5	5	-	-	8.6	-	-	24.4	-	-	8.1	-	1675
100% C	20/0	5	5	5	-	-	8.6	-	-	24.3	-	-	8.2	-	1770
100% D	20/0	5	5	5	-	-	8.6	-	-	24.1	-	-	8.1	-	1790

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorde
Room Temperature range for the test period was 23.0-24.5°C.
Incubator #2 temperature range for the test period was 25.0-26.5°C.

Data Transcription Verification	
date:	11/20/01
by:	Della Parker-Hanson Joshua Ayres

Total Residual CL2	mg/L	Method
Field:	0.06	-
Lab:	0.05	Hach

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):	135	130
20% Dilute Mineral Water (cladocerans):	80	81
100% Sample:	110	185

Organism: ***Cyprinella leedsi*** Life stage: 8 days

	Sample/Diluen	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	8.1	8.4	8.6	24.5	23.8	23.8	7.8	7.8	8.2	265	314
Control B	0/500	5	5	5	8.1	8.4	8.6	24.4	24.2	23.8	7.8	7.9	8.1	255	285
Control C	0/500	5	5	5	8.1	8.4	8.6	24.4	24.1	23.8	7.8	7.7	8.0	255	295
Control D	0/500	5	5	5	8.1	8.4	8.6	24.4	23.7	23.8	7.8	7.7	8.0	255	305
100% A	500/0	5	5	5	7.8	8.2	8.3	24.6	23.8	24.9	7.7	7.6	7.5	1445	1615
100% B	500/0	5	5	5	7.8	8.2	8.3	24.6	23.8	23.8	7.5	7.5	7.5	1515	1670
100% C	500/0	5	5	5	7.8	8.2	8.3	24.6	23.9	24.4	7.5	7.5	7.7	1515	1595
100% D	500/0	5	5	5	7.8	8.2	8.3	24.6	24.0	24.1	7.5	7.4	7.6	1580	1645

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-24.5°C.
Incubator #3 temperature range for the test period was 23.5-26.5°C.

Table 2. Results of chemical analyses on the effluent from Millville Wastewater Treatment Plant sampled on September 17, 2001.

Metals

Calcium	35.7	mg/L	
Copper	1.96	µg/L	
Iron	37	µg/L	I
Magnesium	24.2	mg/L	
Nickel	2.2	µg/L	I
Selenium	1.9	µg/L	AJ
Silver	0.052	µg/L	I
Zinc	50	µg/L	

Pesticides and Herbicides

None detected

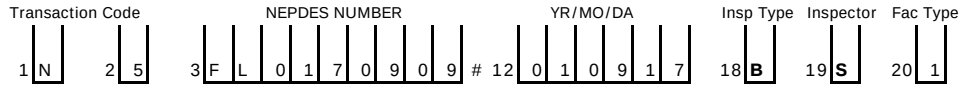
Base, Neutral, & Acid Extractable Organics

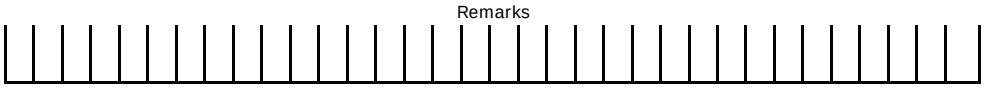
None detected

[A] Value reported is the mean of two or more determinations.
[I] Value reported is less than the minimum quantitation limit, and greater than or equal to the minimum detection limit.
[J] Value reported is an estimated value.

The Bioassay of Millville Wastewater Treatment Plant effluent sampled on September 17, 2001, NPDES #FL0170909.

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

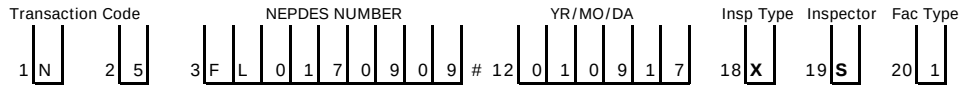


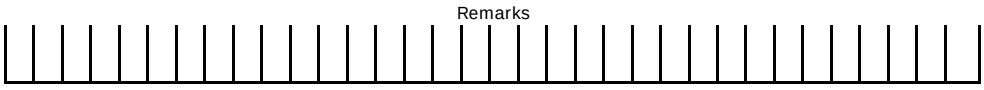


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The Priority Pollutants Analysis for Bioassay of Millville Wastewater Treatment Plant effluent sampled on September 17, 2001, NPDES #FL0170909.

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