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Bioassays of

J-M Manufacturing Company STP

Green Cove Springs, Clay County, Florida

NPDES #FL0000493

Sampled 7/27/92

September 1992

Biology Section
Division of Technical Services

Bioassays of

J-M Manufacturing Company STP

Green Cove Springs, Clay County, Florida

NPDES #FL0000493

Biology Section
Bureau of Laboratories
September 1992

Introduction

J-M Manufacturing Company STP, Green Cove Springs, Clay County, Florida, NPDES #FL0000493, tests performed on 28 to 30 July, 1992.

This facility is located at the corner of State Highway 16 and U.S. 17 in Green Cove Springs. The facility is a 5,000 gpd wastewater treatment plant which uses an extended aeration process and chlorination of treated effluent prior to discharge to the St. Johns River.

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*. Although the *C. dubia* test was invalidated due to excessive control mortality, no mortality occurred in the 100% effluent test concentration. No mortality occurred in the *N. leedsi* test. The test results did not indicate toxicity.

Total residual chlorine in the sample was measured in the laboratory at 0.04 mg/L. Total ammonia was not detected.

Conclusion

The sample of effluent from this facility collected on 27 July, 1992, did not show toxicity.

Table 1. Concentration Series and Volumes Used for the 48-hr Static Acute Screening Bioassays of the J-M Manufacturing Company STP effluent performed on 28 to 30 July, 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 J-M Manufacturing Company STP, Green Cove Springs, Clay County, Florida, NPDES# FL0000493, performed on 28 to 30 July, 1992.

Facility:	**J-M Manufacturing Company STP**		**NPDES #**	**FL0000493**	**Facility Type: STP**
Location:	Green Cove Springs		Contact/District:	Ken Kohn/NE	
County:	Clay		Test type:	static acute screen	
Sample Collection Date:	**7/27/92**	Time: 1205	# tests:	2	Receiving Water: St. Johns River
Test Beginning Date:	7/28/92	Time: 1300	Chlorination Type:	**Chlorinated**	
Test Ending Date:	7/30/92	Time: 1330			**Page 1 of 1**

Total Residual Cl2	mg/l	Method
Field:	< 0.05	Hach
Lab:	0.04	Hach DP 100

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.01	0.00
Cond. Control Water (daphnids):	0.00	0.00
100% Sample:	0.00	0.00

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	121	128
Cond. Control Water (daphnids):	65	79
100% Sample:	80	178

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

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

*Although the test was invalidated due to excessive control mortality, no mortalities occurred in the 100% test concentration.

	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	3*	8.1	-	8.2	23.3	-	24.8	9.2	-	8.6	150	177
Control	5	5	5	-	-	8.2	-	-	-	-	-	8.6	-	-
Control	5	5	4*	-	-	8.2	-	-	-	-	-	8.6	-	-
Control	5	5	5	-	-	8.2	-	-	-	-	-	8.6	-	-
100%	5	5	5	7.3	-	8.1	22.9	-	24.5	6.9	-	8.7	564	658
100%	5	5	5	-	-	8.1	-	-	-	-	-	8.7	-	-
100%	5	5	5	-	-	8.1	-	-	-	-	-	8.7	-	-
100%	5	5	5	-	-	8.1	-	-	-	-	-	8.8	-	-

Organism: ***Notropis leedsi*** Age: 9 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	7.7	8.1	8.4	24.0	23.3	23.8	8.9	9.0	8.8	-	-
Control	5	5	5	7.7	8.1	8.4	-	-	-	8.9	9.0	8.8	244	247
100%	5	5	5	7.3	7.8	8.0	22.1	23.5	23.8	5.9	7.6	7.7	-	-
100%	5	5	5	7.3	7.8	8.0	-	-	-	5.9	7.6	7.7	573	616

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Johns Manville WWTP
Address/City: MANUFACTURING
County: CLAY
Contact/District: Ken Kahn NE Jacksonville
NPDES Permit #: FL0000493 Outfall #:

Sample Collection: Date 7/27/92 Time 1205
Test Beginning: Date 7/28/92 Time 1300
Test Ending: Date 7/30/92 Time 1330
Test Organism: Ceriodaphnia dubia
Life Stage/Age: < 24 hrs

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

92 Jul 28 07
38058

Remarks:
15% control mortality
@ 100% mortality 7/30/92 MF

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 10.10	8.5 @ 24°C	24.3 @ 24.4°C	986 @ 1K @ 24.4°C; 9850 @ 10K
24 hr	7.0, 10.10	8.5 @ 24°C	24.0 @ 24.8°C	984 @ 1K; 9850 @ 10K @ 23.9°C
48 hr	7.0, 10.10	8.5 @ 24°C	24.2 @ 24.8°C	992; 9920 @ 24.4°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	A	5	5	3	8.1		8.2	23.3		24.8	9.2		8.6	150		177
control	B	5	5	5			8.2						8.6			
control	C	5	5	4			8.2						8.6			
control	D	5	5	5			8.2						8.6			
100%	A	5	5	5	7.3		8.1	22.9		24.5	6.9		8.7	564		658
100%	B	5	5	5			8.1						8.7			
100%	C	5	5	5			8.1						8.7			
100%	D	5	5	5			8.1						8.8			
Measured/Loaded by:		MF	MF	MF	MF		MF	MF		MF	MF		MF	MF		MF
Recorded by:		MF	MF	MF	KP		MF	KP		MF	KP		MF	KP		MF

Investigators' Signatures
Marshall Faircloth
Kim Pearce
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			<0.05	Hach	KK
Lab Tot. Resid. Cl2:			0.04	DP100	KWP
Alkalinity:	121	65	80	Hach	KWP
Hardness:	128	79	178	Hach	KWP
Total Ammonia:	0.008	0.0	0.0	Orion	MF

Ammonia Meter Slope: −56.9
Ammonia Blank: 0.0
Salinity Sample: _____ ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Johns Manville WWTP
Address/City:
County: Clay
Contact/District: Ken Kohn NE Jacksonville
NPDES Permit #: FL00 00493 Outfall #:

Sample Collection: Date 7/27/92 Time 1205
Test Beginning: Date 7/28/92 Time 1300
Test Ending: Date 7/30/92 Time 1330
Test Organism: Mysidopsis bahia
Life Stage/Age: 8 days

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

Remarks:

92 Jul 28 07
38058

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 7.10, 10.10	8.5 @ 24°C	24.3 @ 24.4°C	986 @ 1K, 9850 @ 10K @ 24
24 hr	7.0, 7.10, 10.10	8.5 @ 24°C	24.0 @ 24.0°C	984 @ 1K, 9850 @ 10K @ 23.9
48 hr	7.0, 7.10, 10.10	8.5 @ 24°C	24.2 @ 24.2	992, 9920 @ 24.4

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	32	5	5	5	7.7	8.1	8.4	24.0	23.3	23.8	8.9	9.0	8.8			
control	61	5	5	5	7.7	8.1	8.4				8.9	9.0	8.8	244	247	247
100%	30	5	5	5	7.3	7.8	8.0	22.1	23.5	23.8	5.9	7.6	7.7			
100%	68	5	5	5	7.3	7.8	8.0				5.9	7.6	7.7	573	610	616
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	KP	KP	MF	KP	KP	MF	KP	KP	MF	KP	MF	MF

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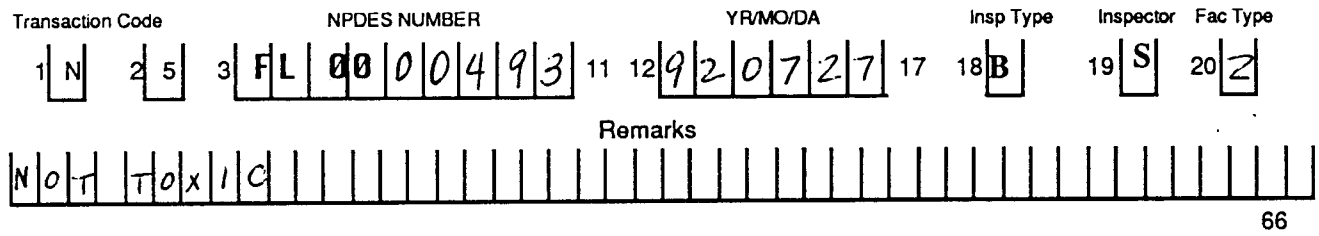
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			<0.05	Hach	KK
Lab Tot. Resid. Cl2:			0.04	DP100	KWP
Alkalinity:	121	65	80	Hach	KWP
Hardness:	128	79	178	Hach	KWP
Total Ammonia:	0.008	0.0	0.0	Orion	MF

Ammonia Meter Slope: -54.9
Ammonia Blank: 0.1
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)

