

Bioassays of the City of

Oldsmar Wastewater Treatment Plant

Oldsmar, Pinellas County, Florida

NPDES #FL0027651

Sampled 7/10/95

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August 1995

Biology Section

Division of Administrative and Technical Services

Comprehensive Quality Assurance Plan #870346G

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Introduction

City of Oldsmar WWTP, Oldsmar, Pinellas County, Florida, NPDES #FL0027651, tests performed on 11 to 13 July, 1995.

This advanced wastewater treatment facility is located at 351 Lafayette Boulevard in Oldsmar. The facility has a design flow of 2.25 MGD and an average flow of approximately 1.06 MGD. Effluent is disinfected with chlorine and dechlorinated with sulfur dioxide prior to discharge to Mobbly Bayou and Mobbly Bay (facility summary provided by Lisa Carter, FDEP, Tampa).

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 with a sample of effluent 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 show toxicity (Table 1).

Total residual chlorine and total 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 July 10, 1995, did not show toxicity.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the City of Oldsmar WWTP, Oldsmar, Pinellas County, Florida, NPDES# FL0027651, performed on 11 to 13 July, 1995.

Facility:	**City of Oldsmar WWTP**	**NPDES #**	**FL0027651**	Facility Type:	**Wastewater Treatment Plant**
Location:	351 Lafayette Blvd., Oldsmar	Contact/District:	L. Carter/Southwest		
County:	Pinellas	Test type:	static acute screen		
Sample Collection Date:	**7/10/95** Time: **0955**	# tests:	2	Receiving Water:	Mobbly Bayou and Mobbly Bay
Test Beginning Date:	7/11/95 Time: 1430	Chlorination Type:	The sample was collected after being dechlorinated in the treatment process.		
Test Ending Date:	7/13/95 Time: 1430				**Page 1 of 1**

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

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[A] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity Uncorrected µmhos/cm 0 hour	48 hour
Control A	0/20	5	5	5	7.5	-	8.2	22.9	-	24.2	7.6	-	8.0	180	200
Control B	0/20	5	5	5	-	-	8.2	-	-	24.3	-	-	8.0	-	190
Control C	0/20	5	5	5	-	-	8.2	-	-	24.3	-	-	8.0	-	190
Control D	0/20	5	5	5	-	-	8.2	-	-	24.4	-	-	8.0	-	190
100% A	20/0	5	5	5	7.5	-	8.4	23.0	-	24.4	7.6	-	8.1	880	860
100% B	20/0	5	5	5	-	-	8.5	-	-	24.4	-	-	8.0	-	935
100% C	20/0	5	5	5	-	-	8.5	-	-	24.4	-	-	8.0	-	940
100% D	20/0	5	5	5	-	-	8.5	-	-	24.4	-	-	8.0	-	940

[A] Temperature of test incubator was continously recorded on a strip chart recorder. Incubator temperature range for the test period was 23.4-24.4°C.

Organism: ***Cyprinella leedsi*** Age: 11 days

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[B] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity Uncorrected µmhos/cm 0 hour	48 hour
Control A	0/500	5	5	5	7.6	8.2	8.2	23.5	23.2	23.4	7.4	8.2	8.1	245	250
Control B	0/500	5	5	5	7.6	8.2	8.2	23.5	-	23.4	7.4	8.2	7.9	245	245
Control C	0/500	5	5	5	7.6	8.2	8.2	23.4	-	23.4	7.5	8.2	8.1	245	245
Control D	0/500	5	5	5	7.6	8.2	8.2	23.3	-	23.3	7.5	8.2	8.1	245	245
100% A	500/0	5	5	5	7.1	8.0	8.2	22.7	22.9	23.2	7.2	7.9	8.2	900	935
100% B	500/0	5	5	5	7.1	8.0	8.2	22.4	-	23.4	7.1	7.9	8.2	900	940
100% C	500/0	5	5	5	7.1	8.0	8.2	22.3	-	23.3	7.0	7.9	8.2	900	935
100% D	500/0	5	5	5	7.1	8.0	8.2	22.3	-	23.3	7.0	7.9	8.1	900	940

[B] Temperature of test room was continously recorded on a strip chart recorder. Room temperature range for the test period was 23.5-24.1°C.

Total Residual CL2	mg/L	Method
Field:	not measured	
Lab:	<0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	< 0.017	0.00
20% Dilute Mineral Water (cladocerans):	< 0.017	0.00
100% Sample:	<0.017	0.00

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	125	120
20% Dilute Mineral Water (cladocerans):	70	80
100% Sample:	165	210

Salinity	(ppt)
Control Water:	0
100% Sample:	<0.5

Table 2. Results of chemical analyses on the effluent from the City of Oldsmar Wastewater Treatment Plant sampled on July 10, 1995.

Metals

Calcium	64.8	mg/L[A]
Copper	3	µg/L[I]
Iron	26	µg/L[A]
Magnesium	6.39	mg/L[A]
Zinc	30	µg/L[J]

Pesticides and Herbicides

none detected

Base, Neutral, and 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 Estimated value.

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: City of Oldsmar WWTP
County: ~~Hills borough~~ Pinellas * TR wrong county
Contact / District: T. Edwards / SW
NPDES Permit #: FL00 27651
LIMS Sample #: 10291 (sample log 7/13/95) **LIMS Job #:** 95-JUL-11-11

Sample Collection: Date 7/10/95 Time 9:55
Test Beginning: Date 7/11/95 Time 1430
Test Ending: Date 7/13/95 Time 1430
Organism Batch #: 34 **Diluent Batch #:** 28
Organism Age: < 24 hrs
Test Organism: Ceriodaphnia dubia

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

Test Number: 1 of 2

Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.1	8.2 @ 25.0 °C	99.9 @ 100 1395 @ 1400 @ 24.7 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	____ @ ____	____ @ ____ °C	____ @ ____ ____ @ ____ @ ____ °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.4 @ 24.2	8.3 @ 24.8 °C	102.7 @ 102.1 1388 @ 1400 @ 24.2 °C 56.2 @ 58.7 mmhos

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) Cond. (µmhos/cm) 0 hr	24 h	48 h
Control	A	5	5	5	7.5		8.2	22.9		24.2	7.6		8.0	180		200
Control	B	5	5	5			8.2			24.3			8.0			190
Control	C	5	5	5			8.2			24.3			8.0			190
Control	D	5	5	5			8.2			24.4			8.0			190
100%	A	5	5	5	7.5		8.4	23.0		24.4	7.6		8.0	880		860
100%	B	5	5	5			8.5			24.4			8.0			935
100%	C	5	5	5			8.5			24.4			8.0			940
100%	D	5	5	5			8.5			24.4			8.0			940
Recorded by:		TR	TM	TM	JLS		JM	JLS		LM	JLS		LM	JLS		JM
Measured/Loaded by:		JLS	TM	MF	JN		JLS	JN		JLS	JN		JLS	JN		JLS

Investigators' Signatures
Robin A. Rader
Marshall Faircloth
Liz Mould
Jennifer Sparagana
Lisa Mikulski
Reviewer

	Salt Water: Well Water	Salt Water: 20% Min Water	Sample	Method	Measured by
Water Quality Parameters					
Field Total Residual Cl2 (mg/L):			—	—	—
Lab Total Residual Cl2 (mg/L):	—	<0.03	<0.03	DR-100	TR
Alkalinity (mg/L as $CaCO_3$):	—	70	165	Hach	TR
Hardness (mg/L as $CaCO_3$):	—	80	210	Hach	TR
Total ammonia (mg/L as N):	—	<0.017	<0.017	Orion	JN

Ammonia Meter #98136 · Ammonia Meter Slope: -57.4 · Ammonia Blank: <0.017 · Control Salinity: 0 ppt · Sample Salinity: 50.5 ppt

form updated 10/05/94

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: City of Oldsmar WWTP
County: ~~Hillsborough~~ Pinellas *TR Wrong County
Contact / District: T. Edwards (SW
NPDES Permit #: FL00 27651
LIMS Sample #: 110291 LIMS Job #: 95-JUL-11-11

Sample Collection: Date 7/10/95 Time 0955
Test Beginning: Date 7/11/95 Time 1430
Test Ending: Date 7/13/95 Time 1430
Organism Batch #: 27 Diluent Batch #: Well
Organism Age: 11 days old
Test Organism: Cyprinella leedsi

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

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.1	8.2 @ 25.0 °C	99.9 @ 100 1395 @ 1400 @ 24.7 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.1	8.2 @ 25.0 °C	1395 @ 1400 10270 @ 10000 @ 24.7 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.4 @ 24.2	8.3 @ 24.8 °C	102.7 @ 102.1 1388 @ 1400 @ 24.2 °C

54.8 @ 58.7
36.2 @ 58.7 mmhos

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. (mmhos/cm) 24 h	UNCORRECTED Cond. (mmhos/cm) 48 h
Control A	20	5	5	5	7.6	8.2	8.2	23.5	23.7	23.4	7.4	8.2	8.1	245	245	250
Control B	24	5	5	5	7.6	8.2	8.2	23.5		23.4	7.4	8.2	7.9	245	245	245
Control C	183	5	5	5	7.6	8.2	8.2	23.4		23.4	7.5	8.2	8.1	245	245	245
Control D	605	5	5	5	7.6	8.2	8.2	23.3		23.3	7.5	8.2	8.1	245	240	245
100% A	41	5	5	5	7.1	8.0	8.2	22.7	22.9	23.2	7.2	7.9	8.2	900	920	935
100% B	58	5	5	5	7.1	8.0	8.2	22.4		23.4	7.1	7.9	8.2	900	920	940
100% C	142	5	5	5	7.1	8.0	8.2	22.3		23.3	7.0	7.9	8.2	900	920	935
100% D	136	5	5	5	7.1	8.0	8.2	22.3		23.3	7.0	7.9	8.1	900	920	940
Recorded by:		TR	TM	TM	JLS	JN	JLS	JLS	JN	JLS	JLS	JN	JLS	JLS	JN	JLS
Measured/Loaded by:		TR	TM	MF	JN	TM	LM	JN	TM	LM	JN	TM	LM	JN	TM	LM

Investigators' Signatures
Tom C. Rodi
Marshall Faircloth
Liz Mould
Brenda Sargent
Tammy Smith
Lisa Mikulski

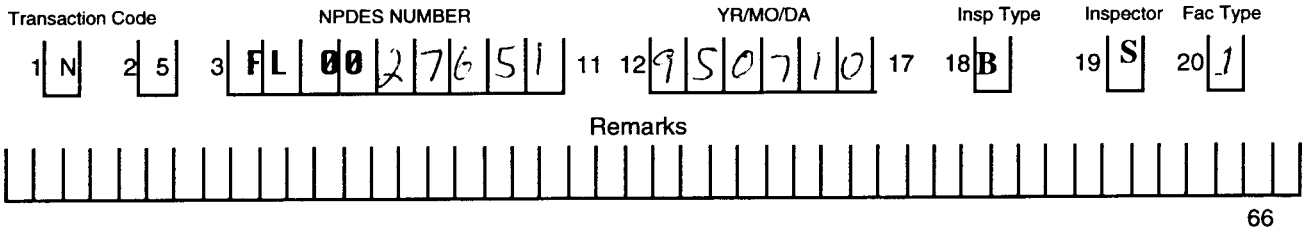
Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			—	—	—
Lab Total Residual Cl2 (mg/L):		—	<0.03	DR-100	TR
Alkalinity (mg/L as $CaCO_3$):		—	165	Hach	TR
Hardness (mg/L as $CaCO_3$):		—	210	Hach	TR
Total ammonia (mg/L as N):		—	<0.017	Orion	JN

Ammonia Meter #98136 Ammonia Meter Slope: -57.9 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: <0.5 ppt

Form updated 10/05/94

The Bioassay of the City of Oldsmar WWTP effluent sampled on July 10, 1995, NPDES #FL0027651.

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



The Priority Pollutants Analysis for the Bioassay of the City of Oldsmar WWTP effluent sampled on July 10, 1995, NPDES #FL0027651.

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

