

Bioassays of

Tarpon Springs Wastewater Treatment Plant

Tarpon Springs, Pinellas County, Florida

NPDES #FL0030406

Sampled 1/22/02

May 2002

Biology Section
Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Bureau of Laboratories
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Introduction

Tarpon Springs Wastewater Treatment Plant, 201 East Pine Street, Tarpon Springs, Pinellas County, Florida, NPDES #FL00030406, tests performed on 23 to 25 January 2002.

This wastewater treatment plant has a design flow of 4.00 MGD and an average flow of 1.00 MGD from April 2000 to November 2001. The wastewater treatment system is a Type I Bardenpho ® nutrient removal plant consisting of two bar screens, two grit removal stages, two fermentation tanks, two primary anoxic tanks, two aeration tanks, two secondary anoxic tanks, a reaeration/nitrification tank, two secondary clarifiers, two filters, a chlorine contact chamber, and dechlorination using sulfur dioxide. After treatment the effluent is pumped into a 2.0 MG storage tank and held until the tank is full. Overflow from the storage tank is discharged through Outfall D001 to the Class III marine waters of the Anclote River (facility information provided Dane Huge, 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 on a sample of effluent collected from Outfall D001 of this facility using the freshwater test species the waterflea, *Ceriodaphnia dubia,* and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity to either test species within 48 hours (Tables 1).

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. Further chemical analyses were performed on the sample, and several metals, a pesticide, an herbicide, and several volatile organics were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on January 22, 2002, 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 Tarpon Springs Wastewater Treatment Plant, 201 East Pine Street, Tarpon springs, Pinellas County, Florida, NPDES# FL0030406, performed from 23 to 25 January 2002.

Facility:	**Tarpon Springs WWTP**	**NPDES #**	**FL0030406**	Facility Type:	**Wastewater Treatment Plant**	**Analysts:**	Della Parker-Hanson
Location:	201 East Pine Street	Contact/District:	Grainger/Southwest				Joshua Ayres
County:	Pinellas	Test type:	static acute screen				Gary Hardie
Sample Collection Date:	1/22/02 Time: 1415	# tests:	2	Receiving Water:	Anclote River		Marshall Faircloth
Test Beginning Date:	1/23/02 Time: 1315	Chlorination Type:	Chlorinated				
Test Ending Date:	1/25/02 Time: 1305		sample collected after dechlorination		**Page 1 of 1**	**Reviewer:**	David Whiting

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

	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	-	8.3	24.6	-	24.3	7.7	-	7.7	170	285
Control B	0/20	5	5	5	-	-	8.4	-	-	24.2	-	-	7.6	-	280
Control C	0/20	5	5	5	-	-	8.4	-	-	24.2	-	-	7.7	-	300
Control D	0/20	5	5	5	-	-	8.5	-	-	24.0	-	-	7.6	-	300
100% A	20/0	5	5	5	7.1	-	8.5	25.3	-	24.3	5.5	-	7.8	1490	1540
100% B	20/0	5	5	5	-	-	8.6	-	-	24.4	-	-	7.7	-	1870
100% C	20/0	5	5	4	-	-	8.6	-	-	24.3	-	-	7.8	-	1850
100% D	20/0	5	5	5	-	-	8.6	-	-	23.9	-	-	7.7	-	1890

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 22.0-23.5 °C.
Incubator #3 temperature range for the test period was 24.0-26.0°C.

Organism: ***Cyprinella leedsi*** Life stage: 11 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	8.3	8.4	24.1	25.2	24.1	8.1	8.0	8.0	245	295
Control B	0/500	5	4	4	7.9	8.3	8.4	24.2	25.2	25.0	7.9	7.9	8.0	260	300
Control C	0/500	5	5	5	7.9	8.4	8.4	24.2	24.9	25.0	7.7	7.8	7.9	265	310
Cotnrol D	0/500	5	5	5	7.9	8.3	8.4	24.2	24.9	24.9	7.8	7.8	7.8	260	300
100% A	500/0	5	5	5	7.2	8.0	8.3	25.5	24.8	24.8	6.1	7.9	7.6	1525	1640
100% B	500/0	5	5	5	7.2	8.1	8.3	25.7	25.1	24.8	5.7	7.8	7.6	1530	1650
100 % C	500/0	5	5	5	7.2	8.1	8.3	25.7	25.3	24.8	5.5	7.8	7.5	1535	1685
100% D	500/0	5	5	5	7.2	8.0	8.3	25.7	25.2	25.1	5.3	7.7	7.5	1584	1655

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 22.0-235°C.
Incubator #3 temperature range for the test period was 24.0-26.0°C.

Data Transcription Verification	
date:	4/8/02
by:	Joshua Ayres Gary Hardie

Total Residual CL2	mg/L	Method
Field:	0.01	-
Lab:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water (fish):	<0.017	<0.017
Control water (water flea):	<0.017	<0.017
100% Sample:	<0.017	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water (fish):	136	133
Control water (water flea):	72	76
100% Sample:	156	265

Table 2. Results of chemical analyses on the effluent from Tarpon Springs Wastewater Treatment Plant sampled on January 22, 2002.

Metals

Aluminum	49	µg/L	I
Cadmium	0.038	µg/L	I
Copper	2	µg/L	I
Selenium	1	µg/L	I
Calcium	70.7	mg/L	A
Iron	68	µg/L	I
Magnesium	17.2	mg/L	A
Zinc	34.9	µg/L	A

Pesticides and Herbicides

Atrazine	0.26	µg/L	
Fonofos	0.22	µg/L	I

Base, Neutral, & Acid Extractable Organics

None detected

Volatile Organics

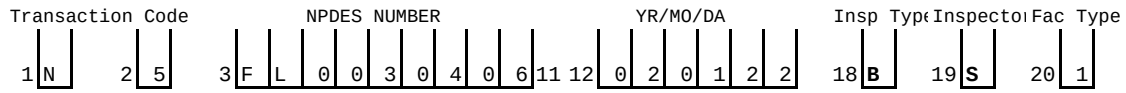
Bromodichloromethane	17	µg/L
Bromoform	8.3	µg/L
Chloroform	14	µg/L
Dibromochloromethane	24	µg/L

[A] The reported value is the mean of two or more determinations.

[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

The Bioassay of Tarpon Springs Wastewater Treatment Plant effluent sampled on January 22, 2002, NPDES # FL0030406.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X

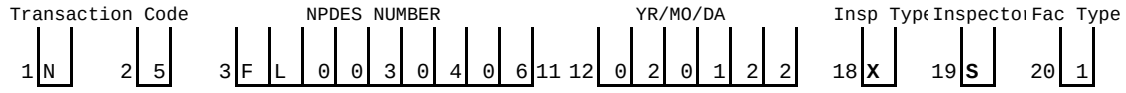


Remarks

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The Priority Pollutants Analysis for Bioassay of Tarpon Springs Wastewater Treatment Plant effluent sampled on January 22, 2002, NPDES # FL0030406.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X



Remarks

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