

Bioassays of

Fiesta Village Advanced Wastewater Treatment Plant

Fort Myers, Lee County, Florida

NPDES #FL0039829

Sampled 6/24/02

November 2002

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Introduction

Fiesta Village Advanced Wastewater Treatment Plant, 1366 San Soucci Drive, Fort Myers, Lee County, Florida, NPDES# FL0039829, tests performed on 25 to 27 of June 2002.

This wastewater treatment facility has a design flow of 5.0 MGD and an annual average daily flow of 2.75 MGD (measured from October 2001-October 2002). Treatment is accomplished through oxidation ditch advanced wastewater treatment, chlorination for disinfection, and dechlorination using sulfur dioxide. Water is reused for public access reuse (golf course irrigation) or discharged into the Class III marine waters of the Caloosahatchee River (facility information provided by Thomas Jackson, FDEP, Fort Myers).

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 freshwater test species used were the waterflea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. Acute toxicity was not observed in either test species within 48 hours (Table 1).

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. Ammonia was detected in the sample preserved for chemistry at a concentration of 0.047 mg N/L. Additional samples of effluent were collected from this facility and analyzed for nutrients, metals, organic compounds, herbicides, and pesticides. Several metals and nutrients were detected as well as the pesticide atrazine and the organic compound acetophenone (Table 2).

Conclusion

The sample of effluent collected on June 24, 2002, from this facility showed no 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 Fiesta Village AWWTP, 1366 San Soucci Drive, Fort Myers, Lee County, Florida, NPDES# FL0039829, performed from 25 to 27 June 2002.

Facility:	**Fiesta Village AWWTP**		**NPDES #**	**FL0039829**	Facility Type: **WWTP**	**Analysts:**	Jacquelyn Brynda
Location:	1366 San Soucci Drive		Contact/District:	Jackson/South			Joshua Ayres
County:	Lee		Test type:	static acute screen			Marshall Faircloth
Sample Collection Date:	6/24/2002	Time: 1200	# tests:	2	Receiving Water: Caloosahatchee River		
Test Beginning Date:	6/25/2002	Time: 1500	Chlorination Type:	Chlorinated	Class III marine		
Test Ending Date:	6/27/2002	Time: 1430		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	8.0	-	8.2	25.6	-	24.6	7.3	-	7.6	186	200
Control B	0/20	5	5	5	-	-	8.2	-	-	24.6	-	-	7.6	-	200
Control C	0/20	5	5	5	-	-	8.2	-	-	24.6	-	-	7.6	-	205
Control D	0/20	5	5	5	-	-	8.3	-	-	24.6	-	-	7.6	-	205
100% A	20/0	5	5	5	7.2	-	8.3	25.3	-	24.6	6.8	-	7.7	920	1110
100% B	20/0	5	5	5	-	-	8.3	-	-	24.5	-	-	7.7	-	1180
100% C	20/0	5	5	5	-	-	8.3	-	-	24.5	-	-	7.7	-	1180
100% D	20/0	5	5	5	-	-	8.3	-	-	24.6	-	-	7.7	-	1220

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-26.5 °C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

Organism: ***Cyprinella leedsi*** Life stage: 12 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	7.8	8.3	8.4	25.5	26.0	24.1	6.9	6.8	7.7	289	275
Control B	0/500	5	5	5	7.9	8.3	8.4	25.5	25.5	24.7	7.0	6.9	7.7	275	275
Control C	0/500	5	5	5	7.9	8.3	8.4	25.5	24.9	24.4	7.0	7.3	7.7	272	275
Control D	0/500	5	5	5	7.9	8.3	8.4	25.5	24.9	24.7	7.1	7.3	7.7	268	275
100% A	500/0	5	4	4	7.2	7.8	7.9	25.4	24.9	24.4	6.8	7.3	7.6	939	1050
100% B	500/0	5	5	5	7.2	7.8	8.0	25.1	25.0	24.1	6.8	7.3	7.6	982	1050
100 % C	500/0	5	5	5	7.2	7.8	8.0	25.1	25.1	24.0	6.8	7.2	7.8	1000	1050
100% D	500/0	5	5	5	7.2	7.8	8.0	25.3	25.3	24.4	6.8	7.2	7.8	1014	1055

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-26.5°C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

LIMS	
Job number:	TLH-2002-06-25-16-01
sample number:	600140

Data Transcription Verification	
date:	10/31/2002
by:	Joshua Ayres
	James Daniels

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):	144	138
Control water (water flea):	80	81
100% Sample:	95	218

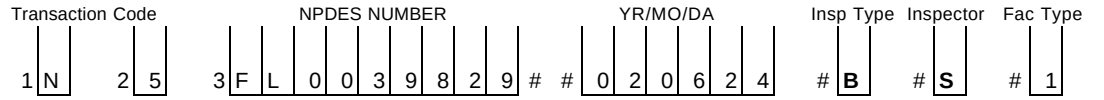
Table 2. Results of chemical analyses on the effluent from Fiesta Village AWWTP sampled on June 24, 2002.

Metals			
Aluminum_308	79	ug/L	I
Cadmium	0.065	ug/L	I
Calcium	62.5	mg/L	
Copper	1.1	ug/L	I
Lead	0.31	ug/L	I
Magnesium	14.7	mg/L	
Selenium	1.1	ug/L	I
Zinc	45	ug/L	
Pesticides and Herbicides			
Atrazine	0.17	ug/L	I
Nutrients			
Ammonia	0.047	mg N/L	
Nitrates and Nitrites	0.033	mg N/L	
Nitrate	0.044	mg N/L	
Ortho-phosphate	0.057	mg P/L	
Total Kjeldahl Nitrogen	0.87	mg N/L	JA
Total Phosphorous	0.089	mg P/L	JA
Base, Neutral, & Acid Extractable Organics			
Acetophenone	1.6	ug/L	I

[A] The reported value is an average of two or more values.
[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
[J] The reported value is an estimated value.

The Bioassay of Fiesta Village AWWTP effluent sampled on June 24, 2002, NPDES #FL0039829.

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



Remarks



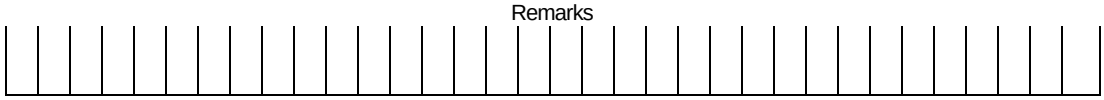
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The Priority Pollutants Analysis for Bioassay of Fiesta Village AWWTF effluent sampled on June 24, 2002, NPDES #FL0039829.

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



Remarks



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