Bioassays of

Florida Key's Community College
Wastewater Treatment Plant

Key West, Monroe County, Florida

NPDES #FL0033928

Sampled 4/5/93

April 1993

Biology Section
Division of Technical Services

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Introduction

Florida Keys Community College Wastewater Treatment Plant, Key West, Monroe County, Florida, NPDES #FL0033928, tests performed on 6 to 8 April, 1993.

This facility is a 0.015 MGD design capacity, extended aeration process wastewater treatment plant. The average annual flow is approximately 0.010 MGD. Prior to discharge to the Gulf of Mexico, the effluent is dechlorinated with sodium sulfite tablets.

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 on a sample of effluent from this facility. The test species used for the bioassays were the water flea, *Ceriodaphnia dubia*, and the fish, the bannerfin shiner, *Notropis leedsi*. The test results did not indicate toxicity. One *C. dubia* died in the 100% effluent concentration. There was no mortality among the fish. Total residual chlorine in the sample was < 0.03 mg/L. The total and unionized ammonia were 0.47 mg/L and < 0.01 mg/L, respectively.

Conclusion

The sample of effluent collected from this facility on 5 April, 1993, did not show toxicity.

Table 1. Concentration series and volumes used for the 48-hour static acute screening bioassays of the Florida Keys Community College WWTP effluent performed on 6 to 8 April, 1993.

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 acute screening bioassays of a sample of effluent from the Florida Keys Community College WWTP, Key West, Monroe County, Florida, NPDES# FL0033928, performed on 6 to 8 April, 1993.

Facility:	Florida Keys Community College		NPDES #	FL0033928	Facility Type: WWTP
Location:	Key West		Contact / District:	Gus Rios / S	
County:	Monroe		Test type:	static acute screen	
Sample Collection Date:	4/5/93	Time: 1015	# tests:	2	Receiving Water: Florida Bay, Gulf of Mexico
Test Beginning Date:	4/6/93	Time: 1230	Chlorination Type:	sample collected	
Test Ending Date:	4/8/93	Time: 1300		after dechlorination	Page 1 of 1

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	<0.017
20% Dilute Mineral Water (cladocerans):	<0.017	<0.017
100% Sample:	0.47	< 0.01

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	125	125
20% Dilute Mineral Water (cladocerans):	70	80
100% Sample:	146	400

Salinity (ppt)	
Control Water:	0
100% Sample:	1

Organism: ***Ceriodaphnia dubia*** Life stage: neonate

	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	8.5	-	8.4	22.6	-	23.4	8.0	-	8.3	160	180
Control	5	5	5	-	-	8.4	-	-	-	-	-	8.3	-	175
Control	5	5	5	-	-	8.4	-	-	-	-	-	8.3	-	180
Control	5	5	5	-	-	8.4	-	-	-	-	-	8.3	-	180
100%	5	5	5	7.3	-	8.4	22.7	-	23.0	5.8	-	8.3	1705	2050
100%	5	5	5	-	-	8.4	-	-	-	-	-	8.3	-	2050
100%	5	5	5	-	-	8.4	-	-	-	-	-	8.3	-	2060
100%	5	5	4	-	-	8.4	-	-	-	-	-	8.5	-	2080

Organism: ***Notropis leedsi*** Age: 10 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	7.9	8.5	8.5	22.5	22.4	22.2	7.9	8.4	8.4	240	240
Control	5	5	5	7.9	8.5	8.5	-	-	-	7.9	8.4	8.4	240	240
100%	5	5	5	7.1	8.3	8.2	24.5	22.4	22.2	3.6	8.3	7.9	1890	1840
100%	5	5	5	7.1	8.3	8.2	-	-	-	3.6	8.3	7.9	1895	1835

The Bioassay of Florida Keys Community College WWTP effluent sampled on April 5, 1993, NPDES #FL0033928

