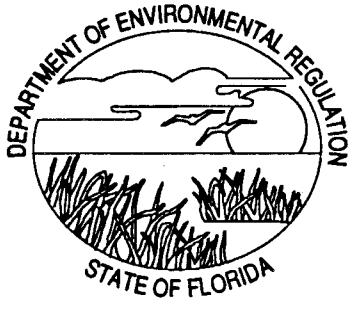
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Bioassays of

Key Colony Beach Wastewater Treatment Plant

Key Colony Beach, Monroe County, Florida

NPDES #FL0021253

Sampled 6/1/92

July 1992

Biology Section
Division of Technical Services

Bioassays of

Key Colony Beach Wastewater Treatment Plant

Key Colony Beach, Monroe County, Florida

NPDES #FL0021253

Biology Section
Bureau of Laboratories
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Introduction

Key Colony Beach Wastewater Treatment Plant, Key Colony Beach, Monroe County, Florida, NPDES #FL0021253, tests performed on 2 to 4 June, 1992.

This facility is a wastewater treatment plant located at 600 Ocean Drive in Key Colony Beach. The facility has the capacity to treat 0.22 mgd wastewater by chlorination and an extended aeration process. The treated wastewater is dechlorinated and the effluent is discharged to Bonefish Bay, and then to the Atlantic Ocean.

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 a static acute screening toxicity bioassay on a sample of effluent from this facility. The salinity of the sample was 8 ppt. The bioassay test species used for this test was the mysid shrimp, *Mysidopsis bahia*. The control water for the test was made to a salinity of 8 ppt with Forty Fathoms® sea salts; the salinity of the sample was not altered. The test results did not indicate toxicity.

Total residual chlorine and total ammonia were not detected in the sample. Further chemical analyses were performed on the sample and indicated the presence and amounts of the metals listed in Table 2. The concentrations of copper and silver detected in the sample were 16 µg/L and 0.11 µg/L, respectively. The surface water criteria for copper and silver, in Class III marine waters, are $\leq$ 2.9 µg/L and $\leq$ 0.05 µg/L, respectively.

The analyses for organics tentatively identified a brominated aliphatic compound with an estimated concentration of 1 µg/L. Chlorinated pesticides were not detected.

Conclusion

The sample of effluent from this facility, which was collected on 1 June, 1992, did not show toxicity.

Table 1. Concentration Series and Volumes Used for the Static Acute Screening Bioassay of the Key Colony Beach WWTP on 2 to 4 June, 1992.

Mysidopsis bahia (mysid shrimp)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100 %	0 mL	500 mL	500 mL

Table 2. Results of chemical analyses on the sample of effluent from the Key Colony Beach WWTP, Monroe County, collected on 1 June, 1992.

Base-Neutral & Acid Extractables

Tentative identification and estimated concentrations:

brominated aliphatics	1	µg/L

Chlorinated Pesticides

none detected

Metals

				Class III marine criteria
Aluminum	77	µg/L	A	
Copper	16	µg/L	A	≤2.9 µg/L
Iron	37	µg/L	A	
Silver	0.11	µg/L	T	≤0.05 µg/L
Zinc	30	µg/L	J	

A Value reported is the mean of two or more determinations.
J Estimated value, spike recovery outside limits.
T Value reported is less than the practical quantitation limit.

Table 3. Data recorded during the static acute screening bioassay of a sample of effluent from the Key Colony Beach WWTP, Monroe County, Florida, NPDES# FL0021253, on 2 to 4 June, 1992.

Facility:	**Key Colony Beach WWTP**		**NPDES #**	**FL0021253**	Facility Type: **WWTP**
Location:	8th Street, Key Colony Beach		Contact/District:	Gus Rios / South	
County:	Monroe		Test type:	static acute screen	
Sample Collection Date:	**6/1/92**	Time: 1000	# tests:	1	Receiving Water: Bonefish Bay,
Test Beginning Date:	6/2/92	Time: 1400	Chlorination Type:	**dechlorination**	then Atlantic Ocean
Test Ending Date:	6/4/92	Time: 1400		**at plant**	**Page 1 of 1**

Total Residual Cl2	mg/l	Method
Field:	0.08	Hach
Lab:	0.0	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water:	0.00	0.00
100% Sample:	0.00	0.00

Organism: ***Mysidopsis bahia*** Age: 3 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	8.7	8.1	7.9	23.3	23.7	23.6	7.5	7.5	7.5	-	-
Control	5	5	5	8.7	8.1	7.9	-	-	-	7.5	7.5	7.5	13,400	13,960
100%	5	5	5	7.1	7.6	7.9	22.0	23.3	23.3	7.8	7.6	7.6	-	-
100%	5	5	5	7.1	7.6	7.9	-	-	-	7.8	7.6	7.6	13,090	14,000

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water:	artificial sea water	
100% Sample:	66	> 1000

Salinity (ppt)	
Control Water:	8
100% Sample:	8

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Key Colony Beach WWTP
Address/City:
County: MONROE
Contact/District: G. Rios / South Marathon
NPDES Permit #: FL00 21253 **Outfall #:** 001

Sample Collection: Date 6/1/92 Time 10:00 AM
Test Beginning: Date 6/2/92 Time 1400
Test Ending: Date 6/4/92 Time 1400
Test Organism: Mysidopsis bahia
Life Stage/Age: 3 days

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

92 Jun 02 18 35145
entered 6/05/92

Remarks:
Control salinity adjusted to ~ 8‰
Sample Salinity ~ 8‰
FIELD TRC = 0.08 mg/L AFTER PLANT DECHLORINATION.

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7@7, 10@10	8.5@24°C	23.6@23.6	1359@23.2 1372 / 109@110
24 hr	7@7, 10@10	8.5@24	24.0@24.2	1380@23.8
48 hr	7@7, 10@10	8.4@25°C	24.2@24.3	1374@24.2

6/2/92 MF wrote wrong chamber #'s

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	24762	5	5	5	8.7	8.1	7.9	23.3	23.7	23.6	7.5	7.5	7.5			
Control	26 89	5	5	5	8.7	8.1	7.9				7.5	7.5	7.5	13400	13600	13960
100%	149 681	5	5	5	7.1	7.6	7.9	22.8	23.3	23.3	7.8	7.6	7.6			
100%	55 13	5	5	5	7.1	7.6	7.9				7.8	7.6	7.6	13090	13810	14000
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF

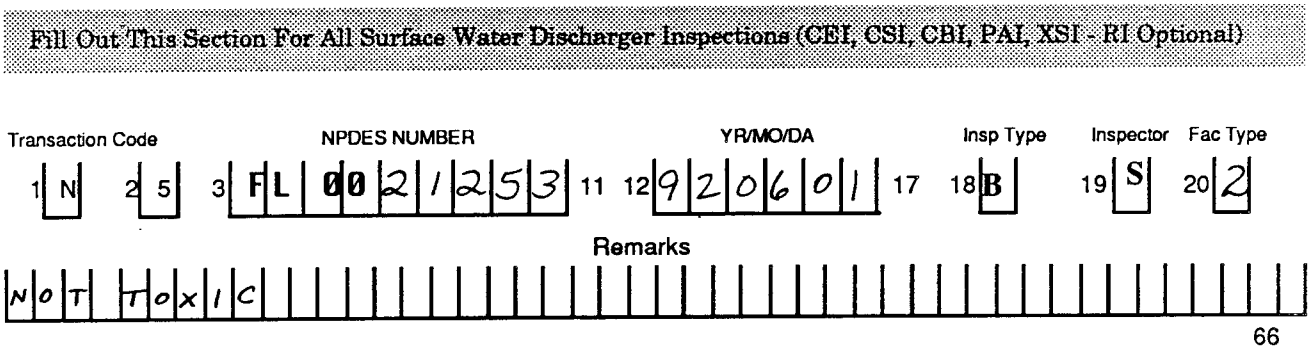
Investigators' Signatures
Marshall Faircloth
Kim Pearce
Reviewer

Water-quality Parameters (GW recorded on other field sheet 6/17 MF)

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:	[illegible] 0.0		not measured	KP	0.08 HACH G. RIOS
Lab Tot. Resid. Cl2:			0.0	Hach	MF
Alkalinity:			66	Hach	MK
Hardness:	ASW control		>1000	Hach	KP
Total Ammonia:	0.0		0.0	Hach	MF for DK

Ammonia Meter Slope: _____ Ammonia Blank: 0.0 Salinity Sample: ~8 ppt

The Bioassay of the Key Colony Beach WWTP, NPDES# FL0021253, effluent sampled on June 1, 1992.



The Priority Pollutants Analysis for the Bioassay of the Key Colony Beach WWTP, NPDES# FL0021253, effluent sampled on June 1, 1992.

