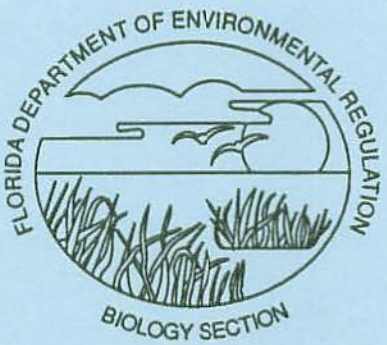


Bioassay of

Miramar-Bella Vista Condominium Reverse Osmosis Plant

Jensen Beach, St. Lucie County, Florida

NPDES #FL0037834

Sampled 3/25/91

April 24, 1991

Biology Section
Division of Administrative and Technical Services

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Biology Section
Bureau of Laboratories
April 24, 1991

Introduction

Miramar - Bella Vista Condominium Reverse Osmosis Plant, Jensen Beach, St. Lucie County, Florida, NPDES #FL0037834, on 26 to 28 March, 1991.

This facility is located at 10,000 Highway A1A, on Hutchinson Island in Jensen Beach. It is used to produce forty thousand gallons per day of drinking water for condominium residents by reverse osmosis (R/O) treatment. A daily maximum of eighteen thousand gallons of R/O concentrate from this process is discharged into Mosquito Creek, which flows into a Class II, Outstanding Florida Water - the Indian River.

The toxicity tests discussed in this report were performed in accordance with methods described by Peltier and Weber, 1985, *Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms*, 3rd Edition, and by the FDER Biology Section, 1985, *Quality Assurance Manual for Performing Acute Toxicity Tests*, 2nd Edition.

Results and Discussion

The Biology Section performed an acute definitive toxicity bioassay using the bioassay test organism, the mysid shrimp, *Mysidopsis bahia*, on a sample of R/O concentrate from this facility. The sample was collected on March 25, 1991, by FDER SE district personnel. The salinity of the concentrate was 7.6 ppt. The test results indicate that the concentrate was not toxic to *M. bahia*. No further chemical analyses were performed on the sample.

Conclusion

The sample of discharge from this facility was not toxic on 25 March, 1991.

Table 1. Concentration Series and Volumes Used for this Definitive Bioassay.

Mysidopsis bahia (mysid shrimp)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
25 %	375 mL	125 mL	500 mL
50 %	250 mL	250 mL	500 mL
75 %	125 mL	375 mL	500 mL
100 %	0 mL	500 mL	500 mL

Table 2: Data recorded during the static definitive bioassay of the reverse osmosis concentrate which is discharged into Mosquito Creek, then into the Indian River from Miramar Condominium, Jensen Beach, St. Lucie County, Florida, NPDES #FL0037834, on March 26-28, 1991.

Facility:	Miramar Condominium R/O		NPDES #	FL0037834	Facility Type:	Drinking water,	
Location:	10,000 A1A, Jensen Beach		Contact/District:	Tim Powell, Jerry Toney - SE		reverse osmosis	
County:	St. Lucie		Test type:	static definitive			
Sample Collection Date:	3/25/91	Time: 1455	# tests:	1	Receiving Water:	Mosquito Creek into	
Test Beginning Date:	3/26/91	Time: 1130	Chlorination Type:	not chlorinated		Indian River (east side)	
Test Ending Date:	3/28/91	Time: 1030					

Total Residual Cl2	mg/L	Method
Field:		
Lab:	0.0	Hach

Salinity (ppt)	
Control Water:	19
100% Sample:	19

Organism: ***Mysidopsis bahia*** Age: < 3 days
LC50: - Binomial: - Moving Average: - Probit: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	8.1	8.0	6.9	8.3	8.2	8.1	21.5	21.3	21.0	-	-
Control	5	5	5	8.1	7.6	6.7	8.3	8.2	8.0	-	-	-	27,900	28,200
25%	5	5	5	7.9	7.6	6.6	8.1	8.1	7.9	21.3	21.2	21.0	-	-
25%	5	5	5	7.9	7.7	6.6	8.1	8.1	7.9	-	-	-	28,000	28,300
50%	5	5	5	7.5	7.3	6.2	7.7	7.9	7.8	21.3	21.1	21.0	-	-
50%	5	5	5	7.5	7.5	6.4	7.7	7.9	7.8	-	-	-	28,000	28,400
75%	5	5	5	7.2	7.5	6.6	7.3	7.8	7.8	21.2	21.1	21.0	-	-
75%	5	5	5	7.2	7.5	6.7	7.3	7.8	7.8	-	-	-	28,100	28,500
100%	5	5	5	6.7	7.5	6.5	6.9	7.6	7.7	21.2	21.3	21.0	-	-
100%	5	5	5	6.7	7.0	6.3	6.9	7.6	7.7	-	-	-	28,200	28,600

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DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: A1A Hutchinson Island | Miramar Condo-R.O. Plant
Address/City: 10,000 A1A, JENSEN BEACH
County: St. Lucie — JERRY TONEY
Contact/District: Tim Powell / Ivan Pettit — SE
NPDES Permit #: FL0037834 Outfall #: 001

Sample Collection: Date 3/25/91 Time 2:55 pm
Test Beginning: Date 3/26/91 Time 1130
Test Ending: Date 3/28/91 Time 1030
Test Organism: ~~Nitella~~, C. dubia, A. patula
Life Stage/Age: ~~8 days~~ ~~<24 hrs~~ ~~<24 hrs~~ M. bahia <3 days

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

Remarks: Cadmium Cl. SRT added for conductivity & pH adjustment
12,830 @ 23.7 = 7.7 ppt

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7@7.9@9	8.15@22.5	1483@23.7	22°@21.3
24 hr	7@7.9@9	8.7@22.5	1516@24.7	22@24.6
48 hr	7@7.9@9	8.15@22.5	1495@24.1	21.5@23.6

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	12	5	5	5	8.1	8.0	6.9	8.3	8.2	8.1	21.5	21.3	21.0			
Control	26	5	5	5	8.1	7.6	6.7	8.3	8.2	8.0				27900		28200
25%	77	5	5	5	7.9	7.6	6.6	8.1	8.1	7.9	21.3	21.2	21.0			
25%	142	5	5	5	7.9	7.7	6.6	8.1	8.1	7.9				28,000		28400
50%	47	5	5	5	7.5	7.3	6.2	7.7	7.9	7.8	21.3	21.1	21.0			
50%	8	5	5	5	7.5	7.5	6.4	7.7	7.9	7.8				28,000		28400
75%	79	5	5	5	7.2	7.5	6.6	7.3	7.8	7.8	21.2	21.1	21.0			
75%	14	5	5	5	7.2	7.5	6.7	7.3	7.8	7.8				28,000		28500
100%	76	5	5	5	7.1	7.5	6.5	6.9	7.6	7.7	21.2	21.3	21.1			
100%	50	5	5	5	6.1	7.6	6.3	6.9	7.6	7.7				28,000		29300
Control																
32‰	13	5	5	5	7.9	7.7	6.7	8.4	8.3	8.1	21.5	21.2	21.0	27,900		28300
30‰	116	5	5	5	7.9	7.7	6.8	8.4	8.3	8.1						
100‰	4	5	5	0	7.8	7.9	6.9	8.4	8.3	8.1	21.5	21.1	21.0	27,900		28300
300‰	53	5	4	0	8.0	7.9	7.0	8.4	8.3	8.1						
300‰	14	5	4	0	7.9	7.7	6.4	8.4	8.3	8.1	21.5	21.1	21.0	27,900		28400
300‰	20	5	3	0	7.9	7.4	6.6	8.4	8.2	8.1						
100‰	65	5	4	0	7.9	7.6	6.9	8.4	8.3	8.1	21.5	21.2	21.0	27,900		28400
32‰	67	5	2	0	7.8	7.6	6.8	8.4	8.3	8.1						
Measured/Loaded by:		MF	MF	MF	MF	MF	AJ	MF	MF	AJ	MF	MF	AJ	MF		AJ
Recorded by:		MF	KP	AJ	AJ	KP	MF	AJ	KP	MF	AJ	KP	MF	MF		MF

Investigators' Signatures

Mark Fowler
Alison Jones
Kim Pearce

Reviewer

Water-quality Parameters

	Well Water	Salt water Cond	Sample	Method	Measured by
Field Tot. Resid. Cl:					
Lab Tot. Resid. Cl:			0.0	Hach	MF
Alkalinity:					
Hardness:					
Total Ammonia:		0.0	0.0	Hach	MF

Ammonia meter slope: _____