

Bioassays of

Miami-Dade North District Wastewater Treatment Plant

North Miami, Dade County, Florida

NPDES #FL0013607

Sampled 5/28/96

September 1996

Biology Section

Division of Administrative and Technical Services

Comprehensive Quality Assurance Plan #870346G

Bioassays of

Miami-Dade North District Wastewater Treatment Plant

North Miami, Dade County, Florida

NPDES #FL0013607

Biology Section
Bureau of Laboratories
September 1996

Introduction

Miami-Dade North District Wastewater Treatment Plant, 2575 N. E. 15th Street, North Miami, Dade County, Florida, NPDES #FL0013607, tests performed on 29 to 31 May, 1996.

This wastewater treatment plant has a design flow of 112.5 MGD and an annual average flow of 112.5 MGD. Treatment of wastewater includes grit removal, settling, aeration, clarification and chlorination. Effluent is not dechlorinated prior to being discharged into the Atlantic Ocean, approximately 11,000 feet offshore at a depth of 108 feet, via a 90-inch diameter pipeline (facility summary provided by Shiv Shahi, FDEP, West Palm Beach).

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 from this facility. Two additional 48-hour screening bioassays were performed on aliquots of the sample that were dechlorinated in the laboratory by the addition of 0.9 mL of 0.025N sodium thiosulfate per liter of sample. The salinity of the sample was approximately 1.3 ppt, therefore, the test species used for these bioassays were the inland silverside minnow, *Menidia beryllina*, and the mysid shrimp, *Mysidopsis bahia*.

To accomodate the salinity requirement of 1-32 ppt for *Menidia beryllina*, the control water was adjusted to a salinity of 1.3 ppt using 40 Fathoms® artificial sea salts and deionized water to match the apparent salinity of the effluent as collected. The salinity of the effluent was not adjusted for the *Menidia* test. To accommodate the salinity requirement of 5-30 ppt for *Mysidopsis bahia*, an aliquot of the sample was adjusted to a salinity of 6.0 ppt using 40 Fathoms® artificial sea salts. The control water for the mysid test was also adjusted to a salinity of 6.0 ppt using 40 Fathoms® artificial sea salts and deionized water.

The chlorinated test results indicated that the 100% whole effluent was acutely toxic to *Menidia beryllina* and the salinity-adjusted sample was acutely toxic to *Mysidopsis bahia*, producing 100% mortality in 24-hours in each species (Table 1).

The dechlorinated test results indicated that the 100% whole effluent was toxic to the *Menidia beryllina* test organisms and the salinity-adjusted sample was toxic to the *Mysidopsis bahia* test organisms, respectively producing 50% and 35% mortality in 48-hours (Table 1 concluded).

Total residual chlorine of the 100% whole effluent sample was 0.63 mg/L in the laboratory and 1.7 mg/L in the field. Total residual chlorine (TRC) of the dechlorinated aliquot of sample was measured at 0.04 mg/L. This value is probably the result of interfering compounds in the sample and not from chlorine. The amount of sodium thiosulfate (0.9 mL) added to each liter of sample was in excess (approximately 25%) of that calculated to remove the measured total residual chlorine (0.63 mg/L) and regeneration of this amount of chlorine from chloramines or similar organochlorine compounds is unlikely. In flow through bioassay tests, constant exposure to TRC levels as low as 0.037 mg/L and 0.054 mg/L have been found to be acutely toxic to similar fish species (Atlantic silverside, *Menidia menidia* and Tidewater silverside, *Menidia peninsulae*, respectively). TRC levels as low as 0.162 mg/L have been found to be acutely toxic to a similar invertebrate (Mysid, *Neomysis* sp.) (EPA *Ambient Water Criteria for Chlorine* 1984, EPA 440/5-84-030, 1984).

The total ammonia and unionized ammonia concentrations of the 100% whole effluent sample were 2.68 mg/L and 0.009 mg/L, respectively. The total ammonia and unionized ammonia concentrations of the salinity-adjusted sample were 2.93 mg/L and 0.012 mg/L, respectively. At 48 hours the total and unionized ammonia values were, respectively, 3.24 mg/L and 0.296 mg/L in the *Menidia beryllina* dechlorinated sample test and were, respectively, 3.36 mg/L and 0.248 mg/L in the *Mysidopsis bahia* dechlorinated sample test. These unionized ammonia levels are less than the concentrations reported to have produced LC50's in these test species but are high enough to be suspected of contributing to the observed mortality (Miller, D.C., et al. 1990. *The Acute and Chronic Toxicity of Ammonia to Marine Fish and Invertebrates*. Archives of Environmental Contamination and Toxicology. 19: 40–48).

Further chemical analysis identified several metals and the herbicide, atrazine (Table 2). Total residual chlorine (0.63 mg/L), copper (14 µg/L), iron (0. 323 mg/L), and silver (1.0 µg/L) each exceeded its respective State of Florida Class III marine surface water criterion of ≤0.01 mg/L (total residual chlorine), ≤2.9 µg/L (copper), 0.3 mg/L (iron), and ≤ 0.05 µg/L (silver) (FAC 62-302.530). With the exception of the chlorine, these levels would not be expected to be acutely toxic.

Conclusion

The sample of effluent collected from this facility on 28 May, 1996, was acutely toxic to *Menidia beryllina* and *Mysidopsis bahia*. The dechlorinated sample tests also showed toxicity to both test species. We attribute a portion of the observed toxicity to the total residual chlorine and unionized ammonia concentrations in the sample and part to an undetermined constituent(s) of the sample.

Table 1. Data recorded during the 48-hour acute toxicity screening bioassays of a sample of effluent from the Miami-Dade North District WWTP, North Miami, Dade County, Florida, NPDES#FL0013607, performed on 29 to 30, May, 1996.

Chlorinated Test

Facility:	Miami-Dade North District Wastewater Treatment Plant	NPDES #	FL0013607	Facility Type:	Wastewater Treatment
Location:	2575 N.E. 15th Street, North Miami	Contact/District:	Shiv Shahi/Southeast		
County:	Dade	Test type:	static acute screen		
Sample Collection Date:	5/28/96 Time: 1130	# tests:	4	Receiving Water:	Atlantic Ocean
Test Beginning Date:	5/29/96 Time: 1400	Chlorination Type:	Chlorinated		
Test Ending Date:	5/30/96 Time: 1400				

Total Residual CL2	mg/L	Method
Field:	1.7	-
Lab:	0.63	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	<0.017	0.00
Control Water (mysids):	< 0.017	0.00
100% Sample:	2.68	0.009
Salinity-adjusted Sample:	2.93	0.012

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	115	265
Control Water (mysids):	135	-
100% Sample:	150	355
Salinity-adjusted Sample:	160	-

Salinity	(ppt)
Control Water (fish):	1.3
100% Sample:	1.3
Control Water (mysids):	6.0
Salinity-adjusted Sample:	6.0

Organism: ***Mysidopsis bahia*** Life stage: 4 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected mmhos/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	24 hour
Control A	0/500	5	5	-	8.2	8.3	-	24.9	24.2	-	7.5	7.6	-	10.53	10.39
Control B	0/500	5	5	-	8.2	8.3	-	24.9	24.2	-	7.6	7.6	-	10.53	10.39
Control C	0/500	5	5	-	8.2	8.3	-	24.9	24.2	-	7.6	7.6	-	10.53	10.39
Control D	0/500	5	5	-	8.2	8.3	-	24.9	24.2	-	7.6	7.5	-	10.54	10.42
100% A	500/0	5	0	-	6.8	7.6	-	24.9	24.2	-	7.7	7.6	-	10.57	10.50
100% B	500/0	5	0	-	6.8	7.6	-	24.8	24.1	-	7.7	7.5	-	10.57	10.46
100% C	500/0	5	0	-	6.8	7.6	-	24.8	24.1	-	7.9	7.6	-	10.57	10.45
100% D	500/0	5	0	-	6.8	7.6	-	24.8	24.1	-	7.9	7.6	-	10.58	10.48

[A] Temperature of test room was continously recorded on a strip chart recorder.
Room temperature range for the test period was 24.5-25.5°C.

Organism: ***Menidia beryllina*** Age: 13 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected mmhos/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	24 hour
Control A	0/500	5	5	-	8.0	8.2	-	25.0	24.2	-	7.8	7.8	-	2.49	2.47
Control B	0/500	5	5	-	8.0	8.2	-	24.9	24.2	-	7.9	7.7	-	2.49	2.46
Control C	0/500	5	5	-	8.0	8.2	-	24.9	24.1	-	7.9	7.8	-	2.49	2.46
Control D	0/500	5	5	-	8.0	8.2	-	24.9	24.1	-	7.9	7.8	-	2.49	2.46
100% A	500/0	5	0	-	6.7	7.5	-	25.6	24.1	-	8.1	7.9	-	2.63	2.55
100% B	500/0	5	0	-	6.7	7.5	-	25.7	24.1	-	8.0	7.8	-	2.63	2.54
100% C	500/0	5	0	-	6.7	7.5	-	25.7	24.1	-	8.0	7.9	-	2.63	2.55
100% D	500/0	5	0	-	6.7	7.5	-	25.6	24.1	-	8.0	7.9	-	2.62	2.55

[B] Temperature of test room was continously recorded on a strip chart recorder.
Room temperature range for the test period was 24.5-25.5°C.

Continued

Table 1. Concluded. Data recorded during the 48-hour acute toxicity screening bioassays of a sample of effluent from the Miami-Dade North District WWTP, North Miami, Dade County, Florida, NPDES#FL0013607, performed on 29 to 31, May, 1996.

Dechlorinated Test

Facility: **Miami-Dade North District Wastewater Treatment Plant** NPDES # **FL0013607** Facility Type: **Wastewater Treatment**
Location: 2575 N.E. 15th Street, North Miami Contact/District: Shiv Shahi/Southeast
County: Dade Test type: static acute screen
Sample Collection Date: 5/28/96 Time: 1130 # tests: 4 Receiving Water: Atlantic Ocean
Test Beginning Date: 5/29/96 Time: 1400 Chlorination Type: **Dechlorinated**[A]
Test Ending Date: 5/31/96 Time: 1400 **Page 2 of 2**

[A] Sample dechlorinated in the laboratory with 0.9 ml of 0.025 N sodium sulfate per liter of sample.

Organism: ***Mysidopsis bahia*** Life stage: 4 days

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[B] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity Uncorrected mmhos/cm 0 hour	48 hour
Control A	0/500	5	5	5	8.2	8.2	8.4	24.9	24.1	24.5	7.4	7.7	7.3	10.53	10.41
Control B	0/500	5	5	5	8.2	8.2	8.3	24.9	24.1	24.4	7.4	7.6	7.3	10.55	10.47
Control C	0/500	5	4	4	8.2	8.2	8.3	24.9	24.1	24.3	7.5	7.5	7.2	10.55	10.33
Control D	0/500	5	5	5	8.2	8.2	8.4	24.9	24.1	24.3	7.5	7.5	7.2	10.54	10.33
100% A	500/0	5	5	4	7.1	7.7	8.2	24.4	24.1	24.3	7.6	7.5	7.1	10.60	10.72
100% B	500/0	5	5	2	7.1	7.7	8.2	24.3	24.1	24.2	7.6	7.4	7.0	10.59	10.65
100% C	500/0	5	5	3	7.1	7.7	8.1	24.3	24.1	24.2	7.6	7.2	7.0	10.59	10.64
100% D	500/0	5	5	4	7.1	7.7	8.1	24.3	24.1	24.2	7.7	7.1	6.9	10.58	10.69

[B] Temperature of test room was continously recorded on a strip chart recorder. Room temperature range for the test period was 24.5-25.5°C.

Organism: ***Menidia beryllina*** Age: 13 days

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[C] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity Uncorrected mmhos/cm 0 hour	48 hour
Control A	0/500	5	5	5	7.9	8.2	8.4	24.9	24.0	24.1	7.7	7.7	7.8	2.48	2.47
Control B	0/500	5	5	5	7.9	8.2	8.4	24.9	23.9	24.0	7.7	7.6	7.7	2.49	2.46
Control C	0/500	5	5	5	7.9	8.2	8.4	24.9	23.9	24.0	7.7	7.7	7.8	2.49	2.46
Control D	0/500	5	4	4	7.9	8.2	8.4	24.9	24.0	24.1	7.8	7.8	7.9	2.49	2.46
100% A	500/0	5	5	5	6.8	7.6	8.2	25.8	24.0	24.1	7.4	7.8	7.2	2.63	2.55
100% B	500/0	5	5	4	6.8	7.6	8.2	25.8	24.0	24.2	7.4	7.7	7.2	2.63	2.54
100% C	500/0	5	3	0	6.8	7.6	8.2	25.8	23.9	24.1	7.4	7.7	7.2	2.64	2.55
100% D	500/0	5	5	1	6.8	7.6	8.2	25.8	24.1	24.2	7.4	7.7	7.2	2.64	2.55

[C] Temperature of test room was continously recorded on a strip chart recorder. Room temperature range for the test period was 24.5-25.5°C.

Total Residual CL2	mg/L	Method
Field:	-	-
Lab:	0.04*	DR-100

*Interference not believed to be chlorine.

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	<0.017	0.00
Control Water (mysids):	< 0.017	0.00
100% Sample:	3.20	0.015
Salinity-adjusted Sample:	3.11	0.024

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	115	265
Control Water (mysids):	135	-
100% Sample:	150	355
Salinity-adjusted Sample:	170	-

Salinity	(ppt)
Control Water (fish):	1.3
100% Sample:	1.3
Control Water (mysids):	6.0
Salinity-adjusted Sample:	6.0

Table 2. Results of chemical analyses on effluent from the Miami-Dade North District WWTP sampled on May 28, 1996.

Metals

Aluminum	219	µg/L
Cadmium	0.1	µg/L[I]
Calcium	67.5	mg/L
Copper	14	µg/L
Iron	323	µg/L
Magnesium	40.2	mg/L
Nickel	6	µg/L[I]
Silver	1.0	µg/L[A]
Zinc	35	µg/ L

Pesticides and Herbicides

Atrazine	0.13	µg/L[I]

Base, Neutral, & Acid Extractable Organics

none detected

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

[I] Value reported is less than the minimum quantitation limit and greater than or equal to the minimum detection limit.

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: MDWASA WWTP
County: DADE
Contact / District: Shiv Shahi / Southeast
NPDES Permit #: FL00 13607
LIMS Sample #: 140182 (sampled/rec'd 6/3/96) LIMS Job #: 96-MAY-29-01-01

Sample Collection: Date 5/28/96 Time 1130
Test Beginning: Date 5/29/96 Time ~~1400~~ 1400 DW
Test Ending: Date 5/30/96 Time 1400
Organism Batch #: 146 Diluent Batch #: 22
Organism Age: 4 days
Test Organism: Mysidopsis bahia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 1 of 4

Remarks: C/-

Test terminated @ 24 hrs.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.5 @ 23.6	8.2 @ 25.5 °C	106.1 @ 105.4 995 @ 1025 @ 24.9 °C (9930 @ 9869)
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.0	8.3 @ 24.6 °C	105.8 @ 105.4 1020 @ 1025 @ 24.0 °C (7600 @ 9869)
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.0 @ 24.0	8.2 @ 25.4 °C	1030 @ 1025 9630 @ 9869 @ 25.5 °C

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
CTL A	26	5	5		8.2	8.3		24.9	24.2		7.5	7.6		10.53	10.39	
CTL B	219	5	5		8.2	8.3		24.9	24.2		7.6	7.6		10.53	10.39	
CTL C	148	5	5		8.2	8.3		24.9	24.2		7.6	7.6		10.53	10.39	
CTL D	21	5	5		8.2	8.3		24.9	24.2		7.6	7.5		10.54	10.42	
100% A	216	5	0		6.8	7.6		24.9	24.2		7.7	7.6		10.57	10.50	
100% B	25	5	0		6.8	7.6		24.8	24.1		7.7	7.5		10.57	10.46	
100% C	309	5	0		6.8	7.6		24.8	24.1		7.9	7.6		10.57	10.45	
100% D	20	5	0		6.8	7.6		24.8	24.1		7.9	7.6		10.58	10.48	
Measured/Loaded by:		MF	DW		MF	DW		MF	DW		MF	DW		MF	DW	
Recorded by:		DW	DW		DW	TM		DW	TM		DW	TM		DW	TM	

Investigators' Signatures

Tina M. Kulakis
Marshall Faircloth
[illegible]

A. H. Wolfe
reviewer

form updated 5/05/95

Water Quality Parameters	Salt Water ASW 60‰ Well Water	20% Min Water	Sample 6.0‰	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.7	—	Terry Davis
Lab Total Residual Cl2 (mg/L):	<0.03	—	0.63	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	135	—	160	Hach	TM
Hardness (mg/L as $CaCO_3$):	—	—	—	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	2.93	Orion	JN

Ammonia Meter #98136 Ammonia Meter Slope: -54.1 Ammonia Blank: <0.017 Control Salinity: 6.0 ppt Sample Salinity: 6.0 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: MDWASA WWTP
County: DADE
Contact / District: Shiu Shahi / SouthEAST
NPDES Permit #: FL0013607
LIMS Sample #: 140182 (sample log. 6-3-96) LIMS Job #: 96-MAY-29-01-01

Sample Collection: Date 5/28/96 Time 1130
Test Beginning: Date 5/29/96 Time 14:00
Test Ending: Date 5/30/96 Time 1400
Organism Batch #: 19 Diluent Batch #: 32
Organism Age: 13 days
Test Organism: Menidia beryllina

Test Type: ~~Screening~~ | Definitive
~~Static~~ | Static Renewal | Flow-through

Test Number: 2 of 4

Remarks: C/-
Test terminated @ 24 hrs.

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.5 @ 23.6	8.2 @ 25.5 °C	106.1 @ 105.4 995 @ 1025 @ 24.9 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.0	8.3 @ 24.6 °C	105.8 @ 105.4 1020 @ 1025 @ 24.0 °C
48 hr	___ @ 7.0 ___ @ ___	___ @ ___	___ @ ___ @ ___ °C	___ @ ___ ___ @ ___ @ ___ °C

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
ctl A	602	5	5		8.0	8.2		25.0	24.2		7.8	7.8		2.49	2.47	
ctl B	48	5	5		8.0	8.2		24.9	24.2		7.9	7.7		2.49	2.46	
ctl C	136	5	5		8.0	8.2		24.9	24.1		7.9	7.8		2.49	2.46	
ctl D	317	5	5		8.0	8.2		24.9	24.1		7.9	7.8		2.49	2.46	
100% A	79	5	0		6.7	7.5		25.6	24.1		8.1	7.9		~~2.65~~	255	
100% B	775	5	0		6.7	7.5		25.7	24.1		8.0	7.8		~~2.65~~	254	
100% C	763	5	0		6.7	7.5		25.7	24.1		8.0	7.9		~~2.64~~	255	
100% D	308	5	0		6.7	7.5		25.6	24.1		8.0	7.9		~~2.65~~	255	
Measured/Loaded by:		DW	DW		MF	DW		MF	DW		MF	DW		MF	DW	
Recorded by:		MF	DW		DW	TM		DW	TM		DW	TM		DW	TM	

0 hr DW
2.63 mean
2.63 room chamber mid range
2.62 stock

Investigators' Signatures

Tina M. Kyle
Marshall Faircloth
Joseph Morris

reviewer

form updated 5/05/95

Water Quality Parameters	Salt Water ASW 1.3‰ Well Water	20% Min Water	1.3‰ Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.7	—	Terry Davis
Lab Total Residual Cl2 (mg/L):	<0.03	—	0.63	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	115	—	155	Hach	TM
Hardness (mg/L as $CaCO_3$):	265	—	360	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	2.68	OMon	JN

Ammonia Meter #98136 Ammonia Meter Slope: -54.1 Ammonia Blank: <0.017 Control Salinity: 1.3 ppt Sample Salinity: 1.3 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: MDWASA WWTP
County: DADE
Contact / District: Shiv Shahi
NPDES Permit #: FL0013607
LIMS Sample #: 140182 LIMS Job #: 96-MAY-29-01-01

Sample Collection: Date 5/28/96 Time 1130
Test Beginning: Date 5/29/96 Time 1400
Test Ending: Date 5-31-96 Time 1400
Organism Batch #: 146 Diluent Batch #: 22
Organism Age: 4 days
Test Organism: Mysidopsis bahia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 3 of 4

Remarks: De Cl⁻
An aliquot of the sample was dechlorinated with 0.9 ml of 0.025 N Sodium Thiosulfate per liter of sample.
48 hour Total Ammonia concentration was 3.24 mg/L

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 7.0 @ 7.0	23.5 @ 23.6	8.2 @ 25.5 °C	106.1 @ 105.4 995 @ 1025 @ 24.9 °C 9530 @ 9865
24 hr	7.0 @ 7.0 7.0 @ 9.0	24.1 @ 24.0	8.3 @ 24.6 °C	105.8 @ 105.4 1021 @ 1025 @ 24.0 °C 9760 @ 9965
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.0 @ 24.0	8.2 @ 25.4 °C	1030 @ 1025 9630 @ 9869 @ 25.5 °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
Ctl A	630	5	5	5	8.2	8.2	8.4	24.9	24.1	24.5	7.4	7.7	7.3	10.53	10.38	10.41
Ctl B	350	5	5	5	8.2	8.2	8.3	24.9	24.1	24.4	7.4	7.6	7.3	10.55	10.37	10.47
Ctl C	607	5	4 10	4	8.2	8.2	8.3	24.9	24.1	24.3	7.5	7.5	7.2	10.55	10.40	10.33
Ctl D	718	5	5	5	8.2	8.2	8.4	24.9	24.1	24.3	7.5	7.5	7.2	10.54	10.39	10.33
100% A	501	5	5	4 10	7.1	7.7	8.2	24.4	24.1	24.3	7.6	7.5	7.1	10.60	10.62	10.72
100% B	88	5	5	2 30	7.1	7.7	8.2	24.3	24.1	24.2	7.6	7.4	7.0	10.59	10.57	10.65
100% C	502	5	5	3 20	7.1	7.7	8.1	24.3	24.1	24.2	7.6	7.2	7.0	10.59	10.45	10.64
100% D	601	5	5	4 10	7.1	7.7	8.1	24.3	24.1	24.2	7.7	7.1	6.9	10.58	10.63	10.69
Measured/Loaded by:		MF	DW	DW	MF	DW	MF	MF	DW	MF	MF	DW	MF	MF	DW	MF
Recorded by:		DW	DW	DW	DW	TM	TM	DW	TM	TM	DW	TM	TM	DW	TM	TM

Investigators' Signatures
Tina Mikulasko
Marshall Faircloth
Joseph Bloom

reviewer

form updated 5/05/95

Water Quality Parameters	Salt Water ASW 6.0‰ Well Water	20% Min Water	Sample 6.0‰	Method	Measured by
Field Total Residual Cl2 (mg/L):			—	—	—
Lab Total Residual Cl2 (mg/L):	<0.03	—	0.04	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	135	—	170	Hach	TM
Hardness (mg/L as $CaCO_3$):	—	—	—	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	3.11	ORION	JN

Ammonia Meter #98136 Ammonia Meter Slope: -54.1 Ammonia Blank: <0.017 Control Salinity: 6.0 ppt Sample Salinity: 6.0 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: MDWASA WWTP
County: DADE
Contact / District: Shiv Shahi / SOUTHEAST
NPDES Permit #: FL0013607
LIMS Sample #: 140182 LIMS Job #: 96-MAY-29-01-01

Sample Collection: Date 5/28/96 Time 1130
Test Beginning: Date 5/29/96 Time 1402
Test Ending: Date 5-31-96 Time 1400
Organism Batch #: 19 Diluent Batch #: 22
Organism Age: 13 days
Test Organism: Menidia beryllina

Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

Test Number: 4 of 4

Remarks: $DeCl^-$.
An aliquot of the sample was dechlorinated with 0.9 ml of 0.025N Sodium Thiosulfate per liter of sample.
48 hour total Ammonia concentration was 336 mg/L

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 7.0 @ 7.0	23.5 @ 23.6	8.2 @ 25.5 °C	106.1 @ 105.4 955 @ 1025 @ 24.9 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.0	7.3 @ 24.6 °C	9530 @ 9869 105.F @ 105.4 1020 @ 1025 @ 24.0 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.0 @ 24.0	8.2 @ 25.4 °C	SC = @ 9869 1030 @ 1025 9630 @ 9869 @ 25.5 °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
CtrA	608	5	5	5	7.9	8.2	8.4	24.9	24.0	24.1	7.7	7.7	7.8	2.48	2.49	251
Ctr B	76	5	5	5	7.9	8.2	8.4	24.9	23.9	24.0	7.7	7.6	7.7	2.49	2.48	250
Ctr C	366	5	5	5	7.9	8.2	8.4	24.9	23.9	24.0	7.7	7.7	7.8	2.49	2.48	250
Ctr D	500	5	4 10	4	7.9	8.2	8.4	24.9	24.0	24.1	7.8	7.8	7.9	2.49	2.49	250
100%A	1272	5	5	5	6.8	7.6	8.2	25.8	24.0	24.1	7.4	7.8	7.2	2.63	2.59	261
100%B	44	5	5	4 10	6.8	7.6	8.2	25.8	24.0	24.2	7.4	7.7	7.2	2.63	2.60	263
100%C	413	5	3 20	0 20	6.8	7.6	8.2	25.8	23.9	24.1	7.4	7.7	7.2	2.64	2.58	261
100%D	503	5	5	1 40	6.8	7.6	8.2	25.8	24.1	24.2	7.4	7.7	7.2	2.64	2.66	268
Measured/Loaded by:		OW	OW	OW	MF	DW	MF	MF	OW	MF	MF	DW	MF	MF	DW	MF
Recorded by:		MF	OW	OW	OW	TM	TM	OW	TM	TM	OW	TM	TM	OW	TM	TM

Investigators' Signatures

Reviewer

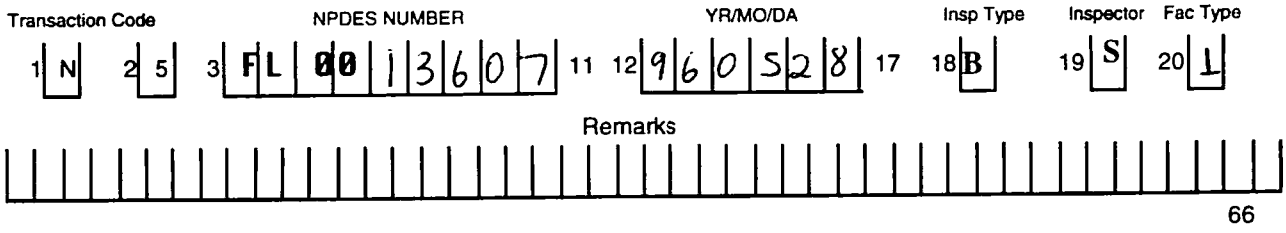
form updated 5/05/95

Water Quality Parameters	Salt Water Aqw 1.3‰ Well Water	20% Min Water	Sample (1.3‰)	Method	Measured by
Field Total Residual Cl2 (mg/L):			—	—	—
Lab Total Residual Cl2 (mg/L):	<0.03	—	0.04	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):	115	—	150	Hach	TM
Hardness (mg/L as $CaCO_3$):	265	—	355	Hach	TM
Total ammonia (mg/L as N):	<0.017	—	3.20	ORION	JN

Ammonia Meter #98136 Ammonia Meter Slope: -54.1 Ammonia Blank: <0.017 Control Salinity: 1.3 ppt Sample Salinity: 1.3 ppt

The Bioassay of the Miami-Dade North District WWTP effluent sampled on May 28, 1996, NPDES #FL0013607.

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



The Priority Pollutants Analysis for the Bioassay of the Miami-Dade North District WWTP effluent sampled on May 28, 1996, NPDES #FL0013607.

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

