



Bioassays of
Seminole Fertilizer - Ammonia Terminal
Tampa, Hillsborough County, Florida
NPDES #FL0038652
Sampled 8/3/92

September 1992

Biology Section
Division of Technical Services

Introduction

Seminole Fertilizer - Ammonia Terminal, Tampa, Hillsborough County, Florida, NPDES #FL0038652, tests performed on 4 to 6 August, 1992.

This facility is located at 3421 Port Sutton Road in Tampa. The terminal receives liquid ammonia (-45°F) from barges for storage in tanks prior to shipment to fertilizer processing facilities. The terminal takes 1.3 MGD of thermal effluent from TECO, mixed with seawater from the bay, into its 1800 gpm heat exchanger system. As the ammonia is heated by the heat exchanger system to 80°F for transport via pipe or rail, the thermal effluent/seawater in the condenser is cooled to 80°F prior to discharge. The condenser water is then discharged to the Port Sutton Ship Channel in Hillsborough Bay (personal communication SW district staff).

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 48-hour static acute screening toxicity bioassay on a sample of condenser water from this facility. The salinity of the sample was 24 ppt, therefore, the bioassay organisms used for this test was the mysid shrimp, *Mysidopsis bahia*. The control water for the tests was adjusted to a similar salinity using an artificial sea salt mixture (Forty Fathoms®); 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.

Conclusion

The sample collected from this facility on 3 August, 1992, did not show toxicity.

Table 1. Concentration Series and Volumes Used for the 48-hr Static Acute Screening Bioassays of the Seminole Fertilizer - Ammonia Terminal on 4 to 6 August, 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. Data recorded during the 48-hour acute screening bioassay of a sample of effluent from the Seminole Fertilizer - Ammonia Terminal, Tampa, Hillsborough County, Florida, NPDES# FL0038652, performed on 4 to 6 August, 1992.

Facility: Seminole Fertilizer - Ammonia Terminal Location: Tampa County: Hillsborough Sample Collection Date: 8/3/92 Test Beginning Date: 8/4/92 Test Ending Date: 8/6/92		NPDES # FL0038625 Contact/District: Kathy Hicks / SW Test type: static acute screen # tests: 1 Chlorination Type: unchlorinated		Facility Type: Liquid Ammonia Storage Terminal Receiving Water: Hillsborough Bay Page 1 of 1	
Time: 1015 Time: 1400 Time: 1400					
Organism: <i>Mysidopsis bahia</i> Age: 1-2 days					
SURVIVAL # at 0 hr Live at 24 hr Live at 48 hr		pH 0 hour 24 hour 48 hour		Temperature 0 hour 24 hour 48 hour	
Control	5	5	5	5	5
Control	5	5	5	5	5
100%	5	5	5	5	5
100%	5	5	5	5	5
		Dissolved Oxygen 0 hour 24 hour 48 hour		Conductivity 0 hour 24 hour	
		8.4 8.2 8.0		7.8 7.3 7.1	
		8.4 8.2 8.0		7.8 7.3 7.1	
		8.0 8.0 8.0		6.9 7.3 7.2	
		8.0 8.0 8.0		6.9 7.3 7.2	
				31,900 32,200	
				38,000 37,700	

Total Residual Cl₂		mg/l		Method	
Field:		not measured			
Lab:		0.0		Hach	
Ammonia		Total (mg/l)		Unionized (mg/l)	
Control Water (mysids):		0.00		0.00	
100% Sample:		0.00		0.00	
Alk & Hardness		Alkalinity (mg/l)		Hardness (mg/l)	
Control Water (mysids):		90		-	
100% Sample:		114		-	
Salinity (ppt)					
Control Water:		20.3			
100% Sample:		24.2			

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: SEMINOLE FERTILIZER Sample Collection: Date 8-3-92 Time 10:15
 Address/City: _____ Test Beginning: Date 8-4-92 Time 1400
 County: HILLSBOROUGH Test Ending: Date 8/6/92 Time 1400
 Contact/District: KATHY HICKS / SW Test Organism: M. BAHIA
 NPDES Permit #: FL00 Outfall #: _____ Life Stage/Age: 1-2 days

Test Number: 1 of 1 Test Type: Screening / Definitive 38712 92-AUG-04-14
 Static / Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

pH DO Temp Cond @ 24.
 0 hr 7.10 @ 10 8.5 @ 24.0 23.9 @ 962 @ 1000
 24 hr 7.10 @ 10 8.4 @ 25 24.2 @ 24.2 986 @ 1K
 48 hr 7.10 @ 10 8.5 @ 24.0 24.5 @ 24.5 989 @ 244

* body not found mf 8/6/92

Conc.	Chamber #	Number Live			pH			Temp. (°C)			DO (mg/L)			Cond. (µmhos/cm)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
control	16	5	5	5	8.4	8.2	8.0	24.0	23.2	23.5	7.8	7.3	7.1			
control	32	5	5	5	8.4	8.2	8.0				7.8	7.3	7.1	31900	31800	32200
100%	142	5	5	4*	8.0	8.0	8.0	25.0	23.1	23.7	6.9	7.3	7.2			
100%	4	5	5	5	8.0	8.0	8.0				6.9	7.3	7.2	38000	36900	37700
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	KP	KP	KP	KP	KP	KP	KP	KP	KP	KP	KP	KP

Investigators' Signatures
Kim Pearce
Marshall Faircloth
[Signature]
 Reviewer

	Water-quality Parameters			
	Well Water	Cond. Water	Sample	Method Measured by
Field Tot. Resid. Clz:			not measured	
Lab Tot. Resid. Clz:		0.0	0.0	Heck MF
Alkalinity:		90	41K	Heck KP
Hardness:			114	recorded 14 guppies here
Total Ammonia:	0.0	0.0	0.0	Orion MF
Ammonia Meter Slope:	-55.6			
Ammonia Blank:		0.0		
Salinity Sample:			24.2	KP ppt

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

Transaction Code 1 N 2 5 3 FL 00 38 65 2 11 12 9 2 0 8 0 3 17 18 B 19 S 20 Q

Remarks
N O T T O X I C T O M Y S I D S

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

Transaction Code 1 N 2 5 3 FL 00 38 65 2 11 12 9 2 0 8 0 3 17 18 X 19 S 20 Q

Remarks