

Bioassays of

Trademark Nitrogen Corporation

Tampa, Hillsborough County, Florida

NPDES #FL0000647

Sampled 12/17/01

May 2002

Biology Section
Division of Resource Assessment & Management
Comprehensive Quality Assurance Plan #870346G

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Tampa, Hillsborough County, Florida

NPDES #FL0000647

Biology Section
Bureau of Laboratories
May 2002

Introduction

Trademark Nitrogen Corporation, 1216 Old Hopewell Road, Tampa, Hillsborough County, Florida, NPDES #FL0000647, tests performed on 18 to 20 December 2001.

This fertilizer production plant has a wastewater treatment facility with a design flow of 25.0 MGD and a five-year average flow of 13.7 MGD. The wastewater consists of boiler blowdown, boiler water softener backwash, cooling tower blowdown, once-through non-contact cooling water, and contact stormwater run-off from the facility. The wastewater is treated in an unlined, vegetated detention ditch system. This system provides for nutrient uptake and settling of solids. The wastewater is pH-adjusted if necessary and aerated prior to discharge into the Class III fresh water of the Palm River. A Consent Order was issued on July 14, 1992 for groundwater contamination requiring remediation. This Consent Order is still open. Another Consent Order was issued on January 19, 2000 to address exceedances in dissolved oxygen, unionized ammonia, total nitrogen, and temperature. The Consent Order issued on January 19, 2000 was closed on January 18, 2002 (facility summary provided by Cindy Cathy, FDEP, Tampa).

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 collected from Outfall 001 of this facility, using the freshwater test species, the waterflea, *Ceriodaphnia dubia,* and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity to either test species within 48 hours (Tables 1).

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. Further chemical analyses were performed on the sample, and several metals were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on December 17, 2001, did not show acute toxicity to either test species within 48 hours.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Trademark Nitrogen Corportation, 1216 Old Hopewell Road, Tampa, Hillsborough County, Florida, NPDES# FL0000647 performed from 18 to 20 December 2001.

Facility:	**Trademark Nitrogen Corporation**		**NPDES #**	**FL0000647**	Facility Type:	**Fertilizer**	**Analysts:** Della Parker-Hanson
Location:	1216 Old Hopewell Road		Contact/District:	Grainger/Southwest		**Production Plant**	Joshua Ayres
County:	Hillsborough		Test type:	static acute screen			Gary Hardie
Sample Collection Date:	12/17/01	Time: 1300	# tests:	2	Receiving Water:	Palm River	
Test Beginning Date:	12/18/01	Time: 1445	Chlorination Type:	non-chlorinated			
Test Ending Date:	12/20/01	Time: 1450				**Page 1 of 1**	**Reviewer:** David Whiting

Organism: ***Ceriodaphnia dubia*** Life stage: <24 hours

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected µmhos/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	48 hour
Control A	0/20	5	5	5	8.1	-	8.3	24.3	-	24.8	8.1	-	7.8	160	155
Control B	0/20	5	5	5	-	-	8.3	-	-	24.6	-	-	7.6	-	170
Control C	0/20	5	5	5	-	-	8.3	-	-	24.5	-	-	7.6	-	175
Control D	0/20	5	5	5	-	-	8.4	-	-	24.6	-	-	7.6	-	180
100% A	20/0	5	5	5	7.2	-	8.0	24.5	-	24.5	7.9	-	7.6	520	530
100% B	20/0	5	5	5	-	-	8.0	-	-	24.5	-	-	7.6	-	555
100% C	20/0	5	5	5	-	-	8.0	-	-	24.5	-	-	7.7	-	550
100% D	20/0	5	5	5	-	-	8.0	-	-	24.4	-	-	7.7	-	565

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-26.0 °C.
Incubator #2 temperature range for the test period was 25.0-25.5°C.

Organism: ***Cyprinella leedsi*** Life stage: 15 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected µmhos/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	48 hour
Control A	0/500	5	5	5	7.9	8.1	8.5	26.0	25.2	25.4	7.2	7.4	6.9	260	275
Control B	0/500	5	5	5	8.0	8.3	8.6	26.0	25.3	25.7	7.5	7.4	6.9	270	280
Control C	0/500	5	5	5	8.0	8.3	8.5	26.0	25.3	25.5	7.6	7.4	6.9	270	285
Cotnrol D	0/500	5	5	5	8.0	8.3	8.5	26.0	25.2	25.2	7.6	7.3	7.1	275	280
100% A	500/0	5	5	5	7.0	7.8	7.8	24.9	25.1	25.2	7.8	7.2	7.2	560	580
100% B	500/0	5	5	5	7.0	7.6	7.8	24.7	25.2	25.2	7.8	7.3	7.2	570	585
100 % C	500/0	5	5	5	7.0	7.7	7.8	24.6	25.2	25.8	7.8	7.3	6.8	575	625
100% D	500/0	5	5	5	7.0	7.7	7.8	24.5	25.1	25.8	7.8	7.3	6.8	570	615

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-26.0°C.
Incubator #3 temperature range for the test period was 24.025.5°C.

Data Transcription Verification	
date:	4/9/02
by:	Gary Hardie Joshua Ayres

Total Residual CL2	mg/L	Method
Field:	-	-
Lab:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water (fish):	<0.017	<0.017
Control water (water flea):	<0.017	<0.017
100% Sample:	<0.017	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water (fish):	145	145
Control water (water flea):	78	79
100% Sample:	44	249

Table 2. Results of chemical analyses on the effluent from Trademark Nitrogen Corporation sampled on December 17, 2001.

Metals

Calcium	79.6 mg/L	
Iron	45 µg/L	[I]
Magnesium	10.7 mg/L	

Pesticides and Herbicides

None detected

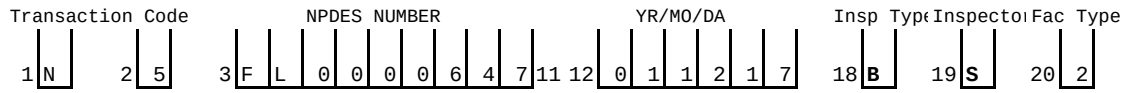
Base, Neutral, & Acid Extractable Organics

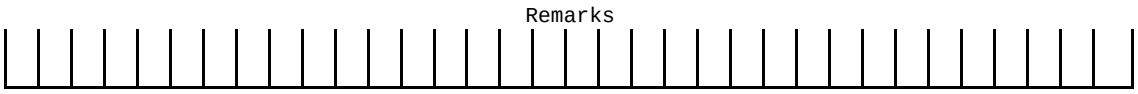
None detected

[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

The Bioassay of Trademark Nitrogen Corporation effluent sampled on December 17, 2001, NPDES #FL0000647.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X





The Priority Pollutants Analysis for Bioassay of Trademark Nitrogen Corporation effluent sampled on December 17, 2001, NPDES #FL0000647.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, X

