

Bioassays of

Northwest Regional Water Reclamation Facility

Odessa, Hillsborough County, Florida

NPDES #FL0041670

Sampled 3/11/02

June 2002

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Northwest Regional Water Reclamation Facility

Odessa, Hillsborough County, Florida

NPDES #FL0041670

Biology Section
Bureau of Laboratories
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Introduction

Northwest Regional Water Reclamation Facility, 10890 South Mobley Road, Odessa, Hillsborough County, Florida, NPDES #FL0041670, tests performed on 12 to 14 March 2002.

This facility has a design flow of 5.0 MGD and an annual average daily flow of 0.3 MGD. Treatment of the wastewater includes screening, degritting, the Bardenpho ® process, filtration, chlorination, dechlorination using sulfur dioxide, and reaeration. After treatment the effluent is discharged into the Class III fresh waters of Rockey Creek via Channel A (facility information provided by Joe Squitieri, 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 this facility. The test species used for these bioassays were the waterflea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity to either test species within 48 hours (Table 1).

Total residual chlorine was not detected in the bioassay sample in the laboratory. Total and unionized ammonia were 0.243 mg/L and 0.008 mg/L, respectively in the bioassay sample. Further chemical analyses were performed on the sample, and several metals and several herbicides were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on March 11, 2002, did not show acute toxicity to the either test species within 48 hours.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Northwest Regional Water Reclamation Facility, 10890 South Mobley Road, Odessa, Hillsborough County, Florida, NPDES# FL0041670, performed from 12 to 14 March 2002.

Facility:	**Northwest Regional WRF**		**NPDES #**	**FL0041670**	Facility Type:	**Water Reclamation**	**Analysts:** Della Parker-Hanson
Location:	10890 South Mobley Road		Contact/District:	Grainger/Southwest		**Facility**	Joshua Ayres
County:	Hillsborough		Test type:	static acute screen			Gary Hardie
Sample Collection Date:	3/11/02	Time: 1100	# tests:	2	Receiving Water:	Rockey Creek	Marshall Faircloth
Test Beginning Date:	3/12/02	Time: 1535	Chlorination Type:	chlorinated			
Test Ending Date:	3/14/02	Time: 1530		sample collected after dechlorination		**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	-	8.6	24.3	-	24.0	8.0	-	8.2	170	180
Control B	0/20	5	5	5	-	-	8.6	-	-	24.0	-	-	8.0	-	180
Control C	0/20	5	5	5	-	-	8.6	-	-	24.0	-	-	8.0	-	190
Control D	0/20	5	5	5	-	-	8.6	-	-	24.0	-	-	7.9	-	190
100% A	20/0	5	5	5	7.7	-	8.5	24.5	-	24.0	8.0	-	7.5	1020	935
100% B	20/0	5	5	5	-	-	8.5	-	-	24.0	-	-	7.7	-	1040
100% C	20/0	5	5	5	-	-	8.5	-	-	24.1	-	-	7.8	-	1100
100% D	20/0	5	5	5	-	-	8.5	-	-	24.1	-	-	7.8	-	1080

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-25.0 °C.
Incubator #3 temperature range for the test period was 24.5-26.0°C.

Organism: ***Cyprinella leedsi*** Life stage: 10 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	7.8	8.2	8.4	24.1	24.2	24.9	8.1	7.8	7.9	260	270
Control B	0/500	5	5	5	7.8	8.2	8.4	24.1	24.0	25.2	8.1	7.8	7.9	260	275
Control C	0/500	5	5	5	7.9	8.2	8.4	24.1	23.9	25.3	8.1	7.8	7.7	260	275
Cotnrol D	0/500	5	5	5	7.9	8.2	8.4	24.1	24.0	25.6	8.2	7.7	7.7	260	275
100% A	500/0	5	5	5	7.6	8.1	8.4	24.2	24.0	25.8	8.1	7.7	7.8	1040	1205
100% B	500/0	5	5	5	7.6	8.1	8.3	24.6	23.8	25.2	7.8	7.6	7.7	1070	1095
100 % C	500/0	5	5	5	7.6	8.2	8.4	24.6	23.8	25.2	7.6	7.6	7.7	1075	1115
100% D	500/0	5	5	5	7.6	8.2	8.4	24.5	24.0	25.1	7.6	7.6	7.7	1070	1105

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-25.0°C.
Incubator #3 temperature range for the test period was 24.5-26.0°C.

LIMS	
Job number:	TLH-2002-03-12-35
sample number:	581902

Data Transcription Verification	
date:	5/2/02
by:	Jacquelyn Brynda
	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:	0.243	0.008

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water (fish):	142	134
Control water (water flea):	72	74
100% Sample:	172	223

Table 2. Results of chemical analyses on the effluent from Northwest Regional Water Reclamation Facility sampled on March 11, 2002.

Metals

Aluminum	110	µg/L	[I]
Calcium	67	mg/L	
Copper	2.3	µg/L	[I]
Iron	47	µg/L	[I]
Lead	0.35	µg/L	[I]
Magnesium	5	mg/L	
Zinc	38.9	µg/L	

Pesticides and Herbicides

Atrazine	0.22	µg/L	
Diazinon	1.1	µg/L	
Norflurazon	0.12	µg/L	[I]

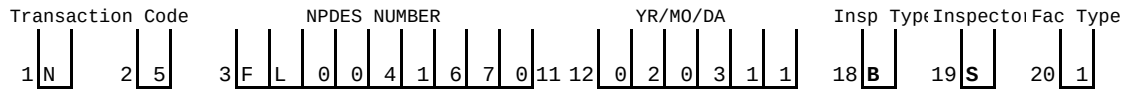
Base, Neutral, & Acid Extractable Organics

None detected

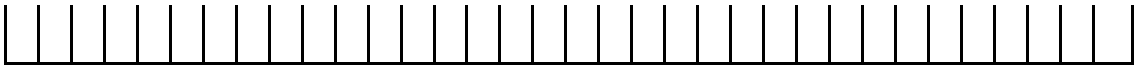
[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

The Bioassay of Northwest Regional Water Reclamation Facility

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



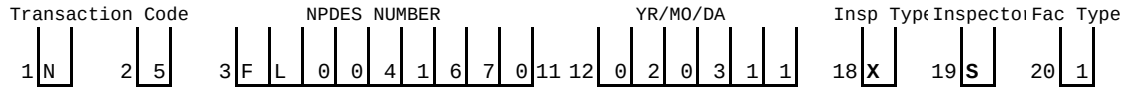
Remarks



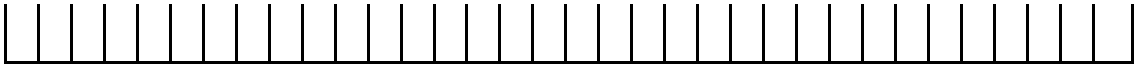
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The Priority Pollutants Analysis for Bioassay of Northwest Regional Water Reclamation Facility effluent sampled on March 11, 2002, NPDES #FL0041670.

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



Remarks



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