

Bioassays of

Timber Energy Resources, Inc.

Telogia, Liberty County, Florida

NPDES #FL0039951

Sampled 2/4/02

May 2002

Biology Section
Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

Bioassays of

Timber Energy Resources, Inc.

Telogia, Liberty County, Florida

NPDES #FL0039951

Biology Section
Bureau of Laboratories
May 2002

Introduction

Timber Energy Resources, Inc., State Road 65, Telogia, Liberty County, Florida, NPDES #FL0039951, tests performed on 5 to 7 February 2002.

This power-generating facility has a design flow of 0.10 MGD and a three-month average flow of 0.09 MGD. The wastewater discharged from this facility includes cooling tower blowdown, condenser steam, neutralized demineralized backwash water, contact and non-contact cooling water, water for temperature reduction of blowdown water, and stormwater runoff from the ash piles. The wastewater treatment system consists of a temperature stabilization/transfer station, a settlement basin, and a concrete-lined cooling basin. Sediment basins will be used to treat stormwater runoff from the ash piles once they are constructed. After treatment, the effluent is discharged into an unnamed ditch that flows into the Class III fresh waters of Stokes Branch. A Consent Order was issued on July 28, 1999, for reporting incorrect background data in the discharge monitoring reports. Several violations for pH, average flow, copper and temperature occurred from January to December of 2001 (facility information provided Eric Kitchen and Angela Schrift, FDEP, Pensacola).

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. 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 (Tables 1).

Total residual chlorine was 0.04 mg/L in the field and 0.04 mg/L in the bioassay sample in the laboratory. Total and unionized 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 February 5, 2002, 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 Timber Energy Resources, Inc. State Road 65, Telogia, Liberty County, Florida, NPDES# FL0039951 performed from 5 to 7 February 2002.

Facility:	**Timber Energy Resources, Inc.**	**NPDES #**	**FL0039951**	Facility Type:	**Electric**	**Analysts:**	Della Parker-Hanson
Location:	State Road 65	Contact/District:	Kitchen/Northeast		**Generating**		Joshua Ayres
County:	Liberty	Test type:	static acute screen		**Plant**		Gary Hardie
Sample Collection Date:	2/5/02 Time: 1000	# tests:	2	Receiving Water:	Stroke's Branch		Marshall Faircloth
Test Beginning Date:	2/5/02 Time: 1415	Chlorination Type:	Chlorinated				
Test Ending Date:	2/7/02 Time: 1415		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	8.2	-	8.4	25.4	-	24.2	8.3	-	8.0	165	200
Control B	0/20	5	5	5	-	-	8.4	-	-	24.2	-	-	8.0	-	200
Control C	0/20	5	5	5	-	-	8.4	-	-	24.2	-	-	7.9	-	200
Control D	0/20	5	5	5	-	-	8.4	-	-	24.1	-	-	7.9	-	205
100% A	20/0	5	5	5	7.8	-	8.6	25.3	-	24.0	7.7	-	8.0	1230	1450
100% B	20/0	5	5	5	-	-	8.6	-	-	24.4	-	-	8.0	-	1325
100% C	20/0	5	5	5	-	-	8.6	-	-	24.3	-	-	8.0	-	1405
100% D	20/0	5	5	3	-	-	8.6	-	-	24.1	-	-	8.0	-	1450

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.5-25.0°C.
Incubator #3 temperature range for the test period was 24.5-25.5°C.

Organism: ***Cyprinella leedsi*** Life stage: 8 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	8.4	8.5	24.8	23.6	23.0	7.7	7.8	7.9	260	255
Control B	0/500	5	5	5	7.9	8.4	8.5	24.4	23.7	23.0	7.7	7.7	7.6	255	265
Control C	0/500	5	5	5	7.9	8.4	8.5	24.2	23.6	23.0	7.7	7.8	7.7	255	270
Cotnrol D	0/500	5	5	5	7.9	8.4	8.5	24.1	23.6	23.0	7.8	7.8	7.7	255	270
100% A	500/0	5	5	5	7.8	8.3	8.4	24.4	23.6	23.1	7.4	7.8	7.8	1250	1265
100% B	500/0	5	5	5	7.8	8.3	8.4	24.7	23.7	23.3	7.4	7.8	7.7	1270	1285
100 % C	500/0	5	5	5	7.8	8.3	8.4	24.7	23.7	23.3	7.4	7.7	7.6	1250	1295
100% D	500/0	5	5	5	7.8	8.3	8.4	24.7	23.5	23.1	7.5	7.6	7.6	1265	1300

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.5-25.0°C.
Incubator #3 temperature range for the test period was 24.5-25.5°C.

LIMS	
Job number:	TLH-2002-02-05-39
sample number:	574838

Data Transcription Verification	
date:	4/8/02
by:	Della Parker-Hanson
	Cathy Oaks

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):	134	126
Control water (water flea):	76	79
100% Sample:	142	690

Table 2. Results of chemical analyses on the effluent from Timber Energy Resources, Inc. sampled on February 5, 2002.

Metals

Cadmium	0.027	µg/L	I
Calcium	213	mg/L	
Copper	15.6	µg/L	A
Iron	340	µg/L	
Magnesium	31.1	mg/L	
Nickel	25.9	µg/L	
Zinc	7.3	µg/L	I

Pesticides and Herbicides

None detected

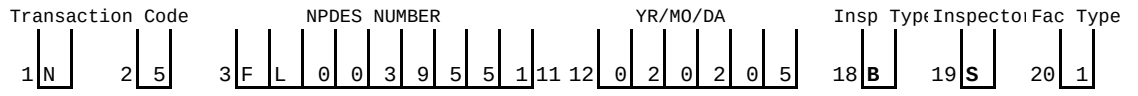
Base, Neutral, & Acid Extractable Organics

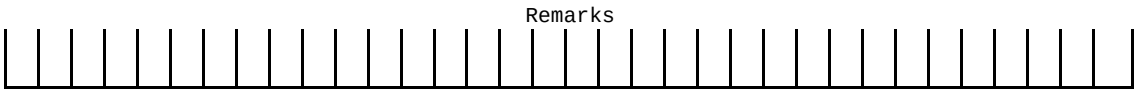
None detected

[A] Value reported is the mean of two or more determinations.
[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

The Bioassay of Timber Energy Resources, Inc. effluent sampled on February 5, 2002, NPDES #FL0039951.

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

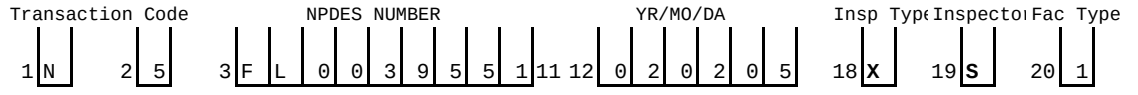


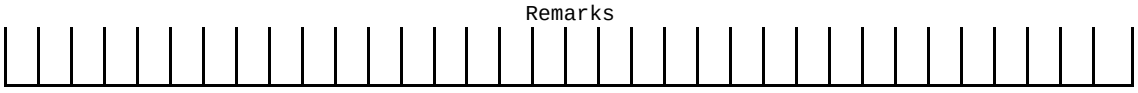


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The Priority Pollutants Analysis for Bioassay of Timber Energy Resources, Inc. effluent sampled on February 5, 2002, NPDES #FL0039951.

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





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