FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

BIOLOGY SECTION

Bioassays of

Georgia-Pacific

Palatka, Putnam County, Florida

NPDES #FL0002763

Sampled 6/10/91

July 3, 1991

Biology Section
Division of Administrative and Technical Services

Bioassays of

Georgia-Pacific

Palatka, Putnam County, Florida

NPDES #FL0002763

Biology Section
Bureau of Laboratories
July 3, 1991

Introduction

Georgia-Pacific, Palatka, Putnam County, Florida, NPDES #FL0002763, on 11 to 13 June, 1991.

This facility, formerly Hudson Pulp and Paper, is located on State Road 216, about 3 miles north of Palatka in Putnam County. The mill produces 950 tons of paper products per day using both unbleached kraft and bleached pulp processes. The process wastewater comprises about one half of the effluent. Treatment prior to discharge includes primary clarification and 40 days nominal retention in four oxidation ponds. The treated wastewater is aerated in the last pond by several mechanical aerators. Effluent is discharged at the rate of 27 to 50 MGD. Discharge is to Rice Creek, a tributary of the St. Johns River.

The toxicity tests discussed in this report were performed in accordance with methods described by Peltier and Weber, 1985, *Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms*, 3rd Edition, and by the FDER Biology Section, 1985, *Quality Assurance Manual for Performing Acute Toxicity Tests*, 2nd Edition.

Results and Discussion

The Biology Section performed two static acute screening toxicity bioassays on a sample of effluent from this facility. The bioassay test organisms, the water flea, *Ceriodaphnia dubia*, and the fish, *Notropis leedsi*, were used for these tests. The test results indicated that the sample was not toxic to *N. leedsi*. Although the 100% effluent test concentration produced 20% mortality in the *C. dubia*, an LC_{50} cannot be calculated from the data.

The sample was unchlorinated with a total ammonia concentration of 4.2 mg/L and an unionized ammonia concentration 0.05 mg/L. No further chemical analyses were performed on the sample.

Conclusion

The sample of effluent from this facility was not toxic to *N. leedsi* on 10 June, 1991. The 20% mortality observed in *C. dubia* indicated that additional definitive testing is recommended.

Table 1. Concentration Series and Volumes Used for the Static Acute Screening Bioassays of the Gerogia-Pacific facility on 11 to 13 June, 1991.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20.0 mL	0.0 mL	20 mL
100%	0.0 mL	20.0 mL	20 mL

Notropis leedsi (bannerfin shiner)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100.0%	0 mL	500 mL	500 mL

Table 2. Data recorded during the static acute screening bioassay of a sample of effluent from the Georgia-Pacific facility, Palatka, Putnam County, Florida, NPDES # Fl0002763, on 11 to 13 June, 1991.

Facility: **Georgia Pacific**
Location: P.O. Box 919, Palatka
County: Putnam
Sample Collection Date: **6/10/91** Time: 1140
Test Beginning Date: 6/11/91 Time: 1230
Test Ending Date: 6/13/91 Time: 1300

NPDES # FL0002763
Contact/District: J. Wright / NE
Test type: static acute screen
tests: 2
Chlorination Type: **not chlorinated**

Facility Type: **Paper Mill**
Receiving Water: Rice Creek

Total Residual Cl2	mg/l	Method
Lab:	0.0	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.00	0.00
Cond. Control Water (daphnids):	0.00	0.00
100% Sample:	4.20	0.05

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	110	118
Cond. Control Water (daphnids):	58	75
100% Sample:	105	120

Organism: ***Ceriodaphnia dubia*** Life stage: <24 hours
LC50: - Binomial: - Moving Average: - Probit: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	8.2	9.2	8.8	8.2	8.3	8.3	21.5	21.1	21.3	164	181
Control	5	5	4	-	-	-	-	-	-	-	-	-	-	-
Control	5	5	4	-	-	-	-	-	-	-	-	-	-	-
Control	5	5	5	-	-	-	-	-	-	-	-	-	-	-
100%	5	5	4	7.7	9.2	8.7	7.4	8.3	8.3	22.0	21.2	21.6	554	555
100%	5	5	3	-	-	-	-	-	-	-	-	-	-	-
100%	5	5	5	-	-	-	-	-	-	-	-	-	-	-
100%	5	5	4	-	-	-	-	-	-	-	-	-	-	-

Organism: ***Notropis leedsi*** Age: 18 days
LC50: - Binomial: - Moving Average: - Probit: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	8.2	9.0	8.4	7.8	8.2	8.3	21.0	21.0	21.1	-	-
Control	5	5	5	8.3	9.0	8.4	7.8	8.2	8.3	-	-	-	243	246
100%	5	5	5	7.5	8.2	8.0	7.3	7.8	7.9	23.0	21.0	21.1	-	-
100%	5	5	5	7.6	8.2	7.9	7.3	7.8	7.8	-	-	-	611	593

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DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: GEORGIA-PACIFIC
Address/City:
County: PUTNAM
Contact/District: JIM WRIGHT / NE.
NPDES Permit #: FL0002763 **Outfall #:**

Sample Collection: Date 6-10-91 Time 1140
Test Beginning: Date 6-11-91 Time 1230
Test Ending: Date 6-13-91 Time 1300
Test Organism: CERIODAPHNIA DUBIA
Life Stage/Age: < 24 HOURS

Test Number: 1 of 2 **Test Type:** (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7@7.9@9	8.8@22	1311@23.8 @1375	21@23.5
24 hr	7@7.9@9	8.8@22	1376@24.3 @1359	21.5@24.1
48 hr	7@7.9@9	8.8@22	1377@24.1 @1383	21.9@ 24.3

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (umhos/cm) 0	24	48
CONTROL	A	5	5	5	8.2	9.2	8.8	8.2	8.3	8.3	21.5	21.1	21.3	164	170	181
CONTROL	B	5	5	4												
CONTROL	C	5	5	4	7.7 MF											
CONTROL	D	5	5	5												
100%	A	5	5	4	7.7	9.2	8.7	7.4	8.3	8.3	22.0	21.2	21.6	554	556	555
100%	B	5	5	3												
100%	C	5	5	5												
100%	D	5	5	4												
Measured/Loaded by:		MH	MF	MF	KD	MF	MF	KD	MF	MF	KD	MF	MF	KD	MF	MF
Recorded by:		KD	MF	MF	AD	KD	KD	KD	MF	MF	KD	KD	KD	KD	KD	KD

Investigators' Signatures

Kim Peacock
David M Fowlkes
Allison Jordan
[illegible]

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			0.2	Hach	MF
Lab Tot. Resid. Cl2:			0.0	HACH	MF
Alkalinity:					
Hardness:					
Total Ammonia:					

Ammonia meter used:

Sample Source: GEORGIA-PACIFIC

Address/City:

County: PUTNAM

Contact/District: JIM WRIGHT / NE

NPDES Permit #: Outfall #:

Sample Collection: Date 6-10-91 Time 1140

Test Beginning: Date 6-11-91 Time 1230

Test Ending: Date 6-13-91 Time 1300

Test Organism: NOTROPIS LEEDS

Life Stage/Age: 18 DAYS

Test Number: 2 of 2 Test Type: (Screening) | Definitive

(Static) | Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7@7.9@9	8.3@22	1371@23.8 / @1375	21@23.5
24 hr	10 7.9@7	8.5@22	1376@24.3 / @1369	21.5@24.1
48 hr	7@7.9@9	8.5@22	1377@24.1 / @1383	21.9@24.3

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
CONTROL	4-5	5	5	5	8.2	9.0	8.4	7.5	8.2	8.3	21.0	21.0	21.1	276	294	316
CONTROL	6-7	5	5	5	8.3	9.0	8.4	7.8	8.2	8.3						
100%	1-2	5	5	5	7.5	8.2	8.0	7.3	7.8	7.9	23.0	21.0	21.1	511	583	592
100%	3-8	5	5	5	7.6	8.2	7.9	7.3	7.8	7.8						

Measured/Loaded by: MF MF MF | MF MF MF | MF MF MF | MF MF MF | MF MF MF

Recorded by: MF MF MF | MF MF MF | MF MF MF | MF MF MF | MF MF MF

Investigators' Signatures

Water-quality Parameters

	Wall Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl:					
Lab Tot. Resid. Cl:					
Alkalinity:					
Hardness:					
Total Ammonia:					

Ammonia meter slope: