

Biological Assessment of

Georgia Pacific Corporation – Palatka Operations

Putnam County

NPDES #FL0002763

Sampled October 2, 2006

March 2007

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	Georgia Pacific Corporation – Palatka Operations
Physical Address:	Highway 216, Palatka
County:	Putnam
NPDES Number:	FL0002763
Permit Expiration:	August 5, 2007

Toxics Sampling Inspection **(XSI)**

Date Sampled: October 2, 2006

Results: Effluent chromium, copper, iron, lead, nickel, and zinc were detected at levels that complied with the Class III Water Quality Criteria 62-302.530 F.A.C. and facility permit limits. Arsenic and cadmium were detected in the effluent at levels above the method detection limits (MDL) and below the practical quantitation limits (PQL). Organic constituents were not detected in the effluent.

Levels of chromium, copper, lead, nickel, and zinc were higher at the Test Site compared to the Control Site; all metals at the Test and Control Sites complied with Class III Water Quality Criteria.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: October 2, 2006

Results: The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during the 48-hour acute screening bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: October 2, 2006

Results: Effluent pH and dissolved oxygen complied with Class III Water Quality Criteria (62-302 F.A.C.) and facility permit limits. The effluent conductivity (2,537 µmhos/cm) exceeded the Class III Water Quality Criteria (≤ 1,275 µmhos/com, 62-302(23)530 F.A.C.) and the facility permit limit (≤ 2,467 µmhos/cm). Conductivity and pH at the Control Site complied with Class III Water Quality Criteria; however, the dissolved oxygen was below the 5.0 mg/L criterion at the Control Site (2.3 mg/L, 62-302(31)530 F.A.C). Dissolved oxygen and pH complied with Class III Freshwater Criteria at the Test Site while the conductivity (2,338 µmhos/cm) exceeded the Class III Criterion (≤ 1,275 µmhos/com, 62-302(23)530 F.A.C.). Effluent total phosphorus (0.63 mg/L), nitrate+nitrite (0.3 mg/L), and total Kjeldahl nitrogen (2.6 mg/L) levels contributed to higher concentrations at the Test Site (0.63 mg/L, 0.29 mg/L, 2.6 mg dry wt/L) compared to the Control Site (0.081 mg/L, 0.028 mg/L, 0.66 mg dry wt/L).

Impact Bioassessment Inspection **(IBI)**

Date Sampled: October 2, 2006

Results: The effluent and Test Site algal growth potential (AGP) levels were above the 5 mg dry wt/L problem threshold (12.4 and 7.35 mg dry wt/L, respectively). The Control Site AGP was below the threshold (1.78 mg dry weight/L). This suggests nutrient enrichment in this portion of Rice Creek due to the addition of the effluent. Quantitative Hester-Dendy samples showed no signs of impairment in the macroinvertebrate community at the Test Site compared to the Control Site.

Biological assessments are prepared by FDEP staff to provide information for review of NPDES permit renewal applications. Biological assessments, in conjunction with other information concerning the subject facility and its receiving-water body, are used to determine appropriate permit conditions.

Introduction

The Georgia Pacific Corporation's Palatka Plant is located in Putnam County, Florida (Appendix A). This facility is a fully integrated pulp and paper mill producing both unbleached and bleached pulp and paper using the kraft process. Products include kraft paper and finished tissue products. Activities at this plant include primary clarification followed by secondary treatment that consists of more than 364 hectares (900 acres) of facultative and aerobic lagoons. Solids from the primary clarifier are pumped to sludge lagoons for dewatering and then land-applied on site. Treated effluent is discharged through an effluent riffle channel to Outfall D-001 and D-002 with effluent for side-stream oxygenation discharged at Outfall D-002. There is a 16.5 meter mixing zone for dissolved oxygen, total recoverable iron, total recoverable cadmium, total recoverable lead, ammonia (un-ionized), turbidity, specific conductance and a 376 meter mixing zone for color. A liquid oxygen injection system injects oxygen at Outfall D-001 to offset the Biochemical Oxygen Demand (BOD) of the effluent (see Facility Summary in Appendix B). Effluent from Outfalls D-001 and D-002 is discharged to the Class III fresh water of Rice Creek, which eventually flows into the St. Johns River. The design flow of the wastewater system is 40 million gallons per day (MGD). The mean flow for the year preceding this survey was 16.79 MGD and the flow during the survey was 17.8 MGD (Facility Summary in Appendix B).

The facility also operates and maintains an on-site solid waste disposal facility, which receives clean construction debris, calcium carbonate, boiler ash, and other solids generated as by-products from the pulping and papermaking operation. They also operate and maintain the surface-water management system including in-line retention basins 1, 4, 5 and wet detention basin 2 to receive and treat storm water runoff from the solid waste disposal area. The solid waste disposal area generally does not discharge, barring extreme events such as hurricanes.

The permit has been modified to add an additional outfall (D-003) which directly discharges into the St. Johns River through a 318 meter (1,043-foot) pipeline leading to a submerged diffuser. Prior to including Outfall D-003, the facility completed substantial manufacturing process improvements. These improvements were: 1) the construction of a new bleach line; 2) enhanced oxygen delignification system; 3) new brownstock washing systems to replace four existing wash lines; 4) green liquor dregs filter; 5) minimize all pulping liquor leaks and spills; 6) handling the chlorine dioxide generator waste; and 7) required appurtenances.

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the Facility Summary and the facility's Discharge Monitoring Reports (DMRs), during the months of July 2005 and July 2006, dissolved oxygen excursions resulted in formal enforcement. In DMR data from October 2005-October 2006, there were four exceedances (two for Outfall D-001 and two for Outfall D-002) of the facility's injected dissolved oxygen limit (1,677 lbs/day) and one dissolved oxygen excursion (Appendix B).

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Rice Creek approximately 1,500 meters upstream of the discharge) and a Test Site (located in the Rice Creek approximately 50 meters downstream of the discharge); both sites are tidally influenced. Detailed methods and their relationship to Florida Administrative Code are given in Appendix C.

All field and laboratory biological methods followed Biology Section Standard Operating Procedures (SOPs, see http://www.floridadep.org/labs/qa/2002sops.htm for details) and met FDEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm).

The following were involved in this investigation: Pat O'Connor, Tom Kallemeyn, Chet McGhee, Joe Emery, and Michael Bogin (FDEP NE District), and FDEP Central Laboratory in Tallahassee. See Appendix D for the chain of custody form (sample submittal form). The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Shannan Bogdanov, and Michael Tanski).

Results and Discussion

- Specific chemical results are reported in Table 1 and a complete list of chemical analytes can be reviewed in Appendix E. Effluent metals chromium, copper, iron, lead, nickel, and zinc were detected at levels that complied with Class III Water Quality Criteria (62-302.530 F.A.C.) and facility permit limits. The metals arsenic and cadmium were detected in the effluent at levels above the method detection limit (MDL) and below the practical quantitation limit (PQL). No organic priority pollutants were detected in the effluent.
- The iron concentration in the Control Site sample complied with Class III Water Quality Criteria. Chromium, copper, and lead were detected in Control Site samples at levels above the method detection limit (MDL) and below the practical quantitation limit (PQL). In the Test Site sample, chromium, copper, iron, lead, nickel, and zinc were detected at levels that complied with Class III Water Quality Criteria and arsenic and cadmium were detected at the Test Site at levels above the MDL and below the PQL.

Table 1. Effluent limits, Class III Criteria and chemical, microbiological, and toxicological data.

Georgia Pacific Corporation - Palatka Operations	Class III Stds	Effluent Limits	Effluent Samples	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	-	-	-
Metals (µg/L unless otherwise noted)					
Aluminum	-	-	2710	437 A	2290
Arsenic	≤ 50	-	1.1 I	0.5 U	1.1 I
Cadmium	≤ 1.9 b	≤ 3.46 s	0.087 I	0.05 U	0.069 I
Calcium (mg/L)	-	-	55.4	23.3 A	52.7
Chromium-III	≤ 143.6 b	-	3.11	0.45 I	2.67
Copper	≤ 15.9 b	-	3.2	0.33 I	2.7
Iron	≤ 1000	≤ 2910 s	398	588 A	456
Lead	≤ 7 b	≤ 5.87 s	1.09	0.76 I	1.05
Magnesium (mg/L)	-	-	11.7	7.3 A	11.4
Nickel	≤ 88.4 b	-	14.2	1 U	12.8
Selenium	≤ 5	-	0.5 U	0.5 U	0.5 U
Silver	≤ 0.07	-	0.025 U	0.025 U	0.025 U
Zinc	≤ 203.2 b	≤ 203.2 b	19	3 U	16
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.27	-	-
Total Phosphorus	-	-	0.63	0.081	0.63
Ammonia	-	report s	0.045	0.028	0.038
Unionized Ammonia	≤ 0.02	0.11; 0.13 c**	< 0.02 c	< 0.02 c	< 0.02 c
Nitrate+Nitrite	-	-	0.3	0.028	0.29
Total Kjeldahl Nitrogen	-	report s	2.6	0.66	2.6
Organic Nitrogen	-	-	2.56 c	0.63 c	2.56 c
Total Nitrogen	-	report s	2.9 c	0.69 c	2.89 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	103	108
Dissolved Oxygen (mg/L)	≥ 5 s	≥ 2.7 s	5.4	2.3	8.8
pH (S.U.)	6.0-8.5 s	6.0-8.5 s	8.2	6.8	7.9
Conductivity (umhos/cm)	≤ 1275 s	≤ 2467s	2537	371	2338
Temperature (C)	-	report s	27.4	22.2	26
Color (PCU)	-	≤ 1202 s	750	150 ***	600 ***
Total Suspended Solids (mg/L)	-	report *	12 I s	10 ***	6 ***
Volatile Suspended Solids (mg/L)	-	-	5 ***	4 ***	4 ***
Fixed Suspended Solids (mg/L)	-	-	2 K ***	6 ***	2 ***
Turbidity (NTU)	41 t	report s	20	12 ***	18.4 ***
Chloroform (µg/L)	-	-	0.2 U s	-	-
COD (mg/L)	-	report *	210 s	-	-
BOD, 5 day (mg/L)	-	report *	9.2 s	2 K ***	5 ***
Chlorophyll a (µg/L)	-	-	20 A	0.85 U	1.7 U
Phaeophytin (µg/L)	-	-	3 U	1.5 U	3 U
Flow (MGD)	-	report	17.8	-	-
Hardness (mg/L)	-	report s	186.5 c	-	-
Toxicity (48-hour acute screening bioassay, percent mortality in 100% effluent)					
Bioassay - Fish - *Cyprinella leedsi*	-	NOEC ≥ 100% *	0% s	-	-
Bioassay - Water flea - *Ceriodaphnia dubia*	-	NOEC ≥ 100% *	15% s	-	-

Value exceeds the Class III Water Quality Criteria or permit limits

* - Effluent limit based on a 24 hour composite sample

** - Effluent limit based on season: summer=June 1-Nov. 30; winter=Dec.1-May 31

*** - Values are from Northeast District Lab (see Appendix F)

a - Annual average

b - Value is calculated based on hardness

c - Value is calculated

s - Single sample

t - Shall not exceed 29 NTUs above background

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.

K - Actual value is known to be less than value given

U - Material analyzed for but not detected; value reported is the method detection limit

Table 2. Measured and predicted algal growth potential (AGP) for total soluble nitrogen (TSIN) and ortho

Georgia Pacific	AGP (measured)	AGP (salinity adjusted)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	12.4	3 AU	13.11 ± 2.622	110.2 ± 22.04	1.28	4.6
Control Site	1.78	-	2.13 ± 0.426	26.14 ± 5.228	ND	8.49
Test Site	7.35	3 U	12.46 ± 2.492	109.82 ± 21.964	ND	4.59

A - Value reported is the mean of two or more determinations
U - Material analyzed for but not detected; value reported is the method detection limit
ND - No Data; ortho-phosphate sample not shipped to lab for processing; calculation not possible

- Effluent pH and dissolved oxygen complied with Class III Water Quality Criteria (62-302.530 F.A.C.) and facility permit limits. The effluent conductivity (2,537 µmhos/cm) exceeded the Class III Water Quality Criteria (≤ 1,275 µmhos/com, 62-302 (23)530 F.A.C.) and the facility permit limit (≤ 2,467 µmhos/cm).
- Conductivity and pH at the Control Site complied with Class III Water Quality Criteria; however, the dissolved oxygen was below the 5.0 mg/L criterion at the Control Site (2.3 mg/L, 62-302(31)530 F.A.C). Dissolved oxygen and pH complied with Class III Freshwater Criteria at the Test Site (Table 1). The Test Site conductivity (2,338 µmhos/cm) exceeded the Class III Criterion (≤ 1,275 µmhos/com, 62-302(23)530 F.A.C.).
- The addition of the effluent to Rice Creek resulted in higher levels of color, Biological Oxygen Demand (BOD), and turbidity at the Test Site compared to Control Site (Table 1). Color was four times as high at the Test Site (600 PCU) compared to the Control Site (150 PCU). BOD was two and a half times as high (Test Site = 5 mg/L, Control Site = 2 mg/L) and turbidity was one and a half times as high (Test Site = 18.4 NTU, Control Site = 12 NTU).
- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during 48-hour acute screening bioassays. The 15% mortality in the *C. dubia* tests was not statistically significant different from the control and is therefore in compliance with the permit limit of a No Observed Effect Concentration (NOEC) ≥ 100% (See Table 1 for percent mortality, Appendix F for bioassay bench sheets, and Appendix G for supporting standard reference toxicant data). While the 48-hour acute screening toxicity tests do not reflect the permit required conditions, the Department uses it to provide reasonable assurance that the facility does not adversely affect waters of the state.
- The effluent total nitrogen concentration was 2.9 mg/L and ortho-phosphate was 0.27 mg/L (Table 1). Effluent total phosphorus (0.63 mg/L), total ammonia (0.045 mg/L), nitrate+ nitrite (0.3 mg/L), and total Kjeldahl nitrogen (2.6 mg/L) concentrations appeared to contribute to levels at the Test Site. Nutrients were elevated in Test Site samples compared to those of the Control Site. Concentrations of nitrate+nitrite, total phosphorus, and total Kjeldahl nitrogen in Test Site samples ranked in the 70-90th percentiles when compared to levels typical of Florida streams (Appendix H). These same nutrients ranked among the 10-30th percentiles of typical values for Florida streams in the Control Site samples.
- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al.* 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry wt/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value at the upstream Control Site was 1.78 mg dry wt/L (Table 2). The AGP values of the downstream Test Site (7.35 mg dry wt/L) and the effluent (12.4 mg dry wt/L) were above this threshold. This indicates there is nutrient enrichment related to the Georgia Pacific discharge in this portion of the Rice Creek. There was not evidence of growth inhibition in AGP data (Table 2).
- Chlorophyll-*a* measured 20 mg/L in the effluent sample, but was not detected in water samples from the Control or Test Sites (Table 1). We note that nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. pH, shading, turbidity). Thus, it is not necessarily contradictory for ambient nutrient levels to be high and for no chlorophyll to be detected in water samples.

Table 3. Macroinvertebrate Hester-Dendy Samples - Quantitative

Georgia Pacific	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	2.33	2.54
Number of Taxa	16	11
Florida Index	5	4
Number of EPT Taxa	2	1
Percent Dominant Taxon	49.7	35.3
Dominant Taxon (name)	*Gammarus* sp.	*Gammarus* sp.
Dominant Taxon (group)	Amphipoda	Amphipoda
Total Number of Individuals (counted)	263	635
Total Number of Individuals (#/m2)	697	1680
Community Composition: Percent of total		
Amphipoda	50.9	39.5
Coleoptera	0.8	0
Diptera	25.5	39.5
Ephemeroptera	15.9	0
Plecoptera	0	0
Trichoptera	6.8	20.8
Other	0.1	0.2
Functional Feeding Groups: Percent of total		
Browser / Grazer Feeders	24.9	17.6
Burrowing Deposit Feeders	0	0
Predators	3.4	10.3
Scavengers	24.9	17.6
Scrapers	8.5	0
Shredders	0.8	2.3
Surface Deposit Feeders	28.5	25.2
Suspension Feeders	8.9	27.0
Unknown	0	0

- Habitat assessment scores were 103 and 108 at the Control and Test Sites, respectively (Table 1, data sheets in Appendix I). Habitat smothering and the amount and quality of habitat were marginally better at the Test Site compared to the Control Site resulting in a slightly higher score.
- The dipteran, *Dicrotendipes simpsoni*, which is tolerant of nutrient enrichment, increased from 29 individuals at the Control Site to 208 individuals at the Test Site in the Hester-Dendy samples (Simpson and Bode 1980). Furthermore, the Ephemeropteran, *Stenacron floridense,* is intolerant of nutrient enrichment (Bouchard et. al. 2000) and was common at the Control Site (111 individuals) and completely absent from the Test Site (Table 3 and Appendix J).
- The Stream Condition Index (SCI) was undergoing recalibration during the period in which the qualitative macroinvertebrate samples were collected and therefore are not available for reporting.

Summary

There were four exceedances of the injected dissolved oxygen limit and one excursion of dissolved oxygen during the year prior to this inspection, according to DMR data. Nutrients were substantially higher at the Test Site compared to the Control Site. For example, nitrate+nitrite was an order of magnitude higher and total phosphorus was eight times higher at the Test Site compared to the Control Site.

The effluent conductivity was elevated above the facility's permit limit and the Class III Criterion (≤ 1,275 µmhos/com, 62-302(23)530 F.A.C.). Elevated conductivities are known to reduce the presence of sensitive macroinvertebrate taxa (FDEP 2005). The Shannon-Weaver Diversity Index was marginally better at the Test Site compared to the Control Site in the quantitative Hester-Dendy samples; however, there was an increase in nutrient tolerant taxa at the Test Site which may be a cause for concern. Additional monitoring and permit requirements may be warranted based on these results.

Literature Cited

Barbour, M. T. and J. B. Stribling. 1994. A technique for assessing stream habitat structure. In: Proceedings of Riparian Ecosystems in the Humid United States: Functions and Values. U. S. Dept. Agriculture. 15-18 March 1993, Atlanta, Ga. 22 pp.

Beck, W. M. Jr. 1954. Studies in stream pollution biology 1. A simplified ecological classification of organisms. Quart. J. Fla. Acad. Sci. 17 (4): 211-227.

Bouchard Jr, R, W., D. G. Huggins and B. Hayford. 2000. PROJECT REPORT: On a comparison and analysis of macroinvertebrate community health between the Tyson and Alcan Branches (Pettis Co., Missouri. Prepared by the Central Plains Center for Bioassessment (CPCB) Kansas Biological Survey, University of Kansas, Lawrence, Kansas Submitted to: Missouri Department of Natural Resources Division of Environmental Quality 1110 S College Ave Columbia, MO 65201.

FDEP. 2005. Statistical Analysis of Surface Water Quality Specific Conductance Data. Bureau of Laboratories, Biology Section.

Fore, L. 2004. Development and Testing of Biomonitoring Tools for Macroinvertebrates in Florida Streams.

Magurran, A. E. 1988. Ecological diversity and its measurement. Princeton University Press, Princeton, New Jersey.

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Plafkin, J. L., M. T. Barbour, K. D. Porter, S. K. Gross and R. M. Hughes. 1989. Rapid bioassessment protocols for use in streams and rivers: Benthic macroinvertebrates and fish. U. S. EPA, Office of Water Regulations and Standards, Washington D.C., EPA 440-4-89-001.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Ross, L. T. 1990. Methods for aquatic biology. Florida Department of Environmental Regulation Technical Series 10(1): 1-47.

Simpson, K. W. and R. W. Bode. 1980. Common larvae of Chironomidae (Diptera) from New York streams and rivers. New York State Museum Bulletin No. 439.

Sokal, R. R. and F. J. Rohlf. 1995. Biometry, Third edition. W. H. Freeman and Company, New York.

Stevenson, R. J. and L. L. Bahls. 1999. Periphyton protocols. Pp. 6.1-6.22 in: Rapid bioassessment protocols for use in wadeable streams and rivers. 2nd edition. By: M. T. Barbour, J. Gerritsen, B. D. Snyder and J. B. Stribling. EPA 841-B-99-002. U. S. Environmental Protection Agency, Office of Water, Washington, D. C.

Stevenson, R. J. and J. P. Smol. 2003. Use of algae in environmental assessments, pp. 775-803, in: Freshwater algae of North America, edited by J. D. Wehr and R. G. Sheath, Academic Press, San Diego. 918 pp.

Wallace, J. B., J. W. Grubaugh and M. R. Whiles. 1996. Biotic indices and stream ecosystem processes: results from an experimental study. Ecol. Appl. 6(1): 140-151.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

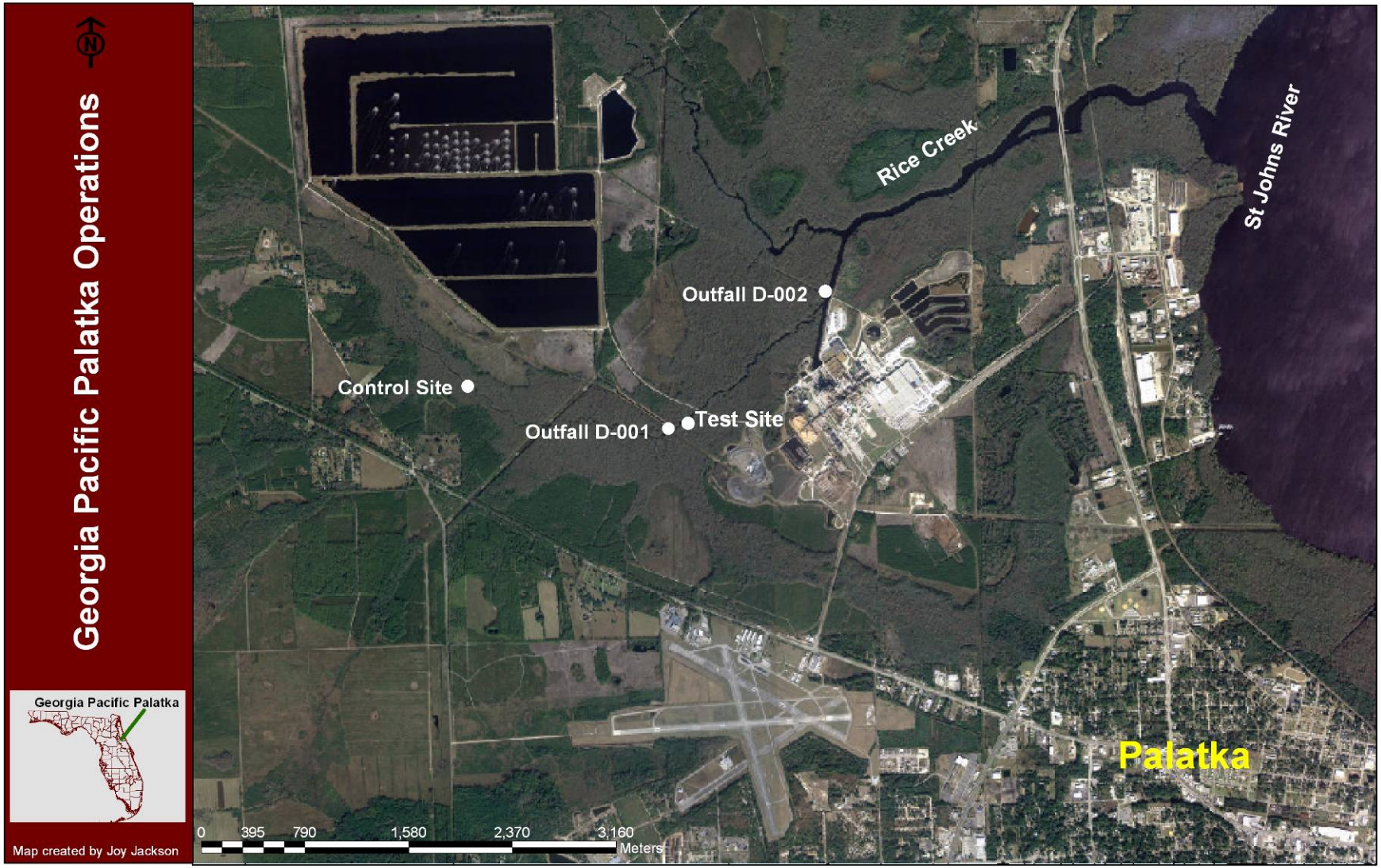
USEPA. 2002. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. 4th Edition. EPA-821-R-02-013.

Appendices

- Appendix A. Map of facility
- Appendix B. Facility summary and DMR data
- Appendix C. Explanation of measurements
- Appendix D. Chain of Custody form
- Appendix E. Chemical analyses of effluent and receiving water.
- Appendix F. Additional physical, chemical, toxicological and microbiological results
- Appendix G. Standard Reference Toxicant test data
- Appendix H. Typical values for selected parameters in Florida waters
- Appendix I. Habitat Assessment field sheets
- Appendix J1. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (avg. number of individuals per m^2)
- Appendix J2. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted
- Appendix K. EPA report

Appendix A

Map of Facility



Appendix B

Facility Summary and DMR data

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

Georgia Pacific Palatka Operations
FL0002763

Georgia Pacific is a pulp and paper mill, which operates in Palatka, Florida. It is a fully integrated pulp and paper mill producing both bleached and unbleached pulp and paper utilizing the kraft process. Products include kraft paper and finished tissue products.

NPDES Permit number FL0002763 allows the operation of a 40 MGD average wastewater treatment facility providing primary clarification followed by secondary treatment consisting of 900 plus acres of facultative and aerobic lagoons. Wastewater treatment solids from the primary clarifier are pumped to sludge lagoons for dewatering. The dewatered wastewater treatment solids are land applied on-site. Treated effluent is discharged through an effluent riffle channel to Outfall D-001 with effluent for sidestream oxygenation discharging at Outfall D-002. A liquid oxygen injection system also injects pure oxygen at Outfall D-001 to offset the BOD of the effluent.

The facility is allowed to discharge at Outfall D-001 and D-002, to Rice Creek, a Class III surface water and thence to the St. Johns River a Class III surface water. Outfall D-001 is located at latitude 29°40'44" N, longitude 81° 41'33" W. Outfall D-002 is located at latitude 29°41'14" N, longitude 81°40'58" W

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

Facility Name (as it appears on permit): Georgia-Pacific Corporation – Palatka Operations		**Former Names:** none
Physical Address: Highway 216, Palatka Latitude: 29°41'38" N Longitude: 81°40'20" W	**NPDES Permit No.:** FL0002763 **Expiration Date:** August 5, 2007	**Prepared By:** Chet McGhee
County: Putnam	**District:** NED	**Facility Type:** Industrial Wastewater
Function of Facility: Pulp & Paper mill		
Sampling Location (actual permit designation of permitted sampling point): Following final treatment, and prior to actual discharge or mixing with the receiving water		

Description of permitted outfall: The facility is allowed to discharge at Outfall D-001 and D-002, to Rice Creek, a Class III surface water and thence to the St. Johns River a Class III surface water. Outfall D-001 is located at latitude 29°40'44" N, longitude 81°41'33" W, Outfall D-002 is located at latitude 29°41'14" N, longitude 81°40'58" W

The Permit also contains proposed modification to add an additional outfall (D-003). Outfall D-003 would be a direct discharge to the St. Johns River through a 1043-foot diffuser located approximately 3,300 feet from the western shoreline. The proposed diffuser for Outfall D-003 is centered at latitude 29°41'13" N, longitude 81° 38'24" W. Prior to including outfall D-003 the facility must complete substantial manufacturing process improvements and submit an optimization report to the Department. The manufacturing process improvements consist of: 1) the construction of a new bleach line; 2) enhanced (i.e. two stage) oxygen delignification system (or like system producing similar or better environmental benefits) 3) new brownstock washing systems to replace four existing brownstock wash lines: 4) green liquor dregs filter: 5) minimize all pulping liquor leaks and spills: 6) handling the chlorine dioxide generator waste (i.e., salt cake), including efforts to find a viable, long term sustainable market for such material and evaluation of alternative technologies for treating such material: and 7) required appurtenances.

The facility has completed the manufacturing process improvements noted above and are currently completing the optimization study.

Description of treatment process (if multiple discharge points, include a map or diagram of facility):

This is a 40 MGD average wastewater treatment facility providing primary clarification followed by secondary treatment consisting of 900 plus acres of facultative and aerobic lagoons. Wastewater treatment solids from the primary clarifier are pumped to sludge lagoons for dewatering. The dewatered wastewater treatment solids are land applied on-site. Treated effluent is discharged through an effluent riffle channel to Outfall D-001 with effluent for sidestream oxygenation discharging at Outfall D-002. A liquid oxygen injection system also injects pure oxygen at Outfall D-001 to offset the BOD of the effluent. This is a fully integrated pulp and paper mill producing both bleached and unbleached pulp and paper utilizing the kraft process. Products include kraft paper and finished tissue products.

The facility also operates and maintains an on-site solid waste disposal facility which receives clean construction debris. calcium carbonate, boiler ash, and other solids generated as by-products from the pulping and papermaking operation. The facility operates and maintains the surface water management system including in-line retention basins 1. 4. 5 and wet detention basin 2 to receive and treat storm water runoff from the solid waste disposal area.

Receiving Waters: Rice Creek	**Classification (indicate whether fresh or marine):** Fresh
Temperature (C): 27.4	**Design Flow:** 40.0 MGD
pH (SU): 8.18	**Mean Flow (for previous 12 months):** 16.79 MGD
Conductivity (umhos/cm): 2537	**Flow During Survey:** 17.8 MGD
Method of Disinfection: NA	
Dissolved Oxygen (mg/L): 5.4	
Discharge is: Continuous	

Toxicity Test Requirements (routine and/or additional test language test species, salinity adjustment, etc.):

Administrative Order 039NE details toxicity testing requirements as follows:

Acute Whole Effluent Toxicity
C. Dubia and C. Leedsi – 96 hour acute. All tests shall consist of 6 rep separate grab samples taken every 4 hours or 24 hour accumulation of a continuous sampler. If control mortality > 10%. repeat test. If unacceptable acute tox (>20% in any grab sample of 100% effluent). permittee shall conduct a minimum of 3 valid additional tests (definitive). The 1st within 7 days.

Chronic Whole Effluent Toxicity
C. Dubia and Pimephales promelas. Tests shall be conducted on 0% and 100% effluent. 24 hour composite sample of final effluent. All test solutions shall be renewed daily, 2 additional composite samples collected on day 2 and 4 of test shall be used for renewals.

Administrative or Consent Orders:
Administrative Order 039-E was issued in conjunction with NPDES permit # FL0002763. The administrative order establishes interim effluent limits. All of the monitoring requirements listed below are taken from the AO.

Facility Mixing Zone Details:
A mixing zone for total dissolved gases (TDG) is established in AO 039 NE for the side stream discharges into Rice Creek. The discharges shall not cause an exceedance of the Chapter 62-302.530(67) F.A.C., Class III fresh water standard of 110% of the saturation value for gases at the existing atmosphere and hydrostatic pressures outside the boundaries of the mixing zones described below.

Milepoint 2.4
The mixing zone shall extend linearly upstream and downstream from the discharge point such that the cumulative upstream and downstream distances from the discharge point does not exceed 725 meters, in the tidal influenced areas of Rice Creek.

Milepoint 3.4
The mixing zone shall extend linearly upstream and downstream from the discharge point such that the cumulative upstream and downstream distances from the discharge point does not exceed 225 meters in the tidal influenced areas of Rice Creek.

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year:
Discharge Monitoring Report data was reviewed for the months of July 2005 through July 2006. Dissolved oxygen excursions were noted in February 2006, which resulted in formal enforcement.

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:

The facility has passed all of their routine acutes for both species, *C.dubia* and *C.leedsi* since 2002. The only exception was *C.dubia* on 10/19/04 which triggered additional tests but was not a violation. All 3 additional tests passed.

Consent Order number OGC 05-0443
On December 22, 2004, the facility experienced a breach of the primary clarifier wall resulting in a discharge of approximately 5.3 million gallons of partially treated effluent into a swampy area and ditches on the property.

On December 22, 2004, Department staff took samples from multiple locations on Rice Creek. The sample results indicated that Rice Creek had not been impacted by the wastewater release. The facility sampled Rice Creek daily from December 22 through December 24, from December 26 through December 28, and finally on January 10 confirming Rice Creek had not been impacted. After Department review and approval, the facility decreased in-stream sampling to once per month from January 2005 through March 2005.

Based on the breach the facility entered into consent order number OGC 05-0443, which required payment of a monetary fine and modifications to prevent a future breach.

Consent Order number OGC 06-0716
Dissolved oxygen excursions noted in February 2006, resulted in formal enforcement being taken and the payment of a monetary fine.

Discuss MOR trends to prior data; is trend improving or declining:
Improving

List Effluent Limits (include additional sheets as necessary):

Parameter	Limit	Monitoring Requirements:
Flow (MGD)	Daily Average Report	Continuous

	Daily Maximum Report	
BOD_5 (mg/L)	Daily Average Report	3 days/week
	Daily Maximum Report	
BOD_5 (lbs/day)	Daily Average 3500 (Jun 1 - Nov 30) 7170 (Dec 1 - May 31)	3 days/week
	Daily Maximum 7000 (June 1 - Nov 30) 14340 (Dec 1 - May 31)	
	Daily Average Report	
TSS (mg/L)	Daily Maximum Report	3 days/week
	Daily Average 5000 (June 1 – Nov 30) 10,000 (Dec 1 – May 31)	
TSS (lbs/day)	Daily Maximum 10,000 (June 1 – Nov 30) 17500 (Dec 1 – May 31)	3 days/week
pH (S.U.)	Daily Min 6.0	5 days/week
	Daily Max 8.5	
Total Nitrogen, as N (mg/L)	Daily Max Report	1/month
TKN, as N (mg/L)	Daily Max Report	1/month
Total Ammonia, as N (mg/L)	Daily Max Report	1/month
Un-ionized Ammonia (mg/L) as NH_3	Daily Max Report	1/quarter
Color (PCU)	Daily Max Report	1/month
Fecal Coliform (# / 100 mL)	Daily Maximum 800	1/month

	Monthly Geometric Mean 200	
Total Coliform (# / 100 mL)	Daily Max 2400	1/month
	Monthly Geometric Mean 1000	
Settleable Solids (mL/L/hr)	Daily Maximum 0.1	1/quarter
Iron, total recoverable (mg/L)	Daily Max Report	1/quarter
Zinc, total recov (µg/L)	Daily Max $e^{(0.8473[\ln H]+0.7614)}$	1/quarter
Cadmium, total recov. (µg/L)	Daily Max Report	1/quarter
Lead, total recov. (µg/L)	Daily Max Report	1/quarter
Temperature (° F)	Daily Max Report	1/quarter
Total Hardness (mg/L as $CaCO_3$)	Daily Maximum Report	1/quarter
Specific Conductance (umhos/cm)	Daily Maximum Report	1/month
Turbidity (NTU)	Daily Maximum Report	1/month
Dissolved Oxygen (mg/L)	Daily Minimum Report	5 Days/Week
Oxygen Injected (lb/day)	Daily Minimum 4150 (June 1 – Nov 30) 1950 (Dec1 – May 31)	5 Days/week
2.3,7.8-TCDD (pg/L)	Daily Average 0.014	1/quarter
COD (mg/L)	Daily Maximum Report	1/month

AOX (lbs/day)	Monthly Average 1077 Daily Maximum 1644	Daily
Acute Whole Effluent Toxicity	LC_{50}>100	
Chronic Whole Effluent Toxicity	Report	

Georgia Pacific Discharge Monitoring Reports exceedences October 2005 - October 2006						
Facility ID	**Monitoring Date**	**Outfall Indicator**	**Parameter**	**Quantity**	**Units**	**Concentration**
FL0002763	2/28/2006	001-1	DO - INJECTED	1947	LBS/DAY	
FL0002763	2/28/2006	002-1	DO - INJECTED	2794	LBS/DAY	
FL0002763	7/31/2006	001-1	DO		MG/L	-0.4
FL0002763	7/31/2006	001-1	DO - INJECTED	426	LBS/DAY	
FL0002763	7/31/2006	002-1	DO - INJECTED	2429	LBS/DAY	

Appendix C

Explanation of Measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. A list of the analytes tested for, results, data qualifiers, the minimum detection limit and the practical quantitation limit are given in Appendix D. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits (Table 1, Appendix B). Exceedances of Water Quality Criteria may be violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Acute screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* following FDEP SOPs TA07_01 and TA07_02. Failure of toxicity testing may constitute a violation of 62-302.520(21), 62-302.530(62) and/or facility permit limits. Standard reference toxicant tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

The effluent and water from control and test sites were analyzed for the presence and concentration of total and fecal coliform bacteria following FDEP SOPs MB1_0 and MB1_1. High levels of fecal or total coliform bacteria may constitute violation of 62-302.530(6), 62-302.530(7) and/or facility permit limits.

(5) Habitat Assessment

Habitat assessment is used to evaluate the physical structure and extent of disturbance in a waterbody. Eight aspects are ranked, with 20 possible points for each aspect (QA Rule SOP FT 3100). The Habitat Assessment score includes types and amounts of benthic substrates, water velocity, amount of sand or silt accumulation, extent of artificial channelization, bank stability, and riparian zone width and vegetation type. All scores are summed to yield an overall Habitat Assessment score. Habitat Assessment score ranges from 11-160 and overall habitat quality is assigned to one of four categories: Optimal (120-160 points), Suboptimal (80-119 points), Marginal (40-79 points), and Poor (11-39 points).

(6) Algal Growth Potential (AGP)

The effluent and water from control and test sites are autoclaved, filtered (0.45μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum,* USEPA 2002*),* and incubated for 14 days (FDEP SOP TA08_05). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute one line of evidence for violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may be a violation of 62-302.530(62) F.A.C..

(7) Algal Phytoplankton and Periphyton Assemblages

Methods: Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100).

Chlorophyll *a* Content: Chlorophyll *a* content is measured in phytoplankton samples to estimate algal biomass (FDEP SOP BB05). High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be a violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

(8) Benthic Macroinvertebrate Assemblages

Methods: Benthic macroinvertebrates were collected using two methods. Quantitative samples were collected from Hester-Dendy multi-plate samplers incubated for 28 days (QA Rule SOP FS7430). Qualitative collections are made using 20 dipnet sweeps (QA Rule SOP FS7420). Benthic macroinvertebrates were sorted and identified to the lowest practical taxonomic level, usually species (FDEP SOP IZ06).

Taxa richness: Taxa richness is the number of distinct macroinvertebrate taxa present in a sample. Stress, habitat destruction and pollution tend to reduce the number of different types of organisms present (Karr and Chu 1998). Decreases in taxa richness related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al*., 1989). Increases in the percent contribution of the dominant taxon related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitutes a violation of 62-302.530(11) F.A.C..

Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders (FDEP 1994) and shredders (EA Engineering 1994). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida. This Index was revised in 2004 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned depending on which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists in and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa, number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. Scores are broken into four ordinal groups: Good, Fair, Poor, and Very Poor. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score of "Poor" or "Very Poor" related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

(9) Statistical Comparisons

Statistical comparisons of the proportions of taxa, major groups or feeding groups were made using 95% confidence intervals on proportions. A 95% confidence interval is the range of values above and below a given proportion that has a 95% chance of containing the true proportion (Sokal and Rohlf 1995). If the 95% confidence intervals for two proportions do not overlap, then the proportion of X in sample 1 is significantly different from the proportion of X in sample 2 at $p<0.05$. A "$p<0.05$" level of significance means that there is less than a 5% chance that the true proportions in the two samples are the same. All comparisons that are labeled as significant in the text have a probability <0.05 that the proportions are the same.

Appendix D

Chain of Custody form

Log-in Checklist

RQ ID: 2006-10-02-33 Tom.E 8:55 10/3/06

Shipping Method: DHL Date/Time of Receipt: 10/3/06 ~~8:00~~

Cooler Check

Cooler ID	Cooler Temp.	Evidence Tape Present? Yes	Evidence Tape Present? No	Evidence Tape Intact? Yes	Evidence Tape Intact? No	No. Sample Containers in Cooler	* Tracking #
Red Cooler	0 C		✓			6	
White Cooler	0 C		✓			2	
White Cooler	0 C		✓			17	
White Cooler	2 C		✓			15	
White Cooler	0 C		✓			10	

Note: If the the temperature of a cooler is above 6° C or an evidence seal is damaged then identify the bottles, in the affected cooler(s), on back of form.

* Write the tracking number only if the waybill copy cannot be placed in the folder.

Evidence Tape on Bottles Present: Yes ____ No ✓
If Yes, is it intact? Yes____ No____
If No, fill out back of form.

Condition of Containers:
Loose Caps: Yes ____ No ✓ If Yes, fill out back of form.

Broken Containers: Yes____ No ✓ If Yes, fill out back of form.

Chain Of Custody/ Field Sheet(s) Included? Yes ✓ No___
If Yes, verify receipt of all containers listed, then sign COC/field form. Document discrepancies (i.e. missing containers) on COC/field form.

Acid Preserved Samples: pH </=2 ? Yes ✓ No____ NA____ Tom.E
If No, fill out back of form and check unpreserved containers with same field ID.

Base Preserved Samples: pH >/= 12 or 9? Yes____ No____ NA ✓ Tom.E
(W-CN, OV-CN - pH >/= 12). (W-SULFDE-F, W-SULFIDE - pH >/= 9)
If No, fill out back of form and check unpreserved containers with same field ID.

Sample Volume Sufficient: Yes ✓ No____ If No, fill out back of form.

Coolers Unpacked/Checked by: Tom.E Date: 10/3/06 NCRs (y/n)?____

Event ID: NE-DIST-2006-10-03-01 NCR #____

NA - Not Applicable

Page 1 of 2, 12/8/05, Form RF-001-5.0

Appendix E

Chemical analysis of effluent and receiving water

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	CONTROL	Bio-AGP/LimNut	Algal Growth Potential	1.78	mg DryWt/L		0.3	0.9
10/02/06	GA PACIFIC	CONTROL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton		mg/m2			
10/02/06	GA PACIFIC	CONTROL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
10/02/06	GA PACIFIC	CONTROL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton		mg/m2			
10/02/06	GA PACIFIC	CONTROL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.5	ug/L	U	1.5	4.5
10/02/06	GA PACIFIC	CONTROL	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	34	# Taxa			
10/02/06	GA PACIFIC	CONTROL	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	12	# Taxa			
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Aluminum	437	ug/L	A	4	16
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Calcium	23.3	mg/L	A	0.02	0.08
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Chromium	0.45	ug/L	I	0.3	1.2
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Copper	0.33	ug/L	I	0.2	0.8
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Iron	588	ug/L	A	5	20
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Lead	0.76	ug/L	I	0.2	0.8
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Magnesium	7.3	mg/L	A	0.005	0.02
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Nickel	1	ug/L	U	1	4
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/02/06	GA PACIFIC	CONTROL	Metals-Water	Zinc	3	ug/L	U	3	12
10/02/06	GA PACIFIC	CONTROL	Nutrients-Liquid	Ammonia-N	0.028	mg N/L		0.01	0.02
10/02/06	GA PACIFIC	CONTROL	Nutrients-Liquid	Kjeldahl Nitrogen	0.66	mg N/L		0.08	0.2
10/02/06	GA PACIFIC	CONTROL	Nutrients-Liquid	NO2NO3-N	0.028	mg N/L		0.004	0.01
10/02/06	GA PACIFIC	CONTROL	Nutrients-Liquid	Total-P	0.081	mg P/L		0.02	0.06
10/02/06	GA PACIFIC	CONTROL (Rep 2)	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	9	# Taxa			
10/02/06	GA PACIFIC	CONTROL (Rep 3)	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	8	# Taxa			
10/02/06	TRIP BLANK	TRIP BLANK	VOC-Water	Chloroform	0.2	ug/L	U	0.2	1
10/02/06	GA PACIFIC	TEST	Bio-AGP/LimNut	Algal Growth Potential	7.35	mg DryWt/L		0.3	0.9
10/02/06	GA PACIFIC	TEST	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	3	mg DryWt/L	U	3	3
10/02/06	GA PACIFIC	TEST	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton		mg/m2			
10/02/06	GA PACIFIC	TEST	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.7	ug/L	U	1.7	5.2
10/02/06	GA PACIFIC	TEST	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton		mg/m2			
10/02/06	GA PACIFIC	TEST	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	3	ug/L	U	3	9
10/02/06	GA PACIFIC	TEST	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	29	# Taxa			
10/02/06	GA PACIFIC	TEST	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	10	# Taxa			
10/02/06	GA PACIFIC	TEST	Metals-Water	Aluminum	2.29E+03	ug/L		4	16
10/02/06	GA PACIFIC	TEST	Metals-Water	Arsenic	1.1	ug/L	I	0.5	2
10/02/06	GA PACIFIC	TEST	Metals-Water	Cadmium	0.069	ug/L	I	0.05	0.2
10/02/06	GA PACIFIC	TEST	Metals-Water	Calcium	52.7	mg/L		0.02	0.08
10/02/06	GA PACIFIC	TEST	Metals-Water	Chromium	2.67	ug/L		0.3	1.2
10/02/06	GA PACIFIC	TEST	Metals-Water	Copper	2.7	ug/L		0.4	1.6
10/02/06	GA PACIFIC	TEST	Metals-Water	Iron	456	ug/L		5	20
10/02/06	GA PACIFIC	TEST	Metals-Water	Lead	1.05	ug/L		0.2	0.8

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	TEST	Metals-Water	Magnesium	11.4	mg/L		0.005	0.02
10/02/06	GA PACIFIC	TEST	Metals-Water	Nickel	12.8	ug/L		1	4
10/02/06	GA PACIFIC	TEST	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	TEST	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/02/06	GA PACIFIC	TEST	Metals-Water	Zinc	16	ug/L		3	12
10/02/06	GA PACIFIC	TEST	Nutrients-Liquid	Ammonia-N	0.038	mg N/L		0.01	0.02
10/02/06	GA PACIFIC	TEST	Nutrients-Liquid	Kjeldahl Nitrogen	2.6	mg N/L		0.08	0.2
10/02/06	GA PACIFIC	TEST	Nutrients-Liquid	NO2NO3-N	0.29	mg N/L		0.004	0.01
10/02/06	GA PACIFIC	TEST	Nutrients-Liquid	Total-P	0.63	mg P/L		0.02	0.06
10/02/06	GA PACIFIC	TEST (Rep 2)	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	10	# Taxa			
10/02/06	GA PACIFIC	TEST (Rep 3)	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	10	# Taxa			
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.7
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4,5-Trichlorophenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzidine	96	ug/L	U	96	380
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Hexachlorobenzene	0.96	ug/L	UJ	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
10/02/06	GA PACIFIC	EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential	12.4	mg DryWt/L		0.3	0.9
10/02/06	GA PACIFIC	EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	3	mg DryWt/L	AU	3	3
10/02/06	GA PACIFIC	EFFLUENT	Bio-BOD	Biochemical Oxygen Demand-5 Day	9.2	mg/L			
10/02/06	GA PACIFIC	EFFLUENT	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	20	ug/L	A	1.7	5.2
10/02/06	GA PACIFIC	EFFLUENT	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	3	ug/L	U	3	9
10/02/06	GA PACIFIC	EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
10/02/06	GA PACIFIC	EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Alachlor	0.6	ug/L	UJ	0.6	2.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Azinphos Methyl	0.2	ug/L	UJ	0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Bromacil	0.2	ug/L	UJ	0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Butylate	0.2	ug/L	UJ	0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Hexazinone	0.1	ug/L	UJ	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
10/02/06	GA PACIFIC	EFFLUENT	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Aluminum	2.71E+03	ug/L		4	16
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Arsenic	1.1	ug/L	I	0.5	2
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Cadmium	0.087	ug/L	I	0.05	0.2
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Calcium	55.4	mg/L		0.02	0.08
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Chromium	3.11	ug/L		0.3	1.2
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Copper	3.2	ug/L		0.4	1.6
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Iron	398	ug/L		5	20
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Lead	1.09	ug/L		0.2	0.8
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Magnesium	11.7	mg/L		0.005	0.02
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Nickel	14.2	ug/L		1	4
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/02/06	GA PACIFIC	EFFLUENT	Metals-Water	Zinc	19	ug/L		3	12
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Ammonia-N	0.045	mg N/L		0.01	0.02
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Color	750	PCU		120	120
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Kjeldahl Nitrogen	2.6	mg N/L		0.08	0.2
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	NO2NO3-N	0.3	mg N/L		0.004	0.01
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	O-Phosphate-P	0.27	mg P/L		0.024	0.06
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Specific_Conductance	2.51E+03	umhos/cm		2	8
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	TSS	12	mg/L	I	4	16
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Total-P	0.63	mg P/L		0.02	0.06
10/02/06	GA PACIFIC	EFFLUENT	Nutrients-Liquid	Turbidity	20	NTU		0.05	0.05
10/02/06	GA PACIFIC	EFFLUENT	Overflow	COD	210	mg/L			

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	EFFLUENT	VOC-Water	Chloroform	0.2	ug/L	U	0.2	1
10/02/06	TRIP BLANK	TRIP BLANK	VOC-Water	Chloroform	0.2	ug/L	U	0.2	1
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,3,4,6-Tetrachlorophenol	2.1	ug/L	U	2.1	8.4
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4,5-Trichlorophenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4-Dimethylphenol	53	ug/L	U	53	210
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4-Dinitrophenol	16	ug/L	U	16	63
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2-Methyl-4,6-dinitrophenol	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	2-Nitrophenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	3,3'-Dichlorobenzidine	42	ug/L	UJ	42	170
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4,4'-DDD	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4,4'-DDE	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4,4'-DDT	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4-Chlorophenyl phenyl ether	2.1	ug/L	U	2.1	8.4
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	4-Nitrophenol	16	ug/L	U	16	63
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Aldrin	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzidine	110	ug/L	U	110	420
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Bis(2-chloroisopropyl)ether	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Bis(2-ethylhexyl)phthalate	16	ug/L	U	16	63
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Butyl benzyl phthalate	5.3	ug/L	U	5.3	21
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Di-n-butyl phthalate	5.3	ug/L	U	5.3	21
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Dieldrin	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.2

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Dimethyl phthalate	53	ug/L	U	53	210
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Endosulfan I	4.2	ug/L	U	4.2	17
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Endosulfan II	4.2	ug/L	U	4.2	17
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Endosulfan sulfate	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Endrin	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Endrin aldehyde	4.2	ug/L	U	4.2	17
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Heptachlor	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Heptachlor epoxide	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Hexachlorobenzene	1.1	ug/L	UJ	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Hexachlorobutadiene	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Hexachlorocyclopentadiene	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Hexachloroethane	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Isophorone	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	N-Nitrosodi-n-propylamine	2.1	ug/L	U	2.1	8.4
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	N-Nitrosodimethylamine	2.1	ug/L	U	2.1	8.4
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	N-Nitrosodiphenylamine	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Nitrobenzene	2.1	ug/L	U	2.1	8.4
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Pentachlorophenol	3.2	ug/L	U	3.2	13
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Phenol	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.2
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	alpha-BHC	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	beta-BHC	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	delta-BHC	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	BNA-Water	gamma-BHC	1.6	ug/L	U	1.6	6.3
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Alachlor	0.65	ug/L	UJ	0.65	2.6
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Ametryn	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Atrazine	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Azinphos Methyl	0.22	ug/L	UJ	0.22	0.88
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Bromacil	0.22	ug/L	UJ	0.22	0.88
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Butylate	0.22	ug/L	UJ	0.22	0.88
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Chlorpyrifos Ethyl	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Chlorpyrifos Methyl	0.11	ug/L	U	0.11	0.44
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Diazinon	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Ethion	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Ethoprop	0.11	ug/L	U	0.11	0.44
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Fenamiphos	0.22	ug/L	U	0.22	0.88
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Fonofos	0.11	ug/L	U	0.11	0.44
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Hexazinone	0.11	ug/L	UJ	0.11	0.44
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Malathion	0.16	ug/L	U	0.16	0.64
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Metalaxyl	0.27	ug/L	U	0.27	1.1
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Metolachlor	0.54	ug/L	U	0.54	2.2
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Metribuzin	0.11	ug/L	U	0.11	0.44

Date Sampled	Site	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Mevinphos	0.22	ug/L	U	0.22	0.88
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Naled	0.87	ug/L	U	0.87	3.5
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Norflurazon	0.16	ug/L	U	0.16	0.64
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Parathion Ethyl	0.16	ug/L	U	0.16	0.64
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Parathion Methyl	0.11	ug/L	U	0.11	0.44
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Phorate	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Prometryn	0.16	ug/L	U	0.16	0.64
10/02/06	GA PACIFIC	FIELD BLANKS	GC-Water	Simazine	0.054	ug/L	U	0.054	0.22
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Aluminum	4	ug/L	U	4	16
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Calcium	0.02	mg/L	U	0.02	0.08
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Copper	0.2	ug/L	U	0.2	0.8
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Iron	5	ug/L	U	5	20
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Magnesium	0.005	mg/L	U	0.005	0.02
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Nickel	1	ug/L	U	1	4
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/02/06	GA PACIFIC	FIELD BLANKS	Metals-Water	Zinc	3	ug/L	U	3	12
10/02/06	GA PACIFIC	FIELD BLANKS	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
10/02/06	GA PACIFIC	FIELD BLANKS	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
10/02/06	GA PACIFIC	FIELD BLANKS	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
10/02/06	GA PACIFIC	FIELD BLANKS	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
10/02/06	GA PACIFIC	FIELD BLANKS	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
10/02/06	GA PACIFIC	FIELD BLANKS	Overflow	COD	20	mg/L	U		
10/02/06	GA PACIFIC	FIELD BLANKS	VOC-Water	Chloroform	0.2	ug/L	U	0.2	1

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Georgia Pacific Corp Palatka

Address: ERW outfall 001 pm MF 10-12-06 . CR 216

City: Palatka County: Putnam

Contact/District: CHET McGEE NE-D

NPDES Permit #: FL 000 2763

LIMS Job #: TLH-2006-10-03-26 LIMS Sample #: 955114

Lims Data Entry: 10-12-06 MF Data Entry Verification: 10-12-06 BA

Sample Collection: Date: 10-2-06 Time: 12:00 pm

Hold Time Start: Date: 10-2-06 Time: 12:00 pm

Comments:

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: (Screen) Static / Static Renewal / Flow-through

Test Duration: (48) 96 Hours.

Light Intensity : 50 - 100 ft. candles.

Photoperiod : 16 hours light 8 hours dark.

Test 1 validation: Test 1: SOP TA 07_01

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2 validation: Test 2: SOP TA 07_02

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Initial sample handling:

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____

Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min

Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C

Incubator # 8 Range 24.0-26.1

Room B246: 24.9 - 25.3

Waterbath: n/a

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No

Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures

Marshall Faircloth

Bruce Alverez

Jones Daniels

Nicole Wellendorf

REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	Not	Not measured	-		BA
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				0.06	HACH	PPV	MF
Alkalinity (mg/L as $CaCO_3$):	88	134				513	HACH	EW	MF
Hardness (mg/L as $CaCO_3$):	88	133				184	HACH	EW	MF
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	MF	PPV
Salinity (ppth):	<1	<1				~1.3	YSI (Mettler)	BA	MF

V 1.4 9/12/05

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 955114 **Test #:** 1 **Test Started:** Date 10-3-06 Time: 1215
Organism: C. dubia **SOP #:** TA 07 01 **Test Ended:** Date 10-5-06 Time: 12:00
Organism Batch: 41-06 **Diluent/ Batch:** DMW / 26-06
Organism Age: < 24 hrs **Food:** YCT *P. subcapitata* *Artemia*
Chamber Size: 30 mL **Batch:** 2-06 / 4-06 / —
Test Volume: 20 mL **Feeding:** Prior to test - ~~Prior to renewal~~ - Daily MF 10-11-06 not renewed

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	3 2D	2 1D			
	D	D	5	5	5			
Organisms loaded by: MF		Checked by:	[redacted]	BA	BA			

Loading Verified by: BA

m = missing d = dead BR = before renewal AR = after renewal

Comments:

Test Results:
% mortality in 100% sample: 15%
LC_{50}: > 100% If Calculated: 95% CI____ Method:____
Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V 2.1 11/01/2005

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 955114 **Test #:** 2 **Test Started:** Date 10-3-06 Time: 13:20
Organism: C. leesi **SOP #:** TA 0782 **Test Ended:** Date 10-5-06 Time: 12:15
Organism Batch: 24-06 **Diluent/ Batch:** well 1501 10-3-06
Organism Age: 12 days **Food:** YCT *P. subcapitata* *Artemia*
Chamber Size: 1000 mL **Batch:** — — GS1-53-90
Test Volume: 500 mL **Feeding:** (Prior to test) (~~Prior to renewal~~) Daily
MK 10-11-06 not renewed

Concentration	Replicate	Chamber #	Test Hour: 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	C11	5	5	5			
	B	C12	5	5	5			
	C	C13	5	5	5			
	D	C14	5	5	5			
100%	A	C15	5	5	5			
	B	C16	5	5	5			
	C	C17	5	5	5			
	D	C18	5	5	5			
Organisms loaded by: JD		Checked by:	[redacted]	JD	BA			

Loading Verified by: MK

Comments:

m = missing d = dead BR = before renewal AR = after renewal

Test Results:
% mortality in 100% sample: 0%
LC_{50}: >100% If Calculated: 95% CI______ Method:______

Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V 2.1 11/01/2005

Page 000028

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 955114 **Test #:** 1 of 2

TEST SOP #: TA07.01 **Test Species:** (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	8.0		7.9			
Temperature °C	24.9		24.2			
Dissolved Oxygen mg/L	8.1		7.6			
Conductivity ~~µmhos~~ mmhos	175.8		145.3			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments: M = Metavinyl

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	8.4		8.9			
Temperature °C	25.3		24.0			
Dissolved Oxygen mg/L	6.0		7.6			
Conductivity µmhos (mmhos)	2.42		2.85			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos ~~mmhos~~						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos ~~mmhos~~						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

000029

V 2.0 2/24/04

Page

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 955114 **Test #:** 2 of 2

TEST SOP #: TA07_62 **Test Species:** (Ceriodaphnia dubia) (Cyprinella leedsi) Pimephales promelas (JD) Americamysis bahia Menidia beryllina Other:_____

Concentration ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.8	7.9	8.0			
Temperature °C	24.0	24.0	24.9			
Dissolved Oxygen mg/L	7.6	6.5	6.4			
Conductivity (µmhos) mmhos	277	318	283			
(initials) Measured by:	BA	BA	BA			
(initials) Recorded by:	BA	BA	BA			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.9	8.6	8.8			
Temperature °C	24.6	24.1	24.5			
Dissolved Oxygen mg/L	7.4	6.7	6.4			
Conductivity µmhos (mmhos)	2.49	2.49	2.58			
(initials) Measured by:	BA	BA	BA			
(initials) Recorded by:	BA	BA	BA			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V 2.0 2/24/04

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 BAYMEADOWS WAY, SUIT B-200 **DOH Accreditation # E32890**
JACKSONVILLE, FL 32256-7577

SAMPLE ID: 61635 STATION: DATE: 10/02/06 TIME: 12:00
SAMPLE SOURCE Georgia Pacific SAMPLER: Emery/McGhee
STATION Effluent
LOCATION:
PROGRAM MOD: IW COMPLIANCE: ☒ ENFORCEMENT: ☐
FIELD MEASUREMENTS

Tot. Depth (meters)	0.878	Sample Depth (meters)		W.Temp. °C:	27.4
Conductivity: µmoh/cm (EPA 120.1) :	2537	Diss. Oxygen (EPA 360.1)	5.4	EPA 170.1	
Stream Velocity (ft/sec)		Salinity (ppt)	1.3	T.R.C.:	
pH:(EPA 150.1)	8.18	Secchi (meters)		EPA 330.5	

WEATHER CONDITIONS:

LABORATORY MEASUREMENTS

		Unit	Analysis Date/Time	Analyst	Remarks
Turbidity: EPA 180.1	21.3	NTU	10/03/2006 - 0830	BA	
Color: EPA 110.2	800	Pt-Co	10/03/2006 - 0900	BA	
BOD: SM 5210-B. 20th Edn.	6	mg/L	10/04/2006 - 0900	BA	
CBOD: SM 5210-B. 20th Edn		mg/L			
Tot. Suspended Solids: EPA 160.2	6	mg/L	10/04/2006 - 0830	BA	
Vol. Suspended Solids: EPA 160.4	5	mg/L	10/04/2006 - 0830	BA	
Fix Suspended Solids:	2 K	mg/L	10/04/2006 - 0830	BA	

COMMENTS:

Sample Custody
Sample Released to: Bipin Adhyaru Date: 10/03/2006

Preservation: <6 °C Time: 0730

Reported by: Bipin Adhyaru Ext # 3224 Date:: 10/09/2006

A = Value is the mean of two or more determinations.
J = Estimated value; value not accurate.
K = Actual value is known to be less than the value given
L = Off - scale high. Actual value is known to be greater than value given
O = Sampled, but analysis lost or not performed.
PQL = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Q = Sample held beyond the accepted holding time.
REJ = Data is rejected and should not be used.
T = Value reported is less than the laboratory method detection limit.
U = Indicates that the compound was analyzed for but not detected.
Y = The laboratory analysis was from an unpreserved or improperly preserved sample.
Results for NELAP accredited tests contained in this report meet the requirement specified for the National Environmental Accreditation Program.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 BAYMEADOWS WAY, SUIT B-200 **DOH Accreditation # E32890**
JACKSONVILLE, FL 32256-7577

SAMPLE ID: 61637 STATION: DATE: 10/02/06 TIME: 09:30
SAMPLE SOURCE Georgia Pacific SAMPLER: TK/PO
STATION RQ Control
LOCATION:
PROGRAM MOD: IW COMPLIANCE: ☒ ENFORCEMENT: ☐
FIELD MEASUREMENTS

Tot. Depth (meters)	1.5	Sample Depth (meters)	0.8	W.Temp. °C:	27.2
Conductivity: µmoh/cm (EPA 120.1) :	371	Diss. Oxygen (EPA 360.1)	2.25	EPA 170.1	
Stream Velocity (ft/sec)	0.1	Salinity (ppt)	0.2	T.R.C.:	
pH:(EPA 150.1)	6.77	Secchi (meters)	0.45	EPA 330.5	

WEATHER CONDITIONS:

LABORATORY MEASUREMENTS

		Unit	Analysis Date/Time	Analyst	Remarks
Turbidity: EPA 180.1	12.0	NTU	10/03/2006 - 0830	BA	
Color: EPA 110.2	150	Pt-Co	10/03/2006 - 0900	BA	
BOD: SM 5210-B, 20th Edn.	2 K	mg/L	10/04/2006 - 0900	BA	
CBOD: SM 5210-B, 20th Edn		mg/L			
Tot. Suspended Solids: EPA 160.2	10	mg/L	10/04/2006 - 0830	BA	
Vol. Suspended Solids: EPA 160.4	4	mg/L	10/04/2006 - 0830	BA	
Fix Suspended Solids:	6	mg/L	10/04/2006 - 0830	BA	

COMMENTS:

Sample Custody
Sample Released to: Bipin Adhyaru Date: 10/03/2006

Preservation: <6 °C Time: 0730

Reported by: Bipin Adhyaru Ext # 3224 Date:: 10/09/2006

A = Value is the mean of two or more determinations.
J = Estimated value; value not accurate.
K = Actual value is known to be less than the value given
L = Off - scale high. Actual value is known to be greater than value given
O = Sampled, but analysis lost or not performed.
PQL = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Q = Sample held beyond the accepted holding time.
REJ = Data is rejected and should not be used.
T = Value reported is less than the laboratory method detection limit.
U = Indicates that the compound was analyzed for but not detected.
Y = The laboratory analysis was from an unpreserved or improperly preserved sample.
Results for NELAP accredited tests contained in this report meet the requirement specified for the National Environmental Accreditation Program.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST DISTRICT
7825 BAYMEADOWS WAY, SUIT B-200 **DOH Accreditation # E32890**
JACKSONVILLE, FL 32256-7577

SAMPLE ID: 61638 STATION: DATE: 10/02/06 TIME: 12:00
SAMPLE SOURCE Georgia Pacific SAMPLER: TK/PO
STATION 50 meter below POD
LOCATION:
PROGRAM MOD: 1W COMPLIANCE: ☒ ENFORCEMENT: ☐
FIELD MEASUREMENTS

Tot. Depth (meters)	2.5	Sample Depth (meters)	1.1	W.Temp. °C:	26.03
Conductivity: µmoh/cm (EPA 120.1) :	2338	Diss. Oxygen (EPA 360.1)	8.82	EPA 170.1	
Stream Velocity (ft/sec)	0.1	Salinity (ppt)	1.20	T.R.C.:	
pH:(EPA 150.1)	7.88	Secchi (meters)	0.2	EPA 330.5	

WEATHER CONDITIONS:

LABORATORY MEASUREMENTS

		Unit	Analysis Date/Time	Analyst	Remarks
Turbidity: EPA 180.1	18.4	NTU	10/03/2006 - 0830	BA	
Color: EPA 110.2	600	Pt-Co	10/03/2006 - 0900	BA	
BOD: SM 5210-B, 20th Edn.	5	mg/L	10/04/2006 - 0900	BA	
CBOD: SM 5210-B, 20th Edn		mg/L			
Tot. Suspended Solids: EPA 160.2	6	mg/L	10/04/2006 - 0830	BA	
Vol. Suspended Solids: EPA 160.4	4	mg/L	10/04/2006 - 0830	BA	
Fix Suspended Solids:	2	mg/L	10/04/2006 - 0830	BA	

COMMENTS:

Sample Custody
Sample Released to: Bipin Adhyaru Date: 10/03/2006

Preservation: <6 °C Time: 0730

Reported by: Bipin Adhyaru Ext # 3224 Date:: 10/09/2006

A = Value is the mean of two or more determinations.
J = Estimated value; value not accurate.
K = Actual value is known to be less than the value given
L = Off - scale high. Actual value is known to be greater than value given
O = Sampled, but analysis lost or not performed.
PQL = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Q = Sample held beyond the accepted holding time.
REJ = Data is rejected and should not be used.
T = Value reported is less than the laboratory method detection limit.
U = Indicates that the compound was analyzed for but not detected.
Y = The laboratory analysis was from an unpreserved or improperly preserved sample.
Results for NELAP accredited tests contained in this report meet the requirement specified for the National Environmental Accreditation Program.

Appendix G

Standard Reference Toxicant data

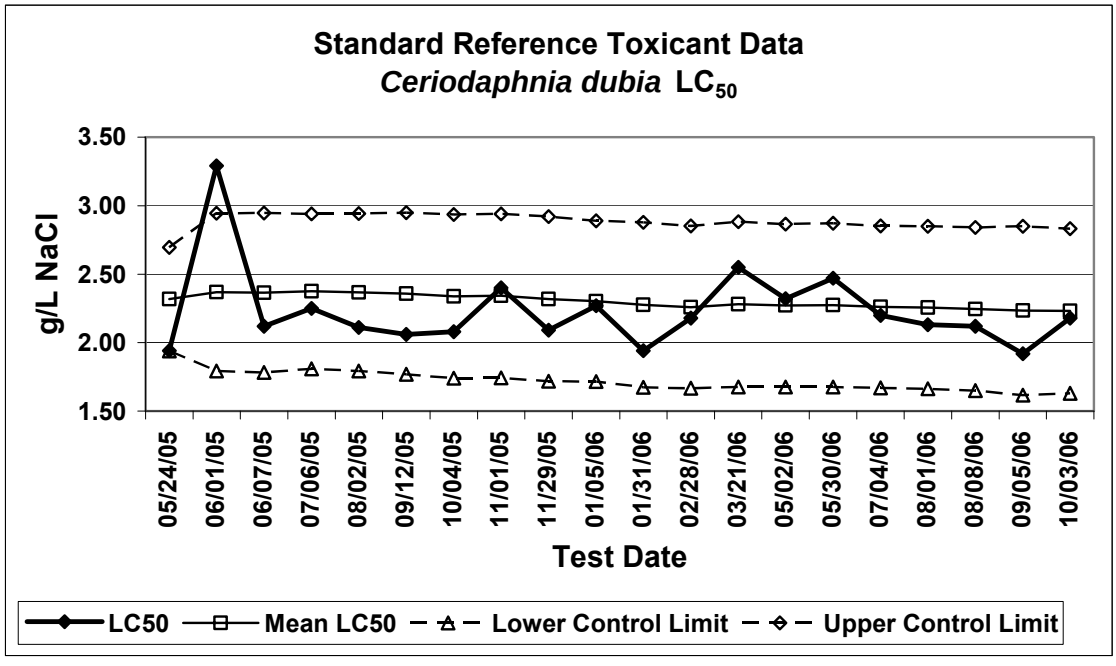
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/24/05	1.94	2.32	0.19	1.94	2.70
06/01/05	3.29	2.37	0.29	1.79	2.94
06/07/05	2.12	2.36	0.29	1.78	2.95
07/06/05	2.25	2.37	0.28	1.81	2.94
08/02/05	2.11	2.37	0.29	1.79	2.94
09/12/05	2.06	2.36	0.29	1.77	2.95
10/04/05	2.08	2.34	0.30	1.74	2.94
11/01/05	2.40	2.34	0.30	1.74	2.94
11/29/05	2.09	2.32	0.30	1.72	2.92
01/05/06	2.27	2.30	0.29	1.72	2.89
01/31/06	1.94	2.28	0.30	1.67	2.88
02/28/06	2.18	2.26	0.30	1.67	2.85
03/21/06	2.55	2.28	0.30	1.68	2.88
05/02/06	2.32	2.27	0.30	1.68	2.87
05/30/06	2.47	2.27	0.30	1.68	2.87
07/04/06	2.20	2.26	0.30	1.67	2.85
08/01/06	2.13	2.26	0.30	1.66	2.85
08/08/06	2.12	2.24	0.30	1.65	2.84
09/05/06	1.92	2.23	0.31	1.62	2.85
10/03/06	2.18	2.23	0.30	1.63	2.83

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 13.46
EPA reference 75th quartile CV = 29%



FDEP Biology Section - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* (Method 2007.0) *Menidia beryllina* (Method 2006.0) *Hyalella azteca* (Method 100.1 EPA-600-R-99-064) *Ceriodaphnia dubia* (Method 2002.0) *Cyprinella leedsi* (Method 2000.0) *Pimephales promelas* (Method 2000.0) Other:_____

Method from EPA-821-R-02-012
Test Type: Definitive / Static / Static Renewal
Test Page 1 of 2

Diluent/ Batch#: DMW / 26-06
Toxicant/ Batch# NaCl / 13-06

Test Beginning: Date: 10306 Time: 12:50
Test Ending: Date: 10-7-06 Time: 11:45

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	88	Hach	EW
Hardness (mg/L as CaCO3):	88	Hach	EW
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	<1	Mettler	BA

Organism Batch # / Age: 4/06 / ≤ 24 hours (BA)
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT / P.subcapitata / Artemia
Food Batch: 2-06 / 4-06 / –
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. µg/L (g/L)	Rep.	Chamber#	Number Live 0 hr / 24 hr / 48 hr			pH (SU) 0 hr / 24 hr / 48 hr			Temperature (°C) 0 hr / 24 hr / 48 hr			D.O. (mg/l) 0 hr / 24 hr / 48 hr			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr / 24 hr / 48 hr		
			~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~
Control	A	A	5	5	5	7.9		8.0	24.8		24.3	7.1		7.4	0.13		0.216
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	7.9		8.1	25.2		24.0	7.2		7.4	2.9		3.2
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	5	7.9		8.1	25.3		24.0	7.5		7.4	3.84		4.5
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	3 2D												
2.5	A	A	5	4 1D	0 4D	8.0		8.1	25.2		~~24.0~~ 24.0 BA	7.6		7.4	4.74		5.5
	B	B	5	5	0 5D												
	C	C	5	4 1D	0 4D												
	D	D	5	5	0 5D												
3.0	A	A	5	4 1D	0 4D	8.0		8.1	24.8		24.0	7.7		7.3	5.55		6.3
	B	B	5	3 2D	0 3D												
	C	C	5	4 1D	0 4D												
	D	D	5	5	0 5D												
4.0	A	A	5	0 5D	–	8.0	7.7	–	24.7	24.0	–	7.7	7.0	–	7.27	7.5	–
	B	B	5	0 5D	–												
	C	C	5	0 5D	–												
	D	D	5	0 5D	–												
	A																
	B																
	C																
	D																
Loaded / measured by:			MF	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
Recorded by:			BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA

Investigators' Signatures
James Daniels
Marshall Faircloth
Nikki Wellenkamp
REVIEWER

Concentrations prepared by: BA
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks: (A) 24.0 BA 10-5-06

Statistical Results: Method: Spearman-Karber
48/96 hour LC50: 2.18
95% Confidence Interval: lower 2.11 upper 2.26

Revised 02/21/06

FDEP Biology Section - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 | *Menidia beryllina* Method 2006.0 | *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 | *Cyprinella leedsi* Method 2000.0 | *Pimephales promelas* Method 2000.0 | Other:_____

Method from EPA-821-R-02-012
Test Type: Definitive
Static / Static Renewal
Test Page 2 of 2

Diluent/ Batch#: DMW 1.26.06
Toxicant/ Batch# NaCL 1.13.06

Test Beginning: Date: 10306 Time: 12:50
Test Ending: Date: 10706 Time: 11:45

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	88	Hach	EW
Hardness (mg/L as CaCO3):	88	Hach	EW
Total Ammonia (mg/L as N):	0.07	Denver	MF
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 9-06 1-3 BA 24hrs
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT / P.subcapitata / Artemia
Food Batch: 2-06 4-06 –
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. µg/L (X1)	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr (96 hr)	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (° C) 0 hr	Temperature (° C) 24 hr	Temperature (° C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 24 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 48 hr
			48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr
Control	A	A	5	5	5	8.1		8.0	24.0		24.0	7.5		7.6	0.84		0.820
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.1		7.9	24.0		24.1	7.5		7.7	2.88		3.04
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	4 (D)	3 (D)	8.2		7.9	24.0		24.1	7.6		7.7	3.89		4.05
	B	B	5	5	5												
	C	C	5	5	4 (D)												
	D	D	3	3	3												
2.5	A	A	0	–	–	–			—			—			—		
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
3.0	A	A	–	–	–	—			—			—			—		
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
4.0	A	A	–	–	–	—				—			—			—	
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD
Recorded by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD

Investigators' Signatures
James Daniels
Bruce Addie
Marshall Faircloth
Nicole Wellendorf
REVIEWER

Concentrations prepared by: BA
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks:

Statistical Results: Method: Spearman-Karber
48 / (96) hour LC50: 2.10
95% Confidence Interval: lower 2.00 upper 2.20

Revised 02/21/06

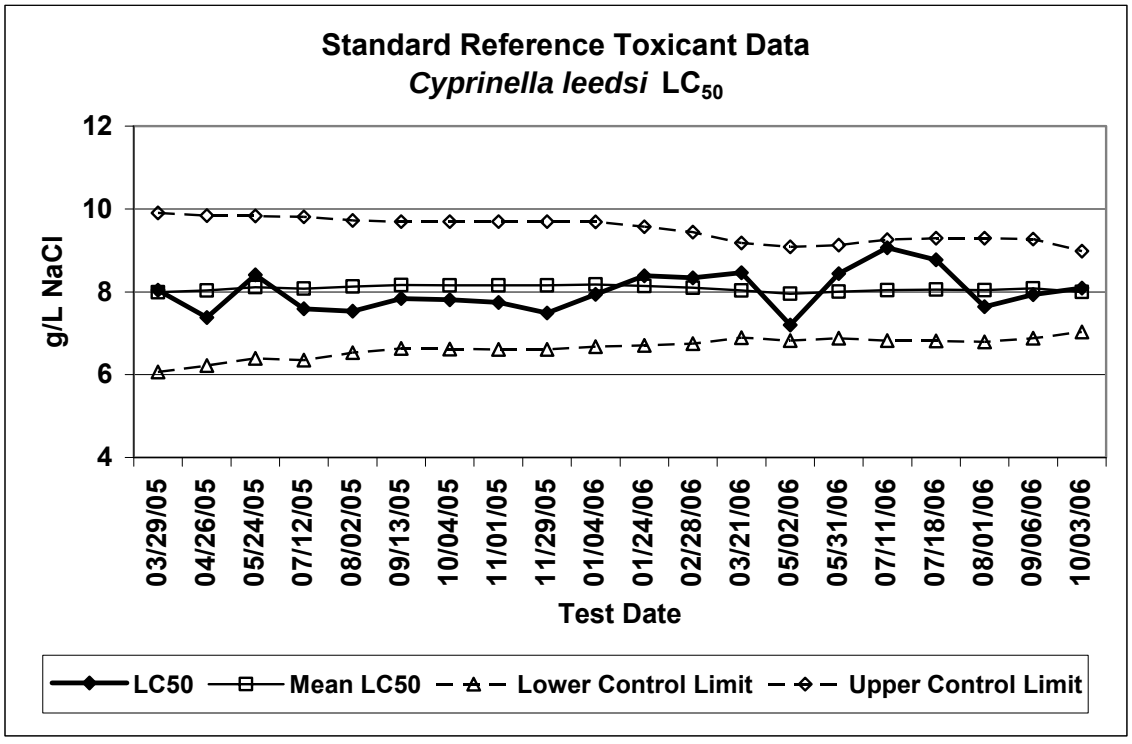
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
03/29/05	8.04	7.99	0.96	6.07	9.91
04/26/05	7.38	8.03	0.90	6.22	9.84
05/24/05	8.41	8.11	0.86	6.40	9.83
07/12/05	7.59	8.08	0.86	6.35	9.81
08/02/05	7.53	8.13	0.80	6.53	9.72
09/13/05	7.84	8.16	0.77	6.63	9.70
10/04/05	7.81	8.16	0.77	6.62	9.69
11/01/05	7.74	8.15	0.77	6.61	9.69
11/29/05	7.49	8.15	0.77	6.61	9.69
01/04/06	7.94	8.18	0.75	6.67	9.68
01/24/06	8.39	8.14	0.72	6.71	9.57
02/28/06	8.34	8.09	0.67	6.75	9.44
03/21/06	8.46	8.04	0.57	6.89	9.18
05/02/06	7.2	7.95	0.57	6.82	9.09
05/31/06	8.44	8.00	0.56	6.88	9.13
07/11/06	9.06	8.04	0.61	6.82	9.26
07/18/06	8.77	8.05	0.62	6.81	9.29
08/01/06	7.64	8.04	0.63	6.79	9.29
09/06/06	7.93	8.08	0.60	6.88	9.27
10/03/06	8.09	8.00	0.49	7.03	8.98

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 8.10
EPA reference 75th quartile CV = 19%



FDEP Biology Section - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* (Method 2007.0) *Menidia beryllina* (Method 2006.0) *Hyalella azteca* (Method 100.1 EPA-600-R-99-064) *Ceriodaphnia dubia* (Method 2002.0) *Cyprinella leedsi* (Method 2000.0) *Pimephales promelas* (Method 2000.0) Other:_____

Method from EPA-821-R-02-012
Test Type: Definitive
Static / Static Renewal
Test Page 1 of 2

Diluent/ Batch#: Well H2O / 10-2-06
Toxicant/ Batch# NaCl / 19-010

Test Beginning: Date: 10.3.06 Time: 12:30
Test Ending: Date: 10-7-06 Time: 1140

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	134	Hach	EW
Hardness (mg/L as CaCO3):	133	Hach	EW
Total Ammonia (mg/L as N):	<0.07	Denver	MF
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 24.06 / 12days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT — *P.subcapitata* — Artemia
Food Batch: — — 95-536-80
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L (B2)	Rep.	Chamber#	Number Live 0 hr (48 hr)	Number Live 24 hr (72 hr)	Number Live 48 hr (96 hr)	pH (SU) 0 hr (48 hr)	pH (SU) 24 hr (72 hr)	pH (SU) 48 hr (96 hr)	Temperature (°C) 0 hr (48 hr)	Temperature (°C) 24 hr (72 hr)	Temperature (°C) 48 hr (96 hr)	D.O. (mg/l) 0 hr (48 hr)	D.O. (mg/l) 24 hr (72 hr)	D.O. (mg/l) 48 hr (96 hr)	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)
Control	A	F1	10	10	10	7.8		8.0	24.9		24.0	7.8		7.8	0.263		0.309
	B	F2	10	10	10		8.0			25.2			6.2			0.600	
	C										24.8 @						
	D																
60	A	F3	10	10	10	7.8		7.9	24.8		24.0	7.8		6.8	10.7		11.0
	B	F9	10	10	10		8.0			25.1			6.1			10.2	
	C										Stop pH MF (not read) 10-11-06						
	D																
70	A	F5	10	9 10	8 10	7.8		8.0	24.7		24.0	7.6		6.7	12.4		12.8
	B	F6	10	10	9 10		8.0			25.1			6.1			12.2	
	C																
	D																
80	A	F7	10	7 30	7 JD	7.8		8.0	24.6		24.1	7.5		6.5	13.9		14.3
	B	F8	10	7 30	7 (A) JD		7.9			25.0			5.9			13.7	
	C																
	D																
90	A	F9	10	2 30	2	7.8		8.1	24.6		24.2	7.5		6.5	15.4		15.8
	B	F10	10	1 30	0 10		7.9			25.1			5.8			15.6	
	C																
	D																
100	A	F11	10	0 100	—	7.8		—	24.6		—	7.5		—	16.8		—
	B	F12	10	0 100	/		8.0			25.1			5.7			17.1	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	BA	JD	CB
Recorded by:			BA	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	CB	JD	BA

Investigators' Signatures
Peter Rose
James Daniels
Parker Gilmore
Marshall Faircloth
Erin Lacy
Nicole Wellendorf
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks:
(A) 48hr 60B Transcription error ID. 10.5.06
(B) 24hr CtrlB cond. was high, rep A was as expected.
(C) transcription error ID. 10.5.06

Statistical Results: Method: Spearman-Karber
(48) 96 hour LC50: 8.09
95% Confidence Interval: lower 7.79 upper 8.40

Revised 02/21/06

Page 000040

FDEP Biology Section - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* (Method 2007.0) *Menidia beryllina* (Method 2006.0) *Hyalella azteca* (Method 100.1 EPA-600-R-99-064)
Ceriodaphnia dubia (Method 2002.0) *Cyprinella leedsi* (Method 2000.0) *Pimephales promelas* (Method 2000.0) Other:_____

Method from EPA-821-R-02-012
Test Type: Definitive
Static / Static Renewal
Test Page 2 of 2

Diluent/ Batch#: Well H_2O / 10-2-06
Toxicant/ Batch# NaCl / 1-19-06

Test Beginning: Date: 10306 Time: 12:30
Test Ending: Date: 10706 Time: 11:40

Organism Batch #/ Age: 2406 / 12 days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT *P.subcapitata* Artemia
Food Batch: — — gst 5-26-06
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	134	Hach	CW
Hardness (mg/L as CaCO3):	133	Hach	CW
Total Ammonia (mg/L as N):	<0.07	Denver	MF
Salinity (ppth):	21	Mettler	BA

Conc. µg/L (Al)	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (° C) 0 hr	Temperature (° C) 24 hr	Temperature (° C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr	UNCORRECTED Cond. (mmhos/cm) 24 hr	UNCORRECTED Cond. (mmhos/cm) 48 hr
			(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr
Control	A	F1	10	10	10	8.0		8.1	250		24.1	7.1		7.1	0.224		0.263
	B	F2	10	10	10		8.0			24.0			7.5			0.25	
	C																
	D																
6.0	A	F3	10	10	10	8.0		8.0	24.9		24.4	7.1		7.0	8.59		9.17
	B	F4	10	9/10	9		7.9			24.1			7.0			9.29	
	C																
	D																
7.0	A	F5	8	8	8	7.9		8.1	24.9		24.6	7.1		7.0	12.9		12.3
	B	F6	9	9	9		7.9			24.6			6.8			13.22	
	C																
	D																
8.0	A	F7	7	7	7	7.9		8.2	24.9		24.7	7.2		7.0	14.2		14.1
	B	F8	7	6/10	6		7.9			24.7			6.7			14.4	
	C																
	D																
9.0	A	F9	2	2	1/10	8.0	(B) 8.0	8.2	24.9	24.8	24.6	7.2	(A) 6.7	7.0	15.5	(A) 15.8	15.9
	B	F10	0	—	—												
	C																
	D																
10.0	A	F11	—	—	—	—		—	—		—	—		—	—		—
	B	F12	—	—	—		—			—			—			—	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	JD	JD	JD	BA	JD	JD	JD	JD	JD	BA	JD	JD	BA	JD
Recorded by:			BA	JD	JD	JD	BA	JD	JD	BA	JB	JD	BA	JB	JD	BA	JD

Investigators' Signatures
REVIEWER

Concentrations prepared by: JD
Loading verified by: NA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks: (A) 72hr, 9 g/L samples taken from Rep "A" = BA 10-6-06

Statistical Results: Method: Spearman-Karber
48 (96) hour LC50: 8.01
95% Confidence Interval: lower 7.69 upper 8.34

Revised 02/21/06

Page 000041

***Ceriodaphnia dubia* Acute Standard Reference Toxicant Test**

DATE: 10/03/06 DURATION: 48 h TOXICANT : NaCl
SPECIES: *C. Dubia*

RAW DATA: --- ----	Concentration (g/L)	Number Exposed	Mortalities
	.00	20	0
	1.50	20	0
	2.00	20	2
	2.50	20	20
	3.00	20	20
	4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.18
95% LOWER CONFIDENCE: 2.11
95% UPPER CONFIDENCE: 2.26

***Cyprinella leedsi* Acute Standard Reference Toxicant Test**

DATE: 10-03-06 DURATION: 48 h TOXICANT : NaCl
SPECIES: *C. leedsi*

RAW DATA: --- ----	Concentration (g/L)	Number Exposed	Mortalities
	.00	20	0
	6.00	20	0
	7.00	20	3
	8.00	20	6
	9.00	20	18
	10.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 8.09
95% LOWER CONFIDENCE: 7.79
95% UPPER CONFIDENCE: 8.40

Appendix H

Typical Values for Selected Parameters in Florida Waters

Percentile Distribution (1617 stations)

CONTROL SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85	**ND**
Hester-Dendy Diversity	0.84	**2.12**	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90	**2.33**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	**15**	17	21.5	26	29	32	**16**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	*****
Total Kjeldahl Nitrogen	0.30	0.39	**0.56**	0.73	0.87	1.00	1.11	1.26	1.49	1.93	2.80	**0.66**
Total Ammonia	0.02	**0.02**	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.028**
Nitrate plus Nitrite	0.01	**0.01**	0.03	0.05	0.07	0.10	0.14	0.20	0.32	0.64	1.05	**0.028**
Total Phosphorus	0.02	0.03	0.05	**0.06**	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.081**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**ND**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

TEST SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85	**ND**
Hester-Dendy Diversity	0.84	2.12	**2.48**	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90	**2.54**
Hester-Dendy Taxa Richness	6	6.5	**9**	11.5	13	15	17	21.5	26	29	32	**11**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	*****
Total Kjeldahl Nitrogen	0.30	0.39	0.56	0.73	0.87	1.00	1.11	1.26	1.49	**1.93**	2.80	**2.6**
Total Ammonia	0.02	0.02	**0.04**	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.038**
Nitrate plus Nitrite	0.01	0.01	0.03	0.05	0.07	0.10	0.14	**0.20**	0.32	0.64	1.05	**0.29**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	**0.39**	0.74	1.51	**0.63**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**ND**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

Taxa richness and diversity values are for benthic macroinvertebrates. Hester-Dendy sample= benthic macroinvertebrates collected from a standardized multi-plate sampler. Dipnet taxa richness = number of taxa collected in standardized dipnet sweep samples. Diversity = Shannon-Weaver H'. NTU = Nephelometric turbidity units. Adapted from Joe Hand, FDER, personal communication, 1991 (data collected 1980-1989). ND = No data.

- = Dipnet Taxa Richness results not reported due to SCI recalibration.
- There is Turbidity data for these sites.

Appendix I

Habitat Assessment Field Sheets

DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		10/2/00	12:00	SF bl

REMARKS:	COUNTY:	LOCATION: K Creek S of	FIELD ID/NAME:

RIPARIAN ZONE/STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)

LOCAL WATERSHED EROSION (check box): None ☐ Slight ☐ Moderate ☐ Heavy ☐

LOCAL WATERSHED NPS POLLUTION (check box): No evidence ☐ Slight ☐ Moderate potential ☐ Obvious sources ☐

WIDTH OF RIPARIAN VEGETATION (m) On least buffered side: 7 18

LIST & MAP DOMINANT VEGETATION ON BACK

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT

Inc 6 m wide

m/s | 0.1 m/s | m/s

m deep | 0.5 m deep | m deep

ARTIFICIALLY CHANNELIZED ☐ no ☐ recent, severe ☐ some recovery ☐ mostly recovered

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

HIGH WATER MARK 0.1 + 2.5 = 2.6

(m above present water level) (present depth in m) (m above bed)

CANOPY COVER %: OPEN: ☐ LIGHTLY SHADED (11-45%): ☒ MODERATELY SHADED (46-80%): ☐ HEAVILY SHADED: ☐

SEDIMENT/SUBSTRATE

SEDIMENT ODORS: NORMAL: ☐ SEWAGE: ☐ PETROLEUM: ☐ CHEMICAL: ☐ ANAEROBIC: ☒ OTHER: ☐

SEDIMENT OILS: ABSENT: ☒ SLIGHT: ☐ MODERATE: ☐ PROFUSE: ☐

SEDIMENT DEPOSITION: SLUDGE: ☑ SAND SMOTHERING: NONE MODERATE SLIGHT SEVERE SILT SMOTHERING: NONE MODERATE SLIGHT SEVERE OTHER: _____

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	3.7	7		SAND			
LEAF PACKS OF MATS				MUD/MUCK/SILT	95.3	6	
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	0.5	7		DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
TOP								
MID-DEPTH	1.1	26.03	7.88	8.82	2333	109.5		0.2
BOTTOM	2.5							

SYSTEM TYPE: STREAM: 1ST-2ND ORDER ☐ 3RD-4TH ORDER ☐ 5TH – 6TH ORDER ☐ 7TH ORDER OR GREATER ☐ LAKE: ☐ WETLAND: ☐ ESTUARY: ☐ OTHER: ☐

WATER ODORS (CHECK BOX): NORMAL: ☐ SEWAGE: ☐ PETROLEUM: ☐ CHEMICAL: ☐ OTHER: ☑ Paper Mill odor

WATER SURFACE OILS (CHECK BOX): NONE: ☐ SHEEN: ☐ GLOBS: ☐ SLICK: ☐

CLARITY (CHECK BOX): CLEAR: ☐ SLIGHTLY TURBID: ☐ TURBID: ☐ OPAQUE: ☐

COLOR (CHECK BOX): TANNIC: ☐ GREEN (ALGAE): ☐ CLEAR: ☐ OTHER: ☐ _____

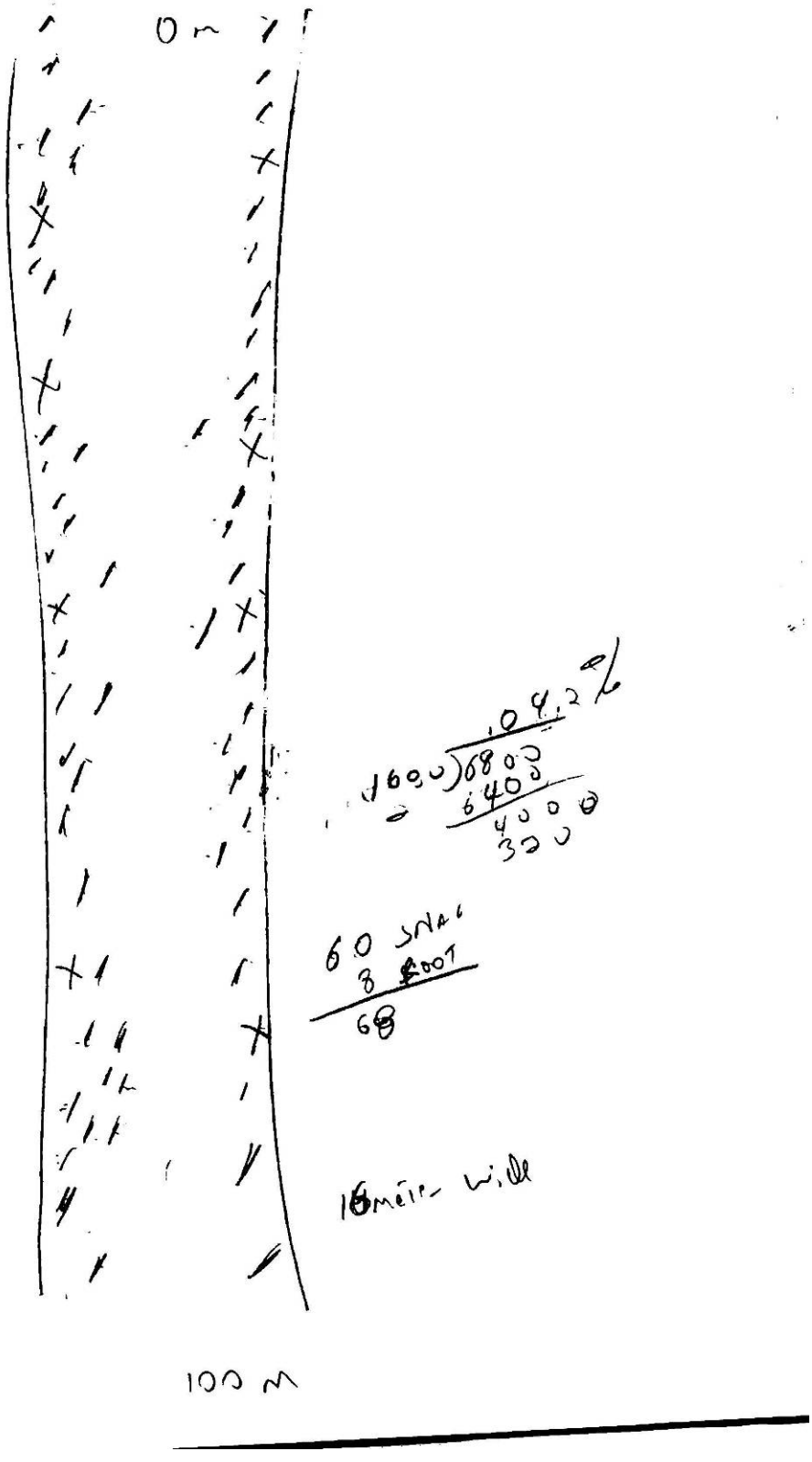
WEATHER CONDITIONS/NOTES:

ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☐	☒	☐
FISH	☐	☒	☐	☐
AQUATIC MACROPHYTES	☐	☒	☐	☐
IRON/SULFUR BACTERIA	☑	☐	☐	☐

SAMPLING TEAM: Oconnor/Kolleneyn

SIGNATURE:

DATE: 10/2/00


0 m
100 m

FDEP-SOP-001/01: Form FD 9000-5 (June 1, 2001)

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		10/2/06	

REMARKS:	COUNTY:	LOCATION: [illegible]	FIELD ID/NAME:
		Below GP Effluent Cam	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 8	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 4	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 11	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 7 Primary Score ____	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 9 Left Bank 9	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 12	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 12 Secondary Score ____	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody machrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

TOTAL SCORE ____

ANALYSIS DATE:	ANALYST:	SIGNATURE:
	Kc Hemeyer	[signature]

FDEP-SOP-001/01: Form FD 9000-3 (June 1, 2001)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		10-2-06	10:00	ST John

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	putnam	R-9 Control Rice Creek	

RIPARIAN ZONE/STREAM FEATURES

Predominant Land-Use in Watershed (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
40	40	15		5			

Local Watershed Erosion (check box): None ☐ Slight ☐ Moderate ☒ Heavy ☐

Local Watershed NPS Pollution (check box): No evidence ☐ Slight ☐ Moderate potential ☒ Obvious sources ☐

Width of riparian vegetation (m) On least buffered side: 19

List & map dominant Vegetation on back

Artificially Channelized ☒ no ☐ recent, severe ☐ some recovery ☐ mostly recovered ☐ more sinuous

Artificially Impounded ☐ yes

High Water Mark: 0.3 (m above present water level) + 1.5 (present depth in m) = 1.8 (m above bed)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect — Economy T.N — 10 m wide

m/s	0.1 m/s	m/s
m deep	1.5 m deep	m deep

Canopy Cover %: Open: ☐ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☒ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☐ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☒ Sand Smothering: none moderate slight severe Silt smothering: none moderate slight (severe) Other:

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	2%	7	Dip Net	Sand			
Leaf Packs of Mats				Mud/Muck/Silt	97%	6	D. Net
Aquatic Vegetation				Other:			
Rock or Shell Rubbie				Other:			
Undercut banks/Roots	1%	7	Dip Net	*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):	%		Secchi (m):
Top								
Mid-depth	0.9	20.2	6.77	2.3	371	25.4		0.45
Bottom	1.5							

System Type: Stream: 1st-2nd order ☐ 3rd-4th order ☐ 5th – 6th order ☐ 7th order or greater ☐ Lake: ☐ Wetland: ☐ Estuary: ☐ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐

Clarity (check box): Clear: ☐ Slightly turbid: ☐ Turbid: ☒ Opaque: ☐

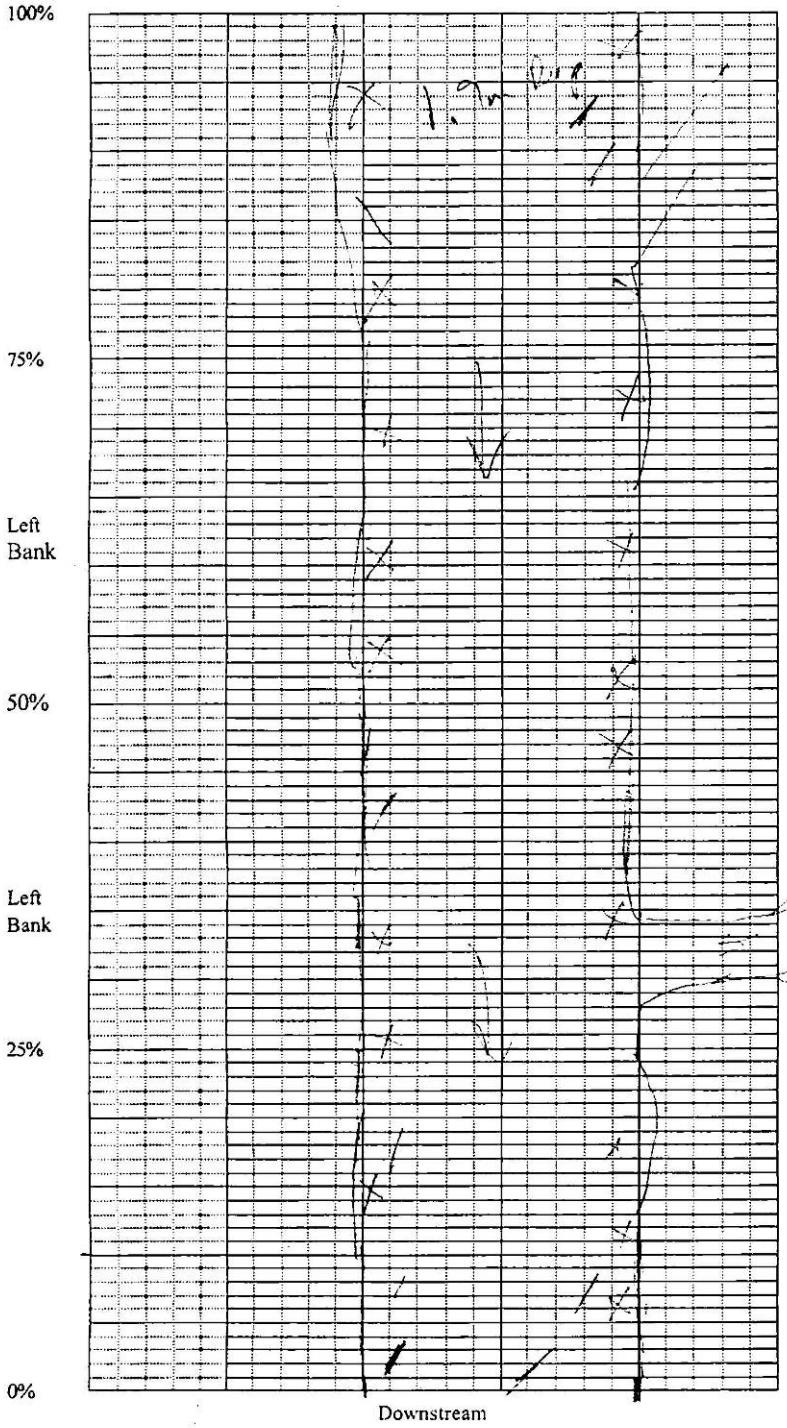
Color (check box): Tannic: ☒ Green (algae): ☐ Clear: ☐ Other: ☐

Weather Conditions/Notes:

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☒	☐
Fish	☐	☒	☐	☐
Aquatic Macrophytes	☐	☒	☐	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM:	SIGNATURE:	DATE:
Oconnor, Kallemeyn		10-2-06

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Substrates: Code key, draw proportionate habitat abundance.

- ☐ Snags
- ☐ Roots/undercut banks
- ☐ Leaf Packs (or mats)
- ☐ Macrophytes
- ☐ _____
- ☐ _____
- ☐ _____

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sand or silt is something substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed/other notes:

12 >NA%
19 roots
30

1000 / 30.00

FDEP-SOP-001/01: Form FD 9000-5 (June 1, 2001)

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		10/2/06	St. Johns

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Putnam	R-9 Control Rice Creek	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 7	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 3	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 8	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 7 Primary Score 25	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 9 Left Bank 9	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 79	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody machrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

103 TOTAL SCORE

ANALYSIS DATE:	ANALYST:	SIGNATURE:
10/2/06	Kelley	

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Georgia Pacific facility and collected 10/02/06. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	20030817 10/2/2006 (avg # per m2)	20030721 10/2/2006 (avg # per m2)
	Control Site	Test Site
Arthropoda		
Crustacea		
Amphipoda		
Gammarus sp.	347	592
Hyalella azteca	8	72
Insecta		
Coleoptera		
Ancyronyx variegatus	3	-
Stenelmis sp.	3	-
Diptera		
Ablabesmyia rhamphe grp.	21	291
Dasyhelea sp.	3	-
Dicrotendipes simpsoni	29	208
Labrundinia pilosella	8	-
Nanocladius distinctus	-	61
Nanocladius sp.	3	-
Palpomyia/Bezzia grp.	3	-
Parachironomus carinatus	-	51
Parachironomus sp.	3	-
Polypedilum beckae	-	8
Polypedilum scalaenum grp.	3	-
Procladius sp.	3	-
Stenochironomus sp.	-	5
Tribelos fuscicornis	103	40
Ephemeroptera		
Stenacron floridense	111	-
Trichoptera		
Cyrnellus fraternus	48	349
Cnidaria		
Hydrozoa		
Hydra sp.	-	3

Appendix J-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples) incubated upstream and downstream of the Georgia Pacific facility for 28 days and collected 10/02/06.

	20030817 10/2/2006 (# counted) Control Site	20030721 10/2/2006 (# counted) Test Site
Arthropoda		
Crustacea		
Amphipoda		
Gammarus sp.	131	223
Hyalella azteca	3	27
Unidentified Amphipoda	-	1
Insecta		
Coleoptera		
Ancyronyx variegatus	1	-
Stenelmis sp.	1	-
Diptera		
Ablabesmyia rhamphe grp.	8	109
Chironomidae	-	2
Dasyhelea sp.	1	-
Dicrotendipes simpsoni	8	65
Dicrotendipes sp.	3	13
Labrundinia pilosella	2	-
Labrundinia sp.	1	-
Nanocladius distinctus	-	1
Nanocladius sp.	1	22
Palpomyia/Bezzia grp.	1	-
Parachironomus carinatus	-	19
Parachironomus sp.	1	-
Polypedilum beckae	-	3
Polypedilum scalaenum grp.	1	-
Procladius sp.	1	-
Stenochironomus	-	2
Tribelos fuscicornis	39	14
Tribelos sp.	-	1
Ephemeroptera		
Heptageniidae	2	-
Stenacron floridense	26	-
Stenacron sp.	14	-
Trichoptera		
Cyrnellus fraternus	18	130
Unidentified Trichoptera	-	2
Cnidaria		
Hydrozoa		
Hydra sp.	-	1

Appendix K

The Bioassay of Georgia Pacific Corporation - Palatka Operations effluent sampled on 10/2/06, NPDES #FL0002763.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 7 6 3 11	12 0 6 1 0 0 2	18 B	19 S	20 2

Remarks

66

The Priority Pollutants Analysis for Bioassay of Georgia Pacific Corporation - Palatka Operations effluent sampled on 10/02/06, NPDES #FL0002763.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 7 6 3 11	12 0 6 1 0 0 2	18 X	19 S	20 2

Remarks

66

Biological Analyses of the Georgia Pacific Corporation - Palatka Operations effluent sampled on 10/02/06, NPDES #FL0002763.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 7 6 3 11	12 0 6 1 0 0 2	18 I	19 S	20 2

Remarks

66

The Priority Pollutants Analysis for Bioassay of Georgia Pacific Corporation - Palatka Operations effluent sampled on 10/02/06, NPDES #FL0002763.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 7 6 3 11	12 0 6 1 0 0 2	18 W	19 S	20 2

Remarks

66