

Biological Assessment of

Buckeye Florida

Taylor County

NPDES #FL0000876

Sampled March 20, 2006

February 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:	Buckeye Florida, L.P.
Physical Address:	One Buckeye Drive, Perry, Florida 32348
County:	Taylor
NPDES Number:	FL0000876
Permit Expiration:	Administratively extended since 1997

Toxics Sampling Inspection **(XSI)**

Date Sampled: March 20, 2006

Results: The effluent metals cadmium, copper, iron, lead, nickel, and zinc were detected at levels that complied with Class III Surface Water Quality Criteria. The metals arsenic, chromium, and silver were found 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.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: March 20, 2006

Results: The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi*, but was toxic to the water flea, *Ceriodaphnia dubia,* during the 96-hour renewal screening bioassay. This toxicity constitutes an exceedance of Class III Water Quality Criteria (62-302.530 (62), F.A.C.) and the facility's permit limit.

Water Quality Inspection **(WQI)**

Date Sampled: March 20, 2006

Results: Fecal (4 counts/100) and total coliforms (6 counts/100l) were detected in the effluent at levels that complied with Class III Water Quality Criteria and the facility's permit limits. The effluent total nitrogen concentration was 9.3 mg/L. Effluent total phosphorus (2.2 mg/L), ortho-phosphate (1.5 mg/L), TKN (8.3 mg/L), nitrate+nitrite (1.0 mg/L) and total ammonia concentration (4.6 mg/L as N) were elevated and contributed to high nutrient levels at the Test Sites. Unionized ammonia (0.05 mg/L NH_3 as N) exceeded the Class III Water Quality Criterion (≤ 0.02 mg/L, 62-302.530(3) F.A.C.). The effluent AGP value (199.0 mg dry wt/L) exceeded the "problem" threshold of 5.0 mg dry wt/L. The AGP value at the upstream Control Site 1 was 1.87 mg dry wt/L. The Control Site 2 value was 8.1 mg dry wt/L, which exceeded the "problem" threshold. The AGP values at downstream Test Sites 1 and 2 also exceeded the "problem" threshold (175.0 and 191.0 mg dry wt/L, respectively). Nutrient levels at the Test Sites were greater than values typically found in over 90% of Florida's streams. Nutrient concentrations at the Control Sites ranked in the 10^{th} to 80^{th} -percentile of typical values for Florida streams. The differences between the Control and

Test Sites indicate that there is nutrient enrichment related to the Buckeye Florida discharge in this portion of the Fenholloway River.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: March 20, 2006

Results: Control Site 1 and 2 SCI scores of 52 and 39 placed them in the "Fair" and "Poor" categories, respectively. Test Site 1 and 2 SCI scores of 5 and 3 placed them both in the "Very Poor" category. The most noticeable differences between the Control and Test sites were an increase in tolerant taxa abundance, loss of sensitive taxa, and loss of Tanytarsini taxa. Hester-Dendy samples indicated a loss of biological diversity downstream of the facility as indicated by the 68% and 46% lower Shannon-Weaver diversity scores at Test Sites 1 and 2 respectively, compared to the Control Site 2 score. These reductions are exceedances of the Class III Surface Water Quality Biological Integrity Criterion (62-302-530(11) FAC). The periphyton communities at both Control Site 1 and Test Site1 were dominated by diatoms, however the total number of algal units collected was estimated to be 79% lower at Test Site 1. Chlorophyll-*a* was not detected in the effluent or water samples from the Control and Test Sites.

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 Buckeye Florida Mill is a pulp and paper mill located in Taylor County, Florida (see map in Appendix). Treatment of industrial wastewater at the Buckeye facility involves a lift station, bar racks, 98 meter diameter primary clarifier with skimming pond, sludge pumps, 91 hectare of sludge storage lagoons with conveyance structures and a 12 hectare aerated lagoon followed by a 49 hectare aerated lagoon. The facility is permitted to discharge 58.0 MGD annual average daily flow (AADF) to the Class III Freshwater Fenholloway River. The effluent is a continuous discharge outfall at milepoint 24.6 upstream from the river mouth. Discharges are made through a sharp-crested weir designated as Outfall D-001. The average flow from December 2004 through November 2005 was 44.6 MGD. The actual flow during this survey was 39.2 MGD (Appendix B).

The facility reported two abnormal events (AE) from upsets or exceedances in the past year. Abnormal Event # 709 was reported because the facility experienced a leak in the #2 Raw (groundwater) Water Line on 7/12/05 due to failure of a transformer. An estimated 1.5 million gallons of groundwater from #2 Well Line ended up in the Fenholloway River due to the leak. Abnormal Event # A05-776 was reported on 12/22/05 due to power loss to the aerators at lagoons #1and #2 for a period of 5 hours or less. Based on previous power outage experience at the lagoons and the system's 5-day lagoon hydraulic retention time, it was estimated that the outfall 5-day biochemical oxygen demand (BOD) result was not significantly affected and a permit exceedance was not expected.

All of the routine acute bioassay tests conducted in 2004 and 2005 had at least 80% survival in 100% effluent, suggesting that the chronic toxicity tests would have met the facility's permit limit.

The last bioassessment performed in April 2000, showed metals were detected but complied with water quality standards and no organic priority pollutants were detected. There was a shift in the algal community from the Control Site, which was dominated by diatoms, to the Test Site, which was dominated by blue-green algae. The results also demonstrated degradation in the macroinvertebrate communities, elevated nutrients, and exceedances of total coliforms and unionized ammonia.

Surface Water Quality Criteria and facility permit limits for the effluent are listed in Table 1 and Table 2. The facility's permit has been administratively extended since 1997, which included a mixing zone for chronic toxicity which extends 22.1 miles downstream. An application for a new permit was received 01/31/05 and the draft permit was mailed to EPA for review 8/17/05. In the new permit the existing discharge D-001 will be discontinued and a new pipeline and discharge (D-002) will be constructed at River Mile 1.7 approximately 15 mile downstream from the existing D-001 discharge. The draft permit has been challenged and a hearing has been scheduled for April 2007.

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 two upstream Control Sites and two downstream Test Sites (see Appendix A). Control Site 1 was located in the Fenholloway River, approximately 2.5 kilometers upstream of the discharge. Control Site 2 was located approximately 50 meters upstream of the discharge. Control Site 1 has been shown to experience little or no flow during periods of drought however, no such conditions have existed for at least one year prior to the present study. The mean flow recorded during the pervious year for this part of the Fenholloway River was 608,428 gallons per day. Test Site 1 was located in the effluent canal approximately 50 meters upstream of the confluence with the river and Test Site 2 located in the Fenholloway River approximately 50 meters downstream of the confluence of the effluent canal. 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: Patrick O'Connor, Jeremy Parrish, Eesa Ali, and Thomas Kallemeyn (FDEP Northeast 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 Tables 1 and 2 and a complete list of chemical analytes can be reviewed in Appendix E. The effluent metals cadmium, copper, iron, lead, nickel, and zinc were detected at levels that complied with Class III Surface Water Quality Criteria (62-302.530, F.A.C.; Table 2). The metals arsenic, chromium, and silver were found in the effluent at levels above the method detection limit (MDL) and below the practical quantitation limits (PQL). No organic priority pollutants were detected in the effluent (Table 1).
- Control and Test site metals were, with the exception of copper at Control Site 1 (0.37 µg/L) and silver at

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

Buckeye Florida, L. P.	Class III Criteria	Effluent Limits	Effluent Samples	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Organic Constituents (µg/L)							
TCDD	-	0.014	-	-	-	-	-
Nutrients (mg/L)							
Ortho-phosphate	-	-	1.5	0.041	0.081	1.7	1.6
Total Phosphorus	-	Report	2.2	0.061	0.095	2.1	2.1
Total Ammonia	-	Report	4.6	0.06	0.15	4.6	4.1
Un-ionized Ammonia (as NH_3)	≤ 0.02 c	-	0.05 c	<0.02 c	<0.02 c	0.05 c	0.04 c
Nitrate and Nitrite	-	-	1	0.02 U	0.004 U	1.2	1
Total Kjeldahl Nitrogen	-	-	8.3	1.9	1.8	8.6	8.4
Organic Nitrogen	-	-	3.7 c	1.84 c	1.65 c	4 c	4.3 c
Total Nitrogen	-	≤ 1,095 a	9.3 c	1.92 c	1.8 c	9.8 c	9.4 c
General Physical and Chemical Parameters							
Habitat Assessment	-	-	-	113	105	93	100
Dissolved Oxygen (mg/L)	≥ 5.0 s	-	3.4	7.9	5.7	7.2	6.7
pH (SU)	6.0-8.5 s	6.5-8.5	7.2	7.5	6.2	7.2	7.2
Conductivity (µmhos/cm)	1,275 s	≤4,000	2,800	52	136	2,770	2,473
Temperature (°C)	-	Report	25.2	16.8	17.5	25	23.4
Color (Pt-Co)	-	Report ^	1,200	500	600	1,000 A	1,000
Total Suspended Solids (mg/L)	-	≤ 153.4 *	12 I	4 U	4 U	8 I	9 I
Total Suspended Solids (lbs/day)		< 50,000*	3,923	1,307	1,30	2,615	2,942
Turbidity (NTU)	-	≤ 29 t	8	2.4	2.7	8	6.8
CBOD, 5 day (mg/L)	-	≤ 19.4 *	-	-	-	-	-
BOD, 5 day (mg/L)	-	< 60.57	47	4	2	44	37
BOD (lbs/day)	_	< 19,800 *	15,366	1,308	653.9	14,385	12,096
Chlorophyll *a* (µg/L)	-	-	2.1 U	1.4 U	2.1 U	2.8 U	1.4 U
Phaeophytin (µg/L)	-	-	3.8 U	2.5 U	3.8 U	5.0 U	2.5 U
Oils and Greases (mg/L)	≤ 5	≤ 5	1.8 I	-	-	-	-
Flow (MGD)	-	Report	39.06	-	-	-	-
Hardness (mg $CaCO_3$)	-	-	224.7 c	25.8 c	59.7 c	222.5 c	211.1 c
Toxicity (96-hour static renewal, screening bioassay, percent mortality in 100% effluent)							
Bioassay - Water flea - *Ceriodaphnia dubia*	-	≤ 50	95	-	-	-	-
Bioassay - Fish - *Cyprinella leedsi*	-	≤ 50	0	-	-	-	-
Microbiology (Number of counts/100ml)							
Fecal Coliforms	≤ 800 s	≤ 276	4 UQ	-	-	-	-
Total Coliforms	≤ 2,400 s	≤ 2,400	6 ABQ	-	-	-	-

Value exceeds the Class III Water Quality Criteria or permit limits

* - Effluent limit based on a 24 hour composite sample

a - Efluent limit based on Annual Average

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

B - Results based on colony counts outside the acceptable range

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

Q - Sample held beyond normal holding time

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

^ - Effluent color shall not cause transparency in the receiving water to be reduced by more than 10% as compared to the natural background.

Table 2. Effluent limits, Class III Freshwater Criteria and metals data.

Buckeye Florida, L. P.	Effleunt Class III Criteria	Effluent Limits	Effluent Samples	Control Site 1 Class III Criteria	Control Site 1	Control Site 2 Class III Criteria	Control Site 2	Test Site 1 Class III Criteria	Test Site 1	Test Site 2 Class III Criteria	Test Site 2
Metals (µg/L unless otherwise noted, Class III Criteria are less than or equal to the value given)											
Aluminum	-	-	539	-	570	-	507	-	530	-	539
Arsenic	≤ 50	-	0.55 I	≤ 50	4 U	≤ 50	0.72 I	≤ 50	0.59 I	≤ 50	0.61 I
Cadmium	≤ 2.1 b	-	0.21	≤ 0.03 b	0.05 U	≤ 0.76 b	0.05 U	≤ 2.12 b	0.2 I	≤ 2.04 b	0.19 I
Calcium (mg/L)	-	-	57.5	-	6.7	-	15.5	-	57.1	-	54.2
Chromium	≤ 167.3 b	-	4.1 I	≤ 1.98 b	2 U	≤ 56.48 b	2 U	≤ 165.91 b	4 I	≤ 158.91 b	3.6 I
Copper	≤ 18.6 b	-	5.5	≤ 0.18 b	0.37 I	≤ 6.00 b	0.41 I	≤ 18.48 b	4.9	≤ 17.67 b	4.4
Iron	≤ 1000	≤ 1000	365	≤ 1,000	414	≤ 1,000	592	≤ 1000	357	≤ 1000	395
Lead	≤ 8.9 b	-	0.59	≤ 0.57 b	0.51	≤ 1.65	0.48	≤ 8.81 b	0.6	≤ 8.24 b	0.56
Magnesium (mg/L)	-	-	19.7	-	2.2	-	5.1	-	19.4	-	18.4
Nickel	≤ 103.5 b	-	17.9	≤ 1.06 b	1 I	≤ 33.72 b	1.6 I	≤ 102.61 b	17.2	≤ 98.15 b	15.5
Selenium	≤ 5	-	0.5 U	≤ 5	0.5 U	≤ 5	0.5 U	≤ 5	0.5 U	≤ 5	0.5 U
Silver	≤ 0.07	-	0.074 I	≤ 0.07	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.072 I	≤ 0.07	0.062 I
Zinc	≤ 237.9 b	-	22	≤ 2.42 b	3 U	≤ 77.40 b	3 U	≤ 235.94 b	22	≤ 225.67 b	20

Value exceeds the Class III Water Quality Criteria or permit limits

b - Results based hardness

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

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

Test Site 1 (0.072 µg/L), present at levels below the Class III Water Quality Criteria (62-302-530 F. A. C.; Table 2). However, levels of detection for both copper and silver were between the method detection limits and practical quantitation limits, therefore they cannot be considered exceedances of Class III Surface Water Quality Criteria.

- Effluent pH (7.2 SU) complied with Class III Water Quality Criteria (62-302 F.A.C.) and facility permit limits. Dissolved oxygen (3.4 mg/L) did not comply with Class III Water Quality Criteria ((62-302-520(4a) F.A.C.) and ((≥ 5.0 mg/L, 62-302 530 (31) F.A.C.). Effluent specific conductance (2800 µmhos/cm) did not comply with Class III Water Quality Criteria (62-302:530 (31) F.A.C.) but did comply with the facility permit limit of 4000 µmhos/cm.

- Dissolved oxygen, pH and temperature at the Control and Test Sites complied with Class III Water Quality Criteria (Table 1, 62-302.530 F.A.C.). Specific conductance was elevated at both the downstream Test Sites to levels which exceeded the Class III Water Quality Criteria (Table 1, 62-302.530(23) F.A.C.).

- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* but was acutely toxic to the water flea, *Ceriodaphnia dubia,* during the 96-hour static renewal acute screening bioassays (See Table 1 for percent mortality, Appendix F for bioassay bench sheets, and Appendix G for supporting standard reference toxicant data). This constitutes an exceedance of 62-302.530(21) F.A.C. and the facility's permit limits.

- Fecal and total coliform sample were qualified because they were not processed within the required holding time. Fecal and total coliforms were detected in the effluent at levels that complied with Class III Water Quality Criteria and facility permit limits (See Table 1 for results and Appendix F for laboratory worksheets).

- The effluent total nitrogen concentration was 9.3 mg/L (Table 1). Effluent total phosphorus (2.2 mg/L), ortho-phosphate (1.5 mg/L), total kjehldahl nitrogen (TKN) (8.3 mg/L), and nitrate+nitrite (1.0 mg/L) were elevated and contributed to high nutrient levels at the Test Sites. The total ammonia concentration was

Table 3. Measured and predicted algal growth potential (AGP) for total soluble nitrogen (TSIN) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* , the AGP (salinity adjusted) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus.

Buckeye Florida, L.P.	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	199.0	212.8 ± 42.6	353.4 ± 70.7	3.7	4.2
Control Site 1	1.87 A	3 ± 0.6	73.0 ± 14.6	2.0	2.0
Control Site 2	8.1	5.9 ± 1.2	68.6 ± 13.7	1.9	1.9
Test Site 1	175.0	220.4 ± 44.1	372.4 ± 74.5	3.4	4.7
Test Site 2	191	193.8 ± 38.8	357.2 ± 71.4	3.2	4.5

A - Value reported is the mean of two or more determinations

Table 4. Qualitative periphyton composition from natural substrates at control and test sites.

Buckeye Florida, L.P.	Control Site 1	Control Site 2*	Test Site 1	Test Site 2*
Number of Taxa	28	-	19	-
Percent Dominant Taxon	32.47	-	36.36	-
Dominant Taxon (name)	*Eunotia* sp.	-	*Diadesmis confervacea*	-
Number of Algal Units Identified	308	-	66	-
Percentage Composition:				
Blue-green algae	0.32	-	18.18	-
Diatoms	99.35	-	81.82	-
Other	0.32	-	0	-

* Periphyton for these two sites were lost

4.6 mg/L. Unionized ammonia (0.05 mg/L) exceeded the Class III Water Quality Criterion (62-302.530(3), F.A.C.). Nutrient levels at the Test Sites were much greater than those found at the Control Sites, with a 20-fold increase in ortho-phosphate and total phosphorus, a 60-fold increase in nitrate+nitrite, and a 30-fold increase in total ammonia. Test Site nutrient levels were greater than values typically found in over 80% of Florida's streams (Appendix H). Concentrations of these nutrients at the Control Sites ranked in the 10^{th} to 80^{th}-percentile of typical values for Florida streams.

- 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 effluent AGP value was 199.0 mg dry wt/L. The AGP value at the upstream Control Sites 1 and 2 were 1.87 mg dry wt/L and 8.1 mg dry wt/L respectively (Table 3). The AGP values of the downstream Test Sites were 175.0 mg dry wt/L and 191.0 mg dry wt/L respectively. This indicates there is nutrient enrichment related to the Buckeye Florida discharge in this portion of the Fenholloway River. There was no evidence of growth inhibition in AGP data (Table 3).

- Chlorophyll-*a* was not detected in water samples of the effluent or from the Control and 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.

- Effluent BOD was 15,365.6 lbs/day and complied with the permit limit of 19,300 lbs/day. BOD loading increased substantially at the downstream Test Sites. Control Site 1 and Control Site 2 BOD were 1,307.7 lbs/day and 653.9 lbs/day respectively and Test Site 1 and Test Site 2 were 14,384.8 lbs/day and 12,096.3 lbs/day respectively.

- Effluent color (Pt-Co) was 1200 Pt-Co. Control Sites 1 and 2 were 500 and 600 Pt-Co, respectively and Test Sites 1 and 2 were both 1000 pt-Co. Secchi depth was 0.3 meters and 0.1 meters at Control Sites 1 and 2 respectively and 0.1meters and 0.2 meters and Test Sites 1 and 2 respectively.

- The qualitative periphyton samples collected from natural substrates at Control Site 1 and Test Site 1 showed differences in the algal communities (Table 4, Appendix J). Diatoms dominated Control Site 1 and Test Site1 however, the total number of algae decreased sharply from the Control Site compared to the downstream Test Site. The dominant taxon changed from *Eunotia* sp. at the Control Site to *Diadesmis conferacea* at the Test Site, and the total number of taxa decreased from 28 at the Control Site to 19 taxa at the Test Site, a 67% decline. Also, the percent of tolerant Cyanobacteria (blue-green algae) increased from less than 1% Control Site to 18% at the Test Site.

- Habitat assessment scores were 113 and 105 at Control Sites 1 and 2 and 93 and 100 at Test Sites 1 and 2 (Table 1, data sheets in Appendix I). Control Sites 1 and 2 and Test Site 2 were similar in most primary habitat parameters measured, with the most significant differences being habitat availability and water velocity. Test Site 1, differed in the fact that it is a man made channel lacking the channel complexity which provides the habitat diversity and availability present in the river sites.

- Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers showed that there were significant differences between Control Site 2 and the Test Sites (Table 5, Appendix K). No Hester-Dendy samplers were retrieved from Control Site 1. There was a change in the dominant taxon at the Control Site, *Tanytarsus* sp. L Epler, a sensitive taxon, was replaced by tolerant *Chironomus* sp. at the Test Sites. There was a substantial increase in the number of nutrient tolerant individuals, from 535 individuals per m^2 at Control Site 2 to 5,111 individuals per m^2 at Test Site 1 and 10,189 individuals per m^2 at Test Site 2. Shannon-Weaver Diversity was reduced by 68% at Test Site 1 and a 46% reduction at Test Site 2. These reductions in diversity exceed the Class III Surface Water Quality Criterion (> 25% reduction, 62-302-530(11) F.A.C.).

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative

Buckeye Florida, L.P.	Control Site 1*	Control Site 2	Test Site 1	Test Site 2
Summary Statistics				
Shannon-Weaver Diversity	-	2.98	0.96	1.6
Number of Taxa	-	19	8	18
Florida Index	-	8	0	3
Number of EPT Taxa	-	1	0	1
Percent Dominant Taxon	-	23.42	77.27	49.35
Dominant Taxon (name)	-	*Tanytarsus* sp. L Epler	*Chironomus*	*Chironomus*
Dominant Taxon (group)	-	Diptera	Diptera	Diptera
Total Number of Individuals (counted)	-	269	3080	5135
Total Number of Individuals (#/m2)	-	535	6111	10,189
Community Composition: Percent of total				
Amphipoda	-	0.0	0.0	2.4
Coleoptera	-	4.1	0.1	0.4
Diptera	-	73.6	77.3	54.3
Ephemeroptera	-	22.0	0.0	0.1
Gastropoda	-	0.0	18.7	41.8
Oligochaeta	-	0.0	3.9	1.0
Functional Feeding Groups: Percent of total				
Burrowing Deposit Feeders	-	0.0	3.9	1.0
Predators	-	4.6	0.1	1.1
Scavengers	-	1.9	0.0	0.1
Surface Deposit Feeders	-	39.67	86.63	73.86
Suspension Feeders	-	39.3	0.0	1.4
Scrapers	-	11.0	9.4	21.0
Shredders	-	3.3	0.0	1.6
Others	-	0.3	0.0	0.0

* Hester-Dendy samplers not recovered

- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Tables 6 and 7 and in Appendix L. The results were similar to those of the quantitative samples, with significant decreases in taxa richness and sensitive taxa, and an increase in tolerant taxa at the downstream sites. Control Site SCI scores were 52 and 39 at Control Sites 1 and 2, respectively, placing Control Site 1 in the "Fair" category and Control Site 2 in the "Poor" category. Test Site SCI scores were 5 and 3 at Test Sites 1 and 2, respectively, placing both sites in the "Very Poor" category.

Summary

Both DMR and FDEP data from this inspection indicate exceedances of unionized ammonia, dissolved oxygen and toxicity by this facility. Effluent conductivity (2800 µmhos/cm) did not comply with Class III Water Quality Criteria (62-302:530 (31) F.A.C.), but did comply with the facility permit limit of 4000 µmhos/cm. The discharge had an adverse effect on the macroinvertebrate and algal communities. There was a shift in the algal community from one almost exclusively diatoms at the Control Site to one with an increased proportion of tolerant Cyanobacteria (blue-green algae) at the Test Site. The percent of blue-green algae increased from less than 1% Control Site to 18% at the Test Site. In the macroinvertebrate communities there was a shift from a community dominated by the sensitive taxon, *Tanytarsus* sp. L at the Control Site to one dominated by the very tolerant taxon, *Chironomus* sp. at the Test Site. Shannon-Weaver Diversity was reduced by 68% at Test Site 1 and a 46% reduction at Test Site 2. These reductions in diversity exceed the Class III Surface Water Quality Criterion (> 25% reduction, 62-302-530(11) F.A.C.).

Literature Cited

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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.

Table 6. Macroinvertebrate Dipnet Samples - Qualitative

Buckeye Florida, L.P.	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Stream Condition Index (value)	52	39	5	3
Stream Condition Index (word)	Fair	Poor	Very Poor	Very Poor
Stream Condition Index Metrics				
Number of Total Taxa	20	27	10	9
Number of Ephemeroptera Taxa	1	1	0	0
Number of Trichoptera Taxa	2	1	0	0
Number of Clinger Taxa	5	4	1	1
Number of Long-lived Taxa	2	0	0	0
Number of Sensitive Taxa	3	4	1	1
Percent of Dominant Taxon	34.7	14.9	77.2	70.4
Percent Suspension Feeders and Filterers	49.0	21.8	2.0	0.9
Percent of Tanytarsini individuals	21.8	13.9	2.0	0.0
Percent of Very Tolerant individuals	0.0	15.8	92.1	17.6
Total Number of Individuals	101	101	101	108
Community Composition: Percent of total				
Dominant Taxon (name)	*Simulium*	*Dicrotendipes simpsoni*	*Chironomus*	*Hatia* sp.
Dominant Taxon (group)	Diptera	Diptera	Diptera	Gastropoda
Amphipoda	0.0	6.9	0.0	7.4
Coleoptera	4.0	14.9	2.0	0.9
Diptera	77.2	49.5	80.2	14.8
Ephemeroptera	10.9	1.0	0.0	0.0
Gastropoda	0.0	2.0	2.0	70.4
Isopoda	0.0	3.0	0.0	0.0
Odonata	1.0	8.9	2.0	0.9
Oligochaeta	5.0	10.9	12.9	5.6
Tricoptera	2.0	1.0	0.0	0.0
Other	0.0	2.0	1.0	0.0
Functional Feeding Groups: Percent of total				
Burrowing Deposit Feeders	5.0	10.9	12.9	5.6
Plant Pierce Feeders	0.0	1.0	0.0	0.0
Predators	10.9	28.2	3.5	2.8
Scavengers	0.5	3.0	0.0	0.0
Surface Deposit Feeders	22.3	28.2	80.2	16.7
Suspension Feeders and Filterers	49.0	21.8	2.0	0.9
Scrapers	9.9	3.0	1.5	70.4
Shredders	2.5	2.0	0.0	3.7
Unknown	0.0	2.0	0.0	0.0

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Table 7a. Stream Condition Index Metrics - Panhandle Bioregion

Buckeye Florida, L.P. (Control Site 1)			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	20	1.2	1.2
Number of Ephemeroptera Taxa	1	1.7	1.7
Number of Trichoptera Taxa	2	2.9	2.9
Number of Clinger Taxa	5	3.2	3.2
Number of Long-lived Taxa	2	4.0	4.0
Number of Sensitive Taxa	3	1.6	1.6
Percent Contribution of Dominant Taxon	34.65	2.5	2.5
Percent Suspension Feeders and Filterers	49.01	10.9	10.0
Percent of Tanytarsini individuals	21.78	9.5	9.5
Percent of Very Tolerant individuals	0	10.0	10.0
Total Score			**52**
		Good	73-100
Interpretation of Scores		**Fair**	46-72
		Poor	19-45
		Very Poor	0-18

Table 7b. Stream Condition Index Metrics - Panhandle Bioregion

Buckeye Florida, L.P. (Control Site 2)			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	27	3.3	3.3
Number of Ephemeroptera Taxa	1	1.7	1.7
Number of Trichoptera Taxa	1	1.4	1.4
Number of Clinger Taxa	4	2.6	2.6
Number of Long-lived Taxa	0	0.0	0.0
Number of Sensitive Taxa	4	2.1	2.1
Percent Contribution of Dominant Taxon	14.85	8.5	8.5
Percent Suspension Feeders and Filterers	21.78	4.7	4.7
Percent of Tanytarsini individuals	13.86	8.2	8.2
Percent of Very Tolerant individuals	15.84	2.2	2.2
Total Score			**39**
		Good	73-100
Interpretation of Scores		Fair	46-72
		Poor	19-45
		Very Poor	0-18

Table 7c. Stream Condition Index Metrics - Panhandle Bioregion

Buckeye Florida, L.P. (Test Site 1)			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	10	-1.8	0.0
Number of Ephemeroptera Taxa	0	0.0	0.0
Number of Trichoptera Taxa	0	0.0	0.0
Number of Clinger Taxa	1	0.6	0.6
Number of Long-lived Taxa	0	0.0	0.0
Number of Sensitive Taxa	1	0.5	0.5
Percent Contribution of Dominant Taxon	77.23	-10.4	0.0
Percent Suspension Feeders and Filterers	1.98	0.2	0.2
Percent of Tanytarsini individuals	1.98	3.3	3.3
Percent of Very Tolerant individuals	92.08	-2.6	0.0
Total Score			**5**
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

Table 7d. Stream Condition Index Metrics - Panhandle Bioregion

Buckeye Florida, L.P. (Test Site 2)			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	9	-2.1	0.0
Number of Ephemeroptera Taxa	0	0.0	0.0
Number of Trichoptera Taxa	0	0.0	0.0
Number of Clinger Taxa	1	0.6	0.6
Number of Long-lived Taxa	0	0.0	0.0
Number of Sensitive Taxa	1	0.5	0.5
Percent Contribution of Dominant Taxon	70.37	-8.3	0.0
Percent Suspension Feeders and Filterers	0.93	0.0	0.0
Percent of Tanytarsini individuals	0	0.0	0.0
Percent of Very Tolerant individuals	17.59	1.9	1.9
Total Score			**3**
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

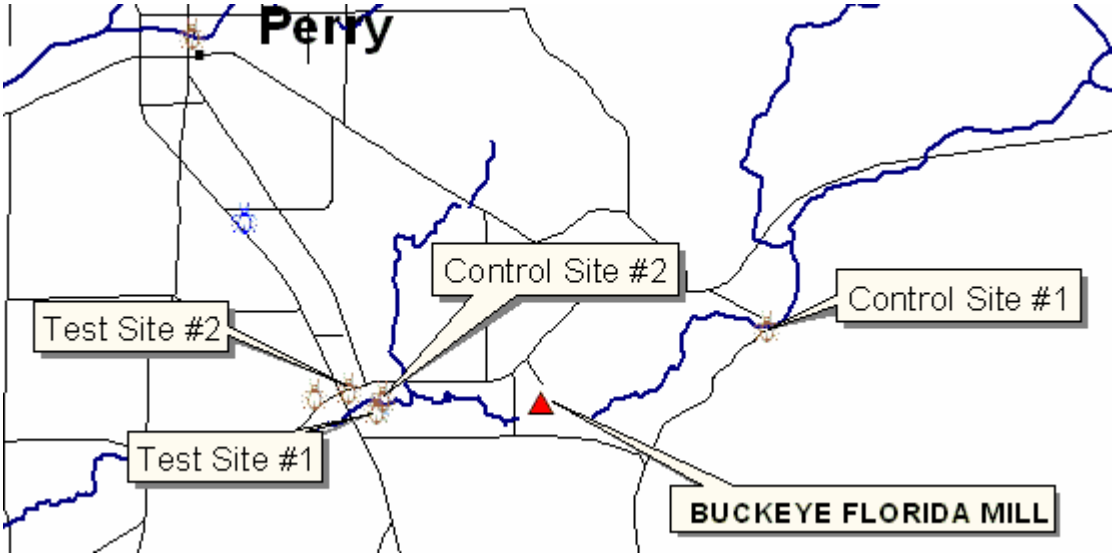
Appendices

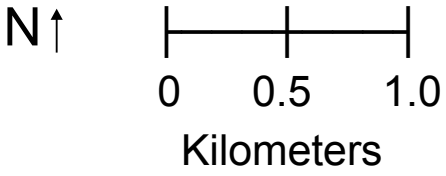
- Appendix A. Map of facility
- Appendix B. Facility summary and DMR data
- Appendix C. Explanation of measurements
- Appendix D. Chain of Custody form
- Appendix E. Chemical analyses of effluent and receiving water.
- Appendix F. Additional physical, chemical, toxicological and microbiological results
- Appendix G. Standard Reference Toxicant test data and test organism receipts
- Appendix H. Typical values for selected parameters in Florida waters
- Appendix I. Habitat Assessment field sheets
- Appendix J. Periphyton: Taxa list and number of individuals counted
- Appendix K1. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix K2. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted
- Appendix L1. Dipnet samples: Taxa list and number of macroinvertebrates counted (collapsed)
- Appendix L2. Dipnet samples: Taxa list and number of macroinvertebrates counted

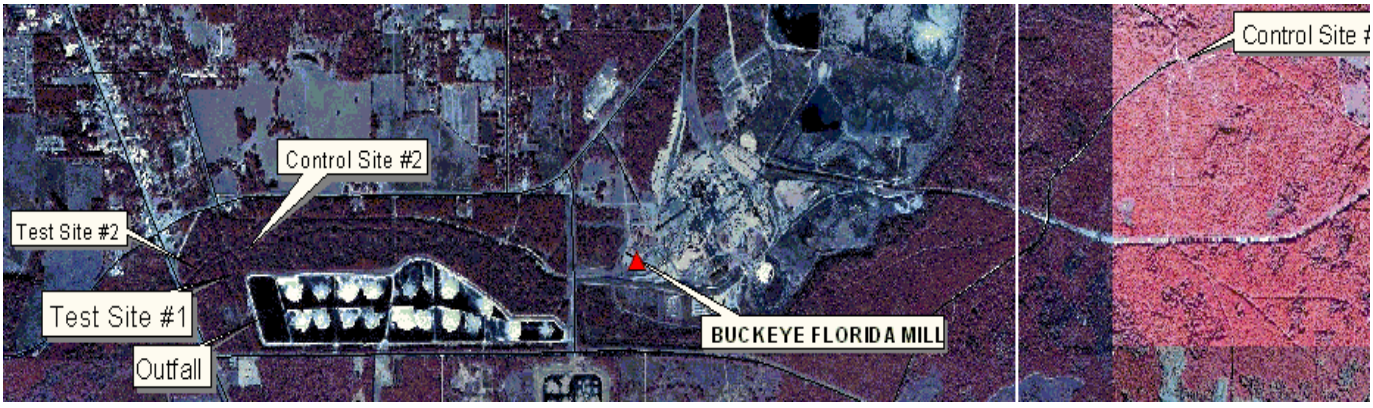
Appendix A

Map of Facility

Buckeye Florida, L.P. Pulp and Paper Mill, Taylor County Florida







Appendix B

Facility Summary and DMR data

Buckeye Florida, L. P.
FL0000876

Buckeye Florida, L.P., is permitted to discharge 58 million gallons per day (design) from the existing industrial wastewater treatment system serving a dissolved kraft pulp mill (wood cellulose manufacturing) that includes: a lift station; bar racks; a 320-foot diameter primary clarifier with skimming pond; sludge pumps; 225 acres of sludge storage lagoons with conveyance structures; and a 30-acre aerated lagoon followed by a 120-acre aerated lagoon. Existing discharge outfall and a future emergency discharge outfall to the Fenholloway River at milepoint 24.6 upstream of the river mouth, Class III freshwaters, discharges at the sharp-crested weir Outfall D-001.

The average flow from December 2004 through November 2005 was 44.6 MGD. The facility's permit has been administratively extended since 1997. The permit application was received 01/31/05 and the draft permit was mailed to EPA for review 8/17/05.

State of Florida
Department of Environmental Protection
Facility Summary

Facility Name: Buckeye Florida, L.P.		**Prepared By:** Reza Shayan **Date:** 01/27/2006	
Location: Perry, FL	**County:** 62 - Taylor		**District:** Northeast
Federal Permit No.: FL0000876 **Expiration Date:** administratively extended	**State GMS #:** 3162P03219 **State Expiration Date:** administratively extended		**Facility Type:** Industrial
Function of Facility: Dissolved Kraft Pulp and Paper Mill / Wood Cellulose Manufacturing			
Description of treatment process: The wastewater treatment facility consists of a lift station, bar racks, 320-foot diameter primary clarifier with skimming pond, sludge pumps, 225 acres of sludge storage lagoons with conveyance structures, and a 30-acre aerated lagoon followed by a 120-acre aerated lagoon.			
Receiving Waters: Fenholloway River	**Classification:** Class III - Fresh		
Design Flow: 58 MGD	**Mean Flow:** 44.6 MGD (Dec. 04-Nov. 05)		
Flow during survey:39.2 MG	**Temperature (°C)** 25.25	**Dissolved Oxygen (mg/L)** 3.35	**pH (SU):** 7.15
Conductivity (umhos/cm) 2800	**Facility Mixing Zone Details:** None		
Discharge is: **Continuous** Intermittent Seasonal Rainfall Dependent Other			

List effluent limits:

Parameter	Limit	Describe special permit conditions and permit modifications:
Flow (MGD)	Report	(State permit & 1992 NPDES permit.)
BOD5 (lbs/day)	Monthly Average <13,200 Daily Maximum <19,800	24-hour composite (State permit & 1984 NPDES permit.) 24-hour composite (State permit & 1984 NPDES permit.)
Total Suspended Solids (lbs/day)	Monthly Average <25,000 Daily Maximum <50,000	24-hour composite (State permit & 1984 NPDES permit.) 24-hour composite (State permit & 1984 NPDES permit.)
pH (S.U.)	Daily Minimum 6.0 Daily Maximum 8.5	(State permit & 1984 NPDES permit.) (State permit & 1984 NPDES permit.)
Oil and Grease (mg/L)	Daily Maximum 10.0	(State permit.)
Specific Conductance (umhos/cm)	Daily Maximum 4,000	(State permit.)
Temperature (°F)	Report Only	(State permit & 1992 NPDES permit.)
Phenolic Compounds (mg/L)	Daily Maximum 0.2	(State permit.)
Total Phosphorous (mg/L)	Report Only	(1992 NPDES permit.)
Ammonia Nitrogen (mg/L)	Report Only	(1992 NPDES permit.)

Dissolved Oxygen (mg/L)	Varies Minimum 5.0	The DO criteria for the Fenholloway River at the SR 356 Bridge shall be 0.3 mg/L or greater more than 50% of the time on an annual basis when the flow at the bridge is 250 cfs or greater. The DO at the SR 356 Bridge shall be 0.1 mg/L or greater 99% of the time on an annual basis regardless of flow. (State permit.) Effluent concentration. (1984 NPDES permit)
Toxicity (% effluent)	NOEC = 100 LC50 not less than 100	Semi-annual chronic screens with *C.dubia* and *P.promelas* using 24-hr composite samples with two additional tests if NOEC < 100% effluent. (1992 NPDES permit) Semi-annual 96-hr acute screens with *C.dubia* and *P.promelas* using a grab sample with a minimum of three additional tests if LC50 < 100% effluent. (1990 State permit)

Description of permitted outfall: The outfall discharges to the Fenholloway River, a Class III water body, at mile point 24.6 upstream of the river mouth.

List permit violations (DMR data) and plant upsets that occurred at the plant within the past year: The facility reported two abnormal events (AE) from upsets or exceedances, in the past year. AE # 709 was reported because the facility experienced a leak in the #2 Raw (groundwater) Water Line on 7/12/05 due to failure of a transformer. An estimated 1.5 million gallons of groundwater from #2 Well Line ended up in the Fenholloway River due to the leak. AE # A05-776 was reported on 12/22/05 due to power loss to all aerators at #1 lagoon and 8 aerators at #2 lagoon for a period of 5 hours or less. Based on previous power outage experience at the lagoons and the system's 5-day lagoon hydraulic retention time, it was estimated that the outfall BOD5 results was not significantly affected and a permit exceedance was not expected.

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:
None of the routine acute bioassay testing conducted in 2004 and 2005 showed toxicity. Since all of the test species had at least 80% survival in 100% effluent, it is implied that the chronic tox limits pass also.

The last impact bioassessment was performed in April 2000, ftp://ftp.dep.state.fl.us/pub/labs/lds/reports/1123.pdf. The results showed metals were detected but complied with water quality standards and no organics were detected. Also seen was a shift in the algal community from the contol site, which was dominated by diatoms, to the test site, which was dominated by blue-green algae, a violation of biological integrity. In addition, the results showed degradation in the macroinvertabrate communities, imbalance of fauna, and elevated nutrients, along with water quality exceedances for total coliforms and unionized ammonia.

The previous impact bioassessment was on February 8, 1999. The results showed that the discharge had an adverse effect on both the benthic and algal communities. Both the Hester-Dendy and ponar samples showed extreme degradation of the macroinvertebrate communities' health at the test site compared to the control site. The periphyton algae shifted from one dominated by diatoms at the control site to one dominated by blue-green algae at the test site.

Discuss MOR trends to prior data; is the trend improving or declining: No noticeable trends.

Additional Information: The permit renewal process has been ongoing for several years. The facility is currently operating under a state permit issued in 1990, part of an NPDES permit issued in 1992 by EPA, and an NPDES permit issued in 1984 by EPA. When each of these permits was issued, the Fenholloway River was classified as a Class V water body. It has since been reclassified as a Class III water body. A permit application was received January 2005. The Intent to Issue for the proposed permit was petitioned and is awaiting the Administrative Hearing process.

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: Qualitative periphyton were sampled at both control and test sites by taking subsamples of algae from natural substrates throughout the sample reach (QA Rule FS7220). Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100). Periphyton were subsampled and identified to the lowest practical level, usually species (FDEP SOPs AB03, AB03_1 and AB05).

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..

Algal Density: Algal density is estimated as number of natural units/ml for phytoplankton samples and number of natural units/cm^2 for periphyton samples. Although algal density of a single site is highly variable and depends on a number of factors, comparison of algal density at a control site to algal density at a related test site gives a partial comparison of algal biomass at the two sites (Stevenson and Smol 2003).

Taxa richness: Taxa richness is the number of distinct algal taxa present in a sample. Extreme nutrient enrichment tends to reduce the number of different types of algae present in a sample because a few tolerant taxa tend to reproduce rapidly and constitute the majority of the cells present. However, moderate nutrient enrichment of nutrient poor waters may sometimes be correlated with increased algal taxa richness (Stevenson and Bahls 1999) as the algal community begins to respond to the increased input of nutrients.

Community Composition: Shifts in relative proportions of major groups of algae downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Stevenson and Bahls 1999) and 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..

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 with more equitable abundance among taxa (Magurran 1988). Low diversity scores 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..

(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.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2006-03-20-15
Buckeye Florida

Event ID *

Requester: Shannan Bogdanov

Field Report Prepared By:

Customer: NE-DIST

Collected By:

Send Final Report To Melissa Long

Project ID: FYI5

Sampling Agency:

PMAS: 1163

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Fen Holloway 50m below effluent Canal	☐ Comp ☒ Grab	Date 3/20/06 Time 1020	Date Time	B
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.72	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc) fresh / Temp (C) 23.42 / pH 7.25	Sample Depth ☒ m ☐ ft	2473	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " / Longitude o ' "	Comments			

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Buckeye effluent Canal	☐ Comp ☒ Grab	Date 3/20/06 Time 12:25	Date Time	B
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.2	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc) fresh / Temp (C) 25.01 / pH 7.24	Sample Depth ☒ m ☐ ft	2770	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " / Longitude o ' "	Comments			

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Buckeye final effluent	☐ Comp ☒ Grab	Date 3/20/06 Time 14:45	Date Time	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 3.35	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc) fresh / Temp (C) 25.25 / pH 7.15	Sample Depth ☒ m ☐ ft 0.04	2800	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " / Longitude o ' "	Comments	Flow 39.06 mgd		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Fenhollaway River @ Fenhollaway Rd	☐ Comp ☒ Grab	Date 3/20/06 Time 10:16	Date Time	C
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.88	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc) fresh / Temp (C) 16.75 / pH 4.46	Sample Depth ☒ m ☐ ft 0.125	52	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' " / Longitude o ' "	Comments			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
SB	3/20/06 1500		RKH	3-20-06 1700				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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Took Heather Dendy's (QMAC) to process

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2006-03-20-15
Buckeye Florida

Requester: Shannan Bogdanov

Field Report Prepared By:

Customer: NE-DIST

Collected By:

Send Final Report To Melissa Long

Project ID: FYI5

Sampling Agency:

PMAS: 1163

Lab ID *	Location: fenhollow upstream of discharge			☐ Comp ☑ Grab	Collection (begin) Date: 3/20/06 Time: 13:00 ~~Eastern~~ Central		Collection (end) Date / Time / Eastern Central		Bottle Group(s)**: A C
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 5.73		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc): fresh	Temp (C): 17.52	pH: 6.17	Sample Depth: 0.4 ☑ m ☐ ft	136	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location: Blank			☐ Comp ☐ Grab	Collection (begin) Date / Time / Eastern Central		Collection (end) Date / Time / Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date / Time / Eastern Central		Collection (end) Date / Time / Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date / Time / Eastern Central		Collection (end) Date / Time / Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
SB	5:00p 3/20/06		RKN	3-20-06/1700				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix E

Chemical analysis of effluent and receiving water

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
3/20/06	Effleunt	Bio-AGP/LimNut	Algal Growth Potential	199	mg DryWt/L		0.3	0.9
3/20/06	Effleunt	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	333	mg DryWt/L		0.3	0.9
3/20/06	Effleunt	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	2.1	ug/L	U	2.1	6.5
3/20/06	Effleunt	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	3.8	ug/L	U	3.8	11
3/20/06	Effleunt	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	K		
3/20/06	Effleunt	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
3/20/06	Effleunt	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
3/20/06	Effleunt	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
3/20/06	Effleunt	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	U	39	160
3/20/06	Effleunt	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	4,4'-DDT	1.5	ug/L	UJ	1.5	5.8
3/20/06	Effleunt	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
3/20/06	Effleunt	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
3/20/06	Effleunt	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Benzidine	97	ug/L	UJ	97	390
3/20/06	Effleunt	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
3/20/06	Effleunt	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
3/20/06	Effleunt	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
3/20/06	Effleunt	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
3/20/06	Effleunt	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
3/20/06	Effleunt	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
3/20/06	Effleunt	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	Endrin	1.5	ug/L	UJ	1.5	5.8
3/20/06	Effleunt	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
3/20/06	Effleunt	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8
3/20/06	Effleunt	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
3/20/06	Effleunt	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	UJ	2.9	12

3/20/06	Effleunt	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
3/20/06	Effleunt	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
3/20/06	Effleunt	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
3/20/06	Effleunt	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
3/20/06	Effleunt	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4
3/20/06	Effleunt	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
3/20/06	Effleunt	GC-Water	Bromacil	0.2	ug/L	UJ	0.2	0.8
3/20/06	Effleunt	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
3/20/06	Effleunt	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Fenamiphos	0.2	ug/L	UJ	0.2	0.8
3/20/06	Effleunt	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Malathion	0.15	ug/L	UJ	0.15	0.6
3/20/06	Effleunt	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
3/20/06	Effleunt	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
3/20/06	Effleunt	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Mevinphos	0.2	ug/L	UJ	0.2	0.8
3/20/06	Effleunt	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
3/20/06	Effleunt	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
3/20/06	Effleunt	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
3/20/06	Effleunt	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
3/20/06	Effleunt	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
3/20/06	Effleunt	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
3/20/06	Effleunt	GC-Water	Simazine	0.05	ug/L	UJ	0.05	0.2
3/20/06	Effleunt	Metals-Water	Aluminum	539	ug/L		5	20
3/20/06	Effleunt	Metals-Water	Arsenic	0.55	ug/L	I	0.5	2
3/20/06	Effleunt	Metals-Water	Cadmium	0.21	ug/L		0.05	0.2
3/20/06	Effleunt	Metals-Water	Calcium	57.5	mg/L		0.05	0.2
3/20/06	Effleunt	Metals-Water	Chromium	4.1	ug/L	I	2	8
3/20/06	Effleunt	Metals-Water	Copper	5.5	ug/L		1	4
3/20/06	Effleunt	Metals-Water	Iron	365	ug/L		10	40
3/20/06	Effleunt	Metals-Water	Lead	0.59	ug/L		0.075	0.3
3/20/06	Effleunt	Metals-Water	Magnesium	19.7	mg/L		0.01	0.04
3/20/06	Effleunt	Metals-Water	Nickel	17.9	ug/L		1	4
3/20/06	Effleunt	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	Effleunt	Metals-Water	Silver	0.074	ug/L	I	0.025	0.1
3/20/06	Effleunt	Metals-Water	Zinc	22	ug/L		3	12
3/20/06	Effleunt	Nutrients-Liquid	Ammonia-N	4.6	mg N/L		0.25	0.5
3/20/06	Effleunt	Nutrients-Liquid	Color	1.20E+03	PCU		120	120
3/20/06	Effleunt	Nutrients-Liquid	Kjeldahl Nitrogen	8.3	mg N/L		0.24	0.6
3/20/06	Effleunt	Nutrients-Liquid	NO2NO3-N	1	mg N/L		0.02	0.05
3/20/06	Effleunt	Nutrients-Liquid	O-Phosphate-P	1.5	mg P/L		0.08	0.2
3/20/06	Effleunt	Nutrients-Liquid	TSS	12	mg/L	I	4	16
3/20/06	Effleunt	Nutrients-Liquid	Total-P	2.2	mg P/L		0.1	0.3
3/20/06	Effleunt	Overflow	Oil and Grease	1.8	mg/L	I		
3/20/06	Control 1	Bio-AGP/LimNut	Algal Growth Potential	1.87	mg DryWt/L	A	0.3	0.9
3/20/06	Control 1	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
3/20/06	Control 1	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	2.5	ug/L	U	2.5	7.5
3/20/06	Control 1	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	21	# Taxa			
3/20/06	Control 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	HD Lost	# Taxa			
3/20/06	Control 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	HD Lost	# Taxa			
3/20/06	Control 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	HD Lost	# Taxa			
3/20/06	Control 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	HD Lost	# Taxa			

3/20/06	Control 1	Bio-Peri/Phyto	Periphyton-Qualitative-# Diatom Taxa	26	# Taxa			
3/20/06	Control 1	Bio-Peri/Phyto	Periphyton-Qualitative-# Wet Taxa	2	#Taxa			
3/20/06	Control 1	Metals-Water	Aluminum	570	ug/L		5	20
3/20/06	Control 1	Metals-Water	Arsenic	4	ug/L	U	4	16
3/20/06	Control 1	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
3/20/06	Control 1	Metals-Water	Calcium	6.7	mg/L		0.05	0.2
3/20/06	Control 1	Metals-Water	Chromium	2	ug/L	U	2	8
3/20/06	Control 1	Metals-Water	Copper	0.37	ug/L	I	0.25	1
3/20/06	Control 1	Metals-Water	Iron	414	ug/L		10	40
3/20/06	Control 1	Metals-Water	Lead	0.51	ug/L		0.075	0.3
3/20/06	Control 1	Metals-Water	Magnesium	2.2	mg/L		0.01	0.04
3/20/06	Control 1	Metals-Water	Nickel	1	ug/L	I	1	4
3/20/06	Control 1	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	Control 1	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
3/20/06	Control 1	Metals-Water	Zinc	3	ug/L	U	3	12
3/20/06	Control 1	Nutrients-Liquid	Ammonia-N	0.06	mg N/L		0.01	0.02
3/20/06	Control 1	Nutrients-Liquid	Color	500	PCU		50	50
3/20/06	Control 1	Nutrients-Liquid	Kjeldahl Nitrogen	1.9	mg N/L		0.16	0.4
3/20/06	Control 1	Nutrients-Liquid	NO2NO3-N	0.02	mg N/L	U	0.02	0.05
3/20/06	Control 1	Nutrients-Liquid	O-Phosphate-P	0.041	mg P/L		0.004	0.01
3/20/06	Control 1	Nutrients-Liquid	TSS	4	mg/L	U	4	16
3/20/06	Control 1	Nutrients-Liquid	Total-P	0.061	mg P/L		0.02	0.06
3/20/06	Control 2	Bio-AGP/LimNut	Algal Growth Potential	8.05	mg DryWt/L		0.3	0.9
3/20/06	Control 2	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	2.1	ug/L	U	2.1	6.5
3/20/06	Control 2	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	3.8	ug/L	U	3.8	11
3/20/06	Control 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	8	# Taxa			
3/20/06	Control 2	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	28	# Taxa			
3/20/06	Control 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	11	# Taxa			
3/20/06	Control 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	17	# Taxa			
3/20/06	Control 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	9	# Taxa			
3/20/06	Control 2	Bio-Peri/Phyto	Periphyton-Qualitative-# Diatom Taxa	Lost	# Taxa			
3/20/06	Control 2	Bio-Peri/Phyto	Periphyton-Qualitative-# Wet Taxa	Lost	#Taxa			
3/20/06	Control 2	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50		LC50			
3/20/06	Control 2	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50		LC50			
3/20/06	Control 2	Metals-Water	Aluminum	507	ug/L		5	20
3/20/06	Control 2	Metals-Water	Arsenic	0.72	ug/L	I	0.5	2
3/20/06	Control 2	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
3/20/06	Control 2	Metals-Water	Calcium	15.5	mg/L		0.05	0.2
3/20/06	Control 2	Metals-Water	Chromium	2	ug/L	U	2	8
3/20/06	Control 2	Metals-Water	Copper	0.41	ug/L	I	0.25	1
3/20/06	Control 2	Metals-Water	Iron	592	ug/L		10	40
3/20/06	Control 2	Metals-Water	Lead	0.48	ug/L		0.075	0.3
3/20/06	Control 2	Metals-Water	Magnesium	5.1	mg/L		0.01	0.04
3/20/06	Control 2	Metals-Water	Nickel	1.6	ug/L	I	1	4
3/20/06	Control 2	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	Control 2	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
3/20/06	Control 2	Metals-Water	Zinc	3	ug/L	U	3	12
3/20/06	Control 2	Nutrients-Liquid	Ammonia-N	0.15	mg N/L		0.01	0.02
3/20/06	Control 2	Nutrients-Liquid	Color	600	PCU		50	50
3/20/06	Control 2	Nutrients-Liquid	Kjeldahl Nitrogen	1.8	mg N/L		0.16	0.4
3/20/06	Control 2	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
3/20/06	Control 2	Nutrients-Liquid	O-Phosphate-P	0.081	mg P/L		0.004	0.01
3/20/06	Control 2	Nutrients-Liquid	TSS	4	mg/L	U	4	16
3/20/06	Control 2	Nutrients-Liquid	Total-P	0.095	mg P/L		0.02	0.06
3/20/06	Control 2	Overflow	Oil and Grease		mg/L			

3/20/06	Test 1	Bio-AGP/LimNut	Algal Growth Potential	175	mg DryWt/L	J	0.3	0.9
3/20/06	Test 1	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	424	mg DryWt/L		0.3	0.9
3/20/06	Test 1	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	2.8	ug/L	U	2.8	8.7
3/20/06	Test 1	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	5	ug/L	U	5	15
3/20/06	Test 1	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	10	# Taxa			
3/20/06	Test 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	7	# Taxa			
3/20/06	Test 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	6	# Taxa			
3/20/06	Test 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	4	# Taxa			
3/20/06	Test 1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	5	# Taxa			
3/20/06	Test 1	Bio-Peri/Phyto	Periphyton-Qualitative-# Diatom Taxa	17	# Taxa			
3/20/06	Test 1	Bio-Peri/Phyto	Periphyton-Qualitative-# Wet Taxa	2	#Taxa			
3/20/06	Test 1	Metals-Water	Aluminum	530	ug/L		5	20
3/20/06	Test 1	Metals-Water	Arsenic	0.59	ug/L	I	0.5	2
3/20/06	Test 1	Metals-Water	Cadmium	0.2	ug/L	I	0.05	0.2
3/20/06	Test 1	Metals-Water	Calcium	57.1	mg/L		0.05	0.2
3/20/06	Test 1	Metals-Water	Chromium	4	ug/L	I	2	8
3/20/06	Test 1	Metals-Water	Copper	4.9	ug/L		1	4
3/20/06	Test 1	Metals-Water	Iron	357	ug/L		10	40
3/20/06	Test 1	Metals-Water	Lead	0.6	ug/L		0.075	0.3
3/20/06	Test 1	Metals-Water	Magnesium	19.4	mg/L		0.01	0.04
3/20/06	Test 1	Metals-Water	Nickel	17.2	ug/L		1	4
3/20/06	Test 1	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	Test 1	Metals-Water	Silver	0.072	ug/L	I	0.025	0.1
3/20/06	Test 1	Metals-Water	Zinc	22	ug/L		3	12
3/20/06	Test 1	Nutrients-Liquid	Ammonia-N	4.6	mg N/L		0.25	0.5
3/20/06	Test 1	Nutrients-Liquid	Color	1.00E+03	PCU	A	120	120
3/20/06	Test 1	Nutrients-Liquid	Kjeldahl Nitrogen	8.6	mg N/L		0.24	0.6
3/20/06	Test 1	Nutrients-Liquid	NO2NO3-N	1.2	mg N/L		0.02	0.05
3/20/06	Test 1	Nutrients-Liquid	O-Phosphate-P	1.7	mg P/L		0.08	0.2
3/20/06	Test 1	Nutrients-Liquid	TSS	8	mg/L	I	4	16
3/20/06	Test 1	Nutrients-Liquid	Total-P	2.1	mg P/L		0.1	0.3
3/20/06	Test 2	Bio-AGP/LimNut	Algal Growth Potential	191	mg DryWt/L		0.3	0.9
3/20/06	Test 2	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	279	mg DryWt/L		0.3	0.9
3/20/06	Test 2	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
3/20/06	Test 2	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	2.5	ug/L	U	2.5	7.5
3/20/06	Test 2	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	9	# Taxa			
3/20/06	Test 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	13	# Taxa			
3/20/06	Test 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	9	# Taxa			
3/20/06	Test 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	16	# Taxa			
3/20/06	Test 2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	16	# Taxa			
3/20/06	Test 2	Metals-Water	Aluminum	539	ug/L		5	20
3/20/06	Test 2	Metals-Water	Arsenic	0.61	ug/L	I	0.5	2
3/20/06	Test 2	Metals-Water	Cadmium	0.19	ug/L	I	0.05	0.2
3/20/06	Test 2	Metals-Water	Calcium	54.2	mg/L		0.05	0.2
3/20/06	Test 2	Metals-Water	Chromium	3.6	ug/L	I	2	8
3/20/06	Test 2	Metals-Water	Copper	4.4	ug/L		0.75	3
3/20/06	Test 2	Metals-Water	Iron	395	ug/L		10	40
3/20/06	Test 2	Metals-Water	Lead	0.56	ug/L		0.075	0.3
3/20/06	Test 2	Metals-Water	Magnesium	18.4	mg/L		0.01	0.04
3/20/06	Test 2	Metals-Water	Nickel	15.5	ug/L		1	4
3/20/06	Test 2	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	Test 2	Metals-Water	Silver	0.062	ug/L	I	0.025	0.1
3/20/06	Test 2	Metals-Water	Zinc	20	ug/L		3	12
3/20/06	Test 2	Nutrients-Liquid	Ammonia-N	4.1	mg N/L		0.25	0.5
3/20/06	Test 2	Nutrients-Liquid	Color	1.00E+03	PCU		120	120
3/20/06	Test 2	Nutrients-Liquid	Kjeldahl Nitrogen	8.4	mg N/L		0.24	0.6
3/20/06	Test 2	Nutrients-Liquid	NO2NO3-N	1	mg N/L		0.02	0.05
3/20/06	Test 2	Nutrients-Liquid	O-Phosphate-P	1.6	mg P/L		0.028	0.07
3/20/06	Test 2	Nutrients-Liquid	TSS	9	mg/L	I	4	16
3/20/06	Test 2	Nutrients-Liquid	Total-P	2.1	mg P/L		0.1	0.3

3/20/06	EQUIPMENT BLANK	BNA-Water	1,2,4-Trichlorobenzene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	1,2-Dichlorobenzene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	1,3-Dichlorobenzene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	1,4-Dichlorobenzene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2,4,6-Trichlorophenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2,4-Dichlorophenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2,4-Dimethylphenol	61	ug/L	U	61	240
3/20/06	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrophenol	18	ug/L	U	18	73
3/20/06	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrotoluene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2,6-Dinitrotoluene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2-Chloronaphthalene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2-Chlorophenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	2-Nitrophenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	3,3'-Dichlorobenzidine	49	ug/L	U	49	200
3/20/06	EQUIPMENT BLANK	BNA-Water	4,4'-DDD	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	4,4'-DDE	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	4,4'-DDT	1.8	ug/L	UJ	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	4-Bromophenyl phenyl ether	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	4-Chloro-3-methylphenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	4-Chlorophenyl phenyl ether	2.4	ug/L	U	2.4	9.8
3/20/06	EQUIPMENT BLANK	BNA-Water	4-Nitrophenol	18	ug/L	U	18	73
3/20/06	EQUIPMENT BLANK	BNA-Water	Acenaphthene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Acenaphthylene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Aldrin	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Anthracene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Benzidine	120	ug/L	UJ	120	490
3/20/06	EQUIPMENT BLANK	BNA-Water	Benzo(a)anthracene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Benzo(a)pyrene	1.2	ug/L	U	1.2	4.9

3/20/06	EQUIPMENT BLANK	BNA-Water	Benzo(b)fluoranthene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Benzo(g,h,i)perylene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Benzo(k)fluoranthene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethoxy)methane	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethyl)ether	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	18	ug/L	U	18	73
3/20/06	EQUIPMENT BLANK	BNA-Water	Butyl benzyl phthalate	6.1	ug/L	U	6.1	24
3/20/06	EQUIPMENT BLANK	BNA-Water	Chrysene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Di-n-butyl phthalate	6.1	ug/L	U	6.1	24
3/20/06	EQUIPMENT BLANK	BNA-Water	Di-n-octyl phthalate	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Dibenzo(a,h)anthracene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Dieldrin	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Diethyl phthalate	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Dimethyl phthalate	61	ug/L	U	61	240
3/20/06	EQUIPMENT BLANK	BNA-Water	Endosulfan I	4.9	ug/L	U	4.9	20
3/20/06	EQUIPMENT BLANK	BNA-Water	Endosulfan II	4.9	ug/L	U	4.9	20
3/20/06	EQUIPMENT BLANK	BNA-Water	Endosulfan sulfate	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Endrin	1.8	ug/L	UJ	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Endrin aldehyde	4.9	ug/L	U	4.9	20
3/20/06	EQUIPMENT BLANK	BNA-Water	Fluoranthene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Fluorene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Heptachlor	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Heptachlor epoxide	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	Hexachlorobenzene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Hexachlorobutadiene	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Hexachlorocyclopentadiene	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Hexachloroethane	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Isophorone	1.2	ug/L	U	1.2	4.9

3/20/06	EQUIPMENT BLANK	BNA-Water	N-Nitrosodi-n-propylamine	2.4	ug/L	U	2.4	9.8
3/20/06	EQUIPMENT BLANK	BNA-Water	N-Nitrosodimethylamine	2.4	ug/L	U	2.4	9.8
3/20/06	EQUIPMENT BLANK	BNA-Water	N-Nitrosodiphenylamine	3.7	ug/L	UJ	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Naphthalene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Nitrobenzene	2.4	ug/L	U	2.4	9.8
3/20/06	EQUIPMENT BLANK	BNA-Water	Pentachlorophenol	3.7	ug/L	U	3.7	15
3/20/06	EQUIPMENT BLANK	BNA-Water	Phenanthrene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Phenol	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	Pyrene	1.2	ug/L	U	1.2	4.9
3/20/06	EQUIPMENT BLANK	BNA-Water	alpha-BHC	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	beta-BHC	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	delta-BHC	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	BNA-Water	gamma-BHC	1.8	ug/L	U	1.8	7.3
3/20/06	EQUIPMENT BLANK	GC-Water	Alachlor	0.71	ug/L	U	0.71	2.8
3/20/06	EQUIPMENT BLANK	GC-Water	Ametryn	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Atrazine	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Azinphos Methyl	0.24	ug/L	U	0.24	0.96
3/20/06	EQUIPMENT BLANK	GC-Water	Bromacil	0.24	ug/L	UJ	0.24	0.96
3/20/06	EQUIPMENT BLANK	GC-Water	Butylate	0.24	ug/L	U	0.24	0.96
3/20/06	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Ethyl	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Methyl	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Diazinon	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Ethion	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Ethoprop	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Fenamiphos	0.24	ug/L	UJ	0.24	0.96

3/20/06	EQUIPMENT BLANK	GC-Water	Fonofos	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Hexazinone	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Malathion	0.18	ug/L	UJ	0.18	0.72
3/20/06	EQUIPMENT BLANK	GC-Water	Metalaxyl	0.29	ug/L	U	0.29	1.2
3/20/06	EQUIPMENT BLANK	GC-Water	Metolachlor	0.59	ug/L	U	0.59	2.4
3/20/06	EQUIPMENT BLANK	GC-Water	Metribuzin	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Mevinphos	0.24	ug/L	UJ	0.24	0.96
3/20/06	EQUIPMENT BLANK	GC-Water	Naled	0.94	ug/L	U	0.94	3.8
3/20/06	EQUIPMENT BLANK	GC-Water	Norflurazon	0.18	ug/L	U	0.18	0.72
3/20/06	EQUIPMENT BLANK	GC-Water	Parathion Ethyl	0.18	ug/L	U	0.18	0.72
3/20/06	EQUIPMENT BLANK	GC-Water	Parathion Methyl	0.12	ug/L	U	0.12	0.48
3/20/06	EQUIPMENT BLANK	GC-Water	Phorate	0.059	ug/L	U	0.059	0.24
3/20/06	EQUIPMENT BLANK	GC-Water	Prometryn	0.18	ug/L	U	0.18	0.72
3/20/06	EQUIPMENT BLANK	GC-Water	Simazine	0.059	ug/L	UJ	0.059	0.24
3/20/06	EQUIPMENT BLANK	Metals-Water	Aluminum	5	ug/L	U	5	20
3/20/06	EQUIPMENT BLANK	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
3/20/06	EQUIPMENT BLANK	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
3/20/06	EQUIPMENT BLANK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
3/20/06	EQUIPMENT BLANK	Metals-Water	Chromium	2	ug/L	U	2	8
3/20/06	EQUIPMENT BLANK	Metals-Water	Copper	0.25	ug/L	U	0.25	1
3/20/06	EQUIPMENT BLANK	Metals-Water	Iron	10	ug/L	U	10	40
3/20/06	EQUIPMENT BLANK	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
3/20/06	EQUIPMENT BLANK	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
3/20/06	EQUIPMENT BLANK	Metals-Water	Nickel	1	ug/L	U	1	4
3/20/06	EQUIPMENT BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
3/20/06	EQUIPMENT BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
3/20/06	EQUIPMENT BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
3/20/06	EQUIPMENT BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
3/20/06	EQUIPMENT BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
3/20/06	EQUIPMENT BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
3/20/06	EQUIPMENT BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
3/20/06	EQUIPMENT BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06

Appendix F

Additional physical, chemical, toxicological and microbiological results

Buckeye FYI Results (3/20/2006)

	Type	Time	Depth	Temp.	Cond.	Sal.	pH	D.O. mg/l	D.O. %	Secchi	Turbidity	B.O.D.	T.Coliform	F. Coliform
Buckeye Final Effluent	Effluent	14:45	na	25.3	2800	1.45	7.15	3.35	40.5	0.1	8	47	6 ABQ	4 UQ
Fenholloway 50m below Effluent Canal	Test	10:30	0.55	23.4	2473	1.26	7.25	6.72	79.6	0.2	6.8	37	na	na
Buckeye Effluent Canal	Test	12:25	0.6	25	2770	1.4	7.24	7.2	89	0.1	8	44	na	na
Fenholloway @ Fenholloway Rd	Control	10:16	0.125	16.8	52	na	4.46	7.88	81	0.3	2.4	4	na	na
Fenholloways upstream of effluent canal	Control	13:00	0.42	17.5	136	na	6.17	5.73	60	0.1	2.7	2	na	na

[redacted]

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Buckeye Florida
Address: 1 Buckeye Drive
City: Perry County: Taylor
Contact/District: Melissa Long / Northeast District
NPDES Permit #: FL 0000876
LIMS Job #: TLH-2006-03-20-21 LIMS Sample #: 908407
Lims Data Entry: MF 3-29-06 Data Entry Verification: 3-31-06 MF

Sample Collection: Date: 3-20-06 Time: 1445
Hold Time Start: Date: 3-20-06 Time: 1445

Comments: (A) Facility Permit does not indicate chlorination so Total residual chlorine result is likely due to interference within the sample. MF 3-21-06

C. leedsi aerated after 24 hrs, due to low d.o. (all replicates of control and 100% exposed at 24 hours for duration of test at rate of ~ 100 bubbles/min. MF 3-31-06)

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 # 2 Range 23.4 - 26.1
Room 0246: 24.2-25.9
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-enc of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures
Sarah Pinchard
Eric Kelly
Marshall Faircloth
Chad Adams
James David
Erin Anne
Vicki 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 Cl2 (mg/L)	N/A	N/A	N/A	N/A		—	not measured		MF
Lab Total Residual Cl2 (mg/L)	<0.03	<0.03				0.24 (A)	HACH	SP	MF
Alkalinity (mg/L as $CaCO_3$)	84	145				217	HACH	SP/SA	MF
Hardness (mg/L as $CaCO_3$)	82	136				219	HACH	SP/SA	MF
Total Ammonia (mg/L as N)	<0.017	<0.017				4.26	DENVER	SP	MF
Salinity (ppth)	<1	<1				1.4	YSI (Refract)	SP	MF

V 1.4 9/12/05

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[redacted]

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 908407 Test #: 1 Test Started: Date 3-21-06 Time: 1245
Organism: C. dubia Test Ended: Date 3-27-06 Time: 1310
Organism Batch: 13-06 Diluent/ Batch: DMW 18-06
Organism Age: <24 hrs Food: YCT P. subcapitata Artemia
Chamber Size: 30 mL Batch: 5-05 1-06 —
Test Volume: 20 mL Feeding: ~~Prior to test~~ Prior to renewal - Daily

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	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	5	0^{5D}	—	—	—
	B	B	5	5	@ ~~1^{4D}~~ 2^{3D}	2	0^{2D}	—
	C	C	5	5	3^{2D}	3	1^{2D}	0^{1D}
	D	D	5	5	3^{2D}	3	2^{1D}	1^{1D}
Organisms loaded by: BA	Checked by:	[redacted]	BA	SP	MF	BA	JD	
Loading Verified by: MF								

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

Comments:
@ transcription error 99

Test Results:
% mortality in 100% sample: 95%
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

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FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 908407 Test #: 2 Test Started: Date 3-21-06 Time: 12:35

Organism: C. leedsi SOP #: TA 07_02 Test Ended: Date 3-25-06 Time: 1300

Organism Batch: 6-06 Diluent/ Batch: Well H_2O / 3-21-06

Organism Age: 13 days Food: YCT *P. subcapitata* *Artemia*

Chamber Size: 1000 mL Batch: — — GSL-536-90

Test Volume: 500 mL Feeding: Prior to test, Prior to renewal, Daily 8P

Concentration	~~Replicate~~ Chamber #	~~Chamber #~~ Replicate	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A13	A	5	5	5	5	5	5
	A14	B	5	5	5	5	5	5
	A15	C	5	5	5	5	5	5
	A16	D	5	5	5	5	5	5
100%	A17	A	5	5	5	5	5	5
	A18	B	5	5	5	5	5	5
	A19	C	5	5	5	5	5	5
	A20	D	5	5	5	5	5	5
Organisms loaded by: JD		Checked by:	[redacted]	JD	JD	MF	JD	JD

Loading Verified by: BA

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).

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FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 908407 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	A	~~B~~	A	B		A
pH (S.U.)	8.3	~~8.1~~	8.0	8.2		8.2
Temperature °C	25.1	~~24.0~~	25.1	25.0		24.0
Dissolved Oxygen mg/L	7.6	~~7.7~~	7.5	7.7		8.2
Conductivity (µmhos) mmhos	176	~~244~~	223	177		285
(initials) Measured by:	MF	~~BA~~	~~SB~~	~~SB~~		~~JD~~
(initials) Recorded by:	MF	BA (A)	~~SB~~	~~SB~~		~~JD~~

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	~~B~~	A	B		(D) ~~A~~ D
pH (S.U.)	7.5	~~7.9~~	8.2	7.5		8.4
Temperature °C	25.1	~~24.2~~	24.8	24.7		24.0
Dissolved Oxygen mg/L	5.8	~~5.7~~	7.3	6.0		7.9
Conductivity (µmhos) mmhos	2710	~~2460~~	3260	2760		3930
(initials) Measured by:	MF	BA	~~SB~~	~~SB~~		~~JD~~
(initials) Recorded by:	MF	BA (A)	~~SB~~	~~SB~~		~~JD~~

Comments:

(A) Measurements not needed & used day 0 vials

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:

000004

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Appendix G

Standard Reference Toxicant data

11842 Research Circle
Alachua, FL 32615
T: (386) 462-7889
F: (386) 462-7264
www.hydrosphere.net

HYDROSPHERE
research

Packaging List

Date	Customer Number	Order Shipped Via
3/20/2006	NA	Hydrosphere Research
Customer		**Order Prepared By**
FDEP Marshall Faircloth Biology Mail Stop 6515 2600 Blair Stone Road Tallahassee, Fl 32399-2400		P. Meyer

Quantity	Description
250	C. leedsi, CL#1047, Hatched 3/8/06

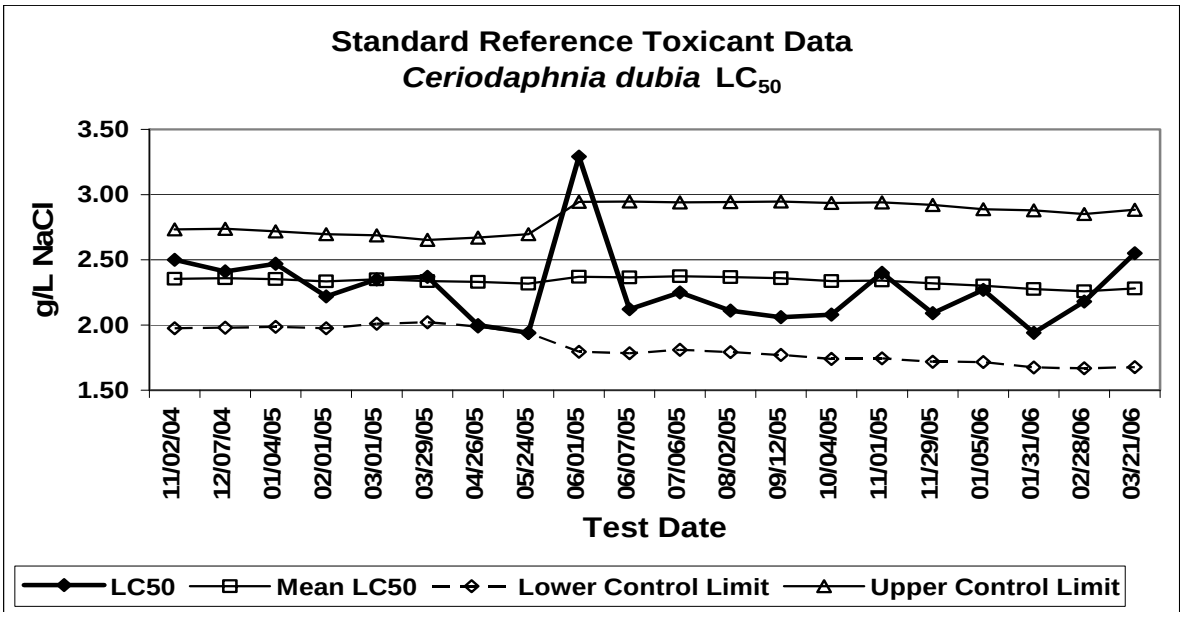
Florida Department of Environmental Protection
Bureau of Laboratories

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
11/02/04	2.50	2.35	0.19	1.97	2.73
12/07/04	2.41	2.36	0.19	1.98	2.74
01/04/05	2.47	2.35	0.18	1.98	2.72
02/01/05	2.22	2.34	0.18	1.98	2.70
03/01/05	2.35	2.35	0.17	2.01	2.69
03/29/05	2.37	2.34	0.16	2.02	2.65
04/26/05	2.00	2.33	0.17	1.99	2.67
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

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

CV = 13.22
EPA reference 75th quartile CV = 29%



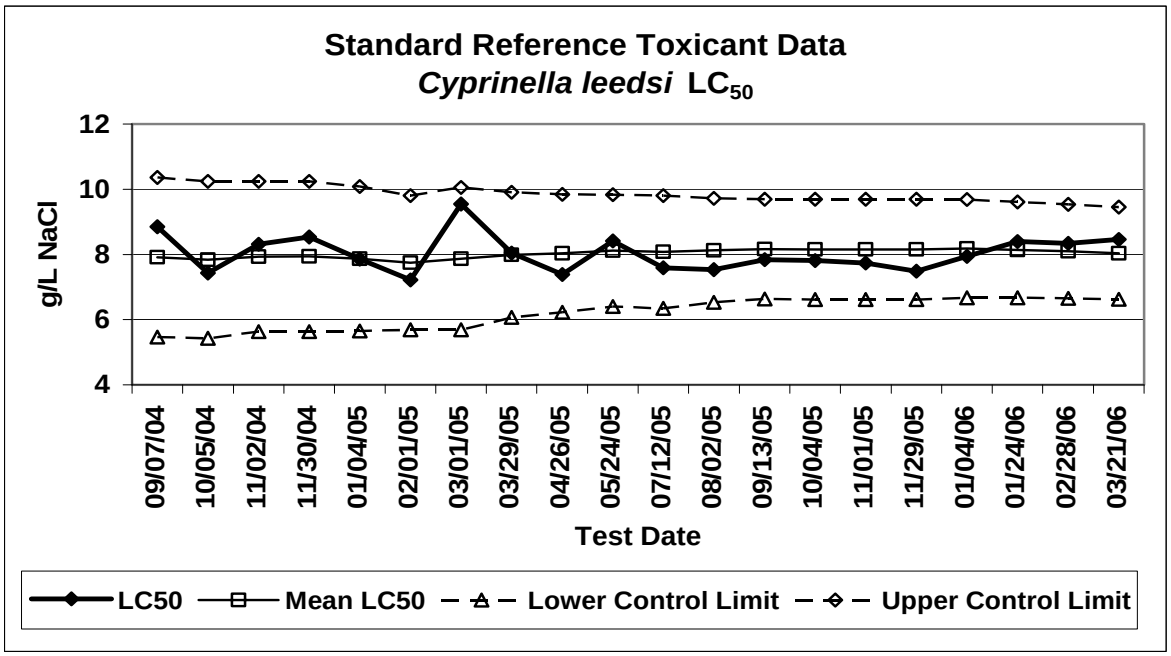
Florida Department of Environmental Protection
Bureau of Laboratories

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
09/07/04	8.85	7.91	1.22	5.46	10.36
10/05/04	7.43	7.83	1.20	5.43	10.24
11/02/04	8.31	7.93	1.15	5.63	10.24
11/30/04	8.53	7.94	1.15	5.63	10.24
01/04/05	7.86	7.87	1.11	5.65	10.08
02/01/05	7.22	7.74	1.03	5.68	9.80
03/01/05	9.54	7.87	1.09	5.68	10.05
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	0.74	6.67	9.61
02/28/06	8.34	8.09	0.72	6.65	9.53
03/21/06	8.46	8.04	0.71	6.62	9.45

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

CV = 8.80
EPA reference 75th quartile CV = 19%



Ceriodaphnia dubia Acute Standard Reference Toxicant Test

DATE: 3/21/06 TEST NUMBER: 1 DURATION: 96 h
TOXICANT : NaCl
SPECIES: C. dubia

RAW DATA:	Concentration (g/L)	Number Exposed	Mortalities
	.00	20	0
	1.50	20	1
	2.00	20	1
	2.50	20	15
	3.00	20	20
	4.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC_{50}: 2.33
95% LOWER CONFIDENCE: 2.23
95% UPPER CONFIDENCE: 2.44

Cyprinella leedsi Acute Standard Reference Toxicant Test

DATE: 3/21/06 TEST NUMBER: 1 DURATION: 96 h
TOXICANT : NaCl
SPECIES: C. leedsi

RAW DATA:	Concentration (g/L)	Number Exposed	Mortalities
	.00	20	0
	6.00	20	2
	7.00	20	1
	8.00	20	7
	9.00	20	13
	10.00	20	19

SPEARMAN-KARBER TRIM: 7.50%

SPEARMAN-KARBER ESTIMATES: LC_{50}: 8.43
95% LOWER CONFIDENCE: 8.08
95% UPPER CONFIDENCE: 8.81

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING. ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

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 3-21-06
Toxicant/ Batch# NaCl 1-4-06

Test Beginning: Date: 3-21-06 Time: 12:50
Test Ending: Date: 3-25-06 Time: 1300

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	mf
Alkalinity (mg/L as $CaCO_3$):	145	Hach	mf
Hardness (mg/L as CaCO3):	136	Hach	mf
Total Ammonia (mg/L as N):	<0.017	Denver	mf
Salinity (ppth):	<1	Mettler	mf

Organism Batch #/ Age: 6-06 / 13 days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT P.*subcapitata* Artemia
Food Batch: — — GSI-538-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

0-48 hours

Conc. µg/L (81)	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) 0 hr / 24 hr / 48 hr	Cond. (µmhos/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~~	~~48 hr~~ / ~~72 hr~~ / ~~96 hr~~
Control	A	A24	10 / 10 / 10	7.9 / / 8.1	24.7 / / 25.0	7.7 / / 6.5	0.270 / / 0.283	
	B	A2	10 / 10 / 10	/ 8.0 /	/ 24.7 /	/ 6.6 /	/ 0.323 /	
	C							
	D							
6	A	A3	10 / 9 20 / 8	7.9 / / 8.1	24.8 / / 24.9	7.7 / / 6.1	10.40 / / 10.47	
	B	A4	10 / 10 / 10	/ 7.9 /	/ 24.9 /	/ 6.0 /	/ 10.32 /	
	C							
	D							
7	A	A5	10 / 10 / 10	7.9 / / 8.0	24.8 / / 24.8	7.5 / / 5.9	12.04 / / 12.10	
	B	A6	10 / 9 10 / 9	/ 7.9 /	/ 25.2 /	/ 5.7 /	/ 11.93 /	
	C							
	D							
8	A	A7	10 / 6 40 / 6	7.9 / / 8.0	24.9 / / 25.2	7.5 / / 5.6	13.37 / / 13.49	
	B	A8	10 / 8 20 / 7 10	/ 7.8 /	/ 24.9 /	/ 5.8 /	/ 13.39 /	
	C							
	D							
9	A	A9	10 / 3 70 / 3	7.9 / / 8.0	24.9 / / 25.1	7.4 / / 5.6	15.10 / / 15.19	
	B	A10	10 / 4 60 / 4	/ 7.9 /	/ 24.8 /	/ 5.4 /	/ 15.15 /	
	C							
	D							
10	A	A11	10 / 1 40 / 1	7.9 / / 8.0	24.8 / / 24.9	7.4 / / 5.3	16.73 / / 16.84	
	B	A12	10 / 1 40 / 1	/ 7.8 /	/ 25.0 /	/ 5.2 /	/ 16.77 /	
	C							
	D							
	A							
	B							
	C							
	D							
Loaded / measured by:			JD / JD / JD	mf / BA / mf	mf / TD / mf	mf / BA / mf	mf / BA / mf	
Recorded by:			BA / JD / JD	mf / BA / mf	mf / BA / SP	mf / BA / mf	mf / BA / mf	

Investigators' Signatures
Bruce Neville
Sarah Pickland
Marshall Faircloth
Jessica Davis
Erin Leigh
Nicole Nettenkoff
REVIEWER

Concentrations prepared by: mf
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.2 max. 25.9 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.2 max. 25.9 mean 25.1

Remarks:
48 hr 8.46
lower 8.08
upper 8.86

Statistical Results: Method: Spearman-Karber
(48) 96 hour LC50: 8.46
95% Confidence Interval: lower 8.08 upper 8.86

Revised 02/21/06

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FDEP Biology Section - Acute SRT Bench Sheet

[redacted]

Test Organism: *Americamysis bahia* (Method 2007.0) *Menidia beryllina* (Method 2004.0) *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 H2O / 3-21-06
Toxicant/ Batch# NaCl / 4-06

Test Beginning: Date: 3-21-06 Time: 1250
Test Ending: Date: 3-25-06 Time: 1300

48-96 hours

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	MF/BW
Alkalinity (mg/L as $CaCO_3$):	145	Hach	SA/MF
Hardness (mg/L as CaCO3):	136	Hach	SA/MF
Total Ammonia (mg/L as N):	<0.017	Denver	MF/SA
Salinity (ppth):	< 1	Mettler	MF

Organism Batch #/ Age: 6-06 / 13 days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT P.subcapitata Artemia
Food Batch: — — GSL-536-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L (ppb)	Rep.	Chamber#	Number Live 0 hr / 24 hr / 48 hr (48 hr / 72 hr / 96 hr)	pH (SU) 0 hr / 24 hr / 48 hr (48 hr / 72 hr / 96 hr)	Temperature (° C) 0 hr / 24 hr / 48 hr (48 hr / 72 hr / 96 hr)	D.O. (mg/l) 0 hr / 24 hr / 48 hr (48 hr / 72 hr / 96 hr)	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr / 24 hr / 48 hr (48 hr / 72 hr / 96 hr)
Control	A	A24	10 / 10 / 10	7.9 / — / 8.0	24.9 / — / 24.0	7.6 / — / 7.8	0.264 / — / 0285
	B	A2	10 / 10 / 10	— / 7.9 / —	— / 24.4 / —	— / 5.6 / —	— / 0.286 / —
	C						
	D						
6	A	A3	8 / 8 / 8	7.9 / — / 8.1	24.8 / — / 24.0	7.4 / — / 6.4	10.45 / — / 11.37
	B	A4	10 / 10 / 10	— / 7.9 / —	— / 24.4 / —	— / 5.6 / —	— / 10.79 / —
	C						
	D						
7	A	A5	10 / 10 / 10	7.9 / — / 8.1	25.0 / — / 24.1	7.5 / — / 7.1	12.11 / — / 12.77
	B	A6	9 / 9 / 9	— / 8.0 / —	— / 24.4 / —	— / 6.0 / —	— / 12.63 / —
	C						
	D						
8	A	A7	6 / 6 / 6	7.9 / — / 8.1	24.9 / — / 24.0	7.4 / — / >3	13.52 / — / H.1
	B	A8	7 / 7 / 7	— / 8.0 / —	— / 24.4 / —	— / 6.2 / —	— / 14.91 / —
	C						
	D						
9	A	A9	3 / 3 / 3	7.9 / — / 8.2	24.9 / — / 24.2	7.3 / — / 7.4	15.22 / — / 16.4
	B	A10	4 / 4 / 4	— / 8.0 / —	— / 24.7 / —	— / 6.1 / —	— / 15.85 / —
	C						
	D						
10	A	A11	1 / 0[illegible] / —	7.9 / — / —	24.8 / — / —	7.3 / — / —	16.83 / — / —
	B	A12	1 / 1 / 1	— / 8.0 / 8.2	— / 24.5 / 24.1	— / 6.0 / 7.3	— / 12.30 / 176
	C						
	D						
	A						
	B						
	C						
	D						
Loaded / measured by:			MF / JD / JD	MF / JD / JD	MF / JD / JD	MF / JD / JD	MF / JD / JD
Recorded by:			MF / JD / JD	MF / JD / JD	MF / JD / JD	MF / JD / JD	MF / JD / JD

Investigators' Signatures
Bruce Newton
Sarah Pinkard
Marshall Faircloth
Eric Irvin
James Daniels
Mark Wellendorf
REVIEWER

Concentrations prepared by: MF/BA
Loading verified by: NA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 23.4 max. 24.1 mean 23.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.2 max. 25.9 mean 25.1

Remarks:

Statistical Results: Method: Spearman-Karber
48 (96) hour LC50: 8.43
95% Confidence Interval: lower 8.08 upper 8.81

Revised 02/21/06

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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 / 8-06
Toxicant/ Batch# NaCl / 4-06

Test Beginning: Date: 3/21-06 Time: 1230
Test Ending: Date: 3-25-06 Time: 1330 (1320) MF

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	MF
Alkalinity (mg/L as $CaCO_3$):	84	Hach	MF
Hardness (mg/L as CaCO3):	85	Hach	MF
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	<1	Mettler	MF

Organism Batch #/ Age: 13-06 / <24 hrs
Feeding: (Prior to test) / (Prior to renewal) / Daily
Food: YCT P.*subcapitata* Artemia
Food Batch: 5-05 1-06 —
Chamber size: 30 mL
Test volume: 20 mL per replicate

0-48 hours

Conc. µL/L (g/L)	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) Cond. (umhom/cm) 0 hr	24 hr	48 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	8.1		8.2	24.0		24.8	7.3		7.8	0.174		0.193
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.0		8.1	24.0		24.6	7.4		7.6	2.92		3.38
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	5	8.2		8.1	24.0		24.5	7.0		7.6	3.81		~~5.74~~ 4.35 SP skipped VIK
	B	B	5	5	4 1D												
	C	C	5	5	5												
	D	D	5	5	5												
2.5	A	A	5	4 1D	4 1D	8.2		8.1	24.1		24.6	7.1		7.4	4.71		~~6.45~~ 5.34 SP
	B	B	5	5	4 1D												
	C	C	5	4 1D	3 1D												
	D	D	5	5	2 3D												
3.0	A	A	5	4 1D	0 4D	8.2		8.1	24.1		24.6	7.1		7.3	5.63		6.45
	B	B	5	3 2D	0 3D												
	C	C	5	2 3D	0 2D												
	D	D	5	3 2D	1 2D												
4.0	A	A	5	0 5D	—	8.1	7.8	—	24.4	24.6	—	7.2	6.5	—	7.29	7.65	—
	B	B	5	0 5D	—												
	C	C	5	0 5D	—												
	D	D	5	0 5D	—												
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	BA	BA	BA	SP	BA	BA	SP	BA	BA	SP	BA	BA	SP
Recorded by:			BA	BA	BA	BA	BA	MF	BA	BA	SP	BA	BA	SP	BA	BA	SP

Investigators' Signatures
Brian Armbrust
Sarah Pilliard
Marshall Fairbanks
Jodie Davis
Nicole Wellendorf
REVIEWER

Concentrations prepared by: BA
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 23.4 max. 26.1 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.7 max. 25.1 mean 25.1

Remarks:

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 2.55
95% Confidence Interval: lower 2.41 upper 2.69

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-600-2-99-064)
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 / B-06
Toxicant/ Batch# NaCl / 4-06

Test Beginning: Date: 3-21-06 Time: 1230
Test Ending: Date: 3.25.06 Time: 1330 48-96hour

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	MF
Alkalinity (mg/L as $CaCO_3$):	84	Hach	Sa by MF
Hardness (mg/L as CaCO3):	85	Hach	Sa by MF
Total Ammonia (mg/L as N):	<0.07	Denver	MF
Salinity (ppth):	<1	Mettler	MF

Organism Batch #/ Age: 13-06 / 13-06
Feeding: (Prior to test) / (Prior to renewal) / Daily
Food: YCT P.*subcapitata* Artemia
Food Batch: 505 1-06 –
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. µg/L (ai)	Rep.	Chamber#	Number Live ~~0 hr~~ 48 hr	~~24 hr~~ 72 hr	~~48 hr~~ 96 hr	pH (SU) ~~0 hr~~ 48 hr	~~24 hr~~ 72 hr	~~48 hr~~ 96 hr	Temperature (° C) ~~0 hr~~ 48 hr	~~24 hr~~ 72 hr	~~48 hr~~ 96 hr	D.O. (mg/l) ~~0 hr~~ 48 hr	~~24 hr~~ 72 hr	~~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	A	5	5	5	8.3			~~24.0~~ 24.0			7.9			0.172		0.248
	B	B	5	5	5			8.2	24.0 BA		24.0			7.7			
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.2			24.0			6.7			2.40		244
	B	B	5	5	4 ID			8.2		~~24.0~~ MF	24.0			8.3			
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	5	8.2			24.0			7.0			3.82		
	B	B	4	4	4			8.3		~~24.0~~ MF	24.0			8.5			454
	C	C	5	5	5												
	D	D	5	5	5												
2.5	A	A	4	2 2D	2	8.2			24.3	MF		7.2			4.62		
	B	B	4	2 2D	1 ID			8.3		24.0	24.0			8.2			595
	C	C	3	3	2 ID												
	D	D	2	0 2D	–												
3.0	A	A	0	–	–	8.2			24.3			7.0			6.56		
	B	B	0	–	–			–		–	–			–			–
	C	C	0	–	–												
	D	D	1	0 D	–		8.0			24.9	~~24.9~~ MF		7.4		~~5.86~~ BA 5.86		
AD	A	A	–	–	–	–			–			–			–		
	B	B	–	–	–			–			–			–			–
	C	C	–	–	–												
	D	D	–	–	–					~~24.9~~ BA							
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	JD	BA	BA	JD	BA	BA	JD	BA	BA	JD	BA	BA	JD
Recorded by:			BA	BA	JD	BA	BA	JD	BA	BA	JD	BA	BA	JD	BA	BA	JD

Investigators' Signatures
Bruce Arnold
Scott Pritchard
Marshall Faircloth
James Smith
Nicole Wellendorf
REVIEWER

Concentrations prepared by: BA
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 23.4 max. 26.1 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.2 max. 25.9 mean 25.1

Remarks: 96 hour temperatures recorded in 72 hour spaces - moved to 96 hour spaces 4-12-06 MF

Statistical Results: Method: Spearman-Karber
48 / (96) hour LC50: 2.33
95% Confidence Interval: lower 2.23 upper ~~2.44~~ BA 2.44
Revised 02/21/06

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Appendix H

Typical Values for Selected Parameters in Florida Waters

Percentile Distribution (1617 stations)

CONTROL SITE 1

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	**ND**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**ND**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**20**
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	**1.9**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.06**
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	**0.02 U**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.061**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.041**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**2.4**

CONTROL SITE 2

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	**2.98**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**19**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**27**
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	**1.8**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.15**
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	**0.004 U**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.095**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.081**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**2.7**

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.

TEST SITE 1

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	**0.96**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**8**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**10**
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	**8.6**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**4.6**
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	**1.2**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**2.1**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**1.7**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**8**

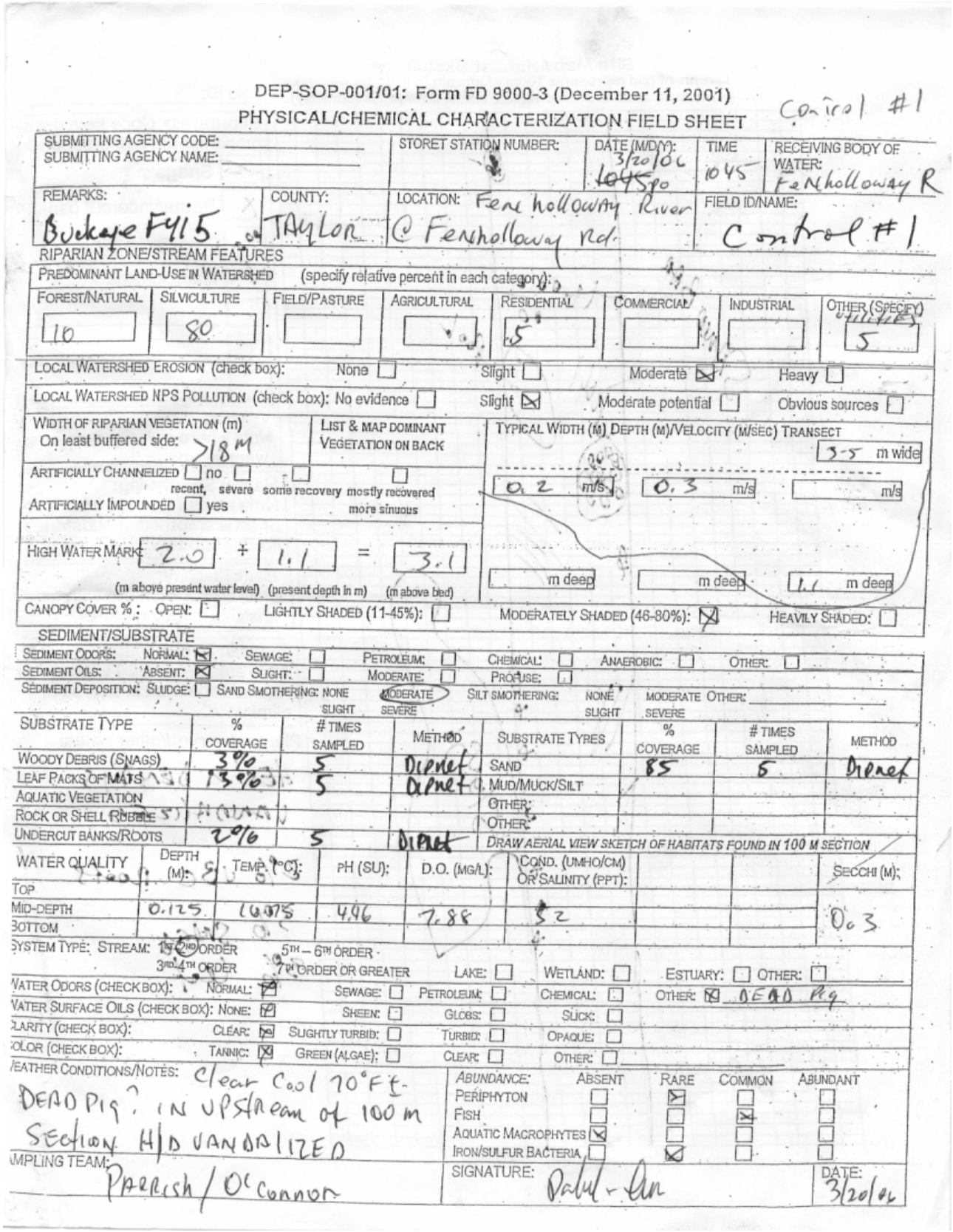
TEST SITE 2

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	**1.6**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**18**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**9**
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	**8.4**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**4.1**
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	**1.0**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**2.1**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**1.6**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**6.8**

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.

Appendix I

Habitat Assessment Field Sheets



DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001) Control #1

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: | STORET STATION NUMBER: | DATE (M/D/Y): 3/20/06 | TIME 1045 | RECEIVING BODY OF WATER: Fenholloway R

REMARKS: Buckeye F415 | COUNTY: TAYLOR | LOCATION: Fenholloway River @ Fenholloway rd. | FIELD ID/NAME: Control #1

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)
10	80			5			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: >18 M

LIST & MAP DOMINANT VEGETATION ON BACK

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

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 2.0 (m above present water level) + 1.1 (present depth in m) = 3.1 (m above bed)

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

3-5 m wide

0.2 m/s	0.3 m/s	m/s
m deep	m deep	1.1 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 / SLIGHT / MODERATE / SEVERE SILT SMOTHERING: NONE / SLIGHT / MODERATE / SEVERE OTHER:

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	3%	5	Dipnet	SAND	85	5	Dipnet
LEAF PACKS OR MATS	13%	5	Dipnet	MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	2%	5	Dipnet				

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	0.125	16.75	4.46	7.88	52			0.3
BOTTOM								

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: ☒ DEAD Pig

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: Clear Cool 70°F f- DEAD Pig? IN UPSTREAM of 100 m Section H/D VANDALIZED

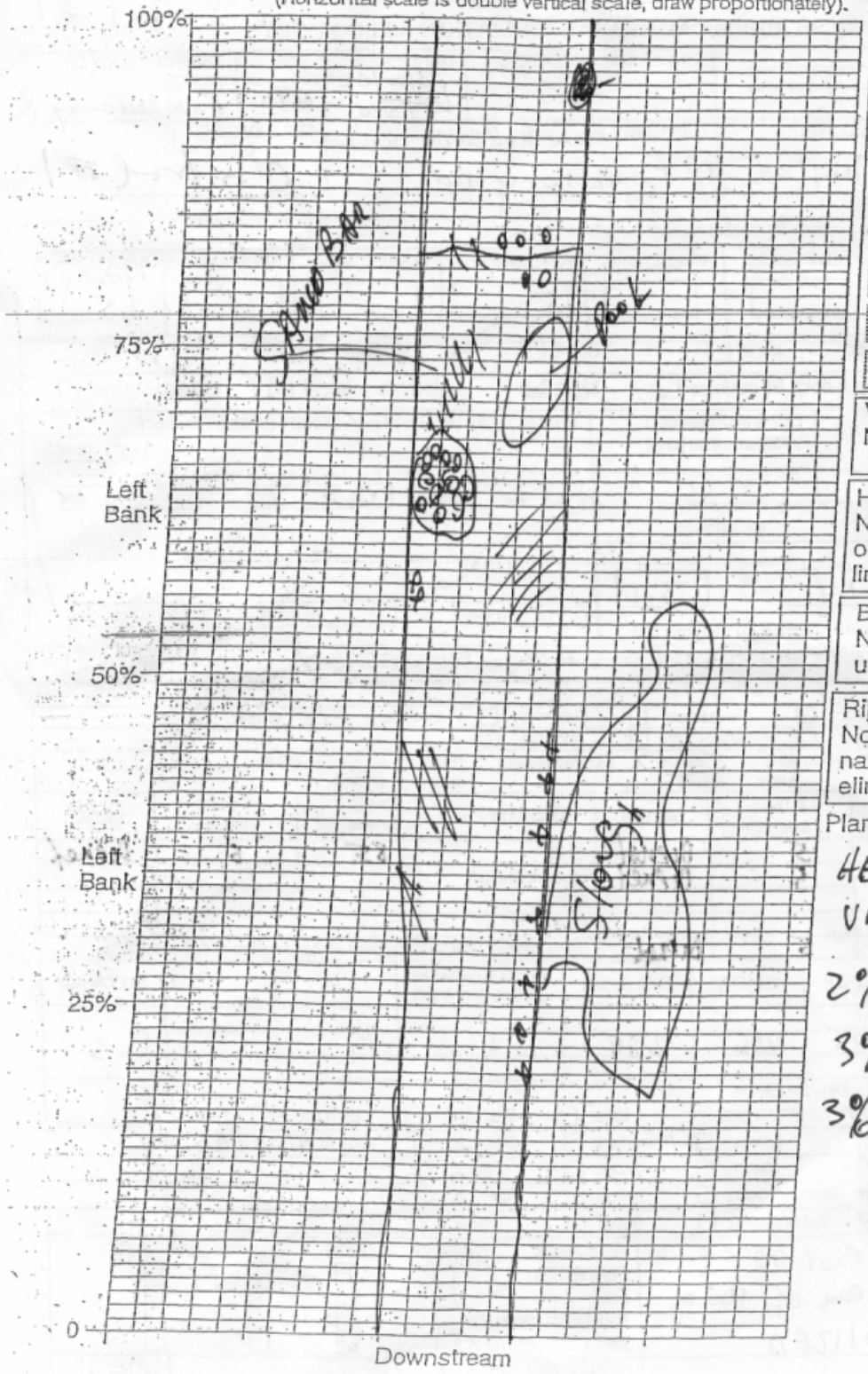
ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☒	☐	☐
FISH	☐	☐	☒	☐
AQUATIC MACROPHYTES	☒	☐	☐	☐
IRON/SULFUR BACTERIA	☐	☒	☐	☐

SAMPLING TEAM: Parrish / O'Connor

SIGNATURE: Daniel Parrish DATE: 3/20/06

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Field ID:

Substrates: Code key, draw proportionate habitat abunda

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

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sa or silt is smothering substrates limiting habitability.

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

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

Plants observed/other notes:

HESTER DENDYS
VANCOUVERIES

2% UBC Roots

3% SNag

3% Leaf

DEP-SOP-001/01: Form FD 9000-5 (December 11, 2001)

~~STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION~~ Control #1
STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY): 3/20/06	RECEIVING BODY OF WATER:
REMARKS: Buckeye FY15	COUNTY: TBY/Lop	LOCATION: Fern Holloway River @ Fern Holloway Rd	FIELD ID/NAME: Control #1

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 13	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 i obvious, substrates unst or smothered 5 4 3 2 1
Substrate Availability 8	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 11 Primary Score 43	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, a severe problem, pools abs 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 18	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May 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, instrean habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 6 Left Bank 6	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) 12 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 70	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. 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 zone 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 stream bank 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

113 TOTAL SCORE

ANALYSIS DATE: 3/20/06	ANALYST: O'Connor	SIGNATURE:

Control #2

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:
		3/20/06	1300	

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
Buckeye @ FH15	TAYLOR	Fens Holloway R above Buckeye Final Effluent	Control #2

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)
80	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: >18m

LIST & MAP DOMINANT VEGETATION ON BACK

ARTIFICIALLY CHANNELIZED ☒ no ☐ recent, severe ☐ some recovery ☐ mostly recovered more sinuous

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 1.0 (m above present water level) + 2.0 (present depth in m) = 3.0 (m above bed)

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

8-10 m wide

m/s | 0.05 m/s | m/s

m deep | 2.0 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 SLIGHT MODERATE SEVERE SILT SMOTHERING: NONE SLIGHT MODERATE SEVERE OTHER:

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	1	5	Dipnet	SAND	~~30~~ 74	3	Dipnet
LEAF PACKS OF MATS	4	5	Dipnet	MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER: Bedrock	~~10~~ 20	2	Dipnet
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	1	5	Dipnet	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	0.42	17.52	6.19	5.73	136			0.1
BOTTOM								

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:

Overcast

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

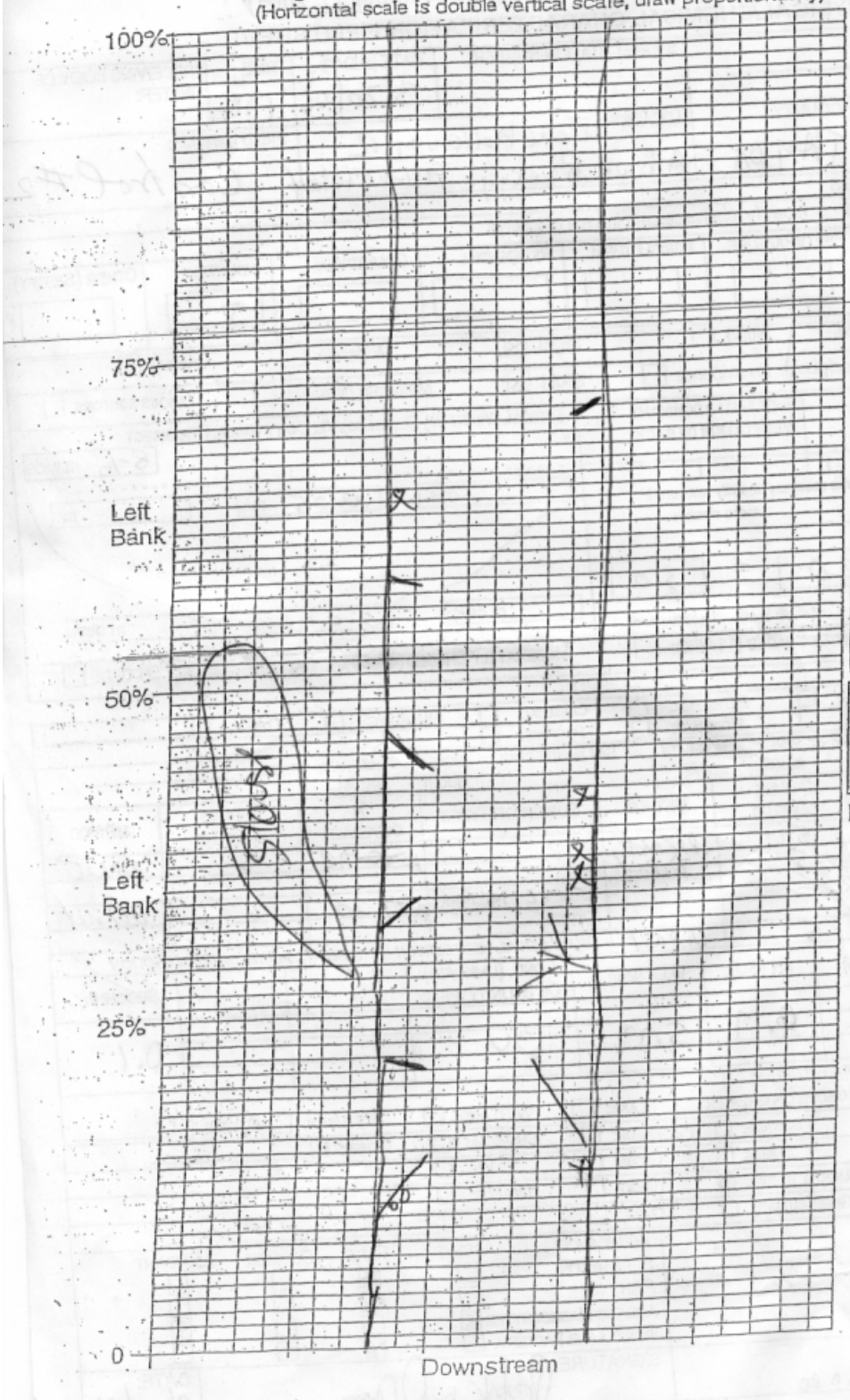
SAMPLING TEAM: Pamela O'Connor

SIGNATURE: Pamela O'Connor

DATE: 3/20/06

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Field ID:

Substrates: Code key, draw proportionate habitat abunda

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

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sa or silt is smothering substrates limiting habitability.

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

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

Plants observed/other notes:

<1% snags
<4% roots
<1% leaf

DEP-SOP-001/01: Form FD 9000-5 (December 11, 2001)

Control #2

~~STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION~~
STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY): 3/20/06	RECEIVING BODY OF WATER: Fenholloway River
REMARKS:	COUNTY: Taylor	LOCATION: Fenholloway River above Buckeye	FIELD ID/NAME: Control #2

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 13	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 i obvious, substrates unst or smothered 5 4 3 2 1
Substrate Availability 17	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 6	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 10 Primary Score 36	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, a severe problem, pools abs 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 15	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May 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, instrean habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 7 Left Bank 7	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) 12 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 69	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. 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 zone 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 stream bank 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

105 TOTAL SCORE

ANALYSIS DATE: 3/20/06	ANALYST: O'CONNOR	SIGNATURE:

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:
		3/20/06	13:10	Gulf of Mexico

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Taylor	Buckeye effluent Cove	Test #1

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)
50	47					3	

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: >18

LIST & MAP DOMINANT VEGETATION ON BACK

ARTIFICIALLY CHANNELIZED ☐ no ☒ ☐ recent, severe ☐ some recovery ☐ mostly recovered, more sinuous

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 1.5 + 1.0 = 2.5
(m above present water level) (present depth in m) (m above bed)

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

m wide

m/s | 0.25 m/s | m/s

m deep | 1.0 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, SLIGHT, MODERATE, (SEVERE) SILT SMOTHERING: NONE, SLIGHT, (MODERATE), SEVERE OTHER:

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	1.5	7	OF	SAND	60	6	OF
LEAF PACKS OF MATS				MUD/MUCK/SILT	37.7		
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	0.8	7	OF	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):	%	SAL	SECCHI (M):
TOP								
MID-DEPTH	0.6	35.01	7.24	7.2	2770	39%	1.4	0.1
BOTTOM								

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 effluent

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: ~71°F

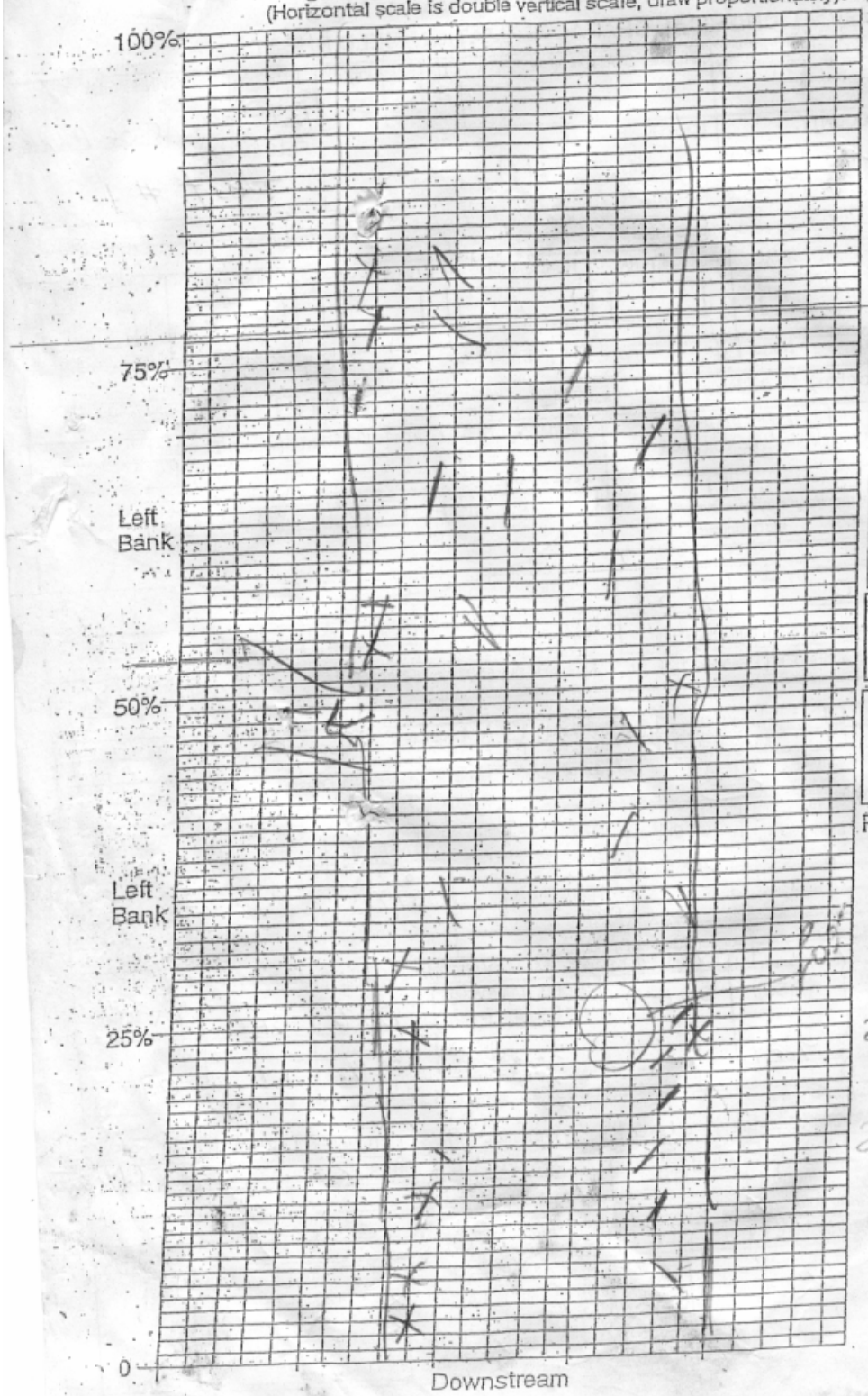
ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☒	☐	☐
FISH	☐	☒	☐	☐
AQUATIC MACROPHYTES	☒	☐	☐	☐
IRON/SULFUR BACTERIA	☒	☐	☐	☐

SAMPLING TEAM: Ali, Kallemeyn

SIGNATURE: [signature] DATE: 3/20/06

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Field ID: Effluent

Substrates: Code key, draw proportionate habitat abunda

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

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sa or silt is smothering substrates limiting habitability.

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

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

Plants observed/other notes:

1.0 room. 0.83%
18 snags 1.5
28 2.3%

230 | 120
1200 | 23
23% 2

DEP-SOP-001/01: Form FD 9000-5 (December 11, 2001)

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
		3/20/06	Gulf of Mexico

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
		Buckeye effluent Canal	Test # 1

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 i obvious, substrates unst 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 16	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 5 Primary Score 31	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, a severe problem, pools abs 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 12	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May 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, instrean habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 5 Left Bank 5	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) 12 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 62	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. 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 zone 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 stream bank 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

93 TOTAL SCORE

ANALYSIS DATE:	ANALYST: Kallenbach	SIGNATURE:

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:
		3/20/06	11:30	Gulf of Mexico

REMARKS:	COUNTY:	LOCATION: Featherlowers 50 meter. dst stream of effluent Canal	FIELD ID/NAME:
	Taylor		Test #2

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)
50	47					3	

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: >18

LIST & MAP DOMINANT VEGETATION ON BACK

ARTIFICIALLY CHANNELIZED ☐ no ☐ recent, severe ☒ some recovery ☐ mostly recovered, more sinuous

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 1.5 (m above present water level) + 1.0 (present depth in m) = 2.5 (m above bed)

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

m wide

m/s	0.2 m/s	m/s
m deep	1.0 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 / SLIGHT / (MODERATE) / SEVERE (SILT SMOTHERING: NONE / SLIGHT / (MODERATE) / SEVERE) OTHER:

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	0.9%	5	DN	SAND	70	5	DN
LEAF PACKS OF MATS	0.3%	5	DN	MUD/MUCK/SILT	27.5		
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	1.5%	5	DN	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):	00%	SAL	SECCHI (M):
TOP								
MID-DEPTH	0.55	23.4	7.25	6.12	2473	79.6%	1.26	0.2
BOTTOM								

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

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: ~75°F Sunny

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

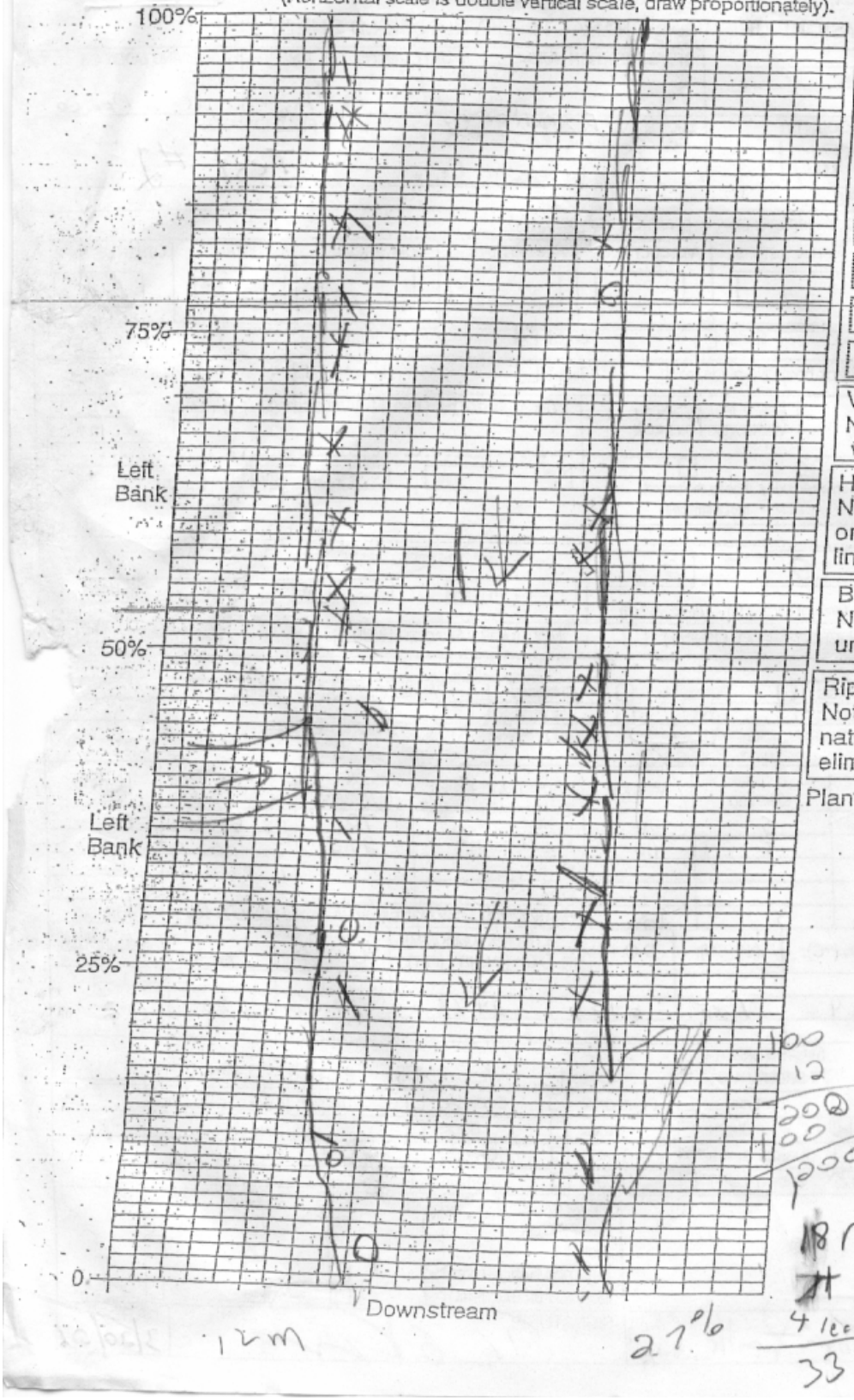
SAMPLING TEAM: Essie Ali, Tom Kallemeyn

SIGNATURE: [signature]

DATE: 3/20/06

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Field ID:

Substrates: Code key, draw proportionate habitat abunda

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

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sa or silt is smothering substrates limiting habitability.

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

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

Plants observed/other notes:

850. Total 2.75%
838
7038
100
12
200
00
1000
.029
18 roots 33 1200
66 .027
snags 1200 312.00
2400
4800
12m
27%
4 leaf
33

DEP-SOP-001/01: Form FD 9000-5 (December 11, 2001)

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY): 3/20/06	RECEIVING BODY OF WATER: Gulf of Mexico
REMARKS:	COUNTY: Taylor	LOCATION: Fenholloway 50m down stream Buckeye effluent Canal	FIELD ID/NAME: Test #2

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 12	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 unsta 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 14	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 36	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, a severe problem, pools abs 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 18	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May 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, instrean habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 6 Left Bank 6	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) 12 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 64	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. 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 zone 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 stream bank 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

100 TOTAL SCORE

ANALYSIS DATE: 3/20/06	ANALYST: Kallemeyn	SIGNATURE:

Appendix J-1

Taxa list and number of individuals counted for qualitative natural periphyton collections from Buckeye Florida facility discharge, March 20, 2006

	Control Site 1	Test Site 1
Bacillariophyta		
undetermined Bacillariophyta	3	-
Bacillariophyceae		
undetermined Bacillariophyceae	3	1
Bacillariales		
Nitzschia sp.	75	4
Nitzschia amphibia	-	2
Nitzschia gracilis	1	-
Nitzschia palea	3	-
Nitzschia subacicularis	4	-
Cymbellales		
Encyonema silesiacum	-	1
Gomphonema sp.	-	5
Gomphonema augur	-	1
Gomphonema gracile	-	1
Gomphonema parvulum	-	1
Eunotiales		
Eunotia sp.	100	1
Eunotia bilunaris	3	-
Eunotia incisa	5	-
Naviculales		
Amphipleura pellucida	-	1
Caloneis sp.	1	-
Caloneis bacillum	2	1
Craticula ambigua	1	-
Diadesmis confervacea	2	24
Diadesmis contenta	1	-
Frustulia sp.	15	-
Frustulia saxonica	11	-
Geissleria decussis	-	1
Navicula sp.	4	1
Navicula minima	1	-
Navicula peregrina	1	-
Navicula seminulum	1	-
Navicula trivialis	1	-
Naviculaceae	11	-
Pinnularia sp.	51	7
Rhopalodiales		
Rhopalodia gibba	-	1
Surirellales		
Surirella sp.	1	-
Coscinodiscophyceae		
Aulacoseirales		
Aulacoseira sp.	4	-

Thalassiosirales		
Cyclotella meneghiniana	1	1
Chlorophycota		
Chlorophyceae		
Chlorococcales		
Chlorella sp.	1	-
Cyanophycota		
Cyanophyceae		
Chroococcales		
Chroococcus turgidus	1	-
Oscillatoriales		
Jaaginema sp.	-	9
Planktolyngbya sp.	-	3

Appendix K-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 4 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Buckeye Florida facility and collected March 20, 2006. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Hirudinea				
Rhyncobdellida				
Helobdella triserialis	-	2	-	-
Oligochaeta				
Haplotaxida				
Allonais inaequalis	-	-	20	48
Dero sp.	-	-	206	-
Dero digitata complex	-	-	-	16
Dero furcata	-	-	-	32
Tubificidae	-	-	10	2
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	-	-	-	242
Hexapoda				
Ephemeroptera				
Maccaffertium mexicanum integrum	‘-	118	‘-	‘-
Maccaffertium sp.	-	-	-	14
Odonata				
Ischnura ramburi	-	-	2	-
Pachydiplax longipennis	-	-	-	2
Coleoptera				
Dineutus sp.	-	16	2	22
Dytiscidae	-	2	-	-
Gyrinus sp.	-	4	-	-
Neoporus sp.	-	-	4	12
Prionocyphon sp.	-	-	-	2
Diptera				
Chironomus sp.	-	2	4,722	5,028
Corynoneura sp.	-	10	-	-
Dicrotendipes simpsoni	-	82	-	199
Goeldichironomus holoprasinus	-	2	-	-
Kiefferulus sp.	-	8	-	14
Parachironomus tenuicaudatus complex	-	4	-	163
Polypedilum illinoense grp.	-	8	-	72
Polypedilum tritum	-	27	-	14
Simulium sp.	-	101	-	46
Tanytarsus sp. F Epler	-	6	-	-
Tanytarsus sp. G Epler	-	4	-	-
Tanytarsus sp. L Epler	-	125	-	-
Thienemanniella xena	-	2	-	-
Thienemannimyia grp. sp.	-	10	-	-

Mollusca				
Gastropoda				
Basommatophora				
Haitia sp.	-	-	1,145	4,262

Appendix K-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 4 samples) incubated upstream and downstream of the Buckeye Florida facility for 28 days and collected March 20, 2006

Scientific Name	Control Site1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Hirudinea				
Rhyncobdellida				
Helobdella triserialis	-	1	-	-
Oligochaeta				
Haplotaxida				
Allonais inaequalis	-	-	10	17
Dero digitata complex	-	-	-	3
Dero furcata	-	-	-	6
Dero sp.	-	-	104	8
Naididae	-	-	-	14
Tubificidae	-	-	5	1
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	-	-	-	122
Hexapoda				
Ephemeroptera				
Heptageniidae	-	29	-	3
Maccaffertium mexicanum integrum	-	21	-	-
Maccaffertium sp.	-	9	-	4
Odonata				
Ischnura ramburi	-	-	1	-
Pachydiplax longipennis	-	-	-	1
Coleoptera				
Dineutus sp.	-	8	1	11
Dytiscidae	-	1	-	-
Gyrinus sp.	-	2	-	-
Neoporus sp.	-	-	2	6
Prionocyphon sp.	-	-	-	1
Diptera				
Chironomidae	-	5	71	317
Chironomus sp.	-	1	2309	2244
Corynoneura sp.	-	5	-	-
Dicrotendipes simpsoni	-	39	-	89
Dicrotendipes sp.	-	1	-	-
Goeldichironomus holoprasinus	-	1	-	-
Kiefferulus sp.	-	4	-	6
Parachironomus sp.	-	1	-	-
Parachironomus tenuicaudatus complex	-	1	-	73
Polypedilum illinoense grp. Sp.	-	4	-	32
Polypedilum tritum	-	13	-	6
Simulium sp.	-	51	-	23
Tanytarsus sp. F Epler	-	3	-	-
Tanytarsus sp. G Epler	-	2	-	-
Tanytarsus sp. L Epler	-	61	-	-
Thienemanniella xena	-	1	-	-
Thienemannimyia grp. sp.	-	5	-	-

Mollusca				
Gastropoda				
Basommatophora				
Haitia sp.	-	-	522	2028
undetermined Gastropoda	-	-	55	120

Appendix L-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of Buckeye Florida facility (March 20, 2006). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

Scientific Name	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Oligochaeta				
Lumbriculida				
Eclipidrilus palustris	4	4	-	-
Haplotaxida				
Bratislavia unidentata	-	-	-	1
Dero digitata complex	-	6	-	5
Dero sp.	-	-	2	-
Limnodrilus hoffmeisteri	-	-	1	-
Tubificidae	1	1	10	-
Mollusca				
Gastropoda				
Basommatophora				
Ferrissia sp.	-	1	-	-
Haitia sp.	-	1	2	76
Arthropoda				
Crustacea				
Amphipoda				
Crangonyx sp.	-	7	-	-
Hyalella azteca	-	-	-	8
Isopoda				
Caecidotea sp.	-	3	-	-
Hexapoda				
Ephemeroptera				
Maccaffertium smithae	11	-	-	-
Maccaffertium sp.	-	1	-	-
Odonata				
Enallagma sp.	-	4	2	1
Gomphus minutus	1	-	-	-
Libellulidae	-	4	-	-
Nehalennia sp.	-	1	-	-
Heteroptera				
Ranatra buenoi	-	-	1	-
Ranatra sp.	-	2	-	-
Coleoptera				
Ancyronyx variegatus	1	-	-	-
Dineutus serrulatus	1	-	-	-
Neoporus sp.	1	12	-	1
Peltodytes sp.	-	2	-	-
Prionocyphon sp.	-	1	1	-
Stenelmis sp.	1	-	-	-
Tropisternus collaris	-	-	1	-

Trichoptera				
Oecetis nocturna	1	-	-	-
Oecetis sp. F Floyd	-	1	-	-
Pycnopsyche sp.	1	-	-	-
Diptera				
Ablabesmyia mallochi	5	1	-	-
Ablabesmyia rhamphe grp. sp.	1	-	-	-
Chironomus sp.	-	1	78	13
Corynoneura sp. C Epler	-	2	-	-
Dicrotendipes simpsoni	-	15	-	-
Kiefferulus sp.	-	6	-	-
Parachironomus tenuicaudatus complex	-	2	-	2
Phaenopsectra obediens grp.	7	1	-	-
Polypedilum flavum	1	-	-	-
Rheotanytarsus exiguus grp. sp.	7	1	-	-
Simulium sp.	35	7	1	1
Stenochironomus sp.	1	1	-	-
Tanytarsus sp.	-	-	2	-
Tanytarsus sp. L Epler	15	13	-	-
Thienemanniella xena	1	-	-	-
Thienemannimyia grp. sp.	5	-	-	-

Appendix L-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of Buckeye Florida facility (20 March 2006).

	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Oligochaeta				
undetermined Oligochaeta	1	-	-	-
Lumbriculida				
Eclipidrilus sp.	1	-	-	-
Eclipidrilus palustris	2	4	-	-
Haplotaxida				
Bratislavia unidentata	-	-	-	1
Dero digitata complex	-	6	-	5
Dero sp.	-	-	2	-
Limnodrilus hoffmeisteri	-	-	1	-
Tubificidae	1	1	10	-
Mollusca				
Gastropoda				
Basommatophora				
Ferrissia sp.	-	1	-	-
Haitia sp.	-	1	2	76
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	-	-	-	8
Crangonyx sp.	-	7	-	-
Isopoda				
Caecidotea sp.	-	3	-	-
Hexapoda				
Ephemeroptera				
Heptageniidae	1	-	-	-
Maccaffertium smithae	10	-	-	-
Maccaffertium sp.	-	1	-	-
Odonata				
Enallagma sp.	-	4	2	1
Gomphus minutus	1	-	-	-
Libellulidae	-	4	-	-
Nehalennia sp.	-	1	-	-
Heteroptera				
Ranatra buenoi	-	-	1	-
Ranatra sp.	-	2	-	-
Coleoptera				
Ancyronyx variegatus	1	-	-	-
Dineutus serrulatus	1	-	-	-
Neoporus sp.	1	12	-	1
Peltodytes sp.	-	2	-	-
Prionocyphon sp.	-	1	1	-
Stenelmis sp.	1	-	-	-

Tropisternus collaris	-	-	1	-
Trichoptera				
Oecetis nocturna	1	-	-	-
Oecetis sp. F Floyd	-	1	-	-
Pycnopsyche sp.	1	-	-	-
Diptera				
Ablabesmyia mallochi	4	1	-	-
Ablabesmyia rhamphe grp. sp.	1	-	-	-
Chironomidae	7	2	-	-
Chironomus sp.	-	1	78	13
Corynoneura sp.	-	1	-	-
Corynoneura sp. c epler	-	1	-	-
Dicrotendipes simpsoni	-	13	-	-
Dicrotendipes sp.	-	1	-	-
Kiefferulus sp.	-	6	-	-
Parachironomus tenuicaudatus complex	-	2	-	2
Phaenopsectra obediens grp. sp.	6	1	-	-
Polypedilum flavum	1	-	-	-
Rheotanytarsus exiguus grp. sp.	5	1	-	-
Rheotanytarsus sp.	1	-	-	-
Simulium sp.	35	7	1	1
Stenochironomus sp.	1	1	-	-
Tanytarsus sp.	-	1	2	-
Tanytarsus sp. L Epler	12	11	-	-
Thienemanniella xena	1	-	-	-
Thienemannimyia grp. sp.	4	-	-	-

The Bioassay of the Buckeye Florida, L. P. effluent sampled on March 20, 2006, NPDES #FL0000876

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 0 8 7 6 11	12 0 6 0 3 2 0	18 X	19 S	20 2

Remarks

66

The Priority Pollutants Analysis for Bioassay of the Buckeye Florida, L. P. effluent sampled on March 20, 2006, NPDES #FL0000876

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 0 8 7 6 11	12 0 6 0 3 2 0	18 X	19 S	20 2

Remarks

66

Biological Analyses of the Buckeye Florida, L. P. effluent sampled on March 20, 2006, NPDES #FL0000876

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 0 8 7 6 11	12 0 6 0 3 2 0	18 X	19 S	20 2

Remarks

66