

Biological Assessment of

Blountstown Wastewater Treatment Facility

Calhoun County

NPDES #FL0026867

Sampled August 10, 2009

February 2010

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

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EPA End Sheet

Fifth Year Inspection Summary

The Fifth Year Inspection of Blountstown WWTF conducted August 10, 2009 produced the following notable results.

The No Observed Effect Concentration (NOEC) for growth of the fish, *Pimephales promelas*, was less than 100% effluent. The effluent toxicity limit was revised in June, 2009 to an IC25. Although there was a reduction in growth of the fish, it did not violate the facility's revised permit conditions or Class III Freshwater Quality Criterion (62-302.530(61) F.A.C.).

Effluent total nitrogen was calculated to be 7.4 mg/L, which is a violation of the facility's permit conditions.

Effluent fecal coliforms were 9,700 cfu/100 mL, which is a violation of the facility's permit conditions and Class III Freshwater Criterion (62-302.530(6) F.A.C.).

Based on the results of this sampling event, it appears that the Blountstown WWTF effluent has the potential to exert adverse influence on the biota in Sutton Creek. Macroinvertebrate communities show some response to the nutrient enrichment of the effluent, but the effect is not overwhelming. The facility discharges by sequential batch reactor and because the Test Site samples were collected approximately 10 minutes prior to start of discharge and effluent sample collection, the true impacts of the effluent on the Test Site cannot be evaluated.

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.

Facility Overview

The Blountstown Wastewater Treatment Facility is a Municipal Domestic Wastewater Treatment facility. The effluent is discharged into Sutton Creek, a Class III Fresh Water (see map Appendix A). The design flow of the wastewater system is 1.5 million gallons per day (MGD). The annual average flow for August, 2008 to July, 2009 was 0.5545 MGD. The plant discharges using dual sequencing batch reactors, and the flow measured during this survey was 0.65 MGD (Northwest District Branch Office, Panama City).

See the Facility Summary (Appendix B) for a description of the facility, summary of permit limits, and consent order (CO) and discharge monitoring report (DMR) information. The facility is operating under a Consent Order that was executed on 7/30/08 for violation of nitrate limits and toxicity failures.

Methods

The purpose of this investigation was to determine the discharge's effects on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Sutton Creek approximately 15 m upstream of the point of discharge) and a Test Site (located approximately 10 m downstream of the point of discharge). Effluent samples for all analyses were taken as grab samples from monitoring location EFF-01, after UV disinfection.

All field and laboratory biological methods followed Bureau of Laboratories and Biology Section Standard Operating Procedures (see http://www.floridadep.org/labs/sop/index.htm for details) and met DEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm). Explanations of specific methods and measurements can be found in Appendix C.

The following were involved in this investigation: Josie Penton and Mark Sumner (DEP Northwest District Branch Office, Panama City) and DEP Central Laboratory in Tallahassee. The report was

reviewed by District representatives and the Point Source Studies Review Committee (Michael Tanski and Nancy Ross).

Results and Discussion

Organic Constituents (See Table 1 and Appendix E)

- No organic constituents were detected in the effluent.

Metals (See Table 2 and Appendix E)

- Effluent aluminum, copper, nickel, silver, and zinc were detected at levels that complied with Class III Fresh Water Quality Criteria (62-302.530 F.A.C.).
- Effluent arsenic, iron, lead, and selenium were present at levels between the minimum detection limit (MDL) and practical quantitation limit (PQL) and within the water quality criteria.
- Control Site lead (0.64 I µg/L) and Test Site lead (0.61 I µg/L) were detected between the MDL and the PQL. Since the MDL for this test was 0.20 µg/L, which is below the Class III Fresh Water Quality Criterion for lead (62-302.530(39) F.A.C.), and the "I" qualifier denotes uncertainty about the result, this cannot be considered a violation of Class III Criterion.
- Control and Test Site copper, iron, and Control Site nickel were detected at levels that complied with Class III Fresh Water Quality Criteria.
- Control and Test Site arsenic, chromium, lead and zinc, Control Site cadmium, and Test Site nickel were present at levels between the MDL and PQL and within the water quality criteria.

Whole Effluent Toxicity Test (See Table 1 and Appendices F and G)

- The effluent sample NOEC for growth of the fish, *Pimephales promelas,* was less than 100%. The effluent toxicity limit was revised in June, 2009 to an IC25. Although there was a 24% reduction in growth of the fish, this does not constitute a violation of the revised permit limit or Class III Water Quality Criterion (62-302.530(61) F.A.C.).
- The NOEC for survival of the fish, and the NOEC for both reproduction and survival of the water flea, *Ceriodaphnia dubia,* during the chronic definitive bioassays were 100%, and therefore, complied with effluent permit limits.

Physical and Chemical Parameters (See Table 1 and Appendices D, E and H)

- The Habitat Assessment score at the Test Site (122) was higher than that of the Control Site (99), which places the Test Site in the Optimal Category and the Control Site in the Suboptimal Category. The Control Site had lower substrate diversity and availability and lost more points for low water velocity and habitat smothering than the Test Site. Both sites were similar with respect to artificial channelization, bank stability, and riparian zone vegetation.
- Based on measurements taken by the facility, dissolved oxygen (mg/L) and pH (Standard Units) of the effluent complied with Class III Fresh Water Quality Criteria (62-302.530 F.A.C.) and effluent permit limits. Specific conductance (µmhos/cm) and temperature (°C) were not measured in the effluent during this inspection.
- Chlorophyll *a* content estimates algal biomass, and high algal biomass implies nutrient stress (Stevenson and Bahls, 1999). Chlorophyll *a* was high in the effluent (43 A µg/L) but was detected below the PQL at both the Control and Test Sites.
- Total suspended solids (mg/L) and Carbonaceous Biological Oxygen Demand (CBOD; mg/L) of the effluent complied with permit limits.

Microbiology (See Table 1 and Appendix E)

- Fecal coliforms were detected in the effluent (9,700 colonies/100 mL) at a level that exceeds permit limits and the Class III Fresh Water Quality Criterion (62-302.530(6) F.A.C.). Fecal coliform levels at the Test Site (420 cfu/100 mL) also violated the Class III Water Quality

Criterion, but fecal coliform levels at the Control Site complied with the Class III Fresh Water Quality Criterion.

Nutrients (See Table 1 and Appendix E)

- Effluent total nitrogen (7.4 mg/L) was in violation of the permit limit. Total phosphorus, although elevated, was in compliance with the permit limit.
- Nutrient levels at both the Control and Test Sites were orders of magnitude lower than those of the effluent and were similar to each other. There was no detectable nutrient enrichment from the effluent at the Test Site. It should be noted that the facility discharges by sequential batch reactor, and although the effluent was collected as soon as the waste stream began, the Test Site sample was collected approximately 10 minutes before discharge began (see Appendix D for collection times on sample custody sheets).

Algal Growth Potential (See Table 3 and Appendix E)

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al*. 1978). Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP values in the effluent were well above the problem threshold. Despite the low AGP values of the Control and Test Sites (0.6 and 2.9 mg dry weight/L, respectively) as compared to the higher effluent AGP value (261.0 mg dry weight/L); the Blountstown effluent has the potential to enrich this portion of Sutton Creek when the facility is discharging. As noted for nutrient results, the Test Site sample was collected approximately 10 minutes after effluent discharge began (see Appendix D for collection times on sample custody sheets).

Bioassessment

Periphyton (See Table 4 and Appendices I-1 and I-2)

- Periphyton communities at both the Control and Test Sites consisted mostly of diatoms. The diatom community at the Control Site was dominated by the species *Diadesmis contenta*. The diatom community at the Test Site was dominated by the genus *Nitzschia* sp. Because both sites were heavily shaded, any expression of the nutrient enrichment potential from the effluent may not have been expressed at the Test Site.

Macroinvertebrates (See Tables 5 and 6 and Appendices J-1, J-2, K-1 and K-2)

- Quantitative macroinvertebrate data were collected from Hester Dendy samplers at the Control and Test Sites. The Control Site Shannon Weaver diversity (4.12) may have been negatively biased because of the low number of organisms recovered (217); therefore, an accurate assessment of the reduction in diversity between Control and Test Sites cannot be made. Test Site diversity was 3.58. Both sites were dominated by dipterans as a group. The Control Site had more ephemeropterans than the Test Site, and the dominant taxon was the ephemeropteran, *Stenacron interpunctatum*, a sensitive taxon. The Test Site had a larger number of amphipods than the Control Site, and the dominant taxon was the amphipod, *Hyalella azteca*, which is not sensitive. It appears that with the presence of available habitat for colonization (the Hester-Dendy condos), the Control Site is able to support a healthy macroinvertebrate community.
- Qualitative macroinvertebrate data from dipnet samples indicated that the macroinvertebrate community at the Test Site was better than the Control Site. The Test Site scored 36 A on the Stream Condition Index (SCI) placing it in Category 2, and the Control Site scored 18 A, placing it in Category 3 (see Appendix C for an explanation of SCI Categories). The Test Site had much higher percentages of tanytarsini individuals and suspension feeders (which tend to decline with human disturbance) than the Control Site. The percent of very tolerant individuals was similar at both sites and relatively low. However, three sensitive taxa were found at the Control Site while no sensitive taxa were recovered from the Test Site (see Appendix C for an explanation of how these SCI metrics typically respond to human disturbance). The

dominance of the Test Site by *Hyalella azteca*, indicates that the effluent may be exerting some effect on the Test Site in the form of nutrient enrichment, but the effect is not overwhelming. These potential adverse effects may be somewhat mitigated by the fact that the discharge is intermittent. Adverse effects on the macroinvertebrate community at the Control Site appeared to be attributable to lack of habitat availability due to habitat smothering.

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

Blountstown WWTP	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected		
Nutrients (mg/L)					
Ortho-phosphate	-	-	1.6	0.005 I	0.007 I
Total Phosphorus	-	≤ 2.0	1.8	0.018	0.027
Total Ammonia	-	-	0.95	0.029	0.036
Un-ionized Ammonia	≤ 0.02 s	-	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	3.9	0.017	0.025
Total Kjeldahl Nitrogen	-	-	3.5	0.71	0.72
Organic Nitrogen	-	-	2.55 c	0.681 c	0.684 c
Total Nitrogen	-	≤ 6.0	7.4 c	0.727 c	0.745 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	99	122
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 6.0	7.1	5.6	6.2
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.0	6.2	6.2
Conductivity (µmhos/cm)	≤ 1,275	-	-	65	67
Temperature (°C)	-	-	-	26.8	26.2
Sample Depth (m)	-	-	-	0.5	0.1
Chlorophyll *a* (µg/L) - Corrected	-	-	43 A	2.0	1.2 I
Phaeophytin (µg/L)	-	-	5.4 A	0.64 I	0.97 I
Total Suspended Solids (mg/L)	-	≤ 10.0	10 I	5 I	4 I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10.0	3.4 A	-	-
Flow (MGD)	-	-	0.65	-	-
Hardness (mg $CaCO_3$)	-	-	127.57 c	24.30 c	24.69 c
Toxicity (Chronic Screen, NOEC, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)* reproduction	-	IC25 €	100	-	-
Bioassay - Water flea survival	-	IC25 €	100	-	-
Bioassay - Fish *(Pimephales promelas)* growth	-	IC25 €	100 K	-	-
Bioassay - Fish survival	-	IC25 €	100	-	-
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms	≤ 400s #	≤ 400s #	9700	280	420

Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated

s - Single sample

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

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

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

NOEC - A no observed effect concentration less than 100% effluent will constitute a violation of this permit

- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

€ - Permit limit for toxicity changed to IC25 in June, 2009 but laboratory not advised of change when sample submitted.

Table 2. Effluent limits, Class III Freshwater Criteria and metals data. Class III Criteria based on hardness are presented individually for each site based on hardness at that site.

Blountstown WWTP	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	410	-	560 A	-	390
Arsenic	≤ 50	-	0.51 I	≤ 50	0.52 I	≤ 50	0.49 I
Cadmium	≤ 0.3 b	-	0.03 U	≤ 0.10 b	0.1 I	≤ 0.10 b	0.03 U
Calcium (mg/L)	-	-	28	-	7.44 A	-	7.53
Chromium-III	≤ 105.2 b	-	0.3 U	≤ 27.69 b	0.65 I	≤ 27.69 b	0.63 I
Copper	≤ 11.5 b	-	2.47	≤ 2.85 b	2.79 A	≤ 2.85 b	1.25
Iron	≤ 1,000	-	110 I	≤ 1,000	730 A	≤ 1,000	770
Lead	≤ 4.3 b	-	0.31 I	≤ 0.54 b	0.64 I	≤ 0.54 b	0.61 I
Magnesium (mg/L)	-	-	14	-	1.39 A	-	1.43
Mercury	≤ 0.012	-	-	≤ 0.012	-	≤ 0.012	-
Nickel	≤ 64.1 b	-	1.74	≤ 16.14 b	1.05 A	≤ 16.14 b	0.58 I
Selenium	≤ 5.0	-	0.22 I	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Silver	≤ 0.07	-	0.1	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 147.3 b	-	36	≤ 37.02 b	15 I	≤ 37.02 b	7.4 I

See Table 1 for calculated hardness.

b - Value is calculated based on hardness
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit

Table 3. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

Blountstown WWTP							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	261.0	184.3 ± 36.9		281.2 ± 56.2		3.0	4.1
Control Site	0.6	1.7 ± 0.3	2.2 ± 0.4	27.6 ± 5.5	7.7 ± 1.5	9.2	40.4
Test Site	2.9	2.3 ± 0.5	3.0 ± 0.6	28.3 ± 5.7	11.6 ± 2.3	8.7	27.6

Table 4. Periphyton Composition - Qualitative.

Blountstown WWTP	Control Site	Test Site
Number of Wet Taxa	8	17
Number of Wet Algal Units Identified	301	301
Percent Dominant Wet Taxon	93.7	70.4
Dominant Wet Taxon Name	Bacillariophyta (Diatoms)	Bacillariophyta (Diatoms)
Number of Diatom Taxa	61	48
Number of Diatom Algal Units Identified	500	501
Percent Dominant Diatom Taxon	12.2	12.2
Dominant Diatom Taxon Name	*Diadesmis contenta*	*Nitzschia* sp.
Percentage Composition for Wet Algae		
Blue-green algae	4.7	14.3
Green algae	1.3	14.6
Diatoms	93.7	70.4
Cryptophytes	0.0	0.7
Euglenophytes	0.3	0.0

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative.

Blountstown WWTP	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	4.12 *	3.58
Number of Taxa	33	44
Number of EPT Taxa	4	6
Percent Dominant Taxon	15.7	30.4
Dominant Taxon Name	*Stenacron interpunctatum* (Ephemeroptera)	*Hyalella azteca* (Amphipoda)
Total Number of Individuals (counted)	217	753
Total Number of Individuals (#/m^2)	433	1,497
Community Composition: Percent of total		
Acariformes	0.5	0.0
Amphipoda	6.0	30.4
Bivalvia	0.9	0.1
Coleoptera	0.5	1.3
Diptera	49.3	40.0
Ephemeroptera	19.8	7.3
Gastropoda	15.2	12.7
Odonata	5.5	0.4
Oligochaeta	0.9	5.3
Plecoptera	0.0	0.0
Trichoptera	1.4	2.0
Other	0.0	0.4
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	0.9	5.3
Piercers	0.9	0.3
Predators	16.6	4.4
Scavengers	0.0	0.6
Scrapers	25.3	16.4
Shredders	6.3	17.5
Surface Deposit Feeders	34.2	30.7
Suspension Feeders	15.7	24.8

* - Shannon Weaver Diversity scores calculated on samples with < 300 individuals have the potential for negative bias (lower diversity scores compared to sites with more individuals)(Lande 1996).

Table 6. Macroinvertebrate Dipnet Samples - Qualitative.

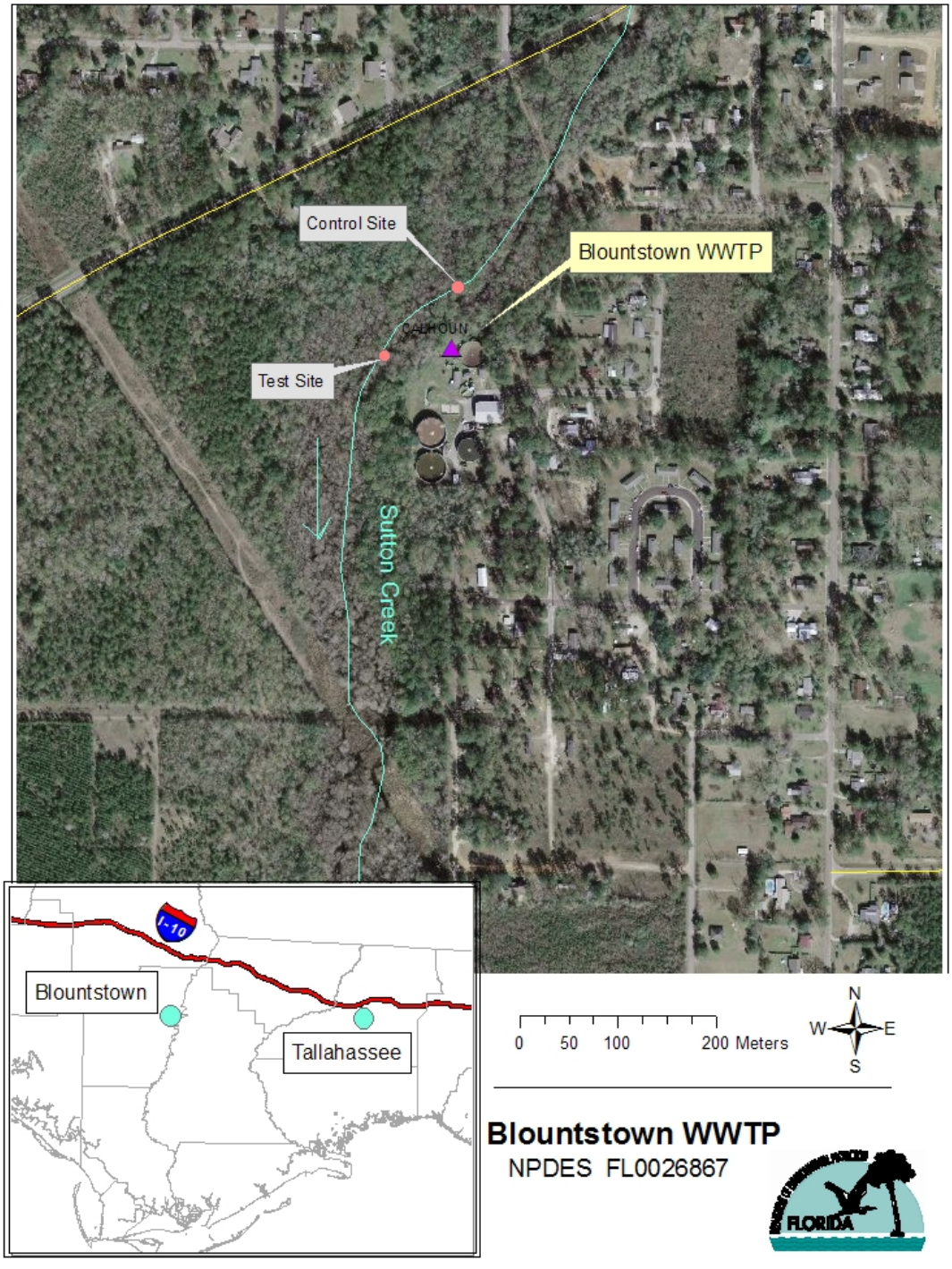
Blountstown WWTP	Control Site		Test Site	
Summary Statistics				
Stream Condition Index 2007 (value)	18 A		36 A	
Stream Condition Index 2007 (category) *	Category 3		Category 2	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	11	23	21	21
Number of Ephemeroptera Taxa	1	2	0	0
Number of Trichoptera Taxa	0	4	1	2
Number of Clinger Taxa	0	2	2	2
Number of Long-lived Taxa	0	1	1	2
Number of Sensitive Taxa	0	3	0	0
Percent of Dominant Taxon	87.5	53.2	46.9	47.8
Percent Suspension Feeders and Filterers	2.3	3.9	34.7	37.9
Percent of Tanytarsini Individuals	0.0	0.7	22.5	23.6
Percent of Very Tolerant Individuals	2.0	3.5	3.4	1.9
Total Number of Individuals	152	143	147	157
Community Composition: Percent of total				
Dominant Taxon Name	*Amnicola* (Gastropoda)	*Amnicola* (Gastropoda)	*Hyalella azteca* (Amphipoda)	*Hyalella azteca* (Amphipoda)
Acariformes	0.0	0.7	0.0	0.0
Amphipoda	1.3	4.9	46.9	47.8
Bivalvia	2.0	2.8	6.1	7.0
Coleoptera	2.0	5.6	1.4	0.6
Decapoda	0.0	0.0	0.0	0.0
Diptera	1.3	8.4	26.5	27.4
Ephemeroptera	0.7	3.5	0.0	0.0
Gastropoda	90.8	57.3	2.7	2.6
Isopoda	0.0	0.0	0.0	0.0
Odonata	2.0	7.7	4.8	3.2
Oligochaeta	0.0	0.7	4.8	3.2
Plecoptera	0.0	0.0	0.0	0.0
Polychaeta	0.0	0.0	0.0	0.0
Trichoptera	0.0	5.6	6.1	8.3
Other	0.0	2.8	0.69	0.0
Functional Feeding Groups: Percent of total				
Browser-Grazers	0.0	0.0	0.0	0.0
Burrowing Deposit Feeders	0.0	0.7	4.8	3.2
Piercers	0.0	0.7	0.0	0.0
Predators	2.0	12.2	5.1	4.1
Scavengers	0.0	0.4	0.0	0.3
Scrapers	92.1	61.5	3.4	2.6
Shredders	1.0	8.4	25.2	25.5
Surface Deposit Feeders	2.6	11.5	26.5	26.4
Suspension Feeders	2.3	3.9	34.7	37.9
Unknown	0.0	0.7	0.0	0.0

A - Value reported is the mean of two determinations

* SCI_2007 categories from Table LT 7200-2 of DEP-SOP-002/01 as referenced in Quality Assurance Rule (62-160 F.A.C.), December 3, 2008: Values 0 ≤ 34 are Category 3; Values 35 < 67 are Category 2; Values 68 ≤ 100 are Category 1

Appendix A

Map of Facility



Appendix B

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen (6/09; updated 1/10)	**Contact Number:** 595-8300 ext. 1185
Facility Name (as it appears on permit): City of Blountstown WWTF	**Former Names:**
NPDES Permit Number: FL0026867	**Permit Expiration Date:** May 1, 2010
Physical Address: 16140 SE Johnson Street, Blountstown, FL 32424	
District: NWD	**County:** Calhoun
Function of Facility: Municipal domestic wastewater treatment facility	
Facility Type: Domestic	**Permitted Capacity (MGD):** 1.5 MGD maximum monthly average daily flow (MADF)
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 8/08-7/09 = .5545	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☐ **Continuous** ☒ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify** ****************Sequential batch reactor**	
Description of Sampling Location(s) - actual permit designation of permitted sampling point(s): **EFF-01 Effluent Sampling point at weir at old Chlorine Contact Chamber prior to discharge** EFF-02 Effluent Composite Sampler at Reuse(1) Basin at old Chlorine Contact Chamber (1) In-Plant Process Reuse water only. **EFF-03 End of Discharge Pipe at Sutton Creek.** FLW-01 Flow-meter and totalizer at weir at old Chlorine Contact Chamber PPI-01 UV System Monitoring	
Description of Permitted Outfall(s): The facility's discharge is to Sutton Creek to the Apalachicola River (Class III fresh waters) at Discharge Location (D-001) which is approximately 2 feet in length and discharges at a depth of approximately 0 feet. The point of discharge is located approximately at latitude 30° 27' 45" N, longitude 85° 02' 30" W.	
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): An existing 1.5 MGD maximum monthly average daily flow (MADF) wastewater treatment facility. The system consists of influent screening, dual sequential batch reactors, post equalization, phosphorus removal using alum feed, dual cloth disk filters with six disks per unit for a total surface area of 646 SF per unit and basic disinfection with a dual channel ultraviolet light system with two 1 MGD UV modules per channel for a total UV capacity of 4 MGD. Residuals are aerobically digested and dewatered using a belt filter press.	

PART I: Continued										
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)										
			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow	mgd	Max	-	1.5	-	-	Continuous	Recording flow meters and totalizer	FLW-01	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour flow proportioned composite	EFF-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour flow proportioned composite	EFF-01	
Nitrogen, Total	MG/L		3.0	3.75	4.5	6.0	Weekly	16-hour flow proportioned composite	EFF-01	
Phosphorus, Total (as P)	MG/L	Maximum	1.0	1.25	1.5	2.0	Weekly	16-hour flow proportioned composite	EFF-01	
pH	SU	Range				6.0 to 8.5	Continuous	Meter	EFF-02	See Cond.I.A.3
Oxygen, Dissolved (DO)	MG/L	Minimum				6.0	Daily	Grab	EFF- 03	
Coliform, Fecal										See Permit Condition I.A.6
Whole Effluent Toxicity										See Permit Condition I.A.5
Ultraviolet Light Intensity (Nominal Average)	UW/ CM2	Minimum				4,760	Continuous	Calculated	OTH-01	See I.A.11

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Sutton Creek to the Apalachicola River	Class III fresh

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

The permittee is required to annually (7/08 Consent Order changed to quarterly) evaluate whole effluent toxicity of the discharge from outfall D-001. All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th ed., EPA-821-R-02-013, or the most current edition. The control and dilution water will be moderately hard water as described in EPA-821-R-02-013, Table 3, or the most current edition. A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted concurrently or no greater than 30 days before the date of the "routine" test, with each species used in the toxicity tests. The results of all QA toxicity tests shall be submitted with the discharge monitoring report (DMR). Any deviation from the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.

a. 1. The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test. These tests shall be conducted using a control (0% effluent) and one test concentration of **100%** effluent.

2. For each set of tests conducted, a Flow proportional 24 hr. composite sample of final effluent shall be collected and used per the sampling schedule discussed in EPA-821-R-02-013, Section 8.3, or the most current edition. Two additional composite samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

c.3. If control mortality exceeds 20% for either species in any test, the test for that species (including the control) shall be repeated. A test will be considered valid only if control mortality does not exceed 20% for either species. If, in any separate test, 100% mortality occurs prior to the end of the test, and control mortality is less than 20% at that time, that test (including the control) shall be terminated with the conclusion that the sample demonstrates unacceptable chronic toxicity. Additionally, each test must meet the acceptability criteria for the test species as defined in EPA-821-R-02-013 Section 13.12 and Section 11.12, respectively, or the most current edition.

2. If an NOEC of less than 100% effluent is found in a "routine" test, the permittee shall conduct three additional tests on each species indicating the violation.

3. The first additional test shall be conducted using a control (0% effluent) and a minimum of five dilutions: **100%, 50%, 25%, 12.5% and 6.25%** effluent. The dilution series may be modified in the second and third test to more accurately identify the toxicity, such that at least two dilutions above (not to exceed 100% effluent) and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013, or the most current edition.

4. For each additional test, the sample collection requirements and the test acceptability criteria specified in section a. above must be met for the test to be considered valid. The first test shall begin within two weeks of the end of the "routine" tests, and shall be conducted weekly thereafter until three additional, valid tests are completed

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
Consent Order was executed on 7/30/08 for violating the maximum monthly average and annual average permitted effluent limits for nitrate occasionally during the period of time from May 2005 to May 2006 and toxicity violations. The December 2005 WET test indicated chronic toxicity for testing species *Ceriodaphnia dubia* and *Pimephales promelas*. Respondent also failed the additional definitive tests on January 31, 2006 for *Ceriodaphnia* and March 14, 2006 for *Pimephales*.

The Consent Order increased the frequency of the toxicity sampling to quarterly for twelve (12) months and if during the twelve (12) months of quarterly toxicity sampling Respondent fails to meet the WET limit in the existing permit following a discharge to surface waters, then within forty-five (45) days following the failure, Respondent shall submit a plan for identification and correction of the effluent toxicity to be approved by the Department before initiation. The plan should be implemented within thirty (30) days of Department approval.

Facility Mixing Zone Details (if applicable):
N/A

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:

Violations occurring from 8/08-10/09

Date	Parameter and Units	Limit	Result
5/09	**Ceriodaphnia dubia**	**100**	**<100**
7/09	**Ceriodaphnia dubia (additional)**	**100**	**50**
8/09	**Total Nitrogen (max)**	**6.0**	**6.9**
8/09	**Fecal coliform (max)**	**800**	**1600**

Describe previous FYI and WQBEL study:

(Text taken directly from draft permit)
LEVEL 1 WQBEL The following is the WQBEL Level I analysis for this permit renewal.

The facility has provided reasonable assurance that the discharge will not adversely affect the designated use of the receiving water. Inspection data, as well as all other available data, have been evaluated in accordance with the Department's reasonable assurance procedures to ensure that no limits other than those included in this permit are needed to maintain Florida water quality standards.

Discharge Serial Number D-001 discharges into Sutton Creek, WBID 4822, leading to Apalachicola River, a class III fresh water. Sutton Creek was neither on 303(d) list for 1998, or for 2002 (Attachment 1). A map prepared on September 11, 2003 by the Bureau of Watershed Management, Division of Water Resource Management (Attachment 2) identified Dissolved Oxygen as a parameter of concern but it did not make it to the May 2004 verified listed waters (Attachment 3.) The discharge monitoring data for the treatment plant shows the Dissolved Oxygen levels trend to be well above the required minimum effluent limit of 6.0 mg/L.

The Department's Fifth year Biological Assessment was done in early part of year 2003. The biology and AGI of test site downstream of the outfall were good and does not violate water quality standards. Silver in the effluent was detected at 0.22 ug/L, the Class III criterion is 0.07 ug/L but between the MDL and PQL target levels published by the Department. No other excursions were noted. The effluent was not toxic to pimephales promelas or to ceridaphnia dubia during 7 day chronic testing.

This renewal permit brings forth all the previous effluent limitations. A search of the PCS database revealed sporadic violations of several parameters but no pattern could be discerned and the facility is considered to be in compliance. The permittee only submitted one expanded effluent testing data instead of the required three and did not use the approved analytical methods for metals. Therefore, the permit contains a re-opener clause requiring the permittee to analyze at least two effluent samples for all pollutants listed in the application with the exception of metals which should be at least three effluent samples using approved analytical methods, in accordance with the newest version of application Form 2A. The additional sampling will provide the Department with reasonable assurance that water quality standards are not being violated.

In order to provide reasonable assurance that the discharge will not adversely affect the designated use of the receiving water, whole effluent toxicity testing is required. During the previous permit cycle the permittee conducted Chronic Screen NOEC= 100% toxicity testing once every two months until 6 valid bimonthly tests were completed that demonstrated no chronic toxicity violations, the frequency was then reduced to once every six months with no violations and later to once every year. The frequency for this permit shall be once every year based on the permit writers best professional judgment and review of information on file.

The percent removal for BOD and TSS was required to be reported in the previous permit but it is being deleted since these parameters exceed the secondary treatment standards.

Describe previous or current Enforcement Actions (including WLs):

A Warning Letter was issued 9/29/06 and a Consent Order was ultimately executed on 7/30/08 for violating the maximum monthly average and annual average permitted effluent limits for nitrate occasionally during the period of time from May 2005 to May 2006 and toxicity violations. The December 2005 WET test indicated chronic toxicity for testing species *Ceriodaphnia dubia* and *Pimephales promelas*. Respondent also failed the additional definitive tests on January 31, 2006 for *Ceriodaphnia* and March 14, 2006 for *Pimephales*. The Consent Order increased the frequency of the toxicity sampling to quarterly and if during the twelve (12) months of quarterly toxicity sampling Respondent fails to meet the WET limit in the existing permit following a discharge to surface waters, then within forty-five (45) days following the failure, Respondent shall submit a plan for identification and correction of the effluent toxicity to be approved by the Department before initiation. The plan should be implemented within thirty (30) days of Department approval.

Describe any violations or problems noted in previous inspection: The facility was inspected 5/13/08. All areas were in compliance except for the effluent quality section. An out of compliance rating was given for the 2007 toxicity failure and the Feb 2008 TSS violations.
Discuss whether DMR trends within previous five years are improving or declining: DMR trends appear to be improving, as no violations have been reported since 2/08.
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

PART II: Sampling Event Information

Date(s) sample collected:	**Sampler(s):**
Temperature (Deg C):	**pH (SU):**
Dissolved Oxygen (mg/L):	**Conductivity (umhos/cm):**
Total Residual Chlorine (mg/L):	**Total Residual Chlorine - after Disinfection (mg/L):**
Method of Chlorination:	**Method of De-chlorination:**
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:

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. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedence of 62-302.500(1)a and/or a violation of facility permit limits. An inhibition concentration greater than 25% in a chronic test may constitute exceedences of 62-302.530(20), 62-302.530(61) and/or a violation of facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedence of 62-302.530(6) and/or a violation of 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 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 exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(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 constitute an exceedence of 62-302.530(61) F.A.C.

(7) Algal Phytoplankton and Periphyton Assemblages

Qualitative periphyton are sampled by taking subsamples of algae from natural substrates throughout the sample reach. Phytoplankton were sampled from the water column using a 1 L grab sample. Periphyton were subsampled and identified to the lowest practical level, usually species. Wet taxa and diatoms are identified separately. In the wet taxa analysis, soft algae are identified to the lowest practical level, and diatoms are identified only to order level (diatom). In the diatom analysis, diatoms are identified to the lowest practical level.

Chlorophyll *a* Content: Chlorophyll *a* content is an estimate of algal biomass . High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

Algal Density: Algal density is estimated as number of natural units/ml for phytoplankton 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 exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C.

(8) Benthic Macroinvertebrate Assemblages

Benthic macroinvertebrates were collected using two methods. Quantitative samples were collected from Hester-Dendy multi-plate samplers incubated for 28 days. 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.

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 exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) 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 exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) 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 (Fore et. al. 2007, Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) 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 and shredders (Fore et. al. 2007). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) 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 constitute exceedences of 62-302.530(10) F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida (Fore et. al. 2007). This Index was revised in 2007 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 according to in which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists -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. As human disturbance increases, it is expected that taxa richness, the number of Ephemeroptera taxa, Trichoptera taxa, sensitive taxa, clinger taxa, long-lived taxa, and the percent contribution of Tanytarsini and suspension and filter feeders will decrease while percent contribution of dominant taxon, and percent contribution of very tolerant taxa will increase.

Scores are broken into three categories (1, 2, and 3). Sites in Category 1 are described as having higher diversity than Category 2 sites, particularly for Ephemeroptera and Trichoptera. A Category 1 site may have several more clinger and sensitive taxa, a higher proportion of Tanytarsini, and a lower percent of a dominant taxon than a site in Category 2. The site will also have a very small percentage of very tolerant individuals, if any.

Sites in Category 2 are described as having an average of 30 species with several different taxa of Ephemeroptera and Trichoptera. A Category 2 site also has several different long-lived taxa and, on average, 5 clinger and 6 sensitive taxa. There is a slight increase in dominance by a single taxon relative to sites in Category 1. Very tolerant taxa represent a small percentage of individuals but are noticeably increased as compared to sites in Category 1.

Sites in Category 3 are described as having a notable loss in taxonomic diversity, and Ephemeroptera, Trichoptera, long-lived, clinger and sensitive taxa are uncommon or rare. Filter feeders are reduced by at least 50%. The site is dominated by a tolerant taxon, and very tolerant individuals represent a large proportion of the individuals collected.

SCI 2007 categories are from Table LT 7200-2 of DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.), December 3, 2008. 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 in Category 3, if it is shown to be related to a facility's effluent, may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or a violation of 62-302.530(61).

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-08-10-25
Blountstown WWTP

Customer: NW-DIST

Project ID: FYI5

PMAS: 1143

Requester: Jennifer Paris

Collected By: Mark Sumner

Sampling Agency: FDEP/PCBO

Field Report Prepared By: Josie Penton

Send Final Report To Greg Smith

Lab ID *	Location			Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Discharge weir			☐ Comp ☑ Grab	Date 8/10/09 Time 9:52 Central	Date 8/10/09 Time 10:15 Central	
	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)**
				☐ Comp ☐ Grab	Date Time	Date Time	
	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)**
				☐ Comp ☐ Grab	Date Time	Date Time	
	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)**
				☐ Comp ☐ Grab	Date Time	Date Time	
	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
			AB	8/10/09 0245			Chuck Kz IBACT	8/10/09 1528

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-08-10-25
Blountstown WWTP

Requester: Jennifer Paris
Field Report Prepared By:

Customer: NW-DIST
Collected By: S. Ray, T. Risk
Send Final Report To Greg Smith

Project ID: FYI5
Sampling Agency: FDEP - Tallahassee

PMAS: 1143

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:30 Central		A, B, C, D
	Field ID: Control - Upstream	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 5.63	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 26.17	pH: 6.20	Sample Depth: ☑ m ☐ ft: 0.5	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 65
	Latitude: o ' "	Longitude: o ' "	Comments:	NPDES Number:	

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:30 Central		C
	Field ID: Control - Upsteam - Rep 1	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 5.63	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.17	pH: 6.20	Sample Depth: ☑ m ☐ ft: 0.5	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 65
	Latitude: o ' "	Longitude: o ' "	Comments: Hester - Dendy	NPDES Number:	

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	~~Control - Upstream~~ Blountstown WWTP	☐ Comp ☐ Grab	Date 8/10/09 Time 9:30 Central		C
	Field ID: Contol - Upstream - Rep 2	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 5.63	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.17	pH: 6.20	Sample Depth: ☑ m ☐ ft: 0.1	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 65
	Latitude: o ' "	Longitude: o ' "	Comments: Hester - Dendy	NPDES Number:	

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	~~Control - Upstream~~ Blountstown WWTP	☐ Comp ☐ Grab	Date Time 9:30 Central		C
	Field ID: Control Upstream - Rep 3	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.17	pH: 6.20	Sample Depth: ☑ m ☐ ft: 0.1	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 65
	Latitude: o ' "	Longitude: o ' "	Comments: Hester - Dendy	NPDES Number:	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			[illegible]	8/10/09 0245				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Page 1 of 4

Jonathan D Ray QNAC 8/10/09

IBacti 8/10/09 1530

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-08-10-25
Blountstown WWTP

Requester: Jennifer Paris

Field Report Prepared By:

Customer: NW-DIST

Collected By: T. Ray, T. Risk

Send Final Report To Greg Smith

Project ID: FY15

Sampling Agency: FDEP - Tallahassee

PMAS: 1143

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Date Time Central	Collection (end) Eastern Date Time Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:30 Central	Date Time	C
	Field ID: Control - Upstream - Rep 4	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 5.63	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.17	pH: 6.20	Sample Depth: ☑ m ☐ ft: 0.1	Salinity (PPTh) ☑ Sp Conductance (umhc/cm): 65	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments: Hester - Perdy		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Date Time Central	Collection (end) Eastern Date Time Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:40 Central	Date Time	A,B,C,D
	Field ID: Test - Downstream	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 6.21	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 26.23	pH: 6.24	Sample Depth: ☑ m ☐ ft: 0.5	Salinity (PPTh) ☑ Sp Conductance (umho/cm): 67	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Date Time Central	Collection (end) Eastern Date Time Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:40 Central	Date Time	C
	Field ID: Test - Downstream - Rep 1	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 6.21	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.23	pH: 6.24	Sample Depth: ☑ m ☐ ft: 0.1	Salinity (PPTh) ☑ Sp Conductance (umho/cm): 67	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments: Hester - Perdy		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Date Time Central	Collection (end) Eastern Date Time Central	Bottle Group(s)**
	Blountstown WWTP	☐ Comp ☑ Grab	Date 8/10/09 Time 9:40 Central	Date Time	C
	Field ID: Test - Downstream - Rep 2	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 6.21	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Biology	Temp (C): 26.23	pH: 6.24	Sample Depth: ☑ m ☐ ft: 0.1	Salinity (PPTh) ☑ Sp Conductance (umho/cm): 67	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments: Hester - Perdy		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			ABJ	8-10-09 0945				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

IBacht CF 8/10/09 1530

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2009-08-10-25
Blountstown WWTP

Customer: NW-DIST
Project ID: FYI5
PMAS: 1143

Requester: Jennifer Paris
Collected By: J. Ray T. Risk
Sampling Agency: FDEP - Tallahassee

Field Report Prepared By:
Send Final Report To Greg Smith

Lab ID *	Location ~~Blountstown WWTP Control~~			☐ 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 Blountstown WWTP Test			☐ Comp ☑ Grab	Collection (begin) Date 8/10/07 Time 9:40 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**	
	Field ID Test - Downstream - Rep 3			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.21		Storet Station Number		C	
	Matrix (Include type e.g. Salt, Fresh, etc) Biology	Temp (C) 26.24	pH 6.24	Sample Depth ☑ m 0.1 ☐ ft	67	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)		NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments Hester - Dendy						
Lab ID *	Location Blountstown WWTP			☐ Comp ☑ Grab	Collection (begin) Date 8/10/07 Time 9:40 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**	
	Field ID Test - Downstream - Rep 4			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 6.21		Storet Station Number		C	
	Matrix (Include type e.g. Salt, Fresh, etc) Biology	Temp (C) 26.23	pH 6.24	Sample Depth ☑ m 0.1 ☐ ft	67	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)		NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments Hester - Dendy						
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
				8-10-09				

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information.

09:45

last revised October 1, 2003

Appendix E

Chemical analysis of effluent and receiving water

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:52	Effluent	AGP/LN	Algal Growth Potential	261		mg DryWt/L	0.3	0.9
8/10/2009 10:52	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	43	A	ug/L	0.55	1.7
8/10/2009 10:52	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	3.4	A	mg/L	0.2	2
8/10/2009 10:52	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	5.4	A	ug/L	0.4	1.2
8/10/2009 10:52	Effluent	Microbiology	Fecal Coliforms-Membrane Filter	9.70E+03	B	#/100 mL	100	100
8/10/2009 10:52	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100	K	NOEC		
8/10/2009 10:52	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100		NOEC		
8/10/2009 10:52	Effluent	Metals	Zinc	36		ug/L	5	20
8/10/2009 10:52	Effluent	Metals	Arsenic	0.51	I	ug/L	0.25	1
8/10/2009 10:52	Effluent	Metals	Chromium	0.3	U	ug/L	0.3	1.2
8/10/2009 10:52	Effluent	Metals	Silver	0.1		ug/L	0.025	0.1
8/10/2009 10:52	Effluent	Metals	Magnesium	14		mg/L	0.04	0.16
8/10/2009 10:52	Effluent	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
8/10/2009 10:52	Effluent	Metals	Lead	0.31	I	ug/L	0.2	0.8
8/10/2009 10:52	Effluent	Metals	Copper	2.47		ug/L	0.5	0.5
8/10/2009 10:52	Effluent	Metals	Iron	110	I	ug/L	30	120
8/10/2009 10:52	Effluent	Metals	Aluminum	410		ug/L	60	240
8/10/2009 10:52	Effluent	Metals	Selenium	0.22	I	ug/L	0.2	0.8
8/10/2009 10:52	Effluent	Metals	Nickel	1.74		ug/L	0.25	1
8/10/2009 10:52	Effluent	Metals	Calcium	28		mg/L	0.075	0.3
8/10/2009 10:52	Effluent	Nutrients	O-Phosphate-P	1.6		mg P/L	0.08	0.2
8/10/2009 10:52	Effluent	Nutrients	Kjeldahl Nitrogen	3.5		mg N/L	0.08	0.2
8/10/2009 10:52	Effluent	Nutrients	NO2NO3-N	3.9		mg N/L	0.04	0.1
8/10/2009 10:52	Effluent	Nutrients	Total-P	1.8		mg P/L	0.04	0.1
8/10/2009 10:52	Effluent	Nutrients	Ammonia-N	0.95		mg N/L	0.01	0.02
8/10/2009 10:52	Effluent	Nutrients	TSS	10	I	mg/L	4	16
8/10/2009 10:52	Effluent	Pesticides	Toxaphene	0.78	U	ug/L	0.78	3.1
8/10/2009 10:52	Effluent	Pesticides	Malathion	0.16	U	ug/L	0.16	0.64
8/10/2009 10:52	Effluent	Pesticides	Parathion Ethyl	0.16	U	ug/L	0.16	0.64
8/10/2009 10:52	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	DDE-p,p'	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Endosulfan Sulfate	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Endrin Aldehyde	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Heptachlor Epoxide	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Atrazine	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Mevinphos	0.21	U	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Pesticides	Naled	0.84	U	ug/L	0.84	3.4

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:52	Effluent	Pesticides	Norflurazon	0.16	UJ	ug/L	0.16	0.64
8/10/2009 10:52	Effluent	Pesticides	Phorate	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Simazine	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	Ametryn	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Azinphos Methyl	0.21	UJ	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Pesticides	Butylate	0.21	UJ	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Pesticides	Fenamiphos	0.21	UJ	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Pesticides	Metalaxyl	0.26	UJ	ug/L	0.26	1
8/10/2009 10:52	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	Endosulfan II	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	Alachlor	0.63	UJ	ug/L	0.63	2.5
8/10/2009 10:52	Effluent	Pesticides	Bromacil	0.21	U	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Pesticides	Dieldrin	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	Metolachlor	0.52	UJ	ug/L	0.52	2.1
8/10/2009 10:52	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	DDD-p,p'	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	Methoxychlor	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Diazinon	0.052	UJ	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Ethion	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Chlorpyrifos Ethyl	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	Hexazinone	0.1	UJ	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	DDT-p,p'	0.031	U	ug/L	0.031	0.12
8/10/2009 10:52	Effluent	Pesticides	Endosulfan I	0.021	U	ug/L	0.021	0.084
8/10/2009 10:52	Effluent	Pesticides	Endrin	0.052	U	ug/L	0.052	0.21
8/10/2009 10:52	Effluent	Pesticides	Fonofos	0.1	UJ	ug/L	0.1	0.4
8/10/2009 10:52	Effluent	Pesticides	Prometryn	0.16	U	ug/L	0.16	0.64
8/10/2009 10:52	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
8/10/2009 10:52	Effluent	Pesticides	Chlordane	0.21	U	ug/L	0.21	0.84
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
8/10/2009 10:52	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
8/10/2009 10:52	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.8
8/10/2009 10:52	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
8/10/2009 10:52	Effluent	Nutrients	Temperature			C		
8/10/2009 10:52	Effluent	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:52	Effluent	Nutrients	Sample Depth			m		
8/10/2009 10:52	Effluent	Nutrients	Specific Conductance			umhos/cm		
8/10/2009 10:52	Effluent	Nutrients	Sample Depth			m		
8/10/2009 10:52	Effluent	Nutrients	Temperature			C		
8/10/2009 10:52	Effluent	Nutrients	Salinity			PPTh		
8/10/2009 10:52	Effluent	Nutrients	Dissolved Oxygen			mg/L		
8/10/2009 10:52	Effluent	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:52	Effluent	Nutrients	pH					
8/10/2009 10:52	Effluent	Nutrients	Dissolved Oxygen			mg/L		
8/10/2009 10:52	Effluent	Nutrients	Salinity			PPTh		
8/10/2009 10:52	Effluent	Nutrients	Specific Conductance			umhos/cm		
8/10/2009 10:52	Effluent	Nutrients	pH					
8/10/2009 10:30	Control Site	AGP/LN	Algal Growth Potential	0.626		mg DryWt/L	0.3	0.9
8/10/2009 10:30	Control Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2		ug/L	0.55	1.7
8/10/2009 10:30	Control Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.64	I	ug/L	0.4	1.2
8/10/2009 10:30	Control Site	Microbiology	Fecal Coliforms-Membrane Filter	280		#/100 mL	9	9
8/10/2009 10:30	Control Site	Metals	Iron	730	A	ug/L	30	120
8/10/2009 10:30	Control Site	Metals	Nickel	1.05	A	ug/L	0.25	1
8/10/2009 10:30	Control Site	Metals	Cadmium	0.1	I	ug/L	0.03	0.12
8/10/2009 10:30	Control Site	Metals	Chromium	0.65	I	ug/L	0.3	1.2
8/10/2009 10:30	Control Site	Metals	Lead	0.64	I	ug/L	0.2	0.8
8/10/2009 10:30	Control Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/10/2009 10:30	Control Site	Metals	Aluminum	560	A	ug/L	60	240
8/10/2009 10:30	Control Site	Metals	Copper	2.79	A	ug/L	0.5	0.5
8/10/2009 10:30	Control Site	Metals	Magnesium	1.39	A	mg/L	0.04	0.16
8/10/2009 10:30	Control Site	Metals	Calcium	7.44	A	mg/L	0.075	0.3
8/10/2009 10:30	Control Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/10/2009 10:30	Control Site	Metals	Arsenic	0.52	I	ug/L	0.25	1
8/10/2009 10:30	Control Site	Metals	Zinc	15	I	ug/L	5	20
8/10/2009 10:30	Control Site	Nutrients	TSS	5	I	mg/L	4	16
8/10/2009 10:30	Control Site	Nutrients	Kjeldahl Nitrogen	0.71		mg N/L	0.08	0.2

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:30	Control Site	Nutrients	O-Phosphate-P	0.005	I	mg P/L	0.004	0.01
8/10/2009 10:30	Control Site	Nutrients	Total-P	0.018		mg P/L	0.004	0.01
8/10/2009 10:30	Control Site	Nutrients	Ammonia-N	0.029		mg N/L	0.01	0.02
8/10/2009 10:30	Control Site	Nutrients	NO2NO3-N	0.017		mg N/L	0.004	0.01
8/10/2009 10:30	Control Site	Nutrients	Dissolved Oxygen	5.63		mg/L		
8/10/2009 10:30	Control Site	Nutrients	pH	6.2				
8/10/2009 10:30	Control Site	Nutrients	Specific Conductance	65		umhos/cm		
8/10/2009 10:30	Control Site	Nutrients	Sample Depth	0.5		m		
8/10/2009 10:30	Control Site	Nutrients	Specific Conductance	65		umhos/cm		
8/10/2009 10:30	Control Site	Nutrients	Temperature	26.77		C		
8/10/2009 10:30	Control Site	Nutrients	Sample Depth	0.5		m		
8/10/2009 10:30	Control Site	Nutrients	Salinity			PPTh		
8/10/2009 10:30	Control Site	Nutrients	pH	6.2				
8/10/2009 10:30	Control Site	Nutrients	Salinity			PPTh		
8/10/2009 10:30	Control Site	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:30	Control Site	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:30	Control Site	Nutrients	Temperature	26.17		C		
8/10/2009 10:30	Control Site	Nutrients	Dissolved Oxygen	5.63		mg/L		
8/10/2009 10:40	Test Site	AGP/LN	Algal Growth Potential	2.91		mg DryWt/L	0.3	0.9
8/10/2009 10:40	Test Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.2	I	ug/L	0.55	1.7
8/10/2009 10:40	Test Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.97	I	ug/L	0.4	1.2
8/10/2009 10:40	Test Site	Microbiology	Fecal Coliforms-Membrane Filter	420		#/100 mL	9	9
8/10/2009 10:40	Test Site	Metals	Nickel	0.58	I	ug/L	0.25	1
8/10/2009 10:40	Test Site	Metals	Copper	1.25		ug/L	0.5	0.5
8/10/2009 10:40	Test Site	Metals	Zinc	7.4	I	ug/L	5	20
8/10/2009 10:40	Test Site	Metals	Chromium	0.63	I	ug/L	0.3	1.2
8/10/2009 10:40	Test Site	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
8/10/2009 10:40	Test Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/10/2009 10:40	Test Site	Metals	Lead	0.61	I	ug/L	0.2	0.8
8/10/2009 10:40	Test Site	Metals	Arsenic	0.49	I	ug/L	0.25	1
8/10/2009 10:40	Test Site	Metals	Magnesium	1.43		mg/L	0.04	0.16
8/10/2009 10:40	Test Site	Metals	Iron	770		ug/L	30	120
8/10/2009 10:40	Test Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/10/2009 10:40	Test Site	Metals	Aluminum	390		ug/L	60	240
8/10/2009 10:40	Test Site	Metals	Calcium	7.53		mg/L	0.075	0.3
8/10/2009 10:40	Test Site	Nutrients	NO2NO3-N	0.025		mg N/L	0.004	0.01
8/10/2009 10:40	Test Site	Nutrients	Ammonia-N	0.036		mg N/L	0.01	0.02
8/10/2009 10:40	Test Site	Nutrients	TSS	4	I	mg/L	4	16
8/10/2009 10:40	Test Site	Nutrients	O-Phosphate-P	0.007	I	mg P/L	0.004	0.01
8/10/2009 10:40	Test Site	Nutrients	Kjeldahl Nitrogen	0.72		mg N/L	0.08	0.2

Date	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
8/10/2009 10:40	Test Site	Nutrients	Total-P	0.027		mg P/L	0.004	0.01
8/10/2009 10:40	Test Site	Nutrients	Dissolved Oxygen	6.21		mg/L		
8/10/2009 10:40	Test Site	Nutrients	Salinity			PPTh		
8/10/2009 10:40	Test Site	Nutrients	Sample Depth	0.1		m		
8/10/2009 10:40	Test Site	Nutrients	Temperature	26.23		C		
8/10/2009 10:40	Test Site	Nutrients	Specific Conductance	67		umhos/cm		
8/10/2009 10:40	Test Site	Nutrients	Dissolved Oxygen	6.21		mg/L		
8/10/2009 10:40	Test Site	Nutrients	pH	6.24				
8/10/2009 10:40	Test Site	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:40	Test Site	Nutrients	pH	6.24				
8/10/2009 10:40	Test Site	Nutrients	Sample Depth	0.5		m		
8/10/2009 10:40	Test Site	Nutrients	Specific Conductance	67		umhos/cm		
8/10/2009 10:40	Test Site	Nutrients	Salinity			PPTh		
8/10/2009 10:40	Test Site	Nutrients	Total Residual Chlorine			mg/L		
8/10/2009 10:40	Test Site	Nutrients	Temperature	26.23		C		

Appendix F

Toxicological results

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia

Facility: Blountstown WWTF
Address: 16140 SE Johnson STREET
County: Blounts Town, Calhoun County, FL. 32424
NPDES Permit #: FL 0026867
Contact/District: Josie Ponton / Northwest

LIMS entry: 8.27.09 MF verified: 8.27.09 BA

Diluent/ Batch: 20% DMW / 8.10.09 Test Days Used: 0-5
20% DMW / 8.15.09 Test Days Used: 6

SOP#: TA07_05 EPA 821-R-02-013 Method 1002.0

Start Date: 8.11.09 Time: 14:11 MF from BA
End Date: 8-17-09 Time: 1430

Organism: *Ceriodaphnia dubia*
Organism Batch #: 28.09
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 1.22.09 7.23.09
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2009-08-10-18	1207522	8-10-09 1015	8-11-09 0830
Test Day 2	2	TLH-2009-08-13-30	1208729	8-12-09 1035	8-13-09 1006
Test Day 4	3	TLH-2009-08-14-53	1209111	8-14-09 0940	8-14-09 1373

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	Not	measured		<0.03	0.04	0.08	108	139	116
Diluent/Control:				<0.03	<0.03	<0.03	80	80	77
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	JS	JS	JS	JS	/BA	BA
Verified by:	MF	MF	MF	BA	BA	BA	BA	BA/MF	MF
	Conductivity (circle one) (µmhos-cm) (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	610	660	602	0.755	1.32	1.78	~~120~~ 120	~~0~~ ~~22~~ 35	~~256~~ 132 BA
Diluent/Control:	180	176	178	<0.017	<0.017	<0.017	84	84	85
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	BA	MF	MF	BA	BA	BA	JS	JS/BA	BA
Verified by:	MF	BA	BA	MF	MF	MF	BA	BA/MF	MF

Temperature Shipped ≤6° C (all samples) (yes) no * hand delivered Samples Temperature decreasing MF
Holding Time ≤36 hours yes (no)
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min. 24.9 max 27.4 mean 26.2
Room B246 min. 25.2 max 25.9 mean 25.6

Test Replicate	Loaded from culture vial
1	B6
2	A11
3	A5
4	B10
5	B13
6	B14
7	B9
8	A12
9	B23
10	B24

Statistics	
Control % CV:	16.2%
Dunnetts PMSD:	13.2%
Reproduction NOEC:	100%
Survival NOEC:	100%
T-test value	1.7801
T- table value:	1.734
df:	18

PMSD From Homoscedastic T-Test M.F. 9-1-09

Investigators' signatures
Marshall Faircloth
Jackie Sturm
Bruce Herndon
Dana Daniels
Amelia Parkin
Loretta C Wolfe
REVIEWER

Comments:

Test Page 1 of 3

PAGE 000049

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: Blount's Town

LIMS Sample # 1207522 for lab sample 1

Start Date: 8.11.09 Time: 14:00

End Date: 8-17-09 Time: 1430

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	1	0	5	0	0	10	10	1
	4	3	2	0	3	3	0	3	0	5	5	24	10	2.4
	5	11	8	9	9	10	9	10	11	10	8	95	10	9.5
	6	14	12	14	20	5	10	11	15	13	11	120	10	12.0
	7				15 (A)									
	8													
	Total	28	22	32	27	18	20	24	31	28	24	249	10	24.9

Organisms loaded by: BA	
Day	Counted/ verified by:
0	JD by MF
1	BA
2	MF
3	JS by MF
4	MF
5	MF
6	MF
7	
8	

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100% sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	4	0	4	0	0	6	0	0	14	10	1.4
	4	4	3	0	6	0	4	4	0	4	6	31	10	3.1
	5	9	10	9	10	9	0	9	10	10	12	88	10	8.8
	6	16	12	13	16	15	13	16	15	14	14	144	10	14.4
	7													
	8													
	Total	29	25	26	32	28	17	29	31	28	32	277	10	27.7

Concentration	Mean neonates /adult	% survival
Control	24.9	100 %
100%	27.7	100%

Test acceptability	
Mean control reproduction 15/female	(yes) no
3rd brood in 60% of surviving females	(yes) no
Control survival ≥80%:	(yes) no

Comments: (A) 8-17-09 Transcription error with 6 in 4 per MF

*Day 0 is test initiation day

X = Dead (original organism)

Revised 08/2 /06 MF/SP

000050

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Bloomsdown

LIMS Sample # : 1207522 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	New Sample: pH (su)	New Sample: Temp (°C)	New Sample: DO (mg/L)	New Sample: Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	Old Sample: pH (su)	Old Sample: Temp (°C)	Old Sample: DO (mg/L)	Old Sample: Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample: Control		M	7.8	24.0	7.6	180					
	1	100%	M	7.5	25.4	5.8	610					
	Measured by:			BA	BA	BA	BA					
	Recorded by:			BA	BA	BA	BA					
Day 1	sample: Control		M	8.0	24.1	7.4	195	M	7.9	24.0	6.8	220
	1	100%	M	7.6	25.4	6.4	616	M	8.2	24.0	7.2	610
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample: Control		M	8.0	24.9	7.7	176	M	8.1	24.6	7.6	195
	2	100%	M	7.5	25.3	5.8	660	M	8.3	24.1	7.8	665
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample: Control		M	7.5	24.3	7.5	176.1	M	8.0	25.5	7.9	175
	2	100%	M	7.4	25.2	6.1	648	M	8.4	25.5	8.0	651
	Measured by:			gg	gg	gg	gg		MF	MF	MF	MF
	Recorded by:			gg	gg	gg	gg		MF	MF	MF	MF
Day 4	sample: Control		M	8.2	24.4	7.6	178	M	8.2	25.0	7.5	200
	3	100%	M	7.6	24.8	6.8	602	M	8.3	24.7	7.7	690
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample: Control		M MF	8.0	24.1	7.9	177	M	8.3	25.0	7.9	184
	3	100%	M	7.6	24.9	6.6	610	M	8.4	25.1	8.0	596
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	sample: Control		M					M	8.1	23.9	7.6	197.9
	3	100%	M					M	8.3	24.5	7.7	680
	Measured by:				Not	Renewed			gg	gg	gg	gg
	Recorded by:								Not	Not	Not	Not
Day 7	sample: Control		M					M				
	3		M					M				
	Measured by:											
	Recorded by:											
Day 8	sample: Control							M				
	3							M				
	Measured by:											
	Recorded by:											

Comments:

Replicate M= "Metered" vial, a surrogate vial for parameters

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Blountstown WWTF
Address: 16140 SE Johnson Street
County: Blountstown, Calhoun County, Fl 32424
NPDES Permit #: FL 00 26867
Contact/District: Josie Penton / Northwest

Test Species (circle one)
(P. promelas) SOP#: TA07_09 EPA-821-R-02-013 Method 1000.0
M. beryllina SOP#: TA07_14 EPA-821-R-02-014 Method 1006.0

Start Date: 8-11-09 Time: 1400
End Date: 8-18-09 Time: 0930

Diluent/ Batch:
MHW / 8-10-09 Test Days Used: 0-6
MHW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____

Organism Batch # : 8-11-09
Feeding Prior to Test and Daily
Artemia Lot # : 38438
Chamber size : 1000 ml
Test volume : 500 ml

Organism age : <48 ~~days~~ hours

Artemia Batch #		Day 3	110-09
Day 0	107-09	Day 4	111-09
Day 1	108-09	Day 5	112-09
Day 2	109-09	Day 6	113-09

LIMS:	Date	Initials
Entry:		
Verification	8.27.09	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH- 2009-08-10-18	1207522	8-10-09 1015	~~8/10/09 1340~~ MF wrote Backhouse info 8-11-09 0830
Test Day 2	2	TLH- 2009-08-13-30	1208729	8-12-09 1035	8/13/09 1006
Test Day 4	3	TLH- 2009-08-14-53	1209111	8-14-09 0940	8-14-09 1313

Water Quality Parameters	Batch # 8-10-09 ☑ MHW ☐ ASW	☐ MHW ☐ ASW	NA Sample 1	NA Sample 2	NA Sample 3	Other:	Measured by:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	Not measured				—	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	0.04	0.08	~~BDL~~	JD/JS	MF
Alkalinity (mg/L as $CaCO_3$):	77		119	139	116		JS/BA	MF
Hardness (mg/L as $CaCO_3$):	93		120	135	132		JS/BA	MF
Total Ammonia (mg/L as N):	<0.017		0.755	1.32	1.78		BA	MF
Conductivity: (umhos) mmhos:	385		614	633	605		JD/BA	MF
Salinity (ppth):	—		—	—	—	—	—	—

Temperature Shipped ≤6° C (all samples) (yes) no * hand delivered cooling MF
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark

Temperature Range °C: (if used)
Incubator # 3 min 24.9 max. 27.5 mean 26.2
Water bath # ____ min.____ max.____ mean____
Room B246 min 25.2 max 25.9 mean 25.6

Test Incubated in: ☑ Incubator #: 3 ☐ Waterbath #:____

Investigators' signatures
James Daniels
Marshall Fairchetts
Jackie Swinn
Brad Hicks

REVIEWER Loretta C. Wolfe

Statistics	
Control %cv:	7.5%
Dunnetts PMSD:	13.7%
Survival NOEC:	100%
Survival LOEC:	NA
Growth NOEC:	NA
Growth LOEC:	10%

Comments:

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: Blountstown WWTF

Organism: (*P. promelas*) *M.beryllina* (circle one)

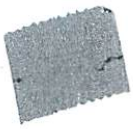
LIMS Sample Number: 1207522 for lab sample #1

Start Date: 8-11-09 Time: 1400

End Date: 8-18-09 Time: 0930

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	10	10	10	10	9 10
	B	10	10	10	10	10	10	10	10
	C	10	9 10	9	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
100 % sample concentration	A	10	9 10	9	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Control	A	10							
	B	10							
	C	10							
	D	10							
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	BA	BA	BA	BA	MF
Verified by: BA									

Comments:



FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: Bountstown WWTF

LIMS Sample Number: 120752 for lab sample #1

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # Fish	Mean wt. (mg)
			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control	A	1	0.02217	0.02942	0.00725	10	.725
	B	2	0.02128	0.02782	0.00654	10	.654
	C	3	0.02153	0.02915	0.00762	10	.762
	D	4	0.02055	0.02714	0.00659	10	.659
100 % sample	A	5	0.02294	0.02776	0.00482	10	.482
	B	6	0.02312	0.02756	0.00444	10	.444
	C	7	0.02081	0.02657	0.00576	10	.576
	D	8	0.02288	0.02906	0.00618	10	.618
Control	A					10	
	B					10	
	C					10	
	D					10	
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:						

Growth	%CV	PMSD
Control	7.499	13.7

Growth	Table	Calculated	dF
T-test	1.94300	3.53032	6

sediment oven 603101654

Drying	8-18-09
Temperature °C:	104°C.
Hours:	7

S-weight ID: BIO-S-WEIGHTS-01

Balance ID: OHAUS 250D SER. 1125481084

Tare Weighing Date: 8.13.09/JD Final Weighing Date: 8.19.09/JD

			Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02219	@ 0.02217	S-weights	@	0.01
Tare Pan 1 after Pan 8 (g)	0.02221	@ 0.02217	at tare	@	0.03
Final Pan 1 after Pan 5 (g)	0.02940	@ 0.02942	S-weights	@	0.01
Final Pan 1 after Pan 8 (g)	0.02943	@ 0.02942	at final	@	0.05
			0.05004		

Comments:

Bioassay Instrument ID

Test ID: Blountstown WWTF Dates: August 11-18, 2009

METER / DEVICE	ID	SOP	Parameter	Method	√used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	(Conductivity) Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Thermometer (DO probe)	YSI 5750 SN 05J1720	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓
Drying Oven	Sediment 603/01654				✓

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.

Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

entered by M. Faircloth 8-19-09

V 1.1 6/12/08 MF

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 8/10/09

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	100	4 DAYS	MS090806	25°C	8.0 s.u.	20‰
Menidia beryllina	100	12 DAYS	SS090729	25°C	8.0 s.u.	20‰
						Hardness
Cyprinella leedsi						
Pimephales promelas	8/10/09 4350	C24hrs	FM090809-1530	25°C	7.8 s.u.	80mg/L

Packed by: _____

Shipped Via: FedEx

Notes: _____

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix G

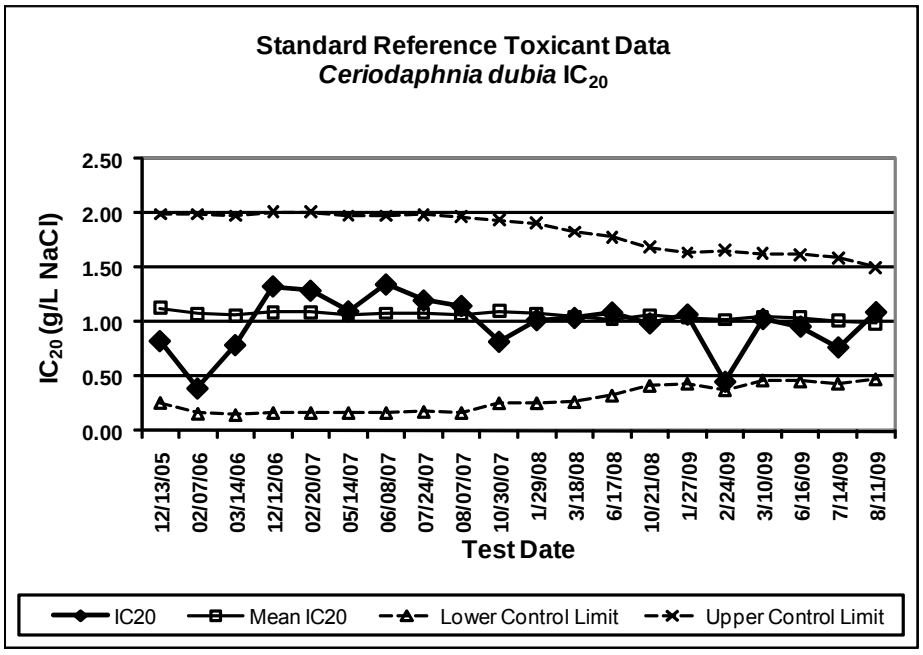
Standard Reference Toxicant Data

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit	Date
12/13/05	0.83	1.13	0.43	0.26	1.99	12/13/05
02/07/06	0.39	1.08	0.46	0.16	1.99	02/07/06
03/14/06	0.79	1.06	0.46	0.15	1.98	03/14/06
12/12/06	1.33	1.09	0.46	0.17	2.01	12/12/06
02/20/07	1.29	1.09	0.46	0.17	2.01	02/20/07
05/14/07	1.10	1.07	0.45	0.17	1.98	05/14/07
06/08/07	1.35	1.08	0.45	0.17	1.98	06/08/07
07/24/07	1.20	1.08	0.45	0.18	1.99	07/24/07
08/07/07	1.15	1.07	0.45	0.17	1.97	08/07/07
10/30/07	0.82	1.10	0.42	0.26	1.94	10/30/07
1/29/08	1.02	1.08	0.41	0.26	1.91	1/29/08
3/18/08	1.04	1.05	0.39	0.27	1.83	3/18/08
6/17/08	1.09	1.02	0.36	0.33	1.78	6/17/08
10/21/08	0.99	1.06	0.32	0.42	1.69	10/21/08
1/27/09	1.07	1.04	0.30	0.44	1.64	1/27/09
2/24/09	0.45	1.02	0.32	0.38	1.66	2/24/09
3/10/09	1.03	1.05	0.29	0.47	1.63	3/10/09
6/16/09	0.96	1.04	0.29	0.46	1.62	6/16/09
7/14/09	0.77	1.01	0.29	0.44	1.59	7/14/09
8/11/09	1.09	0.99	0.26	0.48	1.50	8/11/09

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

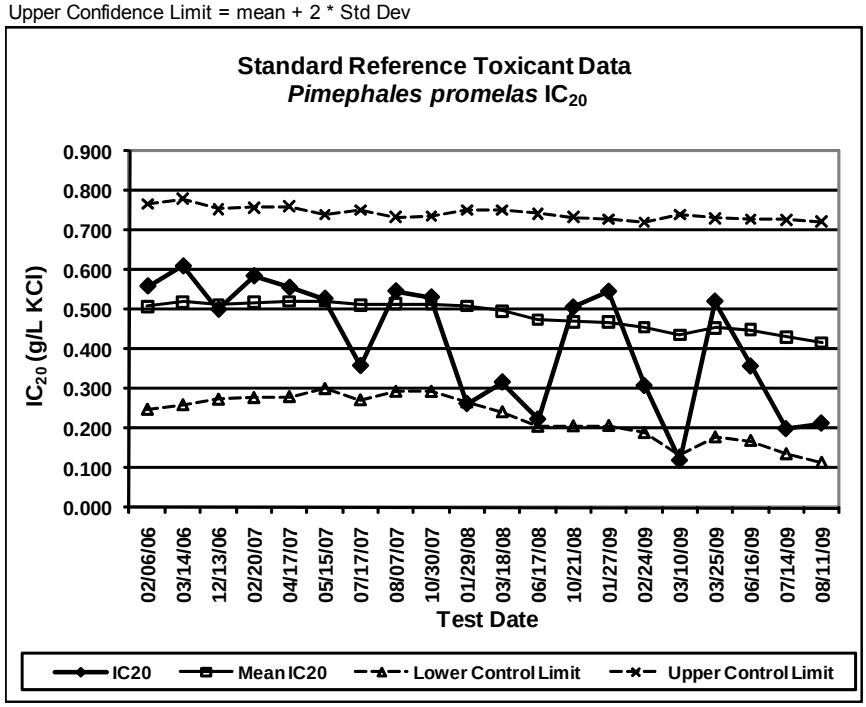


Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Pimephales promelas (fathead minnow) - Potassium Chloride (KCl)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit	Date
02/06/06	0.559	0.508	0.13	0.248	0.767	02/06/06
03/14/06	0.610	0.520	0.13	0.260	0.780	03/14/06
12/13/06	0.501	0.514	0.12	0.274	0.754	12/13/06
02/20/07	0.585	0.518	0.12	0.278	0.758	02/20/07
04/17/07	0.556	0.521	0.12	0.281	0.761	04/17/07
05/15/07	0.528	0.521	0.11	0.301	0.741	05/15/07
07/17/07	0.358	0.513	0.12	0.273	0.753	07/17/07
08/07/07	0.547	0.514	0.11	0.294	0.734	08/07/07
10/30/07	0.531	0.515	0.11	0.294	0.736	10/30/07
01/29/08	0.263	0.509	0.12	0.267	0.752	01/29/08
03/18/08	0.317	0.497	0.13	0.242	0.752	03/18/08
06/17/08	0.223	0.474	0.13	0.205	0.743	06/17/08
10/21/08	0.506	0.470	0.13	0.206	0.734	10/21/08
01/27/09	0.546	0.468	0.13	0.207	0.729	01/27/09
02/24/09	0.308	0.455	0.13	0.189	0.721	02/24/09
03/10/09	0.119	0.437	0.15	0.132	0.741	03/10/09
03/25/09	0.521	0.455	0.14	0.178	0.731	03/25/09
06/16/09	0.357	0.449	0.14	0.169	0.729	06/16/09
07/14/09	0.199	0.432	0.15	0.135	0.728	07/14/09
08/11/09	0.213	0.417	0.15	0.113	0.722	08/11/09

Means are from all SRT tests, up to 20 tests..
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev



Appendix H

Physical/Chemical and Habitat Assessment field sheets

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 8/10/09	TIME: 9:30	RECEIVING BODY OF WATER: Apalachicola river	
REMARKS:	COUNTY: Calhoun	LOCATION: Blountstown WWTP control	FIELD ID/NAME: Control - Upstream		

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		10	

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: ≥ 10 m

LIST & MAP DOMINANT VEGETATION ON BACK

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

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

HIGH WATER MARK: 1 (m above present water level) + 1.5 (present depth in m) = 2.5 (m above bed)

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

8 m wide

m/s	0.05 m/s	m/s
m deep	1.5 m deep	m deep

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

SEDIMENT/SUBSTRATE

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

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

SEDIMENT DEPOSITION: SLUDGE: ☐ SAND SMOTHERING: NONE / 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)		IIII 7		SAND			
LEAF PACKS OF MATS				MUD/MUCK/SILT		6 IIII	
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS		IIII 7		DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
TOP								
MID-DEPTH	.944	26.11	6.20	5.63	65 us			
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: Sunny / Clear

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

SAMPLING TEAM: J. Ray, T. Rink, H. Walters, J. Woods

SIGNATURE: Jonathon D Ray

DATE: 8/10/09

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

00%

5%

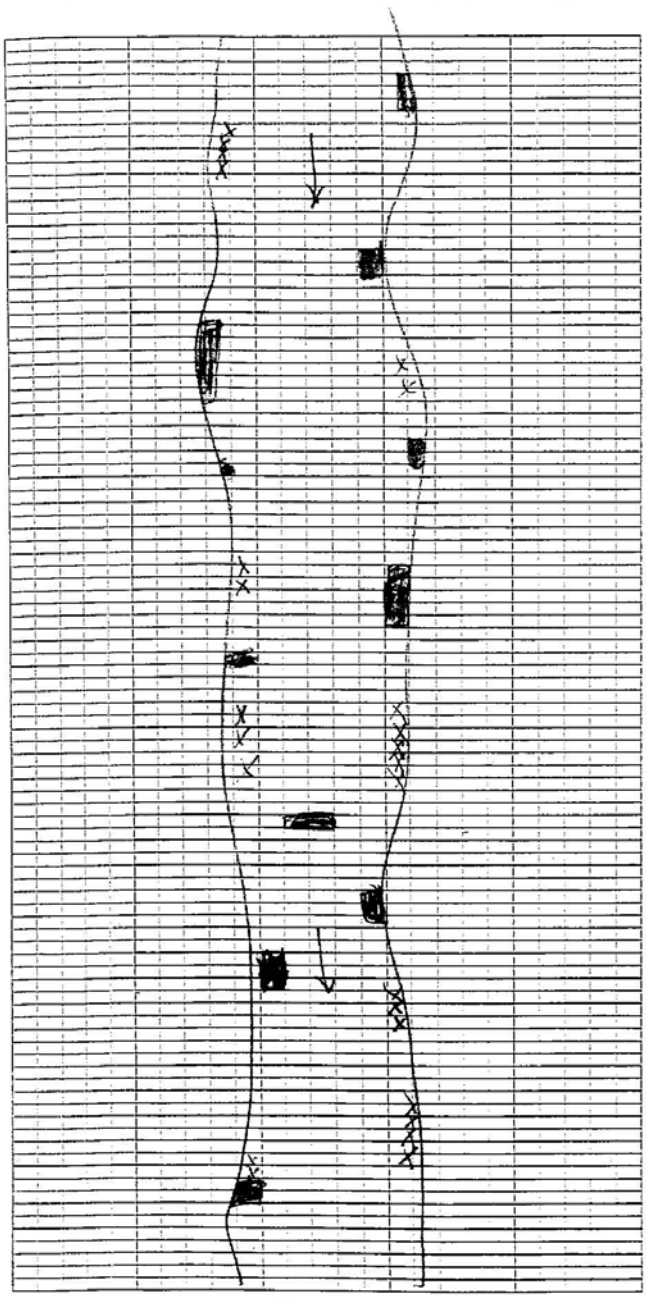
Left Bank

50%

Left Bank

25%

0%



Downstream

Substrates: Code key, draw proportionate habitat abundance.

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

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

Root - 𝍸 11
Snag - 𝍸 11
Bottom - 𝍸 1

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): 08/10/09	RECEIVING BODY OF WATER: Apalachicola River
REMARKS:	COUNTY: Calhoun	LOCATION: Blountstown WWTP control	FIELD ID/NAME: Control site - upstream

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 7	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 (7) 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 7	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 4	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 8 Primary Score 26	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 (8) 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern (20) 19 18 17 16	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, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	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 7 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 9 Left Bank 7 Secondary Score 73	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

91 TOTAL SCORE

ANALYSIS DATE: 8/10/09	ANALYST: J. Ray T. Rish	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:
		8/6/09	9.40	Apalachicola

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Calhoun	Blountstown WWTP Test Site	Test Site Downstream

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	10		

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

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT: 4 m wide

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

ARTIFICIALLY IMPOUNDED ☐ yes ☐ more sinuous

	m/s	0.25 m/s	m/s
	m deep	0.5 m deep	m deep

HIGH WATER MARK: 1.5 + .5 = 2.0

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

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

SEDIMENT/SUBSTRATE

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

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

SEDIMENT DEPOSITION: SLUDGE: ☐ SAND SMOTHERING: NONE 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)		7		SAND		6	
LEAF PACKS OF MATS				MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS		7		DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	pH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
TOP								
MID-DEPTH	0.462	26.23	6.24	6.21	69 ps			
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: Sunny/Clear

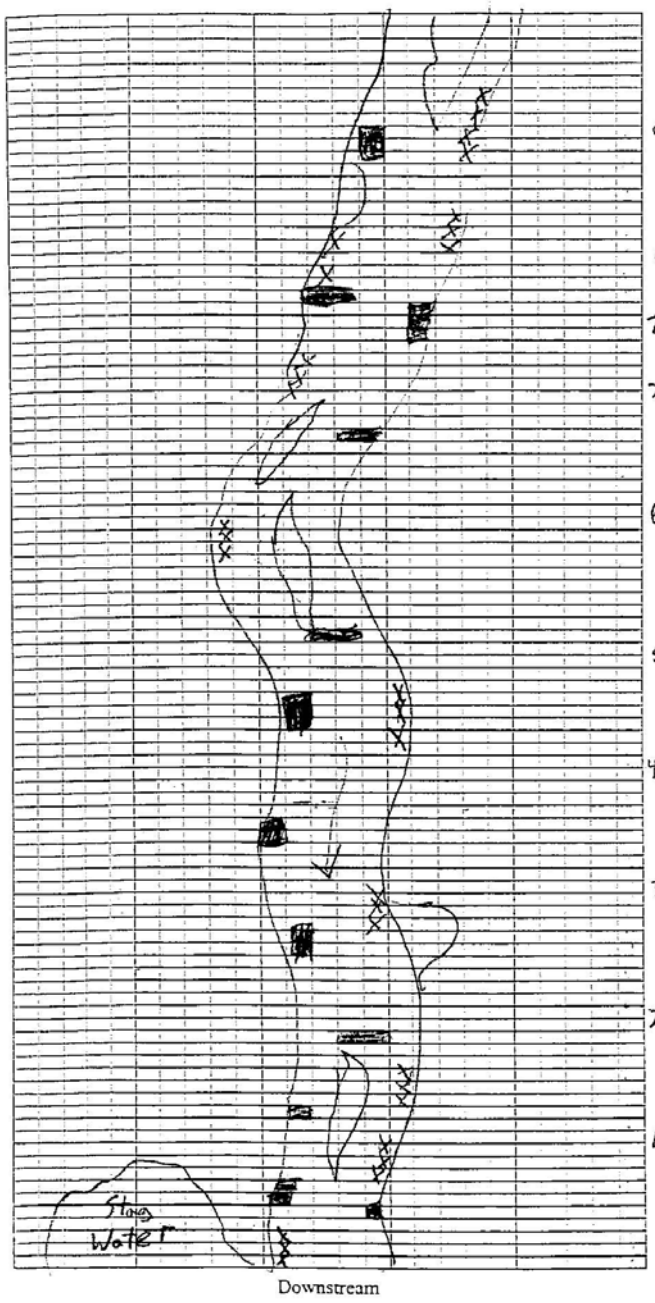
ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☐	☐	☑
FISH	☐	☐	☐	☑
AQUATIC MACROPHYTES	☑	☐	☐	☐
IRON/SULFUR BACTERIA	☑	☐	☐	☐

SAMPLING TEAM: J. Ray, T. Risk, H. Walters, J. Woods

SIGNATURE: D. Ray

DATE: 8/10/09

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



Substrates: Code key, draw proportionate habitat abundance.

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

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

Snags – ||||/ ||
Roots – ||||/ ||
Sand – ||||/ |

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:
		8/10/09	Apalachicola River

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Calhoun	Blountstown WWTP	Test Site Downstream

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 9	Four or more productive habitats present [snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 (9) 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 12	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 13 Primary Score 45	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 (13) 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern (20) 19 18 17 16	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, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 9 Left Bank 10	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 9 Left Bank 9 Secondary Score 17	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

122 TOTAL SCORE

ANALYSIS DATE:	ANALYST:	SIGNATURE:
8/10/09	J Ray T. Risk	

Appendix I-1

Wet ID taxa list and number of algal units counted to a target of 300 natural units for qualitative natural periphyton collections made from Blountstown WWTP facility on 8/10/09.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyta	282	212
Chlorophyceae		
Ankistrodesmus falcatus	-	1
Chlorococcum humicola	-	1
Cosmarium sp.	3	1
Desmidium quadrangulatum	-	2
Micrasterias pinnatifida pinnatifida	-	1
Oedogonium sp.	-	1
Scenedesmus bijuga	-	1
Scenedesmus dimorphus	-	36
Scenedesmus quadricauda	1	-
Cryptophyceae		
Cryptomonas sp.	-	2
Cyanophyceae		
Aphanocapsa sp.	-	3
Cyanosarcina sp.	-	1
Cyanothece aeruginosa	1	-
Jaaginema sp.	6	12
Myxosarcina amethystina	-	1
Planktolyngbya sp.	1	-
Planktothrix sp.	1	2
Pseudanabaena sp.	-	1
Schizothrix calcicola	5	18
Synechocystis sp.	-	5
Euglenophyceae		
Strombomonas urceolata	1	-

Appendix I-2

Diatom taxa list and number of valves counted to a target of 500 valves for qualitative periphyton collected from Blountstown WWTP facility on 8/10/09.

	Control Site	Test Site
Achnanthales		
Achnanthidium sp.	24	24
Achnanthidium exiguum	12	26
Achnanthidium minutissimum	19	16
Cocconeis sp.	15	-
Planothidium sp.	-	1
Planothidium apiculatum	5	2
Planothidium lanceolatum	1	3
Planothidium rostratum	-	9
Psammothidium subatomoides	1	2
Bacillariales		
Nitzschia sp.	54	61
Nitzschia amphibia	-	6
Nitzschia clausii	1	4
Nitzschia nana	1	4
Bacillariophyceae		
Undetermined Bacillariophyceae	10	1
Cymbellales		
Cymbella sp.	1	-
Encyonema sp.	3	-
Encyonema lunatum	2	-
Encyonema neomesianum	1	-
Encyonema silesiacum	2	5
Gomphonema sp.	6	1
Gomphonema acuminatum	1	2
Gomphonema clevei	6	-
Gomphonema parvulum	4	1
Placoneis sp.	2	-
Placoneis elginensis	2	-
Eunotiales		
Eunotia sp.	56	39
Eunotia bilunaris	17	3
Eunotia flexuosa	5	1
Eunotia monodon	-	1
Eunotia naegelii	4	3
Eunotia pectinalis undulata	4	4
Eunotia rhomboidea	2	-

Appendix I-2 (continued)

	Control Site	Test Site
Fragilariales		
Fragilaria capucina	4	1
Synedra nana	1	-
Synedra ulna	-	2
Tabularia fasciculata	1	-
Undetermined Fragilariaceae	2	17
Naviculales		
Brachysira microcephala	4	3
Brachysira vitrea	3	4
Capartogramma crucicula	6	-
Chamaepinnularia	4	-
Chamaepinnularia minutissima	1	-
Craticula sp.	1	-
Diadesmis confervacea	-	6
Diadesmis contenta	61	9
Fallacia sp.	5	-
Frustulia sp.	8	16
Geissleria decussis	1	-
Hippodonta sp.	2	-
Hippodonta capitata	-	1
Hippodonta hungarica	1	1
Kobayasiella sp.	3	1
Mayamaea atomus	4	-
Navicula sp.	29	37
Navicula cryptocephala	3	1
Navicula germainii	1	-
Navicula longicephala	6	1
Navicula minima	15	22
Neidium sp.	-	3
Nupela sp.	13	50
Nupela neotropica	5	30
Pinnularia sp.	14	26
Sellaphora pupula	3	1
Sellaphora seminulum	4	30
Stauroneis sp.	1	-
Stauroneis anceps	-	1
Undetermined Naviculaceae	11	7

Appendix I-2 (continued)

	Control Site	Test Site
Rhopalodiales		
Rhopalodia sp.	1	-
Tabellariales		
Tabellaria sp.	20	11
Thalassiosirales		
Cyclotella meneghiniana	1	1

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Blountstown WWTP facility and collected on 8/10/09. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Hirudinea		
Rhynchobdellida		
Helobdella stagnalis	-	4
Annelida		
Oligochaeta		
Haplotaxida		
Bratislavia unidentata	-	9
Dero digitata complex	-	9
Nais communis complex	-	60
Slavina appendiculata	4	-
Undetermined Enchytraeidae	-	2
Arthropoda		
Arachnida		
Acariformes		
Lebertia sp.	2	-
Crustacea		
Amphipoda		
Hyalella azteca	26	455
Insecta		
Coleoptera		
Ancyronyx variegatus	-	2
Dineutus sp.	-	18
Dubiraphia vittata	2	-
Diptera		
Ablabesmyia mallochi	-	2
Ablabesmyia rhamphe grp.	18	15
Atrichopogon sp.	-	2
Chironomus sp.	-	82
Cryptochironomus sp.	2	-
Dicrotendipes simpsoni	7	50
Labrundinia pilosella	-	7
Larsia sp.	7	2

Appendix J-1 (continued)

	Control Site	Test Site
Diptera		
Nilothauma sp.	27	2
Odontomyia sp.	-	2
Palpomyia/bezzia grp.	50	4
Parachironomus carinatus	-	11
Parakiefferiella sp. f epler	4	-
Paratanytarsus sp.	-	2
Pentaneura inconspicua	2	11
Polypedilum beckae	-	2
Polypedilum fallax	2	9
Polypedilum flavum	10	7
Polypedilum illinoense grp.	-	28
Polypedilum scalaenum grp.	10	20
Rheotanytarsus exiguus grp.	5	48
Rheotanytarsus pellucidus	48	265
Stenochironomus sp.	4	4
Tanytarsus sp. a epler	3	-
Tanytarsus sp. c epler	6	11
Tanytarsus sp. t epler	6	-
Thienemanniella lobapodema	2	-
Thienemannimyia grp.	-	7
Tribelos fuscicornis	-	7
Ephemeroptera		
Caenis sp.	18	8
Stenacron interpunctatum	68	101
Odonata		
Argia tibialis	16	4
Enallagma concisum	3	-
Enallagma weewa	3	-
Pachydiplax longipennis	-	2
Undetermined Libellulidae	2	-
Trichoptera		
Cheumatopsyche sp.	-	24
Hydroptila sp.	-	2
Oecetis georgia	2	2
Orthotrichia sp.	4	2

Appendix J-1 (continued)

	Control Site	Test Site
Mollusca		
Bivalvia		
Undetermined Bivalvia	-	2
Veneroida		
Corbicula fluminea	4	-
Gastropoda		
Basommatophora		
Micromenetus	50	32
Undetermined Ancylidae	16	159
Nemertea		
Enopla		
Hoplonemertea		
Prostoma sp.	-	2

Appendix J-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples) incubated upstream and downstream of the Blountstown WWTP facility for 28 days and collected on 8/10/09.

	Control Site	Test Site
Annelida		
Hirudinea		
Rhynchobdellida		
Helobdella stagnalis	-	2
Oligochaeta		
Haplotaxida		
Bratislavia unidentata	-	3
Dero digitata complex	-	3
Nais communis complex	-	21
Slavina appendiculata	2	-
Undetermined Enchytraeidae	-	1
Undetermined Naididae	-	12
Arthropoda		
Arachnida		
Acariformes		
Lebertia sp.	1	-
Crustacea		
Amphipoda		
Hyalella azteca	13	229
Insecta		
Coleoptera		
Ancyronyx variegatus	-	1
Dineutus sp.	-	9
Dubiraphia vittata	1	-
Diptera		
Ablabesmyia mallochi	-	1
Ablabesmyia rhamphe grp.	8	7
Atrichopogon sp.	-	1
Chironomus sp.	-	38
Cryptochironomus sp.	1	-
Dicrotendipes sp.	-	1
Dicrotendipes simpsoni	3	22
Labrundinia pilosella	-	3
Larsia sp.	3	1

Appendix J-2 (continued)

	Control Site	Test Site
Diptera		
Nilothauma sp.	12	1
Odontomyia sp.	-	1
Palpomyia/bezzia grp.	25	2
Parachironomus carinatus	-	5
Parakiefferiella sp. f epler	1	-
Parakiefferiella sp. f epler	1	-
Paratanytarsus sp.	-	1
Pentaneura inconspicua	1	5
Polypedilum sp.	1	-
Polypedilum beckae	-	1
Polypedilum fallax	1	4
Polypedilum flavum	4	3
Polypedilum illinoense grp.	-	13
Polypedilum scalaenum grp.	4	9
Rheotanytarsus sp.	1	-
Rheotanytarsus exiguus grp.	2	22
Rheotanytarsus pellucidus	21	123
Stenochironomus sp.	2	2
Tanytarsus sp.	2	-
Tanytarsus sp. a epler	1	-
Tanytarsus sp. c epler	2	5
Tanytarsus sp. t epler	2	-
Thienemanniella lobapodema	1	-
Thienemannimyia grp.	-	3
Tribelos fuscicornis	-	3
Undetermined Chironomidae	8	24
Ephemeroptera		
Caenis sp.	9	4
Stenacron sp.	10	37
Stenacron interpunctatum	23	11
Undetermined Heptageniidae	1	3
Odonata		
Argia sp.	6	1
Argia tibialis	2	1
Enallagma sp.	1	-
Enallagma concisum	1	-
Enallagma weewa	1	-
Pachydiplax longipennis	-	1
Undetermined Libellulidae	1	-

Appendix J-2 (continued)

	Control Site	Test Site
Trichoptera		
Cheumatopsyche sp.	-	5
Hydroptila sp.	-	1
Oecetis georgia	1	1
Orthotrichia sp.	2	1
Undetermined Hydropsychidae	-	7
Mollusca	-	1
Bivalvia		
Undetermined Bivalvia		
Veneroida		
Corbicula fluminea	2	-
Gastropoda		
Basommatophora		
Micromenetus sp.	25	16
Undetermined Ancylidae	8	80
Nemertea		
Enopla		
Hoplonemertea		
Prostoma sp.	-	1

Appendix K-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Blountstown WWTP facility on 8/10/09. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Hirudinea				
Undetermined Hirudinea	-	-	1	-
Oligochaeta				
Haplotaxida				
Allonais inaequalis	-	-	-	1
Bratislavia unidentata	-	-	1	1
Nais communis complex	-	-	1	1
Undetermined Tubificidae	-	1	4	2
Lumbriculida				
Lumbriculus variegatus	-	-	1	-
Arthropoda				
Arachnida				
Acariformes				
Unionicola sp.	-	1	-	-
Crustacea				
Amphipoda				
Hyalella azteca	2	7	69	75
Insecta				
Coleoptera				
Dineutus sp.	-	1	-	1
Dubiraphia vittata	3	7	2	-
Diptera				
Ablabesmyia rhamphe grp.	-	-	-	1
Chironomus sp.	-	-	-	1
Dicrotendipes simpsoni	1	2	1	-
Paratanytarsus sp.	-	-	1	-
Polypedilum fallax	1	1	-	-
Polypedilum flavum	-	-	2	3
Polypedilum illinoense grp.	-	-	1	-
Procladius (holotanypus)	-	1	-	-
Rheotanytarsus exiguus grp.	-	-	15	17
Rheotanytarsus pellucidus	-	-	17	19
Stenochironomus sp.	-	7	2	1
Tanytarsus sp. c epler	-	-	-	1
Tanytarsus sp. m epler	-	1	-	-
Ephemeroptera				
Caenis sp.	1	4	-	-
Stenacron sp.	-	1	-	-

Appendix K-1 (continued)

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Megaloptera				
Undetermined Sisyridae	-	4	-	-
Odonata				
Enallagma sp.	-	-	-	4
Progomphus sp.	-	-	-	1
Undetermined Coenagrionidae	2	7	6	-
Undetermined Libellulidae	1	4	1	-
Trichoptera				
Ceraclea sp.	-	3	-	-
Cheumatopsyche sp.	-	-	9	12
Hydroptila sp.	-	1	-	-
Oecetis sp.	-	2	-	1
Triaenodes sp.	-	2	-	-
Mollusca				
Bivalvia				
Veneroida				
Corbicula fluminea	-	-	6	10
Undetermined Sphaeriidae	3	4	3	1
Gastropoda				
Basommatophora				
Micromenetus sp.	3	5	1	-
Physa sp.	-	1	-	-
Undetermined Ancylidae	2	-	3	3
Mesogastropoda				
Amnicola sp.	133	76	-	1

Appendix K-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Blountstown WWTP facility on 8/10/09.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Hirudinea				
Undetermined Hirudinea	-	-	1	-
Annelida				
Oligochaeta				
Haplotaxida				
Allonais inaequalis	-	-	-	1
Bratislavia unidentata	-	-	1	1
Nais communis complex	-	-	1	1
Undetermined Tubificidae	-	1	4	2
Lumbriculida				
Lumbriculus variegatus	-	-	1	-
Arthropoda				
Arachnida				
Acariformes				
Unionicola sp.	-	1	-	-
Crustacea				
Amphipoda				
Hyalella azteca	2	7	69	75
Insecta				
Coleoptera				
Dineutus sp.	-	1	-	1
Dubiraphia vittata	3	7	2	-
Diptera				
Ablabesmyia rhamphe grp.	-	-	-	1
Chironomus sp.	-	-	-	1
Dicrotendipes simpsoni	1	2	1	-
Paratanytarsus sp.	-	-	1	-
Polypedilum fallax	1	1	-	-
Polypedilum flavum	-	-	2	2
Polypedilum illinoense grp.	-	-	1	-
Procladius (holotanypus)	-	1	-	-
Rheotanytarsus exiguus grp.	-	-	13	13
Rheotanytarsus pellucidus	-	-	14	14
Stenochironomus sp.	-	5	2	1
Tanytarsus sp. c epler	-	-	-	1
Tanytarsus sp. m epler	-	1	-	-
Undetermined Chironomidae	-	2	5	10

Appendix K-2 (continued)

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Ephemeroptera				
Caenis sp.	1	4	-	-
Stenacron sp.	-	1	-	-
Megaloptera				
Undetermined Sisyridae	-	4	-	-
Odonata				
Enallagma	-	-	-	1
Progomphus	-	-	-	1
Undetermined Coenagrionidae	2	7	6	3
Undetermined Libellulidae	1	4	1	-
Trichoptera				
Ceraclea sp.	-	3	-	-
Cheumatopsyche sp.	-	-	8	12
Hydroptila sp.	-	1	-	-
Oecetis sp.	-	2	-	1
Triaenodes sp.	-	2	-	-
Undetermined Hydropsychidae	-	-	1	-
Mollusca				
Bivalvia				
Veneroida				
Corbicula fluminea	-	-	6	10
Undetermined Sphaeriidae	3	4	3	1
Gastropoda				
Basommatophora				
Micromenetus sp.	3	5	1	-
Physa sp.	-	1	-	-
Undetermined Ancylidae	2	-	3	3
Mesogastropoda				
Amnicola sp.	133	76	-	1

The Bioassay of the Blountstown WWTF effluent sampled on August 10, 2009 NPDES #FL0026867

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 2 6 8 6 7 11 12	0 9 0 8 1 0	# B	# S	# 1

Remarks

#

The Priority Pollutants Analysis for Bioassay of the Blountstown WWTF effluent sampled on August 10, 2009, NPDES #FL0026867

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 2 6 8 6 7 11 12	0 9 0 8 1 0	# X	# S	# 1

Remarks

#

Biological Analyses of the Blountstown WWTF effluent sampled on August 10, 2009, NPDES #FL0026867

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 2 6 8 6 7 11 12	0 9 0 8 1 0	# S	# S	# 1

Remarks