Biological Assessment of

Bonifay Wastewater Treatment Facility

Holmes County

NPDES #FL0027731

Sampled June 10-14, 2012 and July 9, 2012

November 2012

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

NELAC Certification No. E31780

CONTENTS

Facility Overview

Methods

Results

Conclusion

Literature Cited

Tables

Table 1	Effluent limits, Class III Freshwater Criteria and chemical, microbiological and toxicological data.
Table 2	Effluent limits, Class III Freshwater Criteria and metals data.
Table 3	Measured and predicted algal growth potential (AGP)
Table 4	Periphyton composition - Qualitative
Table 5	Macroinvertebrate dipnet samples - Qualitative
Table 6	Bonifay WWTF Discharge Monitoring Report Violations for 1 Year Prior to Sampling

Appendices

Appendix A	Map of facility
Appendix B	Facility summary
Appendix C	Explanation of measurements
Appendix D	Chain of Custody
Appendix E	Physical/Chemical and Habitat Assessment field sheets
Appendix F	Chemical analyses of effluent and receiving water
Appendix G	Toxicological results
Appendix H	Standard Reference Toxicant Data
Appendix I-1	Qualitative periphyton – wet algal taxa list and number of algal units counted
Appendix I-2	Qualitative periphyton – diatom taxa list and number of diatom valves counted
Appendix J-1	Dipnet sweep macroinvertebrate samples: collapsed taxa list and number of individuals counted by replicate
Appendix J-2	Dipnet sweep macroinvertebrate samples: taxa list and number of individuals counted

EPA End Sheet

Facility Overview

The Bonifay Wastewater Treatment Facility is a Municipal Domestic Wastewater Treatment Facility. The effluent is discharged into Camp Branch Creek, a Class III Fresh Water (see map Appendix A). The design flow of the wastewater system is 1.4 million gallons per day (MGD) monthly average daily flow (MADF). The annual average flow for June 2011 to May 2012 was 0.629 MGD. The flow measured on June 11, 2012 was 1.015 MGD (Bonifay WWTF staff).

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.

See the Facility Summary (Appendix B) for a description of the facility, summary of permit limits, and Administrative Order (AO060NW). The Discharge Monitoring Report (DMR) information (Table 6) immediately follows the Facility Summary.

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 Camp Branch beginning 50 m upstream of the point of discharge and ending 150 m upstream of the point of discharge) and a Test Site (located in Camp Branch beginning 150 m downstream of the point of discharge and ending 50 m downstream of the point of discharge). Effluent samples for all analyses were taken as composite samples from monitoring location EFD-01, after dechlorination.

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

The following were involved in this investigation: Nathan Mulkey, Mike King, and Frank Butera (FDEP Northwest District Office, Pensacola) and FDEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Michelle Fish, Ed Smith, and Nancy Ross).

Results

Organic Constituents (See Table 1 and Appendix F)

- No organic constituents were detected in the effluent.
- No organic constituents were detected in the field blank.

Metals (See Table 2 and Appendix F)

- All metals in the effluent sample were either undetected or detected at levels that complied with permit limits and Class III Freshwater Quality Criteria (62-302.530, F.A.C.)
- All metals in the Control and Test Site samples were either undetected or detected at levels that complied with Class III Freshwater Quality Criteria (62-302.530, F. A. C.).
- No metals were detected in the field blank.

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

- Tests were performed June 12 through June 19, 2012.

- The effluent sample NOEC for the fish, *Pimephales promelas*, and the NOEC for the water flea, *Ceriodaphnia dubia,* during the chronic definitive bioassays were 100% effluent, and therefore, complied with effluent permit limits.

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

- Habitat Assessment scores were similar at the Control Site (65) and Test Site (79), which places both sites in the Marginal category. Both sites had similar substrate diversity and availability, but the Control Site had a greater percentage of habitat smothering than the Test Site. Both sites were artificially channelized and had poor bank stability on both the left and right banks. The Control Site also had lower riparian zone vegetation quality than the Test Site.
- Dissolved oxygen (mg/L), pH (Standard Units), and specific conductance (µmhos/cm) of the effluent complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C.) and effluent permit limits.
- Dissolved oxygen (mg/L) of the Control Site (3.3 mg/L) and Test Site (4.4 mg/L) was below the minimum limit for Class III Freshwater Quality Criterion (62-302-.530(30), F.A.C.).
- The pH (Standard Units) and specific conductance (µmhos/cm) of the Control and Test Sites complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C.).
- Alkalinity (mg CaCO3/L) of the effluent, Control Site, and Test Site samples complied with Class III Criteria.
- Total residual chlorine (TRC) of the effluent was undetected in the bioassay sample as measured in the FDEP laboratory. The sample was held beyond the normal holding time for this measurement (Q qualifier).
- Chlorophyll *a* (corrected) was detected at a low level in the effluent sample.
- Chlorophyll *a* (corrected) was undetected in the Control Site sample and detected at a low level between the laboratory method detection limit (MDL) and the laboratory practical quantitation limit (PQL) in the Test Site sample.
- Total suspended solids (TSS; mg/L) and Carbonaceous Biochemical Oxygen Demand (CBOD; mg/L) of the effluent sample complied with permit limits.

Microbiology (See Table 1 and Appendix F)

- Fecal coliform analyses were performed by The Water Spigot, Panama City, Florida.
- Fecal coliforms (1640 CFU/100mL B) were detected in the effluent sample at levels which exceeded Class III Freshwater Quality Criterion (62-302.530(6), F.A.C.) and the facility permit limits.
- Fecal coliforms were undetected in the Control and Test Site samples and therefore complied with Class III Freshwater Quality Criterion (62-302.530(6), F.A.C.).

Nutrients (See Table 1 and Appendix F)

- Effluent nutrient levels complied with permit limits.
- Total ammonia in the effluent sample (0.044 mg/L) was 6 times lower than total ammonia in the Control Site sample (0.27 mg/L) and 2.5 times lower than in the Test Site sample (0.11mg/L). Effluent ortho-phosphate, total phosphorus, and nitrate+nitrite were generally higher than in the Control and Test Site samples. Nutrient levels in the Control and Test Site samples were similar which suggests the effluent is not currently contributing to eutrophic impacts at the Test Site due to this not being an effluent dominated stream. While several nutrients in the Test Site samples were slightly higher than the nutrients in the Control Site samples, the levels were of comparable range.
- No nutrients were detected in the field blank.

Algal Growth Potential (See Table 3 and Appendix F)

- Raschke and Shultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value in

the effluent sample using the freshwater species, *Pseudokirchneriella subcapitata,* was approximately 40 times greater than the problem threshold value. The analytical chemistry suggests that the effluent is nitrogen limited.

- The AGP values for the Control and Test Sites were 26 times and 29 times, respectively, higher than the problem threshold. The analytical chemistry suggests that both study sites are nitrogen limited.
- While both instream sites have lower AGP values than the effluent, the Test Site AGP value is greater than the Control Site AGP value which indicates that there is a slight nutrient enrichment occurring at the Test Site due to the effluent.

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 communities were dominated by *Nitzschia* sp. at the Control Site and *Diadesmis confervacea* at the Test Site. The Control Site sample had a higher percentage of diatoms present, whereas, the Test Site sample had a higher percentage of blue-green algae present. Community differences in the Control and Test Sites may be due to differences in the substrate types that were sampled. There were no adverse affects apparent on the periphyton community in Camp Branch Creek from the effluent.

Macroinvertebrates (See Figure 1, Table 5, and Appendices J-1 and J-2)

- Quantitative macroinvertebrate data were collected from floating Hester-Dendy samplers at the Control and Test Sites. One of the Test Site Hester-Dendy samplers was lost. Due to fluctuating water levels the integrity of the Hester-Dendy samples is questionable. The data will not be analyzed for this report as any differences in the sites cannot be attributed to the effluent.
- Qualitative macroinvertebrate data from dipnet samples indicated that the macroinvertebrate community at the Test Site was less disturbed than the Control Site. The Test Site scored 20 A on the Stream Condition Index (SCI), and the Control Site scored 8 A, placing both in Category 3 (see Appendix C for an explanation of SCI Categories). No Ephemeroptera or sensitive taxa were collected from either site. No Trichoptera taxa and only two long-lived taxa were collected from the Control Site, while only one Trichoptera taxa and one long-lived taxa were collected from the Test Site. The percentage of suspension feeders and filterers, which tend to decline with human disturbance, was higher at the Test Site (see Appendix C for an explanation of how these SCI metrics typically respond to human disturbance). The Control Site had a higher percentage of very tolerant individuals. Overall, there were no negative effects on macroinvertebrates at the Test Site that were attributable to the effluent. Any adverse affects on the macroinvertebrate community were more likely attributable to low habitat availability, low water velocity, and habitat smothering.

Conclusion

Instream sampling at the Control and Test Sites was postponed from the original June sampling date (06/10/12-06/14/12) due to heavy rain which caused high water levels in Camp Branch Creek. Instream sampling occurred on July 9, 2012.

Dissolved oxygen at the Control Site and Test Site was below the minimum limit for Class III Freshwater Quality Criteria (62-302.530(30), F.A.C.). Fecal coliforms in the effluent sample were detected at levels which exceeded Class III Freshwater Quality Criterion (62-302.530(6), F.A.C.) and the facility permit limits. Whole effluent toxicity testing complied with effluent permit limits. The nutrient and AGP values of the Control Site indicate that there is already significant nutrient enrichment in this portion of Camp Branch Creek. While the nutrient values of the Test Site samples were slightly higher than those of the Control Site samples, the values are within the same range which indicates that the effluent is not contributing to eutrophic impacts at the Test

Site. However, the AGP values reflect that there is a slight nutrient enrichment at the Test Site as a result of the effluent.

There were no adverse effects apparent on the periphyton or macroinvertebrate communities as a result of the effluent.

Literature Cited

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

Bonifay WWTF	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected	-	-
Nutrients (mg/L)					
Total Organic Carbon	-	-	4.7 I	3.5 I	3.3 I
Ortho-phosphate	-	-	3	1.7	1.8
Total Phosphorus	-	≤ 6.0 p	3.3	2	2
Total Ammonia	-	Report	0.044	0.27	0.11
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	4.3	1.9	2.2
Total Kjeldahl Nitrogen	-	-	1.1	0.83	0.71
Organic Nitrogen	-	-	1.1 c	0.56 c	0.60 c
Total Nitrogen	-	≤ 10.0 p	5.4 c	2.7 c	2.9 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	65	79
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 6.0	8.0	3.3	4.4
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.1	6.8	6.8
Conductivity (µmhos/cm)	≤ 1,275	≤ 1,275	291	376	386
Temperature (°C)	-	Report	27.6	28.0	29.0
Sample Depth (m)	-	-	-	0.15	0.15
Alkalinity (mg CaCO3/L)	≥ 20	-	74 A	102	97
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	< 0.03 UQ£	-	-
Chlorophyll *a* (µg/L) - Corrected	-	-	3	0.55 U	1.4 I
Phaeophytin (µg/L)	-	-	0.81 I	0.4 U	0.4 U
Total Suspended Solids (mg/L)	-	≤ 16.0 p	8 I	8 I	4 I
Turbidity (NTU)	< 29 t	-	4.1	4.9	3.2
Color (pt-Co)	-	-	9.8	8.3	5.7 I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 16.0 p	2.3 J	0.48 I	1.5 I
Chloride (mg/L)	-	-	24	35	36
Fluoride (mg/L)	≤ 10.0	-	0.065 I	0.069 I	0.071 I
Sulfate (mg/L)	-	-	17	30	33
Flow (MGD)	-	≤ 1.4 a	0.629 a	-	-
Hardness (mg $CaCO_3$)	-	-	104 c	132 c	134 c
Toxicity (Chronic Definitive, NOEC, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia) survival and reproduction*	-	≥ 100	100	-	-
Bioassay - Fish *(Pimephales promelas) survival and growth*	-	≥ 100	100	-	-
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms ¥	≤ 400 s #	800 s	1640 B	1 U	1 U

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
p - 16 hour flow proportioned composite
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
NOEC - A no observed effect concentration less than 100% effluent will constitute a violation of this permit
¥ - Fecal coliform analysis performed by The Water Spigot lab
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
£ - measurement taken in the FDEP laboratory

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.

Bonifay WWTF	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	-	-	64	-	185 A	-	91
Arsenic	≤ 50	-	0.87 I	≤ 50	0.84 I	≤ 50	0.7 I
Cadmium	≤ 0.300 b	-	0.15 U	≤ 0.330 b	0.05 U	≤ 0.340 b	0.05 U
Calcium (mg/L)	-	-	33.1	-	41.4 A	-	41.8
Chromium-III	≤ 89.1 b	-	0.9 U	≤ 108 b	0.34 I	≤ 109 b	0.3 U
Copper	≤ 9.70 b	≤ 9.70 b	7.8	≤ 11.8 b	3.2 A	≤ 12.0 b	3.56
Iron	≤ 1,000	-	86 I	≤ 1,000	220 A	≤ 1,000	130
Lead	≤ 3.40 b	-	0.6 U	≤ 4.52 b	0.65 I	≤ 4.60 b	0.54 I
Magnesium (mg/L)	-	-	5.23	-	6.88 A	-	7.1
Nickel	≤ 54.0 b	≤ 54.0 b	1.2 I	≤ 65.9 b	1.05 A	≤ 66.7 b	1
Selenium	≤ 5.0	-	0.6 U	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Silver	≤ 0.07	≤ 0.07 p	0.075 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Sodium (mg/L)	-	-	19	-	25.3 A	-	25.5
Zinc	≤ 124 b	-	23	≤ 151 b	26 A	≤ 153 b	26

See Table 1 for calculated hardness.

b - Value is calculated based on hardness
p - 16 hour flow proportioned composite
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) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

Bonifay WWTF				
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	198.0 A	165.1 ± 33.0	205.2 ± 41.0	1.4	1.6
Control Site	130.0	81.3 ± 16.3	103.7 ± 20.7	1.3	1.4
Test Site	144.0	88.2 ± 17.6	110.6 ± 22.1	1.3	1.5

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

Table 4. Periphyton Composition - Qualitative.

Bonifay WWTF	Control Site	Test Site
Number of Wet Taxa	12	20
Number of Wet Algal Units Identified	300	304
Percent Dominant Wet Taxon	91.3	70.4
Dominant Wet Taxon Name	Bacillariophyta (Diatoms)	Bacillariophyta (Diatoms)
Number of Diatom Taxa	58	43
Number of Diatom Algal Units Identified	500	500
Percent Dominant Diatom Taxon	12.6	28.6
Dominant Diatom Taxon Name	*Nitzschia sp.*	*Diadesmis confervacea*
Percentage Composition for Wet Algae		
Blue-green algae	5.7	24.0
Green algae	3.0	4.9
Diatoms	91.3	70.4
Euglenophytes	0.0	0.7

Table 5. Macroinvertebrate Dipnet Samples - Qualitative.

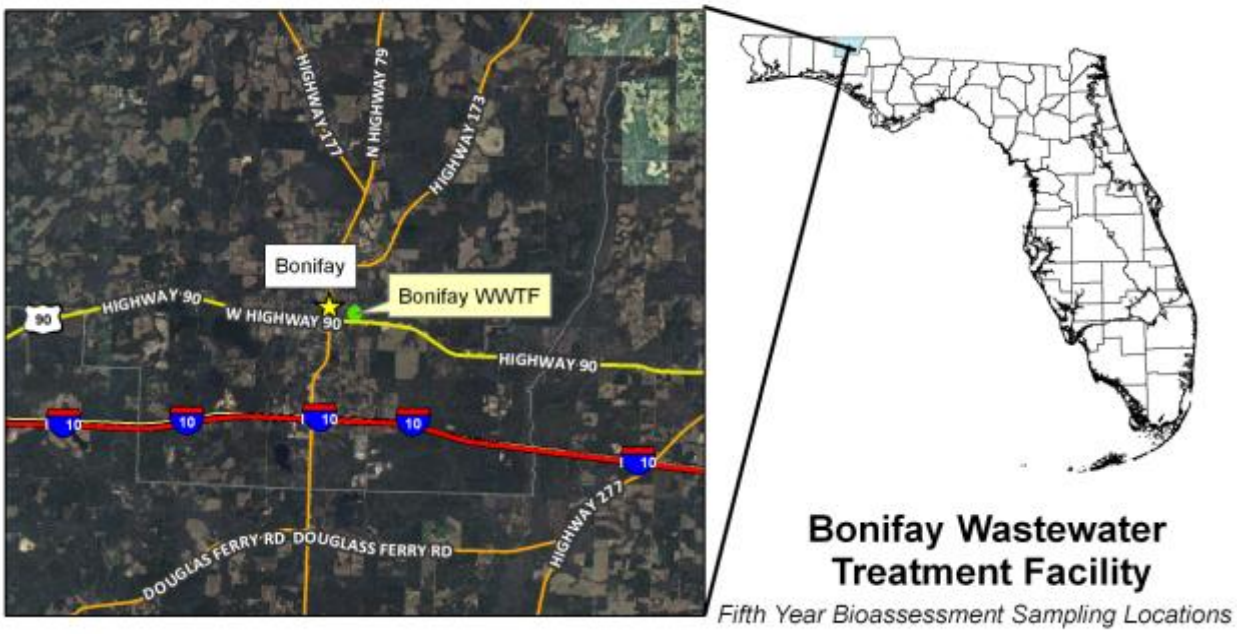
Bonifay WWTF	Control Site		Test Site	
Summary Statistics				
Stream Condition Index 2007 (value)	8 A		20 A	
Stream Condition Index 2007 (category) *	3		3	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	19	15	21	25
Number of Ephemeroptera Taxa	0	0	0	0
Number of Trichoptera Taxa	0	0	1	1
Number of Clinger Taxa	2	2	0	0
Number of Long-lived Taxa	2	1	1	1
Number of Sensitive Taxa	0	0	0	0
Percent of Dominant Taxon	62.9	62.9	18.5	18.8
Percent Suspension Feeders and Filterers	9.9	11.1	15.9	26.6
Percent of Very Tolerant Individuals	66.9	67.1	44.0	34.4
Total Number of Individuals	151	140	157	160
Community Composition: Percent of total				
Dominant Taxon Name	*Micromenetus* sp. (Gastropoda)	*Micromenetus* sp. (Gastropoda)	*Glyptotendipes* sp. (Diptera)	*Ancylidae* (Gastropoda)
Acariformes	0.0	0.7	0.0	0.0
Amphipoda	0.0	0.0	0.0	0.6
Bivalvia	7.3	10.0	14.0	23.8
Coleoptera	2.0	0.7	0.0	0.0
Decapoda	0.7	0.0	0.0	0.0
Diptera	8.6	3.6	36.3	30.0
Ephemeroptera	0.0	0.0	0.0	0.0
Gastropoda	69.5	68.6	21.0	24.4
Odonata	9.9	12.1	17.2	12.5
Oligochaeta	0.7	0.0	7.0	5.6
Plecoptera	0.0	0.0	0.0	0.0
Trichoptera	0.0	0.0	1.9	0.6
Other	1.33	4.3	2.54	2.48
Functional Feeding Groups: Percent of total				
Burrowing Deposit Feeders	0.7	0.0	7.0	5.6
Predators	10.6	13.2	23.3	17.2
Scavengers	0.3	0.0	0.0	0.3
Scrapers	70.5	69.3	21.0	24.4
Shredders	0.7	0.0	12.1	7.8
Surface Deposit Feeders	6.0	2.1	19.4	16.6
Suspension Feeders	9.9	11.1	15.9	26.6
Unknown	1.3	4.3	1.3	1.3

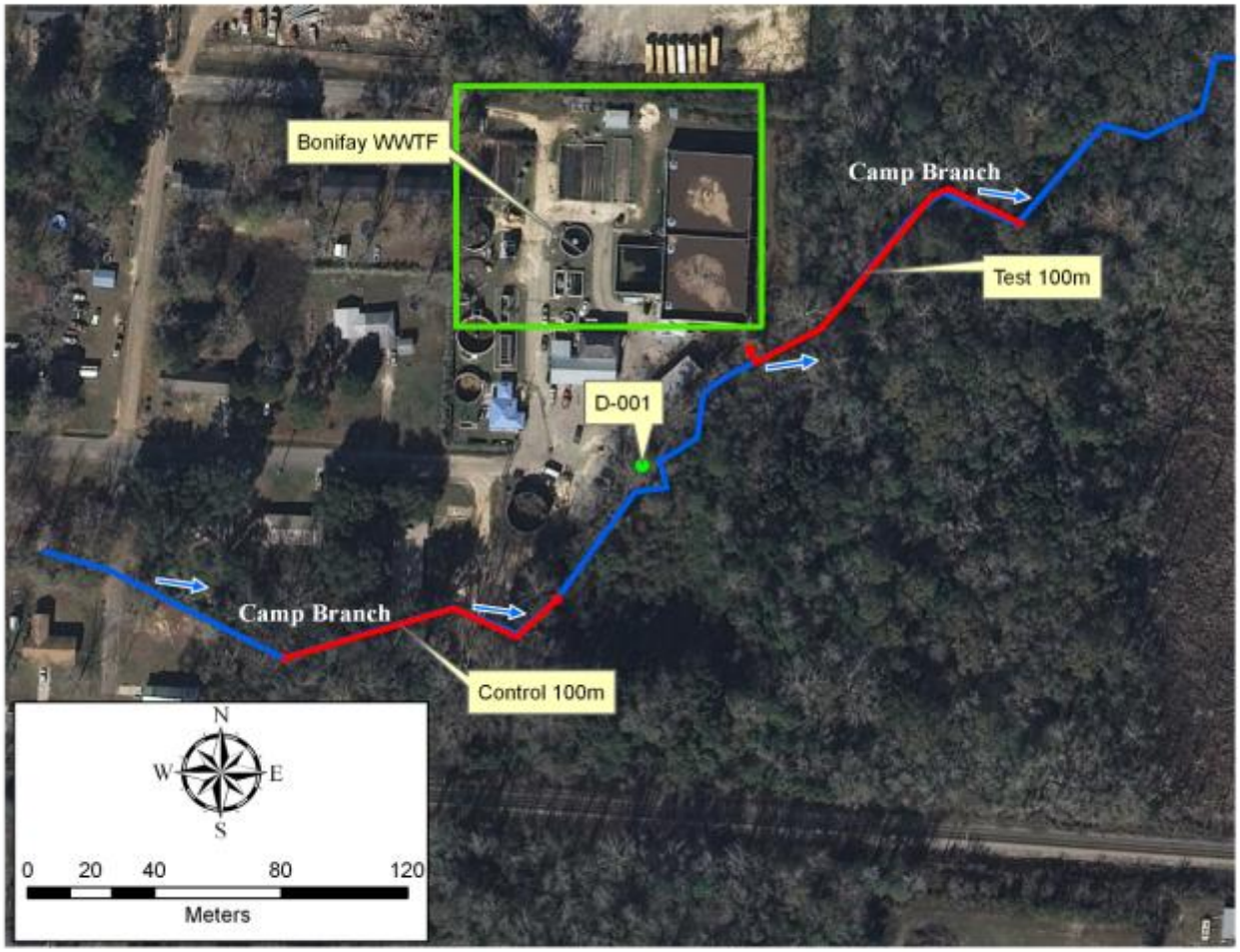
A - Value reported is the mean of two determinations

* 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	**Contact Number:** 595-0553
Facility Name (as it appears on permit): Bonifay WWTF	**Former Names:**
NPDES Permit Number: FL0027731	**Permit Expiration Date:** November 8, 2013
Physical Address: 911 East Bay Avenue	
District: NWD	**County:** Holmes
Function of Facility: Municipal wastewater treatment facility	
Facility Type: DW	**Permitted Capacity (MGD):** 1.4 MGD monthly average daily flow
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months):	
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 This facility discharges daily in batches.	
Description of Permitted Outfall(s): D-001 is approximately 2 feet in length and discharges at a depth of approximately 0.5 feet.	
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): A 1.4 MGD monthly average daily flow advanced wastewater treatment system. The treatment system consists of influent grit removal, screening, dual sequential batch reactors, post equalization, one sand filter, one AquaDisk Cloth Media filter, chlorine disinfection, post aeration, and dechlorination and aerobic digestion of residuals and sludge drying beds.	

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)

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to unnamed tributary to Camp Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.6:

			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	Maximum	-	1.4	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond I.A.5
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	8.0	13.0	12.0	16.0	Weekly	16-hour flow proportioned composite	EFD-01	
Solids, Total Suspended	MG/L	Maximum	8.0	13.0	12.0	16.0	Weekly	16-hour flow proportioned composite	EFD-01	
Nitrogen, Total (as N)	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	16-hour flow proportioned composite	EFD-01	
Phosphorus, Total (as P)	MG/L	Maximum	3.0	3.75	4.5	6.0	Weekly	16-hour flow proportioned composite	EFD-01	
pH	SU	Range	-	-	-	6.0 to 8.5	Continuous	Meter	EFD-01	See Cond I.A.4, 9.
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	0.5	Continuous	Meter	EFA-01	See Cond I.A.4, 7
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Daily	Grab	EFD-01	
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.6				Weekly	Grab	EFD-01	
Nitrogen, Ammonia, Total (as N)	MG/L	Maximum	-	-	-	Report	Weekly	Grab	EFD-01	See Cond. I.A.9.
Temperature (C), Water	DEG C	Maximum	-	-	-	Report	Weekly	Grab	EFD-01	See Cond. I.A.9.
Ammonia, Unionized (As NH_3)	MG/L	Maximum	-	-	-	.02	Weekly	Calculated	CAL-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	6.0	Daily	Grab	EFD-01	
Silver, Total Recoverable	µG/L	Maximum	-	-	-	0.07	Monthly	16-hour flow proportioned composite	EFD-01	
Specific Conductance	µmhos/cm	Maximum				1,275	Weekly	Meter	EFD-01	
Whole Effluent Toxicity (Chronic)	See Permit Condition I.A.8								EFD-01	

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Camp Creek	Class III Fresh

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

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hour composite samples of final effluent shall be collected and used per the sampling protocol discussed in EPA-821-R-02-013, Section 8.

(2) The first sample shall be used to initiate the test. The remaining two 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.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test concentrations: **100%, 50%, 25%, 12.5%,** and **6.25%** final effluent.

(2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.

(3) 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. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

(4) The control water and dilution water used shall be moderately hard water as described in EPA-821-R-02-013, Section 7.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):

AO 060NW was issued with the permit on 11/19/08 to give the faciltiy 3 years to comply with the silver water quality standard of .07 ug/L (the facility had not had to monitor for this parameter prior to this permit). The AO was closed 11/4/10.

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:

Date	Parameter and Units	Limit	Result

Describe previous FYI and WQBEL study:

From the draft of the current permit:

Level I WQBEL:
A level I WQBEL was conducted for this permit renewal. Effluent discharges into an unnamed tributary of Camp Branch, a 303(d) listed water segment, water segment number WBID 251 of Holmes County. The Camp Branch (water segment WBID 251) is not listed on the Departments verified list of impaired waters adopted on June 20, 2005. Camp Branch flows into Holmes Creek. The 1998 303(d) list parameters of concern for Camp Branch are Coliform, Nutrients, and Turbidity. The 303(d) lists Camp Branch as a low priority pollution source. The EPA listed water information in 2002 Report has identical findings. The projected year of TMDL Development is after the proposed permit issuance, in 2009.

The Department performed its latest fifth year Biological Assessment for the facility discharge in November 2007. The report is available at the following website: ftp://ftp.dep.state.fl.us/pub/labs/lds/reports/7721.pdf. The report concludes that the trends are likely caused by a higher impact of urban runoff at the Control Site.

Describe previous or current Enforcement Actions (including WLs):

There are currently no enforcement actions for this facility.

Describe any violations or problems noted in previous inspection:

An inspection was performed on 5/24/11. The following items were noted:

Compliance Issue: At the time of this inspection, the pump from the EQ basin to the disk filter was leaking and the waste activated sludge line was leaking in two places.

Compliance Issue: At the time of this inspection, the pump from the digester to the drying beds was leaking.

Compliance Issue: At the time of this inspection, one SBR was offline due to a nonfunctioning decant pipe.

Discuss whether DMR trends within previous five years are improving or declining:

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: 6/11/12	Sampler(s): Nathan Mulkey/Mike King
Temperature (Deg C): 27.58	pH (SU): 7.06
Dissolved Oxygen (mg/L): 7.98	Conductivity (umhos/cm): 291
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:

Table 6. Bonifay WWTF Discharge Monitoring Report Violations for 1 Year Prior to Sampling

Facility ID	Facility Name	Major (M)	Outfall Type	Monitoring Date	Outfall Indicator	Parameter Description	Conc. (1)	Conc. Limit (1)	Conc. Statistical Base (1)	Conc. Units	Violation Code
FL0027731	Bonifay, City of - WWTF	M	EXO	6/30/2011	001-1	AMMONIA, UNIONIZED (AS NH3)	0.049	0.02	MAXIMUM	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	7/31/2011	001-1	AMMONIA, UNIONIZED (AS NH3)	0.037	0.02	MAXIMUM	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	10/31/2011	001-1	NITROGEN, TOTAL	7.34	6.25	MO AVG	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	10/31/2011	001-T	NOEL STATRE 7DAY CHR CERIODAPHNIA	<100	100	MINIMUM	%	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	12/31/2011	001-1	NITROGEN, TOTAL	10.03	6.25	MO AVG	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	12/31/2011	001-1	AMMONIA, UNIONIZED (AS NH3)	0.033	0.02	MAXIMUM	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	1/31/2012	001-1	SOLIDS, TOTAL SUSPENDED	2.2	10	MO AVG	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	1/31/2012	001-1	NITROGEN, TOTAL	5.82	6.25	MO AVG	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	1/31/2012	001-1	AMMONIA, UNIONIZED (AS NH3)	0.24	0.02	MAXIMUM	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	2/29/2012	001-1	NITROGEN, TOTAL	6.9	6.25	MO AVG	mg/L	E90
FL0027731	Bonifay, City of - WWTF	M	EXO	2/29/2012	001-1	PHOSPHORUS, TOTAL (AS P)	4.3	3.75	MO AVG	mg/L	E90

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 exceedance 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 exceedances 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 exceedance of 62-302.530(6) and/or a violation of facility permit limits. Fecal coliform and enterococci results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20- 60 colony forming units per plate. The B-qualifier does not affect data quality.

(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 exceedances 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 $\pm$ 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 exceedance of 62-302.530(61), F.A.C.

(7) Algal Periphyton Assemblages

Qualitative periphyton are sampled by taking subsamples of algae from natural substrates throughout the sample reach. 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 exceedances 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 exceedances 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

Qualitative collections of benthic macroinvertebrates 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 exceedances 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 exceedances 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 exceedances 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 exceedances 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..

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 exceedances 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).

Appendix D

Chain of Custody

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-06-11-27
FYI5 City of Bonifay Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: N. Milky
Customer: NW-DIST
Project ID: FYI5
PMAS: 1143
Collected By: Nathan Milky / Mike King
Send Final Report To: Toni Edwards
Sampling Agency: FDEP

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	Bonifay WWTF	☑ Comp ☐ Grab Date 6/10/12 Time 0730 Central	Date 6/11/12 Time 0730 Central	B
	Field ID: TOX	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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	Bonifay WWTF	☑ Comp ☐ Grab Date 6/10/12 Time 0730 Central	Date 6/11/12 Time 0730 Central	B
	Field ID: Effluent	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 30.79018 ☐ dd ☐ dms	Longitude 85.67232 ☐ dd ☐ dms	Comments: Taken at station EFD-01	

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	Bonifay WWTF	☐ Comp ☐ Grab Date 6/11/12 Time 1100 Central	Date Time Central	E
	Field ID: Effluent Field Blank	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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab) Eastern	Composite end Eastern	Bottle Group(s)**
	Bonifay WWTF	☐ Comp ☐ Grab Date 6/11/12 Time 1230 Central	Date Time Central	D
	Field ID: Camp Branch Control	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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: Flood Stage crest on 6/9/12	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/11/12	FedEx					[signature]	6/12/12

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 Dioassay Reed in Tox by JD. 6.12.12 10:30

Page 1 of 4

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-06-11-27
FYI5 City of Bonifay Sampling Inspection

Requester: Michelle Fish
Collected By:
Sampling Agency:

Field Report Prepared By:
Send Final Report To: Toni Edwards

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

Lab ID *	Location	Comp / Grab	Collection (comp begin or grab) Eastern Date Time Central	Composite end Eastern Date Time Central	Bottle Group(s)**
	Bon. Fy WWTF				
	Field ID: Camp Branch Test	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	D
	Matrix (include type e.g. Salt, Fresh, etc) / Temp (C) / pH	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	
	Latitude dd / dms / Longitude dd / dms	Comments: only 3 of 4 HDs received / flow stage on 6/9/12			

Lab ID *	Location	Comp / Grab	Collection (comp begin or grab) Eastern Date Time Central	Composite end Eastern Date Time 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 dd / dms / Longitude dd / dms	Comments			

Lab ID *	Location	Comp / Grab	Collection (comp begin or grab) Eastern Date Time Central	Composite end Eastern Date Time 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 dd / dms / Longitude dd / dms	Comments			

Lab ID *	Location	Comp / Grab	Collection (comp begin or grab) Eastern Date Time Central	Composite end Eastern Date Time 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 dd / dms / Longitude dd / dms	Comments			

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							Cne	6/12/12

* Shaded Areas for Lab use only.

last revised October 1, 2003

** Please see reverse side for Bottle Group information.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-06-11-27

~~Chrystal Bench~~ Bonita FYI5

Customer: ~~NW-DIST~~

Project ID: ~~DISCRETIONARY~~ FYI5

PMAS: ~~1995~~ 1143

Requester: ~~Cheryl Bench~~ M. Fish

Collected By: Nathan Milky

Sampling Agency: FDEP

Field Report Prepared By: N. Milky

Send Final Report To: ~~Cheryl Bench~~ T. Edwards

Lab ID *	Location	Collection (comp begin or grab)	Composite end	Bottle Group(s)**
	Bonita WWTF	☑ Comp ☐ Grab Date 6/12/12 Time 0730 Eastern Central	Date 6/13/12 Time 0730 Eastern Central	B
	Field ID: TOX2	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab)	Composite end	Bottle Group(s)**
		☐ Comp ☐ ~~Grab~~ Date Time Eastern Central	Date Time Eastern 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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab)	Composite end	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern 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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab)	Composite end	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern 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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments	

Lab ID *	Location	Collection (comp begin or grab)	Composite end	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern 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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: 2 bioassay, Rec'd in Tox by J.D. 10:34 6.14.12	

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* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Request Number: RQ-~~2011-11-07-01~~ 2012-06-11-27

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

~~RSA ES: Pond Run~~ Bonifay FYIS

Event ID *

Customer: NW-DIST

Project ID: ~~DISCRETIONARY~~ FYIS

PMAS: ~~1305~~ 1143

Requester: ~~Cheryl Bunch~~ M. Fish

Collected By: Nathan Melby

Sampling Agency: FDEP

Field Report Prepared By: N. Melby

Send Final Report To: ~~Cheryl Bunch~~ T. Edwards

Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Comp / Grab; Collection (begin) Date Time Eastern Central; Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Sample Depth m / ft; Salinity (PPTh); Sp Conductance (umho/cm); NPDES Number	Comments	Bottle Group(s)**
	Location: Bonifay WWTF Field ID: TOX 3 Matrix (include type e.g. Salt, Fresh, etc): Temp (C): pH: Latitude: dd / dms Longitude: dd / dms	☑ Comp ☐ Grab Collection (begin) Date 6/14/12 Time 0730 Eastern Central Collection (end) Date 6/15/12 Time 0730 Eastern Central	Tot Res Chlorine (mg/L): Diss Oxygen (mg/L): Storet Station Number:	Sample Depth ☐ m ☐ ft ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number:	Comments:	B
Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Comp / Grab; Collection (begin) Date Time Eastern Central; Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Sample Depth m / ft; Salinity (PPTh); Sp Conductance (umho/cm); NPDES Number	Comments	Bottle Group(s)**
Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Comp / Grab; Collection (begin) Date Time Eastern Central; Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Sample Depth m / ft; Salinity (PPTh); Sp Conductance (umho/cm); NPDES Number	Comments	Bottle Group(s)**
Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Comp / Grab; Collection (begin) Date Time Eastern Central; Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Sample Depth m / ft; Salinity (PPTh); Sp Conductance (umho/cm); NPDES Number	Comments	Bottle Group(s)**
Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Comp / Grab; Collection (begin) Date Time Eastern Central; Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L); Diss Oxygen (mg/L); Storet Station Number	Sample Depth m / ft; Salinity (PPTh); Sp Conductance (umho/cm); NPDES Number	Comments	Bottle Group(s)**

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/15/12	Fed Ex	M. Turbett	6-16-12 0905				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Bottle Cooler 2 Jugs Temp 0.8°C
Blue Cooler 1 Jug temp 0.1°C
MF 6-16-12 0940

2012-06-11-27

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-~~2011-00-05-32~~ Bonifay FYI

~~Reconciliation~~

Customer: NW-DIST

Project ID: ~~DISCRETIONARY~~ FYI

PMAS: ~~1306~~

Requester: ~~Cheryl Bunch~~

Collected By: Nathan Malloy / Frank Butler

Sampling Agency: FDEP

Field Report Prepared By: N. Malloy

Send Final Report To: ~~Cheryl Bunch~~ Tom. Edwards

Lab ID *	Location	Comp / Grab	Collection (begin) Date	Time	Eastern Central	Collection (end) Date	Time	Eastern Central	Bottle Group(s)**
Ø→	Bonifay WWTF Field ID: Camp Branch (control)	☐ Comp ☒ Grab	7/9/12	1030	☒ Central ☐ Eastern				
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C): 28.03	pH: 6.79	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 3.33	Storet Station Number:			
	Sample Depth: .15 ☒ m ☐ ft	Salinity (PPTh)	Sp Conductance (umho/cm): 376	NPDES Number:					
	Latitude: 30.78938 ☒ dd ☐ dms	Longitude: 85.67233 ☒ dd ☐ dms	Comments: facility discharging during sampling						

Lab ID *	Location	Comp / Grab	Collection (begin) Date	Time	Eastern Central	Collection (end) Date	Time	Eastern Central	Bottle Group(s)**
Ø→	Bonifay WWTF Field ID: Camp Branch Test	☐ Comp ☒ Grab	7/9/12	1000	☒ Central ☐ Eastern				
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C): 29.03	pH: 6.82	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 4.35	Storet Station Number:			
	Sample Depth: .15 ☒ m ☐ ft	Salinity (PPTh)	Sp Conductance (umho/cm): 386	NPDES Number:					
	Latitude: 30.79049 ☒ dd ☐ dms	Longitude: 85.67082 ☒ dd ☐ dms	Comments: facility discharging during sampling						

Lab ID *	Location	Comp / Grab	Collection (begin) Date	Time	Eastern Central	Collection (end) Date	Time	Eastern Central	Bottle Group(s)**
	Field ID	☐ Comp ☐ Grab			☐ Central ☐ Eastern				
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C):	pH:	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:			
	Sample Depth: ☐ m ☐ ft	Salinity (PPTh)	Sp Conductance (umho/cm)	NPDES Number:					
	Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms	Comments:						

Lab ID *	Location	Comp / Grab	Collection (begin) Date	Time	Eastern Central	Collection (end) Date	Time	Eastern Central	Bottle Group(s)**
	Field ID	☐ Comp ☐ Grab			☐ Central ☐ Eastern				
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C):	pH:	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:			
	Sample Depth: ☐ m ☐ ft	Salinity (PPTh)	Sp Conductance (umho/cm)	NPDES Number:					
	Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms	Comments:						

Relinquished By	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	7/9/12	Fed Ex					SK	7-11-12 10:0

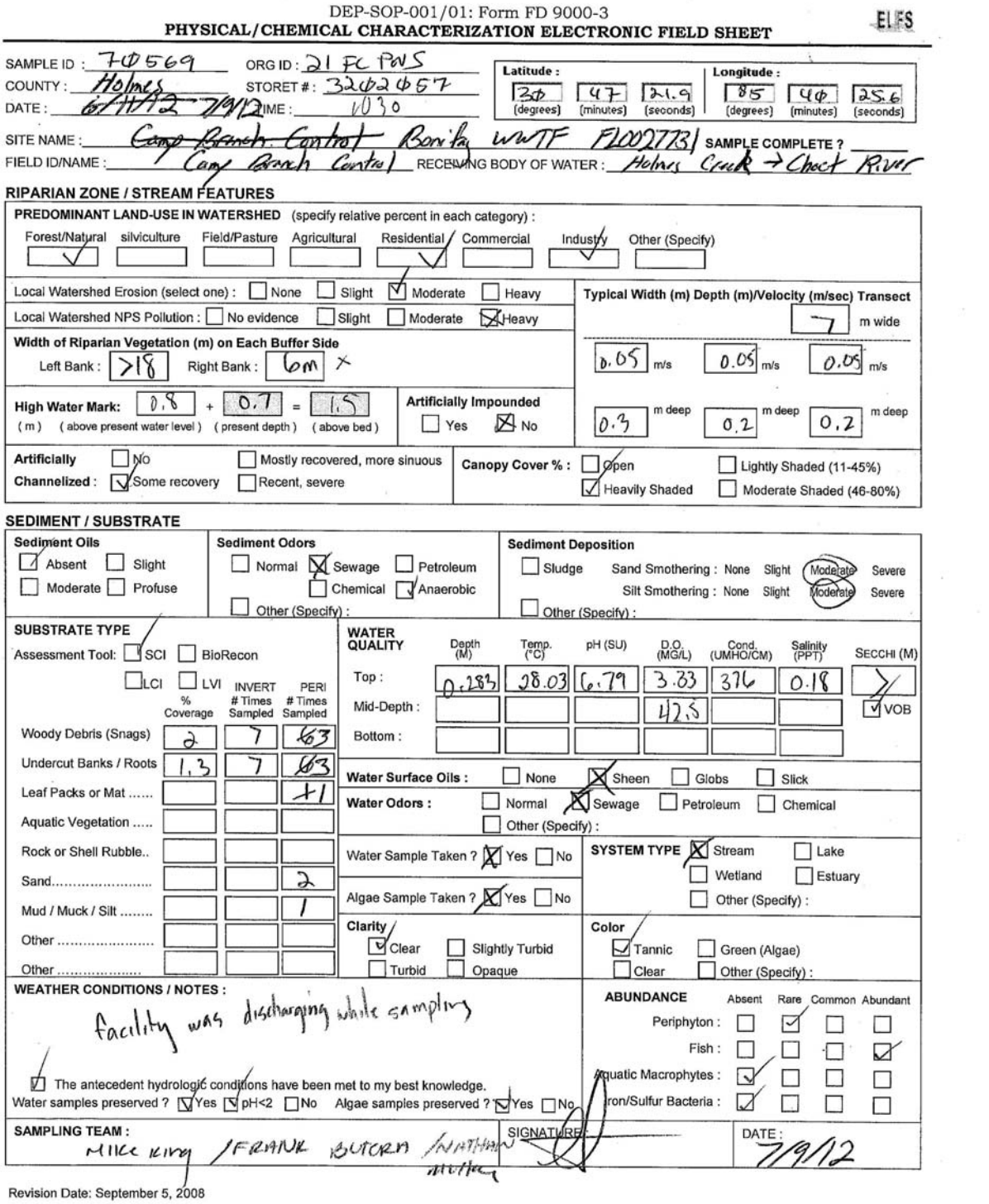
* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix E

Physical/Chemical and Habitat Assessment field sheets



DEP-SOP-001/01: Form FD 9000-3

PHYSICAL/CHEMICAL CHARACTERIZATION ELECTRONIC FIELD SHEET ELFS

SAMPLE ID : 70569 ORG ID : 21 FC PWS

COUNTY : Holmes STORET # : 32702057

DATE : 6/7/12 7/9/12 TIME : 1030

Latitude : 30 (degrees) 47 (minutes) 21.9 (seconds)

Longitude : 85 (degrees) 40 (minutes) 25.6 (seconds)

SITE NAME : ~~Camp Branch Control~~ Bonifay WWTF FL0027731 SAMPLE COMPLETE ?

FIELD ID/NAME : Camp Branch Control RECEIVING BODY OF WATER : Holmes Creek → Choctawhatchee River

RIPARIAN ZONE / STREAM FEATURES

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

Forest/Natural ✓ | silviculture | Field/Pasture | Agricultural | Residential ✓ | Commercial | Industry ✓ | Other (Specify)

Local Watershed Erosion (select one) : ☐ None ☐ Slight ☑ Moderate ☐ Heavy

Local Watershed NPS Pollution : ☐ No evidence ☐ Slight ☐ Moderate ☒ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side

Left Bank : >18 Right Bank : 6m ×

High Water Mark: 0.8 (m) + 0.7 (above present water level) = 1.5 (present depth) (above bed)

Artificially Impounded ☐ Yes ☒ No

Artificially Channelized : ☐ No ☑ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

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

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

7 m wide

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

0.3 m deep 0.2 m deep 0.2 m deep

SEDIMENT / SUBSTRATE

Sediment Oils ☑ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☐ Normal ☒ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ Other (Specify) :

Sediment Deposition ☐ Sludge Sand Smothering : None Slight Moderate Severe Silt Smothering : None Slight Moderate Severe ☐ Other (Specify) :

SUBSTRATE TYPE

Assessment Tool: ☑ SCI ☐ BioRecon ☐ LCI ☐ LVI

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	2	7	63
Undercut Banks / Roots	1.3	7	63
Leaf Packs or Mat			+1
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			2
Mud / Muck / Silt			1
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.283	28.03	6.79	3.33	376	0.18	> ☑ VOB
Mid-Depth :				42.5			
Bottom :							

Water Surface Oils : ☐ None ☒ Sheen ☐ Globs ☐ Slick

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

Water Sample Taken ? ☒ Yes ☐ No

Algae Sample Taken ? ☒ Yes ☐ No

SYSTEM TYPE ☒ Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) :

Clarity ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

Color ☑ Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) :

WEATHER CONDITIONS / NOTES :

facility was discharging while sampling

☑ The antecedent hydrologic conditions have been met to my best knowledge.

Water samples preserved ? ☑ Yes ☑ pH<2 ☐ No Algae samples preserved ? ☑ Yes ☐ No

ABUNDANCE

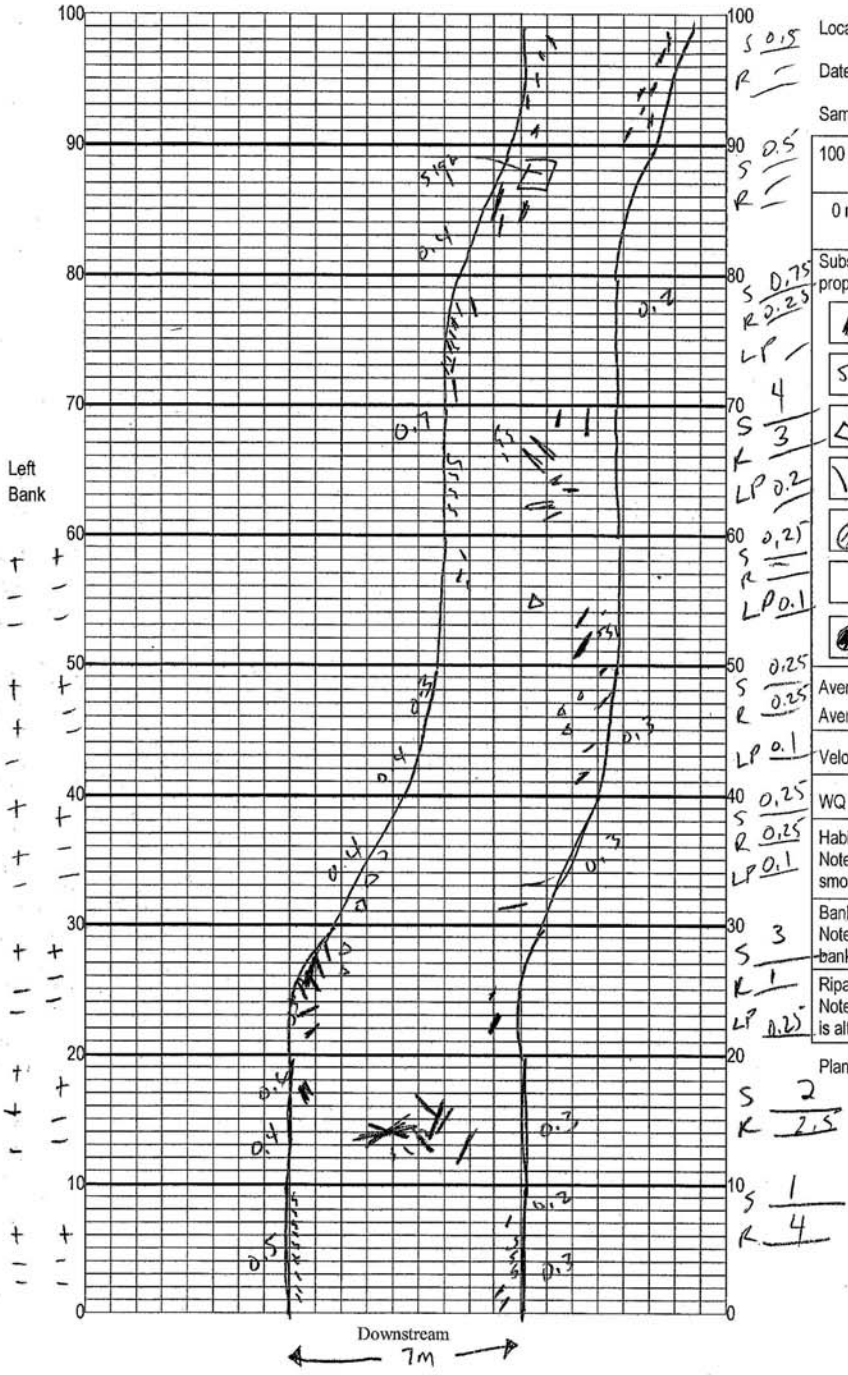
	Absent	Rare	Common	Abundant
Periphyton :	☐	☑	☐	☐
Fish :	☐	☐	☐	☑
Aquatic Macrophytes :	☑	☐	☐	☐
Iron/Sulfur Bacteria :	☑	☐	☐	☐

SAMPLING TEAM : MIKE KIRK / FRANK BUTLER / NATHAN MOTLEY SIGNATURE : DATE : 7/9/12

Revision Date: September 5, 2008

STORET 3242057
SAMPLE ID 70569

DEP-SOP-001/01 Form FD 9000-4
Stream/River Habitat Sketch Sheet



Location: Camp Branch Control
Date: ~~6/14/12~~ 7/9/12
Sampler: Nathan Milby

100 m: Latitude 30.78920
Longitude 85.67323
0 m: Latitude 30.78938
Longitude 85.67233

Substrates: Code key, draw proportionate habitat abundance. %

Snags	12.75/700	2
Roots/undercut banks		1.3
Leaf Packs (or mats)	9/700	
Aquatic Macrophytes		
sandbar		
Pools	total # observed = 1	
	# range expected = 2	

Average width 7 m
Average depth 0.3 m

Velocity measured at 30 meter mark.

WQ & chemistry taken at 0 meter mark.

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

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

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

Plants observed / other notes:

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

Revision Date: June 2, 2011

DEP-SOP-001/01: Form FD 9000-5

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SAMPLE ID 74569 STORET 32020257

SUBMITTING AGENCY CODE: 21FL PNS SUBMITTING AGENCY NAME: FL DEP - NWD	STORET STATION NUMBER: 32020257	DATE (MM/DD/YY): 6/4/12	RECEIVING BODY OF WATER: Holmes Creek → Choctawhatchee River
REMARKS:	COUNTY: Holmes	LOCATION: Bonifay WWTF FL0027731 7/9/12	FIELD ID/NAME: Camp Branch Control

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 7	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 (7) 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 4	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 (4) 3 2 1
Water Velocity 6	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 (6)	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering 6 Primary Score 25	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 (8) 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 5	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. (5) 4 3 2 1
Bank Stability Right Bank 5 Left Bank 4	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. (5) (4)	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 5 Left Bank 10	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system (5) 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 4 Left Bank 7 Secondary Score 40	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 (7) 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

65 **TOTAL SCORE**

Date: 7/9/12	Analyst: Mike King	Signature:

Form FD 9000-5 Revision Date: December 19, 2011

DEP-SOP-001/01: Form FD 9000-3

PHYSICAL/CHEMICAL CHARACTERIZATION ELECTRONIC FIELD SHEET ELFS

SAMPLE ID: 70568 ORG ID: 21FLPNS
COUNTY: Holmes STORET #: 32002158
DATE: 7/9/12 TIME: 1000
Latitude: 30 (degrees) 47 (minutes) 23.4 (seconds) Longitude: 85 (degrees) 40 (minutes) 19.4 (seconds)
SITE NAME: Bonifay WWTF FL0027731 SAMPLE COMPLETE? Y
FIELD ID/NAME: Camp Branch Test RECEIVING BODY OF WATER: Holmes Creek → Choct. River

RIPARIAN ZONE / STREAM FEATURES

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

Forest/Natural	silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
✓				✓		✓	

Local Watershed Erosion (select one): ☐ None ☐ Slight ☐ Moderate ☒ Heavy
Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☐ Moderate ☒ Heavy
Width of Riparian Vegetation (m) on Each Buffer Side
Left Bank: >18 Right Bank: >18 to 60m mark then 45m
High Water Mark: 1.3 (m) + 0.7 (above present water level) = 2.0 (present depth) (above bed)
Artificially Impounded ☐ Yes ☑ No
Artificially Channelized: ☐ No ☑ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe
Canopy Cover %: ☐ Open ☑ Heavily Shaded ☐ Lightly Shaded (11-45%) ☐ Moderate Shaded (46-80%)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

9 m wide		
0.05 m/s	0.05 m/s	0.05 m/s
0.6 m deep	0.4 m deep	0.3 m deep

SEDIMENT / SUBSTRATE

Sediment Oils: ☑ Absent ☐ Slight ☐ Moderate ☐ Profuse
Sediment Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ Other (Specify):
Sediment Deposition: ☐ Sludge Sand Smothering: None Slight Moderate Severe Silt Smothering: None Slight Moderate Severe ☐ Other (Specify): FB

SUBSTRATE TYPE
Assessment Tool: ☑ SCI ☐ BioRecon ☐ LCI ☐ LVI

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)		7	3
Undercut Banks / Roots		7	3
Leaf Packs or Mat		2	2
Aquatic Vegetation		2	1
Rock or Shell Rubble..		1	
Sand.....		1	1
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	0.180	29.63	6.82	4.35	386	0.18	>
Mid-Depth:				56.8			☐ VOB
Bottom:							

Water Surface Oils: ☑ None ☐ Sheen ☐ Globs ☐ Slick
Water Odors: ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Other (Specify):
Water Sample Taken? ☑ Yes ☐ No
Algae Sample Taken? ☑ Yes ☐ No
SYSTEM TYPE ☒ Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify):
Clarity ☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Opaque
Color ☑ Tannic ☑ Green (Algae) ☐ Clear ☐ Other (Specify):

WEATHER CONDITIONS / NOTES: EXOTIC PLANTS ARDISIA CRENATA, LYGODIUM JAPONICA COLOCASIA ESCULENTE, SAPIUM SEBIFERUM LIGUSTRUM SINENSE, IPOMOEA SP, DIOSCOREA BULBIFERA, EXOTIC FAUNA: CORBICULA FLUMINEA ABUNDANT

ABUNDANCE

	Absent	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☑
Fish:	☐	☐	☑	☐
Aquatic Macrophytes:	☐	☑	☐	☐
Iron/Sulfur Bacteria:	☑	☐	☐	☐

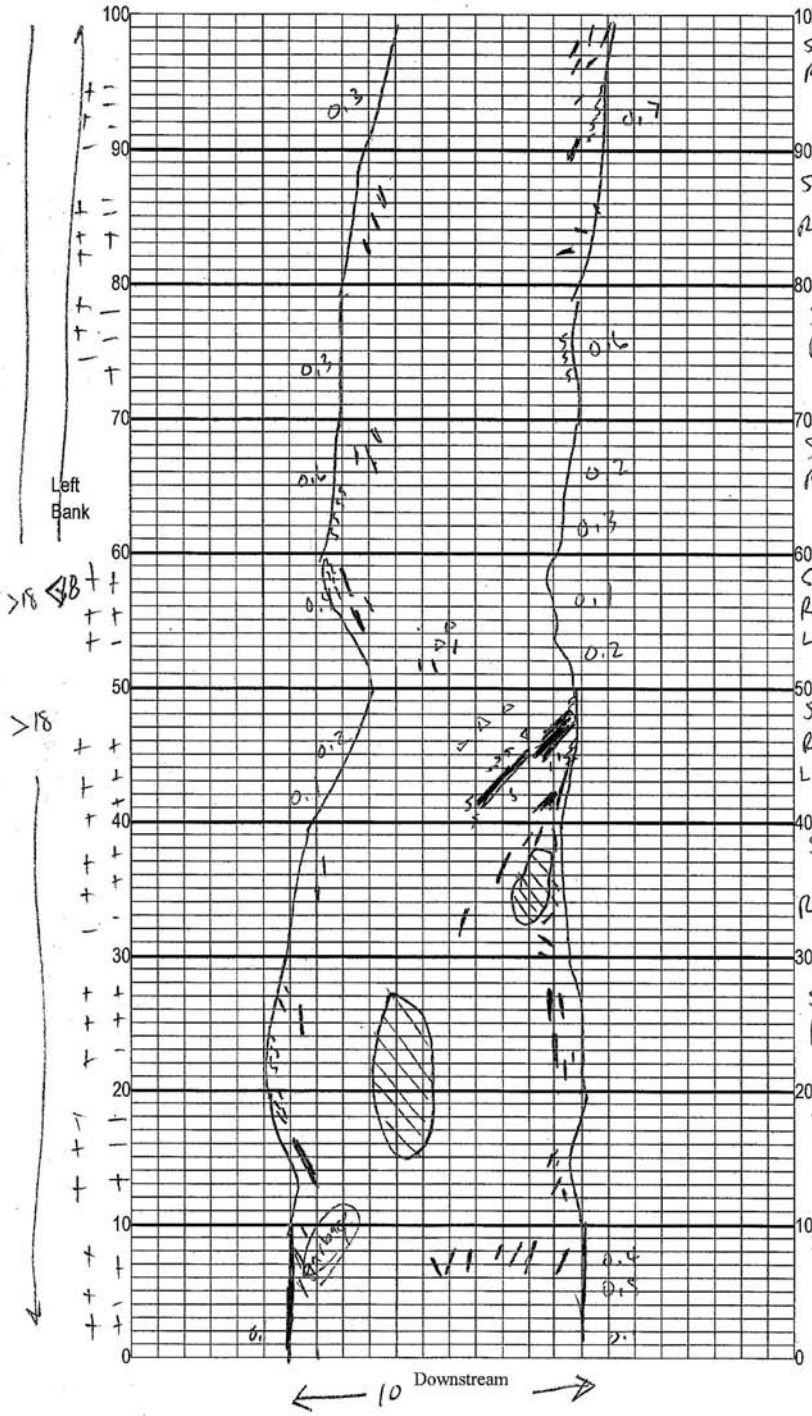
☑ The antecedent hydrologic conditions have been met to my best knowledge.
Water samples preserved? ☑ Yes ☐ pH<2 ☐ No Algae samples preserved? ☑ Yes ☐ No

SAMPLING TEAM: MIKE KING NATHAN MURKEY FRANK BURCH
SIGNATURE:
DATE: 7-9-2012

Revision Date: September 5, 2008

STORET 3202815 8
SAMPLE ID 7D568

DEP-SOP-001/01 Form FD 9000-4
Stream/River Habitat Sketch Sheet



Location: Camp Branch Test
Date: ~~6/14/12~~ 7/9/12
Sampler: Nathan Melby

100 m: Latitude 30.79011
Longitude 85.67170
0 m: Latitude 30.79049
Longitude 85.67087

Substrates: Code key, draw proportionate habitat abundance. %

#	Snags 15.5/600	2
SS	Roots/undercut banks	1
D	Leaf Packs (or mats) 5.5/600	
✓	Aquatic Macrophytes 1	
1	Pools total # observed = 1, # range expected = 1	

Average width 8 m
Average depth 0.5 m

Velocity measured at 60 meter mark.

WQ & chemistry taken at Ø meter mark.

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

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

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

Plants observed / other notes:

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

Revision Date: June 2, 2011

DEP-SOP-001/01: Form FD 9000-5

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SAMPLE ID 70568

SUBMITTING AGENCY CODE: 21 FLPNS SUBMITTING AGENCY NAME: FL DEP-NWD		STORET STATION NUMBER: 32Φ2Φ158	DATE (MM/DD/YY): ~~6/21/12~~ 7/9/12	RECEIVING BODY OF WATER: Holmes Creek → Chact. River
REMARKS:	COUNTY: Holmes	LOCATION: Bonifay WWTF FL0027731		FIELD ID/NAME: Camp Branch West

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 7	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 (7) 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 3	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 (3) 2 1
Water Velocity 6	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 (6)	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 (5) 4 3 2 1
Habitat Smothering 11 Primary Score 27	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 (11)	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 8	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 (8) 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 7 Left Bank 6	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 (7) (6)	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 6	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 (6)	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 9 Left Bank 6 Secondary Score 52	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 (9)	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 (6)	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

79 **TOTAL SCORE**

Date:	Analyst:	Signature:
7/9/12	Mike King	

Form FD 9000-5 Revision Date: December 19, 2011

Appendix F
Chemical analysis of effluent and receiving water

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 8:30	Effluent	BONIFAY WWTF	AGP/LN	Algal Growth Potential	198	A	mg DryWt/L	0.3	0.9
6/11/2012 8:30	Effluent	BONIFAY WWTF	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.3	J	mg/L	0.2	2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	3		ug/L	0.55	1.7
6/11/2012 8:30	Effluent	BONIFAY WWTF	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.81	I	ug/L	0.4	1.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Aluminum	64		ug/L	15	60
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Arsenic	0.87	I	ug/L	0.75	3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Cadmium	0.15	U	ug/L	0.15	0.6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Calcium	33.1		mg/L	0.08	0.3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Chromium	0.9	U	ug/L	0.9	3.6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Copper	7.8		ug/L	1.5	3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Iron	86	I	ug/L	30	120
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Lead	0.6	U	ug/L	0.6	2.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Magnesium	5.23		mg/L	0.04	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Nickel	1.2	I	ug/L	0.75	3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Selenium	0.6	U	ug/L	0.6	2.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Silver	0.075	U	ug/L	0.08	0.3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Sodium	19		mg/L	0.5	2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Metals	Zinc	23		ug/L	5	20
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Alkalinity	74	A	mg CaCO3/L	0.65	2.5
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Ammonia-N	0.044		mg N/L	0.01	0
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Chloride	24		mg Cl/L	0.2	0.5
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Color (true)	9.8		PCU	2.5	6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Fluoride	0.065	I	mg F/L	0.04	0.1
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Kjeldahl Nitrogen	1.1		mg N/L	0.16	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	NO2NO3-N	4.3		mg N/L	0.2	0.5
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	O-Phosphate-P	3		mg P/L	0.08	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Organic Carbon	4.7	I	mg C/L	1	5
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Sulfate	17		mg SO4/L	0.2	0.5
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Total-P	3.3		mg P/L	0.03	0.3
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	TSS	8	I	mg/L	2	10
6/11/2012 8:30	Effluent	BONIFAY WWTF	Nutrients	Turbidity	4.1		NTU	0.1	0.1
6/11/2012 11:45	Effluent	BONIFAY WWTF	Overflow	Fecal Coliforms-Membrane Filter	1640	B	cfu/100 mL	20	
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Alachlor	0.3	U	ug/L	0.3	1.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Azinphos Methyl	0.1	U	ug/L	0.1	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Butylate	0.1	U	ug/L	0.1	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Chlorpyrifos Methyl	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Ethoprop	0.025	U	ug/L	0.03	0.1
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Fenamiphos	0.15	UJ	ug/L	0.15	0.6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Fonofos	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Hexazinone	0.15	U	ug/L	0.15	0.6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Malathion	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Metalaxyl	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Metolachlor	0.3	U	ug/L	0.3	1.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Mevinphos	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Naled	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Parathion Ethyl	0.1	U	ug/L	0.1	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Parathion Methyl	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Phorate	0.025	U	ug/L	0.03	0.1
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Prometryn	0.1	U	ug/L	0.1	0.4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	UJ	ug/L	40	160
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
6/11/2012 8:30	Effluent	BONIFAY WWTF	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.8
6/11/2012 8:30	Effluent	BONIFAY WWTF	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
6/11/2012 8:30	Effluent	BONIFAY WWTF	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
6/11/2012 8:30	Effluent	BONIFAY WWTF	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	L	IC25		
6/11/2012 8:30	Effluent	BONIFAY WWTF	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100		NOEC		
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	AGP/LN	Algal Growth Potential	130		mg DryWt/L	0.3	0.9
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.48	I	mg/L	0.2	2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Field Parameter	Dissolved Oxygen	3.33		mg/L		
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Field Parameter	pH	6.79				
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Field Parameter	Sample Depth	0.15		m		
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Field Parameter	Specific Conductance	376		umhos/cm		
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Field Parameter	Temperature	28.03		C		
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Aluminum	185	A	ug/L	5	20
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Arsenic	0.84	I	ug/L	0.25	1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Calcium	41.4	A	mg/L	0.08	0.3
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Chromium	0.34	I	ug/L	0.3	1.2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Copper	3.2	A	ug/L	0.5	1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Iron	220	A	ug/L	30	120
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Lead	0.65	I	ug/L	0.2	0.8
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Magnesium	6.88	A	mg/L	0.04	0.2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Nickel	1.05	A	ug/L	0.25	1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Selenium	0.2	U	ug/L	0.2	0.8
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Silver	0.025	U	ug/L	0.03	0.1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Sodium	25.3	A	mg/L	0.5	2
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Metals	Zinc	26	A	ug/L	5	20
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Alkalinity	102		mg CaCO3/L	0.65	2.5
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Ammonia-N	0.27		mg N/L	0.01	0
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Ammonia-N	0.24		mg N/L	0.01	0
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Chloride	35		mg Cl/L	0.2	0.5
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Color (true)	8.3		PCU	2.5	6
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Fluoride	0.069	I	mg F/L	0.04	0.1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Kjeldahl Nitrogen	0.83		mg N/L	0.08	0.2

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	NO2NO3-N	1.9		mg N/L	0.04	0.1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	O-Phosphate-P	1.7		mg P/L	0.04	0.1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Organic Carbon	3.5	I	mg C/L	1	5
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Sulfate	30		mg SO4/L	0.2	0.5
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Total-P	2		mg P/L	0.03	0.3
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	TSS	8	I	mg/L	2	10
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Nutrients	Turbidity	4.9		NTU	0.1	0.1
7/9/2012 11:30	Control Site	CAMP BRANCH CONTROL	Overflow	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL	1	
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	AGP/LN	Algal Growth Potential	144		mg DryWt/L	0.3	0.9
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.5	I	mg/L	0.2	2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.4	I	ug/L	0.55	1.7
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Field Parameter	Dissolved Oxygen	4.35		mg/L		
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Field Parameter	pH	6.82				
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Field Parameter	Sample Depth	0.15		m		
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Field Parameter	Specific Conductance	386		umhos/cm		
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Field Parameter	Temperature	29.03		C		
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Aluminum	91		ug/L	5	20
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Arsenic	0.7	I	ug/L	0.25	1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Calcium	41.8		mg/L	0.08	0.3
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Chromium	0.3	U	ug/L	0.3	1.2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Copper	3.56		ug/L	0.5	1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Iron	130		ug/L	30	120
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Lead	0.54	I	ug/L	0.2	0.8
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Magnesium	7.1		mg/L	0.04	0.2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Nickel	1		ug/L	0.25	1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Selenium	0.2	U	ug/L	0.2	0.8
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Silver	0.025	U	ug/L	0.03	0.1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Sodium	25.5		mg/L	0.5	2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Metals	Zinc	26		ug/L	5	20
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Alkalinity	97		mg CaCO3/L	0.65	2.5
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Ammonia-N	0.11		mg N/L	0.01	0
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Ammonia-N	0.12		mg N/L	0.01	0
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Chloride	36		mg Cl/L	0.2	0.5
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Color (true)	5.7	I	PCU	2.5	6
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Fluoride	0.071	I	mg F/L	0.04	0.1

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Kjeldahl Nitrogen	0.71		mg N/L	0.08	0.2
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	NO2NO3-N	2.2		mg N/L	0.04	0.1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	O-Phosphate-P	1.8		mg P/L	0.04	0.1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Organic Carbon	3.3	I	mg C/L	1	5
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Sulfate	33		mg SO4/L	0.2	0.5
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Total-P	2		mg P/L	0.03	0.3
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	TSS	4	I	mg/L	2	10
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Nutrients	Turbidity	3.2		NTU	0.1	0.1
7/9/2012 11:00	Test Site	CAMP BRANCH TEST	Overflow	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL	1	
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Aluminum	5	U	ug/L	5	20
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Calcium	0.075	U	mg/L	0.08	0.3
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Chromium	0.3	U	ug/L	0.3	1.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Copper	0.5	U	ug/L	0.5	1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Iron	30	U	ug/L	30	120
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Lead	0.2	U	ug/L	0.2	0.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Magnesium	0.04	U	mg/L	0.04	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Nickel	0.25	U	ug/L	0.25	1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Selenium	0.2	U	ug/L	0.2	0.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Silver	0.025	U	ug/L	0.03	0.1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Sodium	0.5	U	mg/L	0.5	2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Metals	Zinc	5	U	ug/L	5	20
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Color (true)	2.5	U	PCU	2.5	6
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Fluoride	0.035	U	mg F/L	0.04	0.1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	NO2NO3-N	0.004	U	mg N/L	0	0
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0	0
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Organic Carbon	1	U	mg C/L	1	5
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Total-P	0.004	U	mg P/L	0	0
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Alachlor	0.33	U	ug/L	0.33	1.3
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Ametryn	0.054	U	ug/L	0.05	0.2

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Atrazine	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Azinphos Methyl	0.11	U	ug/L	0.11	0.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Bromacil	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Butylate	0.11	U	ug/L	0.11	0.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Chlorpyrifos Ethyl	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Chlorpyrifos Methyl	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Diazinon	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Ethion	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Ethoprop	0.027	U	ug/L	0.03	0.1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Fenamiphos	0.16	UJ	ug/L	0.16	0.7
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Fonofos	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Hexazinone	0.16	U	ug/L	0.16	0.7
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Malathion	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Metalaxyl	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Metolachlor	0.33	U	ug/L	0.33	1.3
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Metribuzin	0.11	U	ug/L	0.11	0.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Mevinphos	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Naled	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Norflurazon	0.16	U	ug/L	0.16	0.7
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Parathion Ethyl	0.11	U	ug/L	0.11	0.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Parathion Methyl	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Phorate	0.027	U	ug/L	0.03	0.1
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Prometryn	0.11	U	ug/L	0.11	0.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Pesticides	Simazine	0.054	U	ug/L	0.05	0.2
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	44
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	66
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	3,3'-Dichlorobenzidine	44	U	ug/L	44	180
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.4

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.2	U	ug/L	2.2	8.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L	16	66
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Acenaphthene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Acenaphthylene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Anthracene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzidine	110	U	ug/L	110	440
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzo(a)anthracene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzo(a)pyrene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzo(b)fluoranthene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Benzo(k)fluoranthene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L	16	66
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Butyl benzyl phthalate	5.5	U	ug/L	5.5	22
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Chrysene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Dimethyl phthalate	11	U	ug/L	11	44
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Di-n-butyl phthalate	5.5	U	ug/L	5.5	22
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Fluoranthene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Fluorene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorobutadiene	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Hexachloroethane	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Naphthalene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Nitrobenzene	2.2	U	ug/L	2.2	8.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodimethylamine	2.2	U	ug/L	2.2	8.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.2	U	ug/L	2.2	8.8
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.3	U	ug/L	3.3	13
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Pentachlorophenol	3.3	U	ug/L	3.3	13

Date_Sampled	UDL	Station	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Phenanthrene	0.22	U	ug/L	0.22	0.9
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.4
6/11/2012 12:00	Field Blank	BONIFAY WWTF	Priority Organic Pollutants	Pyrene	0.22	U	ug/L	0.22	0.9

Appendix G

Toxicological results

FDEP Biology Laboratory - Chronic ~~Definitive~~ MF Bench Sheet

Ceriodaphnia dubia

Facility: ~~Graceville~~ MF Bonifay, City of WWTF
Address: 611 Martin Luther King Jr. Ave, Bonifay
County: ~~Jackson~~ MF Holmes
NPDES Permit #: FL 0027731
Contact/District: ~~Nathan Mutkey / Northwest~~ MF Nathan Mutkey / Northwest
LIMS entry: 6.21.12 MF verified: 6.21.12 AP

Diluent/ Batch: ~~20% DMW~~ SDMHW / ~~6.4.12~~ 6.5.12 Test Days Used: 0 - 3
~~20% DMW~~ SDMHW / 6.15.12 Test Days Used: 4 - 7

SOP#: TA07_05 EPA 821-R-02-013 Method 1002.0
Organism: *Ceriodaphnia dubia*
Organism Batch #: 6.12.12
Organism age: <24 hours
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 5.24.12 4.2.12
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-2012-06-12-26	1434802	11 June 12 0830	12 Jun 12 1030
Test Day 2	2	TLH-2012-06-14-68	1435572	13 June 12 0830	14 June 12 1012
Test Day 4	3	TLH-2012-06-18-05	1436118	15 June 12 0830	16 June 12 0940

Water Quality Parameters	Batch # 6.5.12 ~~20% DMW~~ SDMHW	6.15.12 ~~20% DMW~~ SDMHW	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	Not measured	Not measured		—	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	<0.03	<0.03	<0.03		JD/AP	MF
Alkalinity (mg/L as $CaCO_3$):	77	71	94	84	85		JD/AP	MF
Hardness (mg/L as $CaCO_3$):	85	84	102	104	101		JD/AP	MF
Total Ammonia (mg/L as N):	<0.017	<0.017	<0.017	<0.017	<0.017		MF	AP
Conductivity: ~~µmhos~~ mmhos:	313	303	308	311	318		BA/BA/MF	MF/MF/AP
Salinity (ppth):	—	—	—	—	—	—	—	—

Test Incubated in: Incubator #: 2

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.7 max. 26.3 mean —
Room B246 min. ____ max. ____ mean ____
Test min. 24.6 max. 25.1 mean —

Loaded by: BA

Test Replicates	Loaded from culture vial
1	A4
2	A9
3	A12
4	A13
5	A26
6	B4
7	B12
8	B24
9	B27
10	B28

Results	
Control % CV:	51.4
Dunnetts PMSD:	41.4
Reproduction NOEC:	100%
Reproduction LOEC:	>100%
Survival NOEC:	100%
Survival LOEC:	>100%
ICP_{20}:	>100%
ICP_{25}:	>100%

Investigators' signatures
Marshall Faircloth
Bruce Ambler
Adrienne Pennington
James Daniel

REVIEWER

Comments:

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Bonifay, City of WWTF

LIMS Sample #: 143802 for lab sample #1

Start Date: 6.12.12 Time: 11:30

End Date: 6-19-12 Time: 1515

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	—
	3	0	0	0	0	2	0	1	3	0	0	6	10	0.6
	4	0	0	0	X	0	0	0	0	0	4	4	9	0.4
	5	0	0	0	-	0	0	4	X	0	9	16	8	1.6
	6	12	9	9	11	|	8	19	30	|	8	13	83	8	8.3
	7	13	12	11	|	12	13	13	|	14	(4)	88	8	8.8
	8				|				|				
	Total	25	24	22	0	30	32	21	3	22	26	197	8 (10)	19.7

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
6.25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	—
	3	4	6	3	4	3	4	4	3	4	5	40	10	4.0
	4	0	0	0	0	0	0	0	0	0	0	0	10	—
	5	4	0	7	9	8	9	6	7	0	7	45	10	4.5
	6	12	4	12	6	12	12	13	12	15	12	110	10	11.0
	7	(14)	0	(18)	7	(12)	(14)	(13)	(14)	14	(9)	21	10	2.1
	8													
	Total	20	10	22	17	24	21	23	22	33	24	216	10	21.6

Organisms loaded by: BA

Day	Counted/ verified by:	Concentrations prepared by:
0	MF	BA
1	BA	BA
2	BA	BA
3	~~MF~~	~~BA~~
4	MF	MF
5	BA	BA
6	MF	MF
7	MF	—
8		

Concentration	Mean neonates /adult	% survival
Control	19.7	80
6.25%	21.6	100
12.50%	20	80
25%	23.3	90
50%	18.4	90
100%	24.5	80

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

Comments:

(#) = 4th brood - not counted MF 6-19-12

(S) = split brood Note: The split broods noted on Day 6 in the Control were not divided into Two groups since The Total count [illegible]

*Day 0 is test initiation day

X = Dead (original organism)

Test Page 2 of 6

PAGE

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Bon Fay, City of WWTF

LIMS Sample # : 143282 for lab sample #1

Start Date: 6.13.12 Time: 1130

End Date: 6-19-12 Time: 1515

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
12.50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	—
	3	3	4	0	2	2	X	3	5	2	2	23	9	2.3
	4	0	0	5	6	0		0	0	0	0	11	9	1.1
	5	1	1	1	0	9		2	5	1(6)	6	35	9	3.5
	6	1(5)	13	0	11	13		$\frac{1}{3}$	15	10	12	75	9	7.5
	7	13	0X	16	15	11		17	7(6)	10	9	56	8	5.6
	8													
	Total	18	24	22	19	24	0	25	25	23	20	200(10)	8 (10)	20

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	—
	3	2	1	2	5	3	0	4	4	6	4	31	10	3.1
	4	0	0	0	0	0	0	0	0	0	0	0	10	—
	5	5	2	7	9	9	7	10	9	6	1	65	10	6.5
	6	10	7	7	X2	13	12	15	14	12	11	103	9	10.3
	7	12	8(9)	9	8	(12)	17	15	15	(12)(8)		34	9	3.4
	8													
	Total	17	18	25	16	25	36	29	27	24	16	233	9(10)	23.3

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0 MF	10	—
	3	4(6)	3	3	3	2	0	5	5	4	3	3~~3~~	9	3.3
	4	1	3	0	1(6)	0	0	0	0	0	0	3	9	0.3
	5	1	0	5	7	0	5(6)	6	8	6	7(8)	51 MF	9	5.1
	6	1	10	10	5	0	$\frac{1}{3}$	16	5	11	15	67~~83~~	9	6~~7~~83
	7	1	(7)	(5)	(1)	0	14	(2)	11	(8)	(2)	MF 70 #	9	7.0 1.4
	8													
	Total	4	16	18	16	2	22	31	29	21	25	184~~83~~	9	18.4

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*												10	
	1												12	
	2	0	0	0	0	0	0	0	0	0	0	0 MF	10	—
	3	0	5	4	4~~5~~	3	0	4	3	3		3~~8~~2	10	3.2
	4	7	0	0	1(6)	0	0	4	0	0	7	18	10	1.8
	5	11	11	6	9	10	11	8	0	9	X7	83	9	8.3
	6	0	13	11	8	1(6)	10	0	11	X1		54	8	5.4
	7	14	(4)	(5)	(9)	20	(8)	7	17			58	8	5.8
	8													
	Total	32	29	21	22	34	24	19	32	13	17	245	8 (10)	24.5

Comments: (6) = wild mouse transfer

($) = split brood mf 6-16-12

(#) = 4th brood not counted mf 6-19-12

*Day 0 is test initiation day
X = Dead (original organism)

Test Page 3 of 6

PAGE 33

revised 07/15/08 MF

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Bonifay, City of WWTF SOP TA07_05

LIMS Sample #: 1434802 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	7.4	25.0	6.8	313					
	1	6.25%	M	7.4	24.9	6.9	316					
	1	12.5%	M	7.4	24.6	6.9	317					
	1	25%	M	7.5	24.5	7.0	315					
	1	50%	M	7.5	24.4	7.2	316					
	1	100%	M	7.5	24.4	7.2	308					
	Measured by:			BA	BA	BA	BA					
	Recorded by:			BA	BA	BA	BA					
Day 1	sample:	Control	M	7.5	25.0	7.0	312	M	7.8	24.6	5.9	337
	1	6.25%	M	7.6	24.5	7.2	318	M	7.9	24.3	5.9	327
	1	12.5%	M	7.7	24.3	7.3	318	M	7.9	24.2	6.5	325
	1	25%	M	7.8	24.2	7.5	317	M	7.9	24.1	7.0	336
	1	50%	M	7.8	24.2	7.6	315	M	7.9	24.0	7.4	322
	1	100%	M	7.8	24.2	7.4	315	M	7.9	24.0	7.5	321
	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	7.4	25.3	7.1	311	M	7.8	24.0	7.0	347
	2	6.25%	M	7.4	24.3	7.0	316	M	7.8	24.0	7.1	345
	2	12.5%	M	7.5	24.2	7.0	316	M	7.8	24.0	7.4	340
	2	25%	M	7.5	24.1	7.0	313	M	7.9	24.0	7.6	336
	2	50%	M	7.5	24.0	7.0	318	M	7.9	24.0	7.6	324
	2	100%	M	7.6	24.0	7.1	309	M	7.9	24.0	7.5	329
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 3	sample:	Control	M	7.4	24.5	7.1	309	M	7.6	24.0	6.9	336
	2	6.25%	M	7.5	24.1	6.7	308	M	7.6	24.0	7.0	331
	2	12.5%	M	7.5	24.0	6.6	308	M	7.7	24.0	7.1	346
	2	25%	M	7.5	24.0	6.7	308	M	7.7	24.0	7.1	336
	2	50%	M	7.6	24.0	6.8	306	M	7.7	24.0	7.1	342
	2	100%	M	7.6	24.0	6.9	305	M	7.7	24.0	7.1	345
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA

Comments:

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Bonifay, City of WWTF SOP TA07_05

LIMS Sample #: 1434802 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	7.9	24.5	7.7	303	M	8.0	24.4	8.1	360
	3	6.25%	M	7.9	24.7	7.8	305	M	8.0	24.4	8.2	358
	3	12.5%	M	7.9	24.9	7.9	306	M	8.0	24.5	8.2	351
	3	25%	M	7.9	25.1	8.0	306	M	8.1	24.6	8.2	343
	3	50%	M	7.9	25.1	8.0	306	M	8.0	25.0	8.3	337
	3	100%	M	7.9	25.6	7.9	318	M	8.0	24.7	8.3	364
	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	7.4	24.8	7.1	300	M	7.5	24.0	8.0	340
	3	6.25%	M	7.5	24.5	7.3	301	M	7.6	24.0	8.0	314
	3	12.5%	M	7.5	24.8	7.6	303	M	7.6	24.0	8.0	315
	3	25%	M	7.5	24.0	7.7	307	M	7.6	24.0	8.1	328
	3	50%	M	7.5	24.0	7.7	309	M	7.7	24.0	8.1	317
	3	100%	M	7.5	24.0	7.7	323	M	7.7	24.0	8.1	326
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 6	sample:	Control	M 8.1	7.6 PK	24.1	7.6	299	M	8.0	24.5	7.6	326
	3	6.25%	M 8.1	~~7.5~~ PK	24.3	7.5	298	M	8.1	24.4	7.6	320
	3	12.5%	M 8.0	~~7.9~~ PK	24.4	7.4	298	M	8.1	24.6	7.7	318
	3	25%	M 8.0	~~7.5~~ PK	24.5	7.5	298	M	8.0	24.7	7.8	315
	3	50%	M 8.0	~~7.5~~ PK	24.7	7.5	302	M	8.0	24.4	7.8	315
	3	100%	M 8.0	~~7.6~~ PK	25.4	7.6	315	M	8.0	25.1	8.0	329
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 7	sample:	Control	M					M	~~MF 27.9~~	24.1	8.2	320
	3	6.25%	M					M	7.9	24.2	8.1	311
	3	12.5%	M					M	8.0	24.2	8.1	315
	3	25%	M					M	8.0	24.2	8.1	317
	3	50%	M					M	7.9	24.1	8.0	332
	3	100%	M					M	7.9	24.0	8.1	326
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF

Comments:

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

Test ID: Bonifay, City of WWTF Dates: June 12 – 19, 2012

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	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	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ 5
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	-	

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 6-19-12

V 1.1 9/21/10 MF/jd

39

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	6/12/2012 11:30	Test ID:	boncdjun12	Sample ID:	Bonifay WWTF June 2012 C. dubia
End Date:	6/19/2012 15:15	Lab ID:	DEP TOXLAB-FDEP Biology T	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia

Comments: C. dubia chronic test for Bonifay WWTF June 2012

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	25.000	24.000	22.000	0.000	22.000	32.000	21.000	3.000	22.000	26.000
6.25	20.000	10.000	22.000	17.000	24.000	21.000	23.000	22.000	33.000	24.000
12.5	18.000	24.000	22.000	19.000	24.000	0.000	25.000	25.000	23.000	20.000
25	17.000	18.000	25.000	16.000	25.000	36.000	29.000	27.000	24.000	16.000
50	4.000	16.000	18.000	16.000	2.000	22.000	31.000	29.000	21.000	25.000
100	32.000	29.000	21.000	22.000	36.000	24.000	19.000	32.000	13.000	17.000

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	19.700	1.0000	19.700	0.000	32.000	51.381	10	21.250	1.0000
6.25	21.600	1.0964	21.600	10.000	33.000	26.836	10	21.250	1.0000
12.5	20.000	1.0152	20.000	0.000	25.000	37.268	10	21.250	1.0000
25	23.300	1.1827	23.300	16.000	36.000	28.183	10	21.250	1.0000
50	18.400	0.9340	18.400	2.000	31.000	51.952	10	21.250	1.0000
100	24.500	1.2437	24.500	13.000	36.000	30.499	10	21.250	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution (p > 0.01)	0.95432	1.035	-0.7943	0.64493
Bartlett's Test indicates equal variances (p = 0.56)	3.95423	15.0863		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Bonifay, City of WWTF
Address: 611 Martin Luther King Jr. Ave, Bonifay
County: Holmes
NPDES Permit #: FL 0027731
Contact/District: Nathan Malloy, 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: 6.12.12 Time: 1245
End Date: 6.19.12 Time: 1230

Diluent/ Batch:
MHW / 6.6.12 Test Days Used: 0-3
MHW / 6.15.12 Test Days Used: 4-6
ASW / Test Days Used:
ASW / Test Days Used:

Organism age <24 hrs days
Feeding Prior to Test and Daily
Artemia Lot #: 23613 0-3 0882 4-6
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #	
Day 0	79-12
Day 1	80-12
Day 2	81-12
Day 3	82-12
Day 4	83-12
Day 5	84-12
Day 6	85-12

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2012-06-12-26	1434802	11 June 12 0830	12 June 12 1030
Test Day 2	2	TLH-2012-06-H.68	1435572	13 June 12 0830	14 June 12 1012
Test Day 4	3	TLH-2012-06-15-05	1436118	15 June 12 083	16 June 12 0940

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	Not measured	Not measured		<0.03	<0.03	<0.03	94	84	85	102	104	101
Diluent/Control:				<0.03	<0.03		79	77		96	91	
Method:				Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	JD/AP	AP	AP	JD/AP	AP	AP	JD/AP	AP	AP
Verified by:	MF	MF	MF	AP	JD	MF	MF	JD	MF	MF	JD	MF

	Conductivity (circle one) (umhos-cm) mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	309	326	326	<0.017	<0.017	<0.017			
Diluent/Control:	331	383		<0.017	<0.017				
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	AP	JD	AP	BA/MF	MF	MF			
Verified by:	MF	AP	MF	AP	AP	AP			

Statistics	
Growth NOEC:	100 %
Growth LOEC:	>100 %
Growth IC_{25}:	>100 %
Growth IC_{25}:	>100 %
Ctrl % CV:	12.8 %
Dunnetts PMSD:	20.4 %
Survival NOEC:	100 %
Survival LOEC:	>100 %

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min 24.2 max 26.2 mean —
Water bath # ___ min ___ max ___ mean ___
Room B248 min 24.6 max 25.1 mean —

Investigators' signatures
James Forsyth
Adrienne Pennington
Marshall Faulkner
REVIEWER

Comments: Verified: 6.22.12 JD.
uploaded 6-22-12 MF

00001

PAGE

revised 08/24/06 MF/SP

Chronic Bioassay Survival Benchsheet

Facility: Bonifay, City of WWTF

LIMS Sample Number: 434802
(for Lab Sample # 1)

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

Department of Environmental Protection
Biology Laboratory Chronic Screening Bioassay
P. promelas SOP TA07_09 *M. beryllina* SOP TA07_14

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	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
Sample 6.25 %	A	10	10	~~8~~ 9	8	8	AP ~~10~~ 8	8	8
	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
Sample 12.5 %	A	10	10	9 JD	9	9	9	9	9
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	9 JD
	D	10	10	10	10	10	10	10	10
Sample 25 %	A	10	10	10	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
Sample 50 %	A	10	10	10	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
Sample 100 %	A	10	10	10	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
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	AP	AP	JD	JD
Verified by:									

Comments:

Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 (parameter pg. 1)

Sample Source: Bonifay, City of WWTF — Start Date: 06.12.12 — End Date: 06.19.12

LIMS Sample #: 1434802 (for Lab sample #1) — Start Time: 1345 — End Time: 1002

conc = concentration — rep = replicate — circle umhos or mmhos

Test Day			Before Renewal						After Renewal					
i		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	sample:	Control	A	7.8	25.4	7.4	331							
	1	6.25%	A	7.9	25.1	7.3	332							
	1	12.5%	A	7.9	25.1	7.1	331							
	1	25%	A	7.9	25.1	7.1	327							
	1	50%	A	7.9	25.8	7.1	316							
	1	100%	A	7.7	25.9	7.2	309							
	1		A											
	Measured by:			AP	JD	AP	AP							
	Recorded by:			AP	JD	AP	AP							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	7.5	24.3	7.6	333		B	7.8	25.4	7.6	341	
	1	6.25%	B	7.5	24.0	7.4	325		B	7.9	25.5	7.5	333	
	1	12.5%	B	7.6	24.4	7.7	330		B	7.9	25.6	7.4	333	
	1	25%	B	7.6	24.0	7.5	321		B	7.9	25.7	7.3	330	
	1	50%	B	7.6	24.1	7.6	313		B	7.9	25.9	7.2	323	
	1	100%	B	7.6	24.0	7.7	311		B	7.9	25.9	6.9	318	
	1		B						B					
	Measured by:			JD	JD	JD	JD			AP	JD	AP	AP	
	Recorded by:			JD	JD	JD	JD			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	7.5	25.7	6.5	343		C	7.6	25.1	7.0	343	
	2	6.25%	C	7.6	25.6	6.4	337		C	7.6	25.3	7.0	342	
	2	12.5%	C	7.6	23.5	6.1	338		C	7.6	25.5	6.9	337	
	2	25%	C	7.6	25.0	6.0	331		C	7.6	25.4	6.8	341	
	2	50%	C	7.6	24.8	6.2	324		C	7.7	25.4	6.9	323	
	2	100%	C	7.5	25.0	6.3	317		C	7.7	25.7	6.9	325	
	2		C						C					
	Measured by:			AP	JD	AP	AP			AP	JD	AP	AP	
	Recorded by:			AP	JD	AP	AP			AP	JD	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.4	24.5	5.8	343		D	7.7	25.3	7.3	364	
	2	6.25%	D	7.4	24.5	5.4	344		D	7.7	25.5	7.2	336	
	2	12.5%	D	7.3	25.0	5.1	341		D	7.8	25.4	6.6	334	
	2	25%	D	7.4	24.6	5.0	334		D	7.7	25.5	6.7	327	
	2	50%	D	7.3	24.7	5.3	324		D	7.7	25.5	6.7	318	
	2	100%	D	7.3	24.6	5.6	326		D	7.6	25.7	6.9	317	
	2		D						D					
	Measured by:			JD	JD	JD	JD			AP	JD	AP	AP	
	Recorded by:			JD	JD	JD	JD			AP	AP	AP	AP	

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional

Page 00003

Chronic Bioassay Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg. 2

Sample Source: Bonifay, City of WWTF — Start Date: 6.12.12 — End Date: 6.19.12

LIMS Sample #: 1434802 (for Lab sample #1) — Start Time: 12:45 — End Time: 1020

conc = concentration — rep = replicate

Test Day			Before Renewal						After Renewal					
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/ mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/ mmhos	Salinity ppth
Day 4	sample:	Control	A	7.3	25.9	5.8	383		A	7.4	24.5	7.3	377	
	3	6.25%	A	7.4	25.8	5.7	347		A	7.5	24.7	7.2	318	
	3	12.5%	A	7.4	25.6	5.8	346		A	7.5	24.7	7.3	319	
	3	25%	A	7.4	25.7	5.9	342		A	7.6	24.8	7.1	318	
	3	50%	A	7.4	25.7	5.9	333		A	7.6	25.0	7.2	316	
	3	100%	A	7.4	25.8	5.9	335		A	7.6	25.3	7.2	318	
	3		A						A					
	Measured by:			AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by:			AP	AP	AP	AP			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	7.5	25.2	6.9	425		B	7.6	24.9	7.5	394	
	3	6.25%	B	7.5	25.2	6.9	335		B	7.7	24.8	7.3	319	
	3	12.5%	B	7.5	24.9	6.8	330		B	7.7	24.8	7.1	316	
	3	25%	B	7.5	25.0	6.7	327		B	7.7	24.8	7.2	315	
	3	50%	B	7.5	25.2	6.7	327		B	7.7	24.8	7.2	314	
	3	100%	B	7.5	25.3	6.5	326		B	7.6	25.0	7.0	313	
	3		B						B					
	Measured by:			AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by:			AP	AP	AP	AP			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.4	24.8	6.2	395		C	7.7	25.5	7.3	344	
	3	6.25%	C	7.4	24.8	6.2	334		C	7.8	25.7	6.8	325	
	3	12.5%	C	7.4	24.9	6.3	330		C	7.7	25.6	7.0	324	
	3	25%	C	7.4	25.5	6.3	330		C	7.7	25.6	7.0	321	
	3	50%	C	7.4	25.2	6.1	330		C	7.7	25.5	7.0	318	
	3	100%	C	7.4	25.3	6.2	330		C	7.6	25.5	7.0	317	
	3		C						C					
	Measured by:			AP	JD	AP	AP			AP	JD	AP	AP	
	Recorded by:			AP	JD	AP	AP			AP	JD	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control	D	7.3	25.5	5.8	333		D					
	3	6.25%	D	7.3	25.8	6.0	330		D					
	3	12.5%	D	7.3	25.8	5.9	330		D					
	3	25%	D	7.3	25.4	6.0	326		D					
	3	50%	D	7.3	25.3	6.0	323		D					
	3	100%	D	7.3	25.5	6.1	321		D					
	3								D					
	Measured by:			JS	JD	JD	JD							
	Recorded by:			JD	JD	JD	JD							

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional.

Page

Chronic Bioassay Weighing Benchsheet

Facility: Bon. Fay, City of WWTF

LIMS Sample Number: 1434802
(for Lab Sample # 1)

***P. promelas* and *M. beryllina* Bench Sheet**
SOP TA06_21

			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right					
Concentration	Replicate	Pan #	Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg	AVG C
Control	A	1	0.02242	0.02713	0.00471	10	0.471	
	B	2	0.02308	0.02633	0.00425	10	0.425	0.49
	C	3	0.02242	0.02736	0.00494	10	0.494	
	D	4	0.02335	0.02910	0.00575	10	0.575	
sample 6.25 %	A	5	0.02223	0.02854	0.00631	10	0.631	
	B	6	0.02168	0.02753	0.00585	10	0.585	0.56
	C	7	0.02082	0.02563	0.00481	10	0.481	
	D	8	0.02133	0.02697	0.00564	10	0.564	
sample 12.5 %	A	9	0.02138	0.02635	0.00497	10	0.497	
	B	10	0.02130	0.02737	0.00607	10	0.607	
	C	11	0.02170	0.02837	0.00667	10	0.667	0.0 0.60
	D	12	0.02207	0.02869	0.00662	10	0.662	
sample 25 %	A	13	0.02170	0.02836	0.00666	10	0.666	
	B	14	0.02214	0.02908	0.00694	10	0.694	
	C	15	0.02154	0.02877	0.00723	10	0.723	0.72
	D	16	0.02243	0.03058	0.00815	10	0.815	
sample 50 %	A	17	0.02213	0.03031	0.00818	10	0.818	
	B	18	0.02110	0.02854	0.00744	10	0.744	0.76
	C	19	0.02106	0.02840	0.00734	10	0.734	
	D	20	0.02100	0.02845	0.00745	10	0.745	
sample 100 %	A	21	0.02237	0.03073	0.00836	10	0.836	
	B	22	0.02268	0.03030	0.00762	10	0.762	0.80
	C	23	0.02191	0.03007	0.00816	10	0.816	
	D	24	0.02309	0.03129	0.0082	10	0.820	
sample %	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by initials:		AP	AP		revised 7/16/08 mf		

Comments:

Balance: Ohaus 250D Ser# 1125481084
S-Weights: BIO-S-Weights-01

Note: Pan number (#) refers to actual Pan number.

Page 00005

Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Bonifay, City of WWTF

LIMS Sample Number: 143402
(for Lab Sample # 1)

***P. promelas and M. beryllina* Bench sheet**
SOPs TA07_09, TA07_14 and TA06_21

Drying Oven ID:	ER634000
Temperature °C:	100
Hours:	8

Tare weighed by: AP
Final weighed by: AP

Tare Weighing Date: 6-18-12 Final Weighing Date: 6.20.12

Tare Pan 1 after Pan 5 (g)	0.02243	@ 0.02242	S-weights	0.01001	@	0.01
Tare Pan 1 after Pan 10 (g)	0.02242	@ 0.02242	at tare	0.03005	@	0.03
Tare Pan 1 after Pan 15 (g)	0.02243	@ 0.02242	S-weights	0.01000	@	0.01
Tare Pan 1 after Pan 20 (g)	0.02241	@ 0.02242	at final	0.05003	@	0.05
Tare Pan 1 after Pan 25 (g)	0.02242	@ 0.02242				
Tare Pan 1 after Pan 30 (g)		@				
Tare Pan 1 after Pan 35 (g)		@				
Tare Pan 1 after Pan 40 (g)		@				
Tare Pan 1 after Pan 45 (g)		@				
Tare Pan 1 after Pan 48 (g)		@				
Final Pan 1 after Pan 5 (g)	0.02712	@ 0.02713				
Final Pan 1 after Pan 10 (g)	0.02711	@ 0.02713				
Final Pan 1 after Pan 15 (g)	0.02712	@ 0.02713				
Final Pan 1 after Pan 20 (g)	0.02712	@ 0.02713				
Final Pan 1 after Pan 25 (g)	0.02713	@ 0.02713				
Final Pan 1 after Pan 30 (g)		@				
Final Pan 1 after Pan 35 (g)		@				
Final Pan 1 after Pan 40 (g)		@				
Final Pan 1 after Pan 45 (g)		@				
Final Pan 1 after Pan 48 (g)		@				

Balance: Ohaus 250D Ser# 1125481084
S-Weights: BIO-S-Weights-01

Note: Pan numbers (5, 10, etc.) for Tare and Final refers to sequence of weighing as actual Pan #s may differ.

Comments:

revised 7/16/08 MF

Test ID: Bonifay, City of WWTF Dates: June 12 — June 19, 2012

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	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	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	#5
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	-	✓

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)

M. Faircloth 6-20-12

V 1.1 9/21/10 MF/jd

00007

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	6/12/2012 12:45	Test ID:	bonppmay12	Sample ID:	Bonifay WWTF P. promelas June 2012
End Date:	6/19/2012 10:00	Lab ID:	DEP TOXLAB-FDEP Biology T	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	P. promelas chronic bioassay Bonifay WWTP June 2012				

Conc-%	1	2	3	4
D-Control	0.4710	0.4250	0.4940	0.5750
6.25	0.6310	0.5850	0.4810	0.5640
12.5	0.4970	0.6070	0.6670	0.6620
25	0.6660	0.6940	0.7230	0.8150
50	0.8180	0.7440	0.7340	0.7450
100	0.8360	0.7620	0.8160	0.8200

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.4913	1.0000	0.4913	0.4250	0.5750	12.778	4	0.6597	1.0000
6.25	0.5653	1.1506	0.5653	0.4810	0.6310	11.101	4	0.6597	1.0000
12.5	0.6083	1.2382	0.6083	0.4970	0.6670	12.987	4	0.6597	1.0000
25	0.7245	1.4748	0.7245	0.6660	0.8150	8.926	4	0.6597	1.0000
50	0.7603	1.5476	0.7603	0.7340	0.8180	5.106	4	0.6597	1.0000
100	0.8085	1.6458	0.8085	0.7620	0.8360	3.980	4	0.6597	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97808	0.884	-0.1456	-0.3182
Bartlett's Test indicates equal variances (p = 0.74)	2.71582	15.0863		

			Linear Interpolation (200 Resamples)	
Point	%	SD	95% CL(Exp)	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 6/11/12

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	550	LR44H	FM120610-1605	25	7.8	30
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

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 H

Standard Reference Toxicant Data

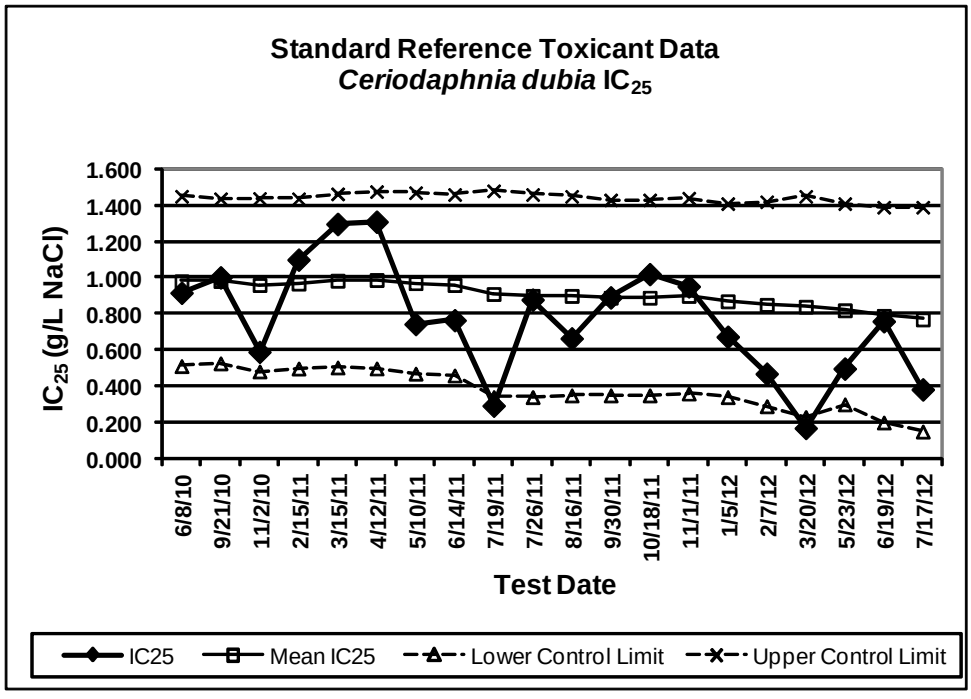
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
6/8/10	0.917	0.98	0.23	0.51	1.45
9/21/10	1.002	0.98	0.23	0.53	1.44
11/2/10	0.590	0.96	0.24	0.48	1.44
2/15/11	1.100	0.97	0.23	0.50	1.44
3/15/11	1.297	0.98	0.24	0.50	1.46
4/12/11	1.310	0.99	0.24	0.50	1.48
5/10/11	0.744	0.97	0.25	0.47	1.47
6/14/11	0.765	0.96	0.25	0.46	1.46
7/19/11	0.293	0.91	0.28	0.34	1.48
7/26/11	0.879	0.90	0.28	0.34	1.46
8/16/11	0.665	0.90	0.27	0.35	1.45
9/30/11	0.891	0.89	0.27	0.35	1.43
10/18/11	1.020	0.89	0.27	0.35	1.43
11/1/11	0.953	0.90	0.27	0.36	1.44
1/5/12	0.674	0.87	0.27	0.34	1.41
2/7/12	0.470	0.85	0.28	0.29	1.42
3/20/12	0.169	0.84	0.31	0.23	1.45
5/23/12	0.498	0.82	0.32	0.30	1.41
6/19/12	0.760	0.79	0.30	0.20	1.39
7/17/12	0.383	0.77	0.31	0.15	1.39

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

EPA 75th Percentile %CV for Reproduction **45%**
Last 20 - Lab %CV Reproduction 40.4%



Start Date:	5/23/2012 09:45	Test ID:	Cdsrtmay12	Sample ID:	Cd chron srt may 12
End Date:	5/30/2012 14:10	Lab ID:	DEP TOXLAB-FDEP Biology T	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	34.000	5.000	17.000	25.000	27.000	14.000	20.000	5.000	25.000	26.000
0.375	14.000	5.000	21.000	21.000	15.000	21.000	15.000	18.000	28.000	
0.75	12.000	11.000	8.000	9.000	13.000	0.000	4.000	8.000	15.000	13.000
1.5	9.000	7.000	9.000	5.000	10.000	8.000	1.000	8.000	0.000	4.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	19.800	1.0000	19.8000	5.0000	34.0000	48.372	10	19.800	1.0000
0.375	17.556	0.8866	17.5556	5.0000	28.0000	36.486	9	17.556	0.8866
0.75	9.300	0.4697	9.3000	0.0000	15.0000	49.158	10	9.300	0.4697
1.5	6.100	0.3081	6.1000	0.0000	10.0000	57.025	10	6.100	0.3081
3	0.000	0.0000	0.0000	0.0000	0.0000	0.000	10	0.000	0.0000
6	0.000	0.0000	0.0000	0.0000	0.0000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95532	0.917	-0.5449	0.83061
Bartlett's Test indicates equal variances (p = 0.02)	9.71439	11.3449		

			Linear Interpolation (200 Resamples)		
Point	gm/L	SD	95% CL		Skew
IC05*	0.1654	0.1454	0.0439	0.4241	0.3212
IC10*	0.3308	0.1305	0.0878	0.4739	-0.2398
IC15	0.4080	0.1174	0.1317	0.5233	-0.6140
IC20	0.4529	0.1092	0.1756	0.5727	-0.7559
IC25	0.4979	0.1055	0.2194	0.6248	-0.7287
IC40	0.6328	0.1178	0.3511	0.8392	0.6674
IC50	0.7227	0.1935	0.5173	1.2727	1.6946

* indicates IC estimate less than the lowest concentration

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

SDW
Diluent/ Batch: 20% DMW / 5-18-12 Test Days Used: 0-7
20% DMW / _____ Test Days Used: _____
Toxicant/ Batch: NaCl / 6g/L 5-23-12

SOP # : TA 07_05
EPA-821-R-02-013 Method 1002.0

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 5-22-12 <24 hr.
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 5-17-12 2-17-12
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 5-23-12 Time: 9:45
End Date: 5.30.12 Time: ASAP

Batch:					
Water Quality Parameters	20% DMW SDW MM 7-11-12	20% DMW	Other	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03			AP	JD
Alkalinity (mg/L as $CaCO_3$):	78			AP	JD
Hardness (mg/L as $CaCO_3$):	86			AP	JD
Total Ammonia (mg/L as N):	0.017			BA	JD
Conductivity umhos-cm mmhos-cm :	297			BA	AP

Results	
Control % CV:	48.4%
Dunnetts PMSD:	32.2%
Reproduction NOEC:	0.375 g/L
Reproduction LOEC:	0.75 g/L
Survival NOEC:	1.5 g/L
Survival LOEC:	3 g/L
IC_{20}:	0.4529 g/L
IC_{25}:	0.4979 g/L

Day	Concentrations prepared by	Counted by
0	BA	AP
1	BA	BA
2	BA	BA
3	BA	AP
4	BA	JD
5	BA	AP
6	AP	AP
7	AP	AP
8		

Loaded by: mf

Test Replicate	Loaded from culture vial
1	C8
2	C27
3	C7
4	C15
5	C4
6	C14
7	C3
8	C13
9	C2
10	C10

Comments:

Investigators' signatures

Test Incubated in: Incubator: # 2
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.7 max. 26.6 mean —
Room B248 ___ min. 25.0 max. 25.1 mean —
Test min.___ max.___ mean___

REVIEWER

00019

Ceriodaphnia dubia Survival and Reproduction

Start Date: 5.23.12 Time: 9.45 Loaded by: BA
End Date: 5.30.12 Time: 1000 Verified by: AP

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	6	5	4	5	3	8	7	5	6	5	54	10	5.4
	4	0	0	0	0	0	0	10	X	10	0	~~20~~	9	0
	5	9	X	1	3	16	0	0	|	6	4	38	8	3.8
	6	~~15~~ 19	|	12	12	14	6	12	|	12	17	104	8	10.4
	7	~~18~~	|	0	~~19~~	~~19~~	16	13	|	~~13~~	~~15~~	~~43~~ 29	8	2.9
	8		|						|				
	Total	34	5	17	25	27	30	33	5	25	26	227	10	22.7
0.375 g/L	0												10	
	1												10	
	2	0	X	0	0	0	0	0	0	0	0	0	9	0
	3	0	X	~~5~~	3	3	3	6	4	9	6	34	9	3.7
	4	0	|	0	0	5	4	0	0	0	0	9	9	1
	5	4	|	X	3	0	0	2	0	6	8	~~23~~ ~~19~~	8	2.56
	6	10	|	|	15	13	8	13	11	8	14	92	8	10.2
	7	14	|	|	~~18~~	~~14~~	~~8~~	~~14~~	7	~~11~~	~~16~~	~~102~~ 21	8	2.33
	8		|	|									
	Total	28	—	5	21	21	15	21	22	18	28	179	9	~~19.4~~ g/L
0.75 g/L	0												10	
	1												10	
	2	0	0	0	0	0	X	0	0	0	0	0	9	0
	3	0	6	0	2	0	|	0	4	5	2	19	9	1.9
	4	0	0	3	0	1	|	0	0	0	0	4	9	0.4
	5	4	0	0	0	6	|	6	0	3	2	9	9	0.9
	6	8	5	5	7	12	|	4	4	7	9	61	9	6.1
	7	11	~~Dead~~	8	7	7	|	~~16~~ 10	8	~~6~~	13	~~78~~ 59	9	5.9
	8						|						
	Total	23	19	16	16	20	0	14	16	15	13	52	10	15.2

Comments: * Squished during transfer
(A) 4th brood not counted

00020

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
1.5 g/L	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	2	0	0	4	1	2	0	0	9	10	0.9
	4	0	4	4	0	3	0	0	1	0	0	12	10	1.2
	5	3	0	0	0	0	0	0	0	0	2	5	10	0.5
	6	6	3	3	5	7	4	0	5	0	2	34 5	10	3.5
	7	4	4	0	1	3	0	0	0	0	6	18	10	1.8
	8													
	Total	13	11	9	6	13	8	1	8	0	10	79	10	7.9
3.0 g/L	0												10	
	1					X	X		X	X	X		5	
	2	0	X	X	0	0	0	0	0	0	0	0	3	0
	3	X	0	0	X	0	0	X	0	0	0	0	0	0
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
6.0 g/L	0												10	
	1	X	X	X	X	X	X	X	X	X	X		0	
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	7.2	24.5	6.4	297					
	0.375	M	7.3	24.2	6.9	1,019					
	0.75	M	7.4	24.1	6.8	1,692					
	1.5	M	7.5	24.1	6.9	3050					
	3.0	M	7.5	24.1	6.7	5,630					
	6.0	M	7.5	24.1	6.8	10,630					
	Measured by:		BA	BA	BA	BA					
	Recorded by:		BA	BA	BA	BA					
Day 1	Control	M	7.5	24.7	6.8	297	A	7.5	24.0	7.1	327
	0.375	M	7.5	24.1	6.9	1027	A	7.5	24.0	7.2	1077
	0.75	M	7.5	24.1	6.8	1,732	A	7.5	24.0	7.3	1,731
	1.5	M	7.5	24.0	6.9	3040	A	7.6	24.0	7.1	3160
	3.0	M	7.5	24.0	7.0	5,550	A	7.6	24.0	7.1	5970
	6.0	M					A	7.6	24.0	7.0	10860
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 2	Control	M	7.4	24.8	6.8	301	A	7.4	24.2	6.0	315
	0.375	M	7.4	24.3	6.9	968	A	7.4	24.3	6.7	1055
	0.75	M	7.4	24.1	7.1	1,640	A	7.4	24.1	6.5	1761
	1.5	M	~~7.5~~ 7.5 BA	24.1	7.5	2940	A	7.5	24.0	6.7	3111
	3.0	M	7.5	24.0	7.5	5660	A	7.5	24.0	6.7	5810
		M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 3	Control	M	8.0	24.6	7.9	521	A	7.9	25.2	7.7	365
	0.375	M	8.0	24.8	7.8	932	A	8.0	25.1	7.8	998
	0.75	M	8.0	24.9	7.7	1592	A	8.0	25.2	7.8	1650
	1.5	M	8.0	24.9	7.7	2850	A	8.1	25.3	7.9	2990
	3.0	M	8.0	25.0	7.7	5440	A	8.1	25.1	7.9	5810
		M									
	Measured by:		AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	AP

Comments:

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

00022

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day	Conc.	New Sample Replicate	New Sample pH (su)	New Sample Temp (°C)	New Sample DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	Old Sample pH (su)	Old Sample Temp (°C)	Old Sample DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4 ←	Control	M	7.7	25.3	7.3	300	A	7.7	25.2	6.8	317
	.375	M	7.8	25.3	7.3	968	A	7.3	25.3	6.8	998
	.75	M	7.9	25.1	7.4	1615	A	7.9	25.3	7.2	1674
	1.5	M	7.9	25.0	7.5	2890	A	7.9	25.1	7.4	2990
		M									
		M									
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
Day 5	Control	M	7.8	24.7	8.0	5.29	A	7.8	24.7	7.8	365
	0.375	M	7.9	24.8	7.8	934	A	7.9	24.8	7.8	963
	0.75	M	7.9	24.8	7.9	1579	A	7.9	24.8	7.7	1640
	1.5	M	8.0	24.9	7.9	2830	A	7.9	24.7	7.7	2940
		M									
		M									
	Measured by:		AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	AP
Day 6	Control	M	7.7	24.5	7.3	451	A	7.8	24.1	7.3	406
	0.375	M	7.8	24.9	7.4	1216	A	7.9	24.1	7.5	973
	0.75	M	7.9	24.8	7.3	1776	A	8.0	24.2	7.6	1643
	1.5	M	7.9	24.6	7.5	2940	A	8.0	24.3	7.6	2950
		M									
		M									
	Measured by:		AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	AP
Day 7	Control	M	7.9	24.6	8.1	445	A	7.9	24.8	7.7	393
	0.375	M	8.0	24.6	8.1	996	A	8.0	24.9	7.8	1248
	0.75	M	8.0	24.7	8.0	1605	A	8.0	25.0	7.7	1854
	1.5	M	8.0	24.7	7.9	2820	A	8.0	25.0	7.6	3040
		M									
		M									
	Measured by:		AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	AP
Day 8	Control	M									
		M									
		M									
		M									
		M									
		M									
	Measured by:										
	Recorded by:										

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

Test ID: Chronic SRT- Cobia Dates: 5.23.12 – 5.30.12

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	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	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ S
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	-	

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)

JD 6.5.12

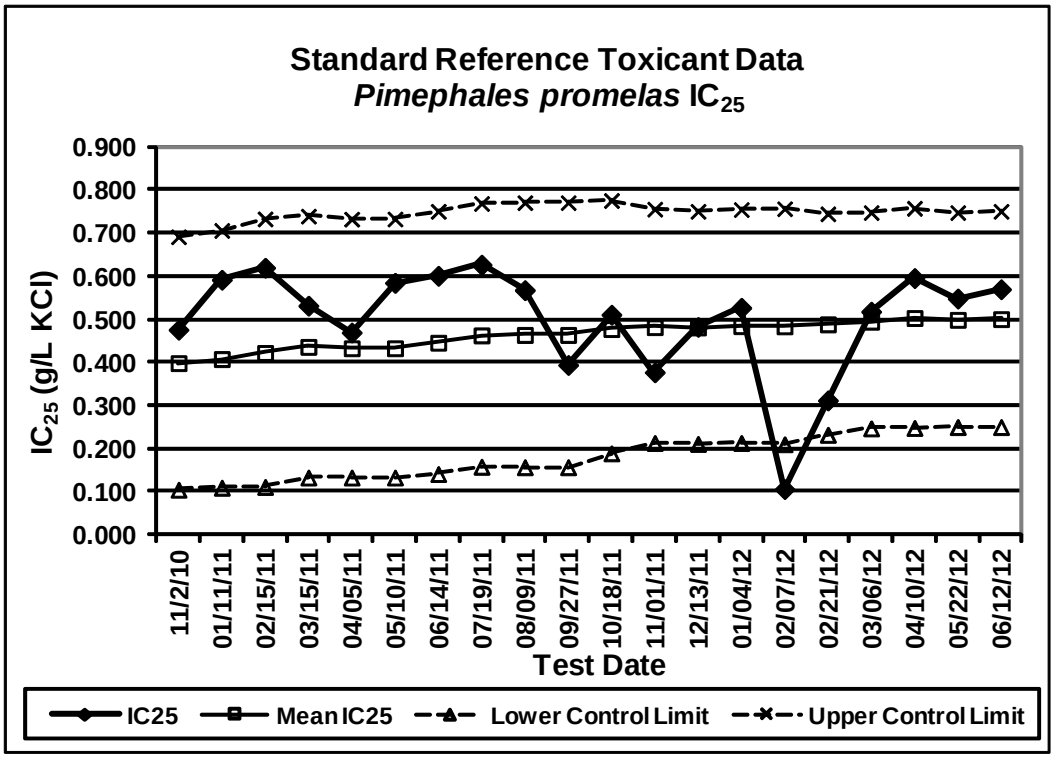
V 1.1 9/21/10 MF/jd

00024

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	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
11/02/10	0.476	0.398	0.15	0.105	0.692
01/11/11	0.592	0.408	0.15	0.109	0.707
02/15/11	0.620	0.422	0.16	0.111	0.733
03/15/11	0.532	0.436	0.15	0.133	0.740
04/05/11	0.470	0.433	0.15	0.133	0.733
05/10/11	0.585	0.433	0.15	0.133	0.733
06/14/11	0.601	0.446	0.15	0.141	0.751
07/19/11	0.627	0.463	0.15	0.158	0.769
08/09/11	0.568	0.464	0.15	0.157	0.771
09/27/11	0.394	0.464	0.15	0.157	0.771
10/18/11	0.511	0.478	0.14	0.189	0.776
11/01/11	0.377	0.482	0.14	0.213	0.756
12/13/11	0.483	0.481	0.14	0.211	0.751
01/04/12	0.527	0.484	0.14	0.213	0.755
02/07/12	0.106	0.484	0.14	0.210	0.757
02/21/12	0.312	0.489	0.13	0.232	0.745
03/06/12	0.518	0.495	0.13	0.247	0.748
04/10/12	0.596	0.503	0.13	0.248	0.758
05/22/12	0.548	0.499	0.12	0.250	0.748
06/12/12	0.570	0.501	0.12	0.250	0.751

Means are from the last 20 SRTs.
Lower Confidence Limit = mean - 2 * Std Dev EPA 75th %CV: 38%
Upper Confidence Limit = mean + 2 * Std Dev lab % CV: 25.03%



Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	5/22/2012	Test ID:	ppsrtmat12	Sample ID:	p. prom chrinic srt may 2012
End Date:	5/29/2012 09:00	Lab ID:	DEP TOXLAB-FDEP Biology T	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:					

Conc-gm/L	1	2	3	4
D-Control	0.6940	0.6600	0.7620	0.7790
0.125	0.7480	0.6300	0.6570	0.6360
0.25	0.6610	0.5680	0.5770	0.6390
0.5	0.7760	0.5850	0.5120	0.5200
1	0.0000	0.0000	0.0000	0.1020
2	0.0000	0.0000	0.0000	0.0000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.7238	1.0000	0.7238	0.6600	0.7790	7.761	4	0.7238	1.0000
0.125	0.6678	0.9226	0.6678	0.6300	0.7480	8.197	4	0.6678	0.9226
0.25	0.6113	0.8446	0.6113	0.5680	0.6610	7.490	4	0.6113	0.8446
0.5	0.5983	0.8266	0.5983	0.5120	0.7760	20.548	4	0.5983	0.8266
1	0.0255	0.0352	0.0255	0.0000	0.1020	200.000	4	0.0255	0.0352
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	4	0.0000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89971	0.868	1.17738	1.6701
Bartlett's Test indicates equal variances (p = 0.38)	4.17621	13.2767		

			Linear Interpolation (200 Resamples)		
Point	gm/L	SD	95% CL(Exp)		Skew
IC05*	0.0808	0.0544	0.0157	0.2777	2.5529
IC10	0.1612	0.1121	0.0317	0.7296	1.7112
IC15	0.2413	0.1383	0.0478	0.7282	0.2408
IC20	0.5168	0.1056	0.0658	0.6060	-0.9120
IC25	0.5484	0.0544	0.2972	0.6312	-1.7249
IC40	0.6432	0.0293	0.5363	0.7117	-0.2753
IC50	0.7064	0.0248	0.6171	0.7621	-0.2853

* indicates IC estimate less than the lowest concentration

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

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

Diluent/ Batch: MHW/5.21.12 Test Days Used: 0-7 Start Date: 5.22.12 Time: 1200

Diluent/ Batch: _____ Test Days Used: _____ End Date: 5.29.12 Time: 9:00

Toxicant/ Batch # : KCl/5.21.12 Organism Batch #/ Age: 5.22.12/<24hrs

Artemia Lot # : 23613

Artemia Batch #	Day 2 72-12	Day 5 75-12	Chamber size : 1000 ml
Day 0 70-12	Day 3 73-12	Day 6 76-12	Test volume : 500 ml
Day1 71-12	Day 4 74-12		

Feeding: *P. promelas* 0.15 g wet wt. 2X day 6 hour interval

M. beryllina 0.10 g wet wt days 0-2 0.15g wet wt. days 3-7

Water Quality Parameters	Diluent MHW	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		HACH	AP	JD
Alkalinity (mg/L as $CaCO_3$):	77		HACH	AP	JD
Hardness (mg/L as $CaCO_3$):	94		HACH	AP	JD
Total Ammonia (mg/L as N):	<0.017		DENVER	BA	JD
Conductivity ~~µmhos-cm~~ mmhos-cm:	336		METTLER	JD	AP

Statistics	
Growth NOEC:	0.25 g/L
Growth LOEC:	0.50 g/L
Growth IC_{20}:	0.5188 g/L
Growth IC_{25}:	0.5484 g/L
Ctrl % CV:	7.76 %
Dunnetts PMSD:	16.6 %
Survival NOEC:	0.5 g/L
Survival LOEC:	1 g/L

Test incubated in : ☑ Incubator # 3

☐ Waterbath #_____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 3 min. 23.9 max. 26.0 mean –

Water bath # ___ min.____ max.____ mean____

Room B246 min. 25.0 max. 25.1 mean –

P. promelas PMSD Bounds for Growth: Lower 12 Upper 30

M. beryllina PMSD Bounds for Growth: Lower 11 Upper 28

Investigators' signatures

James Daniels

Adrienne Pemberton

Becca Allen

Marshall Faircloth

_____

_____

Jim Miller

REVIEWER

Comments:

revised 7/16/08 MF

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

Organism: (*P. promelas*) *M.beryllina* (circle one) D = dead M = missing

Concentration: µg/L (g/L) (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	A1	10	10	10	10	10	10	10	10
	B	A2	10	10	10	10	10	10	10	10
	C	A3	10	10	10	10	10	10	10	10
	D	A4	10	10	10	10	10	10	10	10
.125	A	A5	10	10	10	10	10	10	10	10
	B	A6	10	10	10	10	10	10	9 ID	9
	C	A7	10	10	9 ID	9	9	9	9	9
	D	A8	10	10	10	10	10	10	10	10
.25	A	A9	10	9 ID	9	9	9	9	9	9
	B	A10	10	10	10	10	10	10	10	10
	C	A11	10	9 ID	9	9	9	9	9	9
	D	A12	10	10	10	10	10	10	10	10
.5	A	A13	10	10	10	10	10	10	10	10
	B	A14	10	10	10	10	10	10	10	10
	C	A15	10	10	10	10	10	10	10	10
	D	A16	10	10	10	10	10	10	10	10
1	A	A17	10	1 9D	0 ID	—	—	—	—	—
	B	A18	10	2 8D	2	1 ID	0 ID	—	—	—
	C	A19	10	3 7D	2 ID	1 ID	1	1	0 ID	—
	D	A20	10	3 7D	2 ID	1 ID	1	1	1	1
2	A	A21	10	0 10D						
	B	A22	10	0 10D						
	C	A23	10	0 10D						
	D	A24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JS		Checked by:		JD	JD	JS	AP	JS	AP	AP
Verified by (0 hr): AP										
Concentrations prepared by:				JD	JD	JS	JS	JS	JD	

Comments:

revised 7/16/08 MF

Chronic SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg. 1

Start Date: 5.24.12 End Date: 5.29.12

Start Time: 1200 End Time: 9.00

conc = concentration rep = replicate circle umhos or mmhos

Test Day		Before Renewal						After Renewal					
	Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	Control	A	7.5	24.6	7.8	336							
	.125	A	7.7	24.7	8.0	579							
	.25	A	7.8	24.8	8.0	848							
	.5	A	7.9	25.0	8.2	1342							
	1	A	7.9	25.4	8.4	2260							
	2	A	8.1	25.9	8.3	4240							
		A											
	Measured by		JD	JD	JD	JD							
	Recorded by		JD	JD	JD	JD							
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	Control	B	7.7	25.4	7.5	350		B	7.7	24.6	7.7	340	
	0.125	B	7.8	25.0	7.3	592		B	7.8	24.4	7.8	585	
	0.25	B	7.8	25.2	7.5	870		B	7.8	24.5	7.6	841	
	0.5	B	7.8	24.5	7.2	1361		B	7.9	24.5	7.5	1330	
	1.0	B	7.9	25.1	7.2	2280		B	7.9	24.9	7.5	2250	
	2.0	B	7.9	24.5	7.3	4180		B					
		B						B					
	Measured by		AP	JD	AP	AP			AP	JD	AP	AP	
	Recorded by		AP	JD	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	7.5	24.6	6.4	366		C	7.7	24.6	7.4	334	
	0.125	C	7.6	24.9	6.0	607		C	7.7	25.4	7.0	589	
	0.25	C	7.6	24.8	6.2	865		C	7.7	25.5	7.0	834	
	0.5	C	7.6	24.6	6.1	1369		C	7.8	25.5	6.8	1327	
	1.0	C	7.7	24.6	6.2	2310		C	7.9	25.1	7.0	2210	
		C						C					
		C						C					
	Measured by		AP	JD	AP	AP			AP	JD	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	Control	D	7.4	25.1	6.6	470		D	7.5	24.4	7.2	337	
	0.125	D	7.4	24.6	6.4	596		D	7.5	24.4	7.0	580	
	0.25	D	7.4	24.9	6.0	839		D	7.6	24.4	7.1	813	
	0.5	D	7.5	24.8	5.6	1311		D	7.6	24.5	6.9	1281	
	1.0	D	7.6	24.6	6.1	2250		D	7.7	24.8	7.2	2260	
		D						D					
		D						D					
	Measured by		AP	AP	AP	AP			AP	JD	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	

Comments:

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional

Chronic SRT Parameters Benchsheet

P. promelas and M. beryllina SOP TA07_09 and TA-07_15 parameter pg 2

Start Date: 5.22.12 End Date: 5.29.12

Start Time: 1200 End Time: 9:00

conc = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4	Control	A	7.4	24.6	6.1	396		A	7.6	24.6	7.0	359	
	0.125	A	7.4	24.7	5.4	607		A	7.6	24.9	6.6	577	
	0.25	A	7.4	24.5	5.2	863		A	7.7	24.9	6.6	820	
	0.5	A	7.4	24.6	5.5	1329		A	7.7	24.9	6.7	1270	
	1.0	~~A~~C	7.5	24.8	6.4	2280		~~A~~C	7.8	24.9	6.8	2210	
		A						A					
		A						A					
	Measured by		AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	Control	B	7.3	25.0	5.9	347		B	7.6	24.7	6.9	396	
	0.125	B	7.4	24.9	5.8	605		B	7.7	24.7	6.9	592	
	0.25	B	7.5	24.8	6.1	853		B	7.8	24.8	7.1	829	
	0.5	B	7.5	24.9	6.3	1313		B	7.9	24.9	7.1	1341	
	1	~~C~~B	7.6	24.6	6.6	2300		~~C~~B	7.9	24.9	7.1	2340	
		B						B					
		B						B					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	Control	C	7.5	25.0	6.5	459		C	7.7	24.8	7.3	341	
	0.125	C	7.5	25.2	6.2	603		C	7.7	24.8	7.1	571	
	0.25	C	7.6	25.2	6.4	843		C	7.7	24.8	7.2	807	
	0.5	C	7.7	25.1	6.7	1384		C	7.8	24.8	7.4	1314	
	1.0	~~D~~E	7.8	25.0	7.1	2410		~~D~~E	7.9	25.0	7.5	2350	
		C						C					
		C						C					
	Measured by		AP	AP	AP	AP			AP	JD	AP	AP	
	Recorded by		AP	AP	AP	AP			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	Control	D	7.4	25.4	6.6	348		D					
	0.125	D	7.5	25.5	6.0	592		D					
	0.25	D	7.5	25.0	6.3	830		D					
	0.5	D	7.6	25.4	6.8	1331		D					
	1	D	7.7	25.0	7.0	2410		D					
		D						D					
		D						D					
	Measured by		JD	JD	JD	JD							
	Recorded by		JD	JD	JD	JD							

For salinity <1 ppth insert <1. For salinity > 1 ppth, conductivity measurement is not required if salinity probe is functional

Page 60

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

Concentration: µg/L (g/L) (circle one)

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)	Avg.
Control	A	1	0.02294	0.02988	0.00694	10	0.694	
	B	2	0.02347	0.02907	0.00666	10	0.660	
	C	3	0.02344	0.03106	0.00762	10	0.762	0.723
	D	4	0.02272	0.03051	0.00779	10	0.779	
0.125	A	5	0.02188	0.02928	0.00748	10	0.748	
	B	6	0.02212	0.02842	0.0063	10	0.630	0.668
	C	7	0.02224	0.02881	0.00657	10	0.657	
	D	8	0.02225	0.02861	0.00636	10	0.636	
0.25	A	9	0.02187	0.02848	0.00661	10	0.661	
	B	10	0.02116	0.02684	0.00568	10	0.568	
	C	11	0.02333	0.02910	0.00577	10	0.577	0.611
	D	12	0.02233	0.02872	0.00639	10	0.639	
0.5	A	13	0.02227	0.03003	0.00776	10	0.776	
	B	14	0.02278	0.02863	0.00585	10	0.585	
	C	15	0.02172	0.02684	0.00512	10	0.512	0.598
	D	16	0.02271	0.02791	0.0052	10	0.520	
1.0	A	—	—	—	—	10	—	
	B	—	—	—	—	10	—	
	C	—	—	—	—	10	—	0.102
	D	17	0.02191	0.02293	0.00102	10	0.102	
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
		Weighed by:	AP	AP				

Comments:

Note: Pan number (#) refers to actual Pan number.

revised 8/24/06 MF/SP

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 5-28-12 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02397	@ 0.02294
after Pan 10	~~0.02397~~ 0.023975	@ 0.02294
after Pan 15	0.02297	@ 0.02294
after Pan 20	0.02294	@ 0.02294
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01001	@ 0.01g
	0.03001	@ 0.03g

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 5-30-12 Weighed by: AP

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.03985	@ 0.02988
after Pan 10	0.02987	@ 0.02988
after Pan 15	0.02988	@ 0.02988
after Pan 20	0.02990	@ 0.02988
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.01000	@ 0.01g
	0.05005	@ 0.05g

Drying Oven ID: ER034000

Temperature °C: 100

Drying Hours: 8

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

PAGE 62

revised 7/16/08 MF

Test ID: P. promelas Chronic SRT Dates: 5.22.12 – 5.29.12

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	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	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5 SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ 5
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	-	✓

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)

J.D. 5.31.12

V 1.1 9/21/10 MF/jd

Page 63

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 Bonifay WWTF on 7/9/12.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyta	274	214
Chlorophycota		
Apatococcus lobatus	3	8
Chlamydomonas sp.	-	1
Chlorella sp.	1	5
Cosmarium rectimarginatum	2	-
Pediastrum duplex clathratum	1	-
Scenedesmus bijuga	1	-
Westella botryoides	1	1
Cyanophycota		
Aphanocapsa planctonica	-	1
Cyanobium parvum	-	3
Cyanothece aeruginosa	-	5
Geitlerinema acutissimum	1	3
Jaaginema sp.	-	8
Jaaginema gracile	-	3
Komvophoron schmidlei	-	1
Merismopedia glauca	-	4
Oscillatoria sp.	-	2
Oscillatoria limosa	-	4
Oscillatoria tenuis	1	7
Planktolyngbya limnetica	6	8
Pseudanabaena mucicola	2	2
Schizothrix calcicola	1	3
Synechocystis sp.	6	19
Euglenophycota		
Euglena sp.	-	2

Appendix I-2

Diatom taxa list and number of valves counted to a target of 500 valves for qualitative periphyton collected from Bonifay WWTF on 7/9/12.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyceae		
Achnanthes fluviatilis	10	9
Achnanthes rupestoides	11	-
Achnanthidium affine	11	1
Achnanthidium exiguum	18	31
Achnanthidium microcephalum	1	-
Achnanthidium minutissimum	42	7
Amphora sp.	8	1
Amphora copulata	3	23
Bacillaria paxillifer	1	9
Capartogramma crucicula	-	73
Cymbella turgidula	4	-
Denticula sp.	1	-
Diadesmis confervacea	8	143
Diadesmis contenta	7	-
Diploneis parma	1	-
Encyonema minutum	4	-
Encyonema neomesianum	2	-
Encyonema silesiacum	-	4
Eunotia sp.	1	6
Eunotia pectinalis undulata	1	-
Fallacia tenera	-	2
Geissleria acceptata	39	4
Geissleria decussis	1	3
Gomphonema sp.	5	4
Gomphonema grovei lingulatum	41	1
Gomphonema lingulatiforme	19	-
Gomphonema parvulum	14	4
Gyrosigma sp.	-	1
Hippodonta hungarica	-	3
Luticola mutica	2	-
Navicula sp.	22	13
Navicula cryptocephala	10	2
Navicula germainii	-	2
Navicula ingenua	10	-
Navicula kotschyi	4	7
Navicula minima	15	20
Naviculaceae	11	13

Appendix I-2 (continued)

	Control Site	Test Site
Nitzschia sp.	63	22
Nitzschia amphibia	18	8
Nitzschia capitellata	-	1
Nitzschia dissipata	1	-
Nitzschia filiformis conferta	2	-
Nitzschia intermedia	4	-
Nitzschia sinuata delognei	1	1
Nitzschia sinuata tabellaria	16	4
Nupela neotropica	2	1
Nupela vitiosa	1	-
Pinnularia sp.	4	2
Placoneis elginensis	4	7
Placoneis gastrum	1	3
Planothidium apiculatum	-	4
Planothidium delicatulum	3	-
Planothidium frequentissimum	3	3
Planothidium rostratum	2	5
Psammothidium sacculum	1	-
Psammothidium subatomoides	3	-
Rhopalodia sp.	1	-
Rossithidium pusillium	1	7
Stauroneis sp.	-	7
Stauroneis smithii	3	-
Surirella sp.	-	1
Surirella angusta	4	-
Tryblionella apiculata	12	-
Coscinodiscophyceae		
Melosira sp.	4	-
Fragilariophyceae		
Fragilaria capucina	5	5
Staurosirella pinnata	10	33
Synedra ulna	1	-
Mediophyceae		
Cyclotella meneghiniana	3	-

Appendix J-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of the Bonifay WWTF on 7/9/12. 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				
Oligochaeta				
Dero sp.	-	-	2	-
Eclipidrilus sp.	-	-	-	1
Limnodrilus hoffmeisteri	-	-	9	5
Lumbriculus variegatus	-	-	-	1
Naididae	-	-	-	2
Tubificidae	1	-	-	-
Arthropoda				
Arachnida				
Acariformes				
Undetermined Acariformes	-	1	-	-
Crustacea				
Amphipoda				
Undetermined Amphipoda	-	-	-	1
Decapoda				
Cambaridae	1	-	-	-
Insecta				
Coleoptera				
Scirtidae	1	-	-	-
Stenelmis sp.	2	1	-	-
Diptera				
Ablabesmyia sp.	1	-	-	-
Ablabesmyia mallochi	-	1	-	-
Chironomus sp.	2	-	11	7
Cryptochironomus sp.	-	-	3	3
Dicrotendipes modestus	-	-	2	3
Dicrotendipes neomodestus	-	-	4	6
Dicrotendipes simpsoni	8	3	-	-
Glyptotendipes sp.	-	-	29	19
Goeldichironomus sp.	1	-	-	-
Natarsia sp.	-	-	2	2
Phaenopsectra sp.	1	1	-	-
Polypedilum halterale grp.	-	-	-	1
Polypedilum scalaenum grp.	-	-	4	3
Procladius sp.	-	-	2	-
Stenochironomus sp.	-	-	-	1
Tribelos fuscicornis	-	-	-	3

Appendix J-1 (continued)

	Control Site		Test Site	
	Rep 1	**Rep 2**	**Rep 1**	**Rep 2**
Lepidoptera				
Undetermined Lepidoptera	-	-	1	-
Odonata				
Argia sp.	-	2	1	5
Enallagma sp.	13	9	9	10
Gomphidae	1	-	-	-
Ischnura sp.	-	2	-	-
Libellulidae	1	4	-	-
Neurocordulia sp.	-	-	17	5
Trichoptera				
Oecetis inconspicua cmplx.	-	-	3	1
Mollusca				
Bivalvia				
Corbicula fluminea	2	2	18	20
Sphaeriidae (mollusca)	9	12	4	18
Gastropoda				
Ancylidae	6	4	25	30
Lymnaeidae	1	-	-	-
Micromenetus sp.	95	88	-	-
Physa sp.	3	4	-	-
Planorbidae	-	-	8	9
Nemertea				
Prostoma sp.	-	-	1	2
Platyhelminthes				
Undetermined Platyhelminthes	2	6	2	2

Appendix J-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of the Bonifay WWTF on 7/9/12.

	Control Site		Test Site	
	Rep 1	**Rep 2**	**Rep 1**	**Rep 2**
Annelida				
Oligochaeta				
Dero sp.	-	-	2	-
Eclipidrilus sp.	-	-	-	1
Limnodrilus hoffmeisteri	-	-	1	2
Lumbriculus variegatus	-	-	-	1
Naididae	-	-	-	2
Tubificidae	1	-	8	3
Arthropoda				
Arachnida				
Acariformes				
Undetermined Acariformes	-	1	-	-
Crustacea				
Amphipoda				
Undetermined Amphipoda	-	-	-	1
Decapoda				
Cambaridae	1	-	-	-
Insecta				
Coleoptera				
Scirtidae	1	-	-	-
Stenelmis sp.	2	1	-	-
Diptera				
Ablabesmyia sp.	1	-	-	-
Ablabesmyia mallochi	-	1	-	-
Chironomidae	1	-	2	1
Chironomus sp.	2	-	11	7
Cryptochironomus sp.	-	-	3	3
Dicrotendipes sp.	2	-	-	2
Dicrotendipes modestus	-	-	2	2
Dicrotendipes neomodestus	-	-	4	5
Dicrotendipes simpsoni	5	3	-	-
Glyptotendipes sp.	-	-	27	18
Goeldichironomus sp.	1	-	-	-
Natarsia sp.	-	-	2	2
Phaenopsectra sp.	1	1	-	-
Polypedilum halterale grp.	-	-	-	1
Polypedilum scalaenum grp.	-	-	4	3
Procladius sp.	-	-	2	-
Stenochironomus sp.	-	-	-	1
Tribelos fuscicornis	-	-	-	3

Appendix J-2 (continued)

	Control Site		Test Site	
	Rep 1	**Rep 2**	**Rep 1**	**Rep 2**
Lepidoptera				
Undetermined Lepidoptera	-	-	1	-
Odonata				
Argia sp.	-	1	1	4
Coenagrionidae	6	6	2	2
Enallagma sp.	7	5	7	9
Gomphidae	1	-	-	-
Ischnura sp.	-	1	-	-
Libellulidae	1	4	16	4
Neurocordulia sp.	-	-	1	1
Trichoptera				
Oecetis inconspicua cmplx.	-	-	3	1
Mollusca				
Bivalvia				
Corbicula fluminea	2	2	18	20
Sphaeriidae(mollusca)	9	12	4	18
Gastropoda				
Ancylidae	6	4	25	30
Lymnaeidae	1	-	-	-
Micromenetus sp.	95	88	-	-
Physa sp.	3	4	-	-
Planorbidae	-	-	8	9
Nemertea				
Prostoma sp.	-	-	1	2
Platyhelminthes				
Undetermined Platyhelminthes	2	6	2	2

The Bioassay of the Bonifay WWTF effluent sampled on June 11, 2012, NPDES #FL0027731

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 FL0027731 11	12 120611	# B	# S	# 1

Remarks

#

The Priority Pollutants Analysis for Bioassay of the Bonifay WWTF effluent sampled on June 11, 2012, NPDES #FL0027731

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 FL0027731 11	12 120611	# X	# S	# 1

Remarks

#

Biological Analyses of the Bonifay WWTF effluent sampled on July 9, 2012, NPDES #FL0027731

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 FL0027731 11	12 120709	# S	# S	# 1

Remarks

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