

Biological Assessment of

Bonifay Wastewater Treatment Facility

Holmes County

NPDES #FL0027731

Sampled April 16-20, 2007 and August 6-10, 2007

November 2007

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	Bonifay Wastewater Treatment Facility
Physical Address:	911 East Bay Avenue
County:	Holmes
NPDES Number:	FL0027731
Permit Expiration:	March 7, 2008

Toxics Sampling Inspection **(XSI)**

Date Sampled: April 16 and 17, 2007; August 6, 2007 (effluent metals)

Results: Effluent copper (10.9 µg/L) and silver (0.27 µg/L) exceeded their respective Class III Water Quality Criteria (≤ 10.3 µg/L and ≤ 0.07 µg/L, 62-302.530(23),(59), F.A.C.) during the April 16, 2007, sampling. Iron, nickel, and zinc were detected in the effluent at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.). Arsenic, cadmium, chromium III, and lead were detected at levels above the method detection limit (MDL) and below the practical quantitation limit (PQL). Aluminum was detected in the effluent. In follow-up sampling on August 6, 2007, iron and zinc were detected in the effluent at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.), and aluminum, nickel, and silver were detected between the MDLs and PQLs.

Concentrations of aluminum, copper, lead, silver, and zinc were elevated at the Test Site compared to the Control Site, most likely due to higher concentrations in the effluent. At the Test Site, copper (10.1 µg/L) and silver (0.29 µg/L) exceeded their respective Class III Water Quality Criteria (≤ 9.06 µg/L and ≤ 0.07 µg/L, 62-302.530(23),(59), F.A.C.). Lead and zinc were detected at the downstream Test Site at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.). Iron concentrations at the Control (1,140 µg/L) and Test (1,030 µg/L) Sites exceeded the Class III Water Quality Criterion (≤ 1,000 µg/L, 62-302.530(38), F.A.C.). Aluminum, calcium, and magnesium were detected at low levels in field blanks on April 17, and aluminum and copper were detected at low levels in field blanks on August 6.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: April 16, 18, and 20, 2007; August 6, 8, and 10, 2007

Results: The chronic screening toxicity tests conducted during the full inspection were reported as No Result, due to sampling irregularities. The chronic screening toxicity tests conducted during the week of August 6, 2007, did not show toxicity to the water flea, *Ceriodaphnia dubia*, but did show toxicity to the fish, *Pimephales promelas*. There was a significant reduction in fish growth in the 100% effluent sample compared to the control.

Water Quality Inspection **(WQI)**

Date Sampled: April 16 and 17, 2007; August 6, 2007 (effluent nutrients)

Results: Fecal coliforms were detected in the effluent and the receiving water at levels that complied with Class III Water Quality Criteria and the facility's permit limits, and total coliforms were detected in the effluent (note: effluent coliform analyses exceeded holding time). The effluent total suspended solids concentration (19 mg/L) exceeded the single sample permit limit of ≤ 16 mg/L. Effluent total nitrogen (2.02 mg/L) and total phosphorus (1.6 mg/L) contributed to elevated nutrient concentrations at the Test Site (TN - 1.68 mg/L, TP - 1 mg/L) compared to the Control Site (TN - 0.576 mg/L, TP – 0.062 mg/L). Conductivity and temperature were elevated at the Test Site (305 µmhos/cm and 19.6°C) compared to the Control Site (170 µmhos/cm and 14.3°C), which can be attributed to the effluent (323 µmhos/cm and 21.5°C). Total nitrogen and total phosphorus of the effluent during the August sampling were 1.15 mg/L and 1.3 mg/L, respectively.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: April 16 and 17, 2007

Results: Effluent algal growth potential (AGP) was 61.8 mg dry wt/L, which is 20 times the "problem" threshold for fresh receiving waters. AGP at the Test Site (40.3 mg dry wt/L) was four times that at the Control Site (10.8 mg dry wt/L), which indicates nutrient enrichment associated with the effluent. There was a shift in the periphyton community from 94% diatoms at the Control Site to 76% diatoms and increased green and blue-green algae at the Test Site. Habitat Assessment value was marginal for macroinvertebrates at both the Control and Test Sites, but the SCI score of 32 at the Control Site was four times higher than the Test Site SCI score of 8. Both scores indicate degraded macroinvertebrate communities, with further degradation associated with the effluent. High numbers of individuals on Hester Dendy macroinvertebrate samplers at the Test Site compared to the Control Site were indicative of nutrient enrichment. Shannon-Weaver diversity on Hester Dendys could not be calculated at the Test Site because of insufficient replicates, so no determination of compliance with the biological integrity criterion was made.

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

Introduction

The Bonifay Wastewater Treatment Facility is located in Holmes County, Florida (Appendix A). This facility conducts tertiary treatment on domestic wastewater from the City of Bonifay. The treatment consists of influent grit removal, screening, dual sequential batch reactors, post equalization, dual sand filters, chlorine disinfection, post aeration, and dechlorination. Residuals are aerobically digested and land-applied (see Facility Summary in Appendix B). The effluent is then discharged into the Class III fresh waters of an unnamed tributary (hereafter Camp Branch) to Camp Creek. The design flow of the wastewater system is 1.4 million gallons per day (MGD) monthly average daily flow (MADF). The mean MADF from April 2006 through March 2007 was 0.76 MGD (Facility information from Kim Allen and Glenn Butts of the FDEP Northwest District).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly discharge monitoring reports, the plant has had several permit limit violations in the two years preceding this sampling event. Routine whole effluent chronic toxicity tests for water flea reproduction failed in January 2006 and February 2007. There were permit limit exceedences of un-ionized ammonia in October 2006 (limit 0.02 mg/L, value 0.022 mg/L), total nitrogen (single sample limit 10 mg/L, value 11.2 mg/L) and total phosphorus (single sample limit 6 mg/L, value 12 mg/L) in February 2007, and total suspended solids (single sample limit 16 mg/L) in April 2007 (value 22 mg/L) and May 2007 (value 25 mg/L). A compliance sampling inspection (CSI), conducted by FDEP Northwest District staff in December 2006, also revealed that the facility was out of compliance for incorrect composite sampling practices (Appendix B).

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Camp Branch approximately 100 meters upstream of the discharge) and a Test Site (located in Camp Branch approximately 50 meters downstream of the discharge). Detailed methods and their relationship to Florida Administrative Code are given in Appendix C.

Samples for the 7-day chronic bioassays were collected on April 16, 18, and 20, 2007. The permit requires 24-hr composite samples for these tests, but due to a programming error in the collection device and sampler error, the samples were a mix of composite and grab samples. All other effluent chemistry samples were collected on April 16, with the exception of effluent pesticide samples collected on April 17, 2007. In-stream water chemistry, periphyton, and Hester-Dendy samples were collected on April 16, while in-stream physical chemistry and stream condition index samples were collected on April 17, 2007.

Additional samples were collected August 6-10, 2007, for selected water chemistry and chronic screening bioassays.

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

The following were involved in this investigation: Glenn Butts, Laurence Donelan, Chris Stoll, and Frank Butera (FDEP Northwest District), and FDEP Central Laboratory in Tallahassee. See Appendix D for the chain of custody forms (sample submittal forms). The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley and Michael Tanski).

Results and Discussion

- Specific chemical results are reported in Tables 1 and 2, and a complete list of chemical analytes can be reviewed in Appendix E. Conductivity, pH, and dissolved oxygen in the effluent and at Control and Test Sites complied with Class III Water Quality Criteria (62-302, F.A.C.; Table 1). Conductivity and temperature were elevated at the Test Site (305 µmhos/cm and 19.6°C) compared to the Control Site (170 µmhos/cm and 14.3°C), which can be attributed to the effluent (323 µmhos/cm and 21.5°C).
- The effluent total nitrogen and total phosphorus concentrations were 2.02 mg/L and 1.6 mg/L, respectively (Table 1). Concentrations of all nitrogen and phosphorus fractions were an order of magnitude higher at the Test Site than at the Control Site, which can be attributed to higher concentrations in the effluent (see Table 1). Effluent total nitrogen and total phosphorus concentrations on August 6, 2007, were 1.15 mg/L and 1.3 mg/L, respectively.
- Chlorophyll-*a* was not detected in water samples of the effluent or from the Control and Test Sites (Table 1). We note that nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. water temperature, pH, shading, turbidity). Thus it is not necessarily contradictory for ambient nutrient levels to be high and for no chlorophyll to be detected in water samples.
- The effluent total suspended solids concentration (TSS; 19 mg/L)

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

Bonifay WWTF	Class III Standards	Effluent Limits	Effluent 4/16	Effluent 4/17	Effluent 4/18	Control Site 4/16	Control Site 4/17	Test Site 4/16	Test Site 4/17	Effluent 8/6
Organic Constituents (µg/L)										
None Detected	-	-	-	-	-	-	-	-	-	-
Nutrients (mg/L)										
Ortho-phosphate	-	-	1.2	-	-	0.027	-	0.71	-	-
Total Phosphorus	-	≤ 6.0 s	1.6	-	-	0.062	-	1	-	1.3
Total Ammonia	-	Report	0.069	-	-	0.047	-	0.11	-	0.054 f
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	< 0.02 c	-	-	< 0.02 c	-	< 0.02 c	-	<0.02 c
Nitrate and Nitrite	-		0.62 f	-	-	0.066 f	-	0.28 f	-	0.62
Total Kjeldahl Nitrogen	-		1.4	-	-	0.51	-	1.4	-	0.53
Organic Nitrogen	-		1.331 c	-	-	0.463 c	-	1.29 c	-	0.476 c
Total Nitrogen	-	≤ 10.0 s	2.02 c	-	-	0.576 c	-	1.68 c	-	1.15 c
General Physical and Chemical Parameters										
Habitat Assessment	-	-	-	-	-	-	50	-	57	-
Dissolved Oxygen (mg/L)	≥ 5.0 s	≥ 6 s	-	9.6	9.8	-	7.4	-	7.2	7.8
pH (SU)	6.0 - 8.5 s	6.0 - 8.5 s	-	7.0	7.6	-	6.1	-	6.7	7.1
Conductivity (µmhos/cm)	≤ 1,275 s	-	-	323	374	-	170	-	305	397
Temperature °C	-	Report	-	21.5	21.6	-	14.3	-	19.6	29.9
Sample Depth (m)	-	-	-	-	-	-	0.3	-	0.5	-
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	-	< 0.03 £	-	-	-	-	-	-
Chlorophyll a (µg/L)	-	-	0.85 U	-	-	1.7 U	-	1.7 U	-	-
Phaeophytin (µg/L)	-	-	1.5 U	-	-	3 U	-	3 U	-	-
Total Suspended Solids (mg/L)	-	≤ 16 s	19	-	-	-	5 UA*	-	5 U*	-
CBOD, 5 day (mg/L), N - inhibited	-	≤ 16 s	3.4	-	-	-	-	-	-	-
BOD, 5 day (mg/L)	-	-	-	-	-	-	2.6 *	-	1.7 A*	-
Turbidity (NTU)	≤ 29 t	-	-	-	-	-	8 A*	-	3 *	-
Color (PCU)	-	-	-	-	-	-	70 A*	-	15 *	-
Hardness (mg $CaCO_3$)	-	-	112.24 c	-	-	82.71 c	-	96.64 c	-	120.54
Toxicity (7-day chronic screening bioassay, NOEC)										
Bioassay - Water flea *(Ceriodaphnia dubia)*	-	≥ 100	No Result	-	-	-	-	-	-	100
Bioassay - Fish *(Cyprinella leedsi)*	-	≥ 100	No Result	-	-	-	-	-	-	< 100
Microbiology (Number of counts/100ml)										
Fecal Coliforms	≤ 800 s	-	13 BQ*	-	-	-	200 *	-	48 *	-
Total Coliforms	-	-	420 Q*	-	-	-	2800 *	-	700 *	-

Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated
f - Analyte detected in the sample and the field blank
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range
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
£ - Analysis conducted in the Bioassay laboratory of the DEP Central Lab
* - Analysis conducted in the Northwest District laboratory

Table 2. Effluent limits, Class III Freshwater Criteria, and metals data for samples collected on April 16, 2007 (unless otherwise noted). Class III Standards based on hardness are presented individually for each site based on hardness at that site.

Bonifay WWTF	Effluent Class III Standards	Effluent Limits	Effluent	Control Site Class III Standards	Control Site	Test Site Class III Standards	Test Site	Effluent (8/6/07) Class III Standards	Effluent (8/6/07)
Metals (µg/L unless otherwise noted)									
Aluminum	-	-	205 f	-	402 f	-	629 f	-	42 lf
Arsenic	≤ 50	-	0.95 l	≤ 50	1.6 l	≤ 50	1.4 l	≤ 50	0.5 U
Cadmium	≤ 0.3 b	-	0.067 l	≤ 0.24 b	0.05 U	≤ 0.26 b	0.05 l	≤ 0.31 b	0.02 U
Calcium (mg/L)	-	-	37.2 f	-	29 f	-	32.6 f	-	39.7
Chromium-III	≤ 94.7 b	-	0.75 l	≤ 73.77 b	1.79	≤ 83.80 b	1.15 l	≤ 100.43 b	1 U
Copper	≤ 10.3 b	-	10.9	≤ 7.93 b	2.65	≤ 9.06 b	10.1	≤ 10.94 b	1.9 f
Iron	≤ 1,000	-	268	≤ 1,000	1140	≤ 1,000	1030	≤ 1,000	81
Lead	≤ 3.7 b	-	0.67 l	≤ 2.50 b	1.46	≤ 3.05 b	1.97	≤ 4.04 b	0.33 U
Magnesium (mg/L)	-	-	4.7 f	-	2.5 f	-	3.7 f	-	5.2
Nickel	≤ 57.5 b	-	1.04	≤ 44.42 b	2.87	≤ 50.68 b	1.18	≤ 61.1 b	0.95 l
Selenium	≤ 5.0	-	0.5 U	≤ 5.0	0.5 U	≤ 5.0	0.5 U	≤ 5.0	0.5 U
Silver	≤ 0.07	Report	0.27	≤ 0.07	0.025 U	≤ 0.07	0.29	≤ 0.07	0.034 l
Zinc	≤ 132.1 b	-	39	≤ 102.01 b	13 l	≤ 116.40 b	35	≤ 140.37 b	27

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

f - Analyte was detected in both sample and method blank

l - 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

exceeded the single sample permit limit of ≤ 16 mg/L (Table 1). However, high TSS in the effluent did not appear to impact the receiving waters; TSS was not detected at the upstream Control Site or the downstream Test Site.

- Fecal coliforms were detected in the effluent and receiving waters at levels that complied with Class III Water Quality Criteria (See Table 1 for results and Appendix F for laboratory worksheets). Fecal coliform counts were higher at the Control Site than at the Test Site. Total coliforms were detected in the effluent and receiving waters as well, and counts were higher at the Control Site than at the Test Site. Turbidity was also higher at the Control Site than at the Test Site (not measured in the effluent). These trends are likely caused by a higher impact of urban runoff at the Control Site.

- The 7-day chronic screening bioassays conducted during the week of April 16, 2007, were reported as No Result due to sampling irregularities. The composite sampler was not set up to collect sufficient sample volume for each sampling day, so the samples were supplemented with grab sample, yielding samples that were not the 24-hr flow-proportional composites required by the permit (See Appendix F for bioassay bench sheets). The follow-up chronic screening bioassays conducted the week of August 6, 2007, with samples collected per the permit, did not show toxicity to the water flea, *Ceriodaphnia dubia*, but did show toxicity to the fish, *Pimephales promelas*. There was a significant reduction in growth in the 100% effluent sample compared to the controls.

- Effluent copper (10.9 µg/L) and silver (0.27 µg/L) exceeded their respective Class III Water Quality Criteria (≤ 10.3 µg/L and ≤ 0.07 µg/L, 62-302.530(23),(59), F.A.C.; Table 2). Iron, nickel, and zinc were detected in the effluent at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.). Arsenic, cadmium, chromium III, and lead were detected in the effluent at levels above the method detection limit (MDL) and below the practical quantitation limit (PQL). Aluminum was detected in the effluent. No organic pollutants were detected in the effluent. In follow-up effluent sampling on August 6, 2007, aluminum, lead, nickel, and silver were detected between the MDL and the PQL. Copper, iron, and zinc were detected at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.). Aluminum, calcium, and magnesium were detected at low levels in field blanks on April 17, and aluminum and copper were detected at low levels in field blanks on August 6.

- At the downstream Test Site, copper (10.1 µg/L) and silver (0.29 µg/L) exceeded their respective Class III Water Quality Criteria (≤ 9.06 µg/L and ≤ 0.07 µg/L, 62-302.530(23), (59), F.A.C.; Table 2). Iron concentrations at the Control (1,140 µg/L) and Test (1,030 µg/L) Sites exceeded the Class III Water Quality Criterion (≤ 1,000 µg/L, 62-302.530(38), F.A.C.; Table 2). Chromium III, copper, lead, and nickel were detected at the upstream Control Site at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.). Lead, nickel, and zinc were detected at the downstream Test Site at levels that comply with Class III Water Quality Criteria (62-302.530, F.A.C.).

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* for samples collected on April 16, 2007.

Bonifay WWTF				
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	61.8	26.2 ± 5.2	76.8 ± 15.4	0.6	1.3
Control Site	10.8	4.3 ± 0.9	21.9 ± 4.4	4.2	9.3
Test Site	40.3 A	14.8 ± 3.0	63.8 ± 12.8	0.5	1.7

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

Arsenic and zinc were detected between the MDL and PQL at the Control Site and arsenic, cadmium, and chromium III were detected between the MDL and PQL at the Test Site. Aluminum was detected at the Control and Test Sites. Of the metals, concentrations of aluminum, copper, lead, silver, and zinc were elevated at the Test Site compared to the Control Site, most likely due to higher concentrations in the effluent. Chromium, iron, and nickel concentrations were higher at the Control Site, likely due to impacts of urban runoff at the Control Site.

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al*. 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry wt/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. Effluent AGP was 61.8 mg dry wt/L (Table 3). The AGP values at the upstream Control Site and the downstream Test Site were 10.8 and 40.3 mg dry weight/L, respectively. All of these results were above the "problem" threshold, but levels were elevated at the Test Site compared to the Control Site. This indicates there is nutrient enrichment related to the Bonifay WWTF discharge in this portion of Camp Branch. The analytical chemistry suggests that the effluent is nitrogen-limited. There was not evidence of growth inhibition in AGP data (Table 3).
- There were some differences in attached algal (periphyton) community composition between the Control and Test Sites (Table 4, Appendix I). Diatoms made up 94% of the community at the Control Site, but only 76% at the Test Site. Blue-green and green algae comprised 24% of the periphyton community at the Test Site, but only 5% of the Control Site community. This increase in blue-green and green algae could be related to nutrient enrichment at the Test Site.
- Habitat assessment scores were 50 at the Control Site and 57 at the Test Site, placing both in the "marginal" habitat category (Table 1, data sheets in Appendix H). The slightly higher score at the Test Site was caused by better bank stability and greater riparian zone width.
- Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers indicated eutrophication at the Test Site compared to the Control Site (Table 5, Appendix J). There were almost five times as many individual macroinvertebrates per unit area on Hester-Dendy samplers at the Test Site as there were at the Control Site. The Test Site was dominated by *Glyptotendipes* sp, a pollution-tolerant dipteran which made up 58% of Test Site individuals but was not present at the Control Site.

Table 4. Periphyton composition at control and test sites.

Bonifay WWTF	Control Site	Test Site
Number of Wet Taxa	11	17
Number of Wet Algal Units Identified	305	298
Percent Dominant Wet Taxon	94.4	76.2
Dominant Wet Taxon Name	Bacillariophyta (Diatoms)	Bacillariophyta (Diatoms)
Number of Diatom Taxa	39	37
Number of Diatom Units Identified	500	500
Percent Dominant Diatom Taxon	13.4	14.8
Dominant Diatom Taxon Name	*Nitzschia* sp.	*Gomphonema* sp.
Percentage Composition of Wet Algae		
Blue-green algae	4.3	17.8
Green algae	0.7	5.7
Diatoms	94.4	76.2
Euglenophytes	0.3	0.3

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative.

Bonifay WWTF	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	3.78	- *
Number of Taxa **	30	26
Florida Index **	13	3
Number of EPT Taxa **	0	0
Percent Dominant Taxon	21.1	58.0
Dominant Taxon (name)	*Thienemannimyia* grp. (Diptera)	*Glyptotendipes* sp. (Diptera)
Total Number of Individuals (counted) **	230	763
Total Number of Individuals (#/m^2)	610	3,031
Community Composition: Percent of total		
Pelecypoda	0.0	0.3
Coleoptera	0.0	0.1
Decapoda	0.4	0.0
Diptera	70.1	91.2
Ephemeroptera	0.0	0.0
Gastropoda	1.3	2.1
Isopoda	0.4	0.0
Odonata	0.9	0.0
Oligochaeta	26.9	6.3
Pelecypoda	0.0	0.3
Plecoptera	0.0	0.0
Trichoptera	0.0	0.0
Other	0.0	0.0
Functional Feeding Groups: Percent of total		
Browser-Grazers	0.4	0.0
Burrowing Deposit Feeders	26.9	6.3
Predators	24.1	6.5
Scavengers	0.4	0.0
Scrapers	1.3	2.3
Shredders	2.7	35.6
Surface Deposit Feeders	25.5	44.9
Suspension Feeders	18.7	4.4

* Number of replicates insufficient to calculate the Shannon-Weaver diversity index to determine compliance with the water quality standard for biological integrity (62-302.530(10), F.A.C.).
** Count data are based on the sum of 3 replicates for the Control Site and 2 for the Test Site, and are therefore not directly comparable.

There was a community shift from four dominant functional groups at the Control Site to only two at the Test Site, suggesting an imbalance of fauna related to the facility's discharge. The number of taxa observed and Shannon-Weaver Diversity cannot be compared between sites due the difference in sample size (3 at the Control Site and 2 at the Test Site due to a loss of a sampler). Due to the potential for the loss of Hester Dendy samplers at this site, floating samplers should be used in the future, and four samplers should be deployed per site.

- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Table 6 and in Appendix K. The Control Site SCI score of 32 was four times higher than the Test Site SCI score of 8, though both scores are indicative of communities that have been degraded from healthy expected macroinvertebrate communities. The dominant taxon at the Control site was Physidae, the lunged snail family, which is tolerant to pollution and low oxygen conditions. The dominant taxon at the Test Site was *Chironomus* sp, a pollution-tolerant dipteran common in nutrient-enriched environments.

Summary

Both DMR and FDEP data from this inspection indicate exceedances of copper, silver, nutrients, total suspended solids, and chronic toxicity by this facility. Although the upstream portions of Camp Branch (Control Site) are impacted by the surrounding urban area, the downstream portion is further impacted by nutrient and metal enrichment from the effluent. Results from chemistry and AGP tests indicated nutrient enrichment in Camp Branch related to the Bonifay WWTF effluent. This inspection showed community shifts in flora and fauna in the receiving waters related to the effluent, as did the biological assessment of April 2002 at this facility. The Stream Condition Index showed that the already poor macroinvertebrate community in this portion of Camp Branch was further degraded related to the Bonifay WWTF effluent.

Literature Cited

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

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

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

Table 6. Macroinvertebrate Dipnet Samples - Qualitative.

Bonifay WWTF	Control Site		Test Site	
Summary Statistics				
Stream Condition Index result	32 A		8 A	
Stream Condition Index 2007 (category) *	Category 3		Category 3	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	27	21	23	20
Number of Ephemeroptera Taxa	0	0	0	0
Number of Trichoptera Taxa	0	0	0	0
Number of Clinger Taxa	2	0	0	0
Number of Long-lived Taxa	3	2	0	1
Number of Sensitive Taxa	2	0	0	0
Percent Dominant Taxon	25.2	14.2	32.0	33.6
Percent Suspension Feeders and Filterers	25.2	24.8	3.3	1.8
Percent Tanytarsini Individuals	10.6	9.9	1.3	0.0
Percent Very Tolerant Individuals	25.8	38.3	66.7	67.1
Number of Individuals Identified	151	141	150	143
Community Composition: Percent of total				
Dominant Taxon (name)	Physidae (Gastropoda)	Physidae (Gastropoda)	*Chironomus* sp. (Diptera)	*Chironomus* sp. (Diptera)
Coleoptera	1.3	0.0	0.0	0.0
Decapoda	0.7	0.0	0.0	0.0
Diptera	23.8	35.5	46.0	40.6
Ephemeroptera	0.0	0.0	0.0	0.0
Gastropoda	52.3	31.9	9.3	14.0
Oligochaeta	4.6	13.5	42.7	43.4
Pelecypoda	17.2	18.4	2.0	1.4
Plecoptera	0.0	0.0	0.0	0.0
Other	0.0	0.7	0.0	0.7
Functional Feeding Groups: Percent of total				
Browser-Grazers	0.3	0.0	0.0	0.0
Burrowing Deposit Feeders	4.6	13.5	42.7	43.4
Piercers	0.0	0.0	0.0	0.0
Predators	5.3	7.8	0.3	2.5
Scavengers	0.3	0.0	0.0	0.0
Scrapers	52.7	31.9	9.7	14.0
Shredders	1.0	2.8	4.0	1.8
Surface Deposit Feeders	10.6	18.4	39.3	36.0
Suspension Feeders	25.2	24.8	3.3	1.8
Unknown	0.0	0.7	0.7	0.7

A - Value reported is the mean of two determinations

* SCI_2007 categories from Table LT 7200-2 of Draft DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.), September 17, 2007: Values 0 ≤ 34 are Category 3; Values 35 < 70 are Category 2; Values 71 ≤ 100 are Category 1

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

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

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

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

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

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

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

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

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

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

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

Appendices

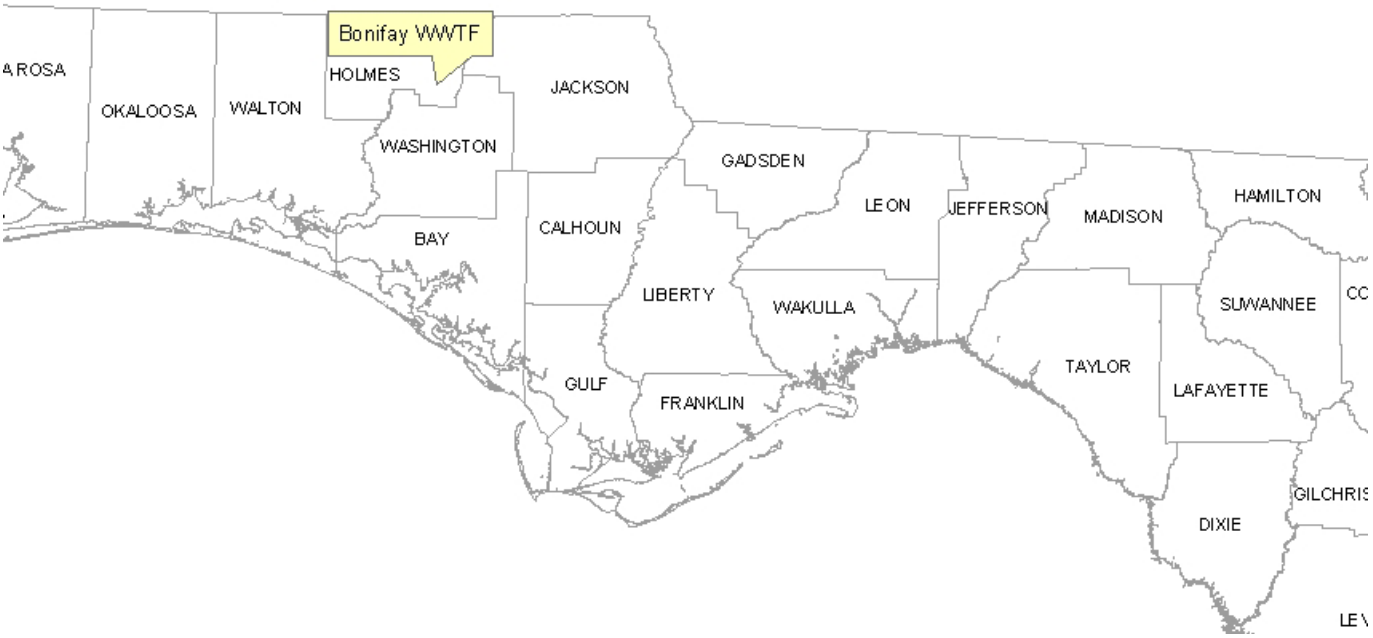
- Appendix A. Map of facility
- Appendix B. Facility summary and DMR data
- Appendix C. Explanation of measurements
- Appendix D. Chain of Custody form
- Appendix E. Chemical analyses of effluent and receiving water.
- Appendix F. Additional physical, chemical, toxicological and microbiological results
- Appendix G. Standard Reference Toxicant test data
- Appendix H. Habitat Assessment field sheets
- Appendix I1. Periphyton Wet ID: Taxa list and number of individuals counted
- Appendix I2. Periphyton Diatom ID: Taxa list and number of individuals counted
- Appendix J1. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix J2. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted
- Appendix K1. Dipnet samples: Taxa list and number of macroinvertebrates counted (collapsed)
- Appendix K2. Dipnet samples: Taxa list and number of macroinvertebrates counted

Appendix A: Map of Facility

Location of sampling sites.



Location of Bonifay WWTF in Holmes County within the Florida Panhandle



Appendix B

Facility Summary and DMR data

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

Facility Name (as it appears on permit): Bonifay WWTF **Email to which final report be sent:**		**Former Names:** N/A
Physical Address: 911 East Bay Avenue Bonifay, FL 32425	**NPDES Permit No.:** FL0027731 **Expiration Date:** 3/6/08	**Prepared By:** Kim Allen
County: Holmes	**District:** NWD	**Facility Type:** Domestic

Function of Facility: To treat wastewater for the City of Bonifay.

Sampling Location (actual permit designation of permitted sampling point):
EFD-01 Sample point after dechlorination

Description of permitted outfall:
Unnamed tributary to Camp Creek (Class III fresh) at D-001, located approximately lat 30°47'23"N, longitude 85°40'19.5"W

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

A 1.4 MGD monthly average daily flow tertiary wastewater treatment system consisting of: influent grit removal, screening, dual sequential batch reactors, post equalization, dual sand filters, chlorine disinfection, post aeration, and dechlorination. Residuals are aerobically digested and are land applied.

Receiving Waters: Unnamed tributary to Camp Creek	**Classification (indicate whether fresh or marine):** Class III fresh
Temperature (C):	**Design Flow:** 1.4 MGD monthly average daily flow (MADF)
pH (SU):	**Mean Flow (for previous 12 months):** 0.614 mgd (2006)
Conductivity (umhos/cm):	**Flow During Survey:**
Method of Chlorination:	**Method of Dechlorination:**
Dissolved Oxygen (mg/L):	**Total Residual Chlorine (mg/L) (after disinfection):**

Discharge is: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other**

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

Administrative or Consent Orders:
Administrative Order No. AO038NW expired March 31, 2004.

Facility Mixing Zone Details: N/A

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year:
January 2006 routine WET failure of CD reproduction (NOEC <100%). 1st additional definitive (2/14 – 2/21/06) failed CD reproduction (NOEC 50%). 2nd (2/21-3/1/06) and 3rd (2/28 – 3/8/06) additional definitives passed with NOEC >100%. 2/07 routine WET failure of CD reproduction (NOEC <100%). Review of additional tests pending submittal (not received as of 4/6/07).

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:
As of 4/6/07, there are no open enforcement cases for this facility. Previous enforcement was taken for nitrate and TSS effluent limit violations (closed 11/14/01) and a sewage spill into Branch Creek (closed 3/26/04).

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

During the past 5 years, the facility has had 2 effluent excursions: A routine chronic WET failure in 1/06 and 2/07.

List Effluent Limits (include additional sheets as necessary):

Parameter and Units	Limit	Describe special permit conditions and permit modifications:
	See Attached.	

Discharge Monitoring Report of Violations for period 1/1/05 – 7/1/07

Facility ID	Facility Name	Outfall Type	Monitoring Date	Outfall Indicator	Parameter Code	Parameter Description	Data	Limit	Statistical Base	Units
FL0027731	BONIFAY STP	EFFLUENT	4/30/2006	001-T	P TBP3B	NOEL STATRE 7DAY CHR CERIODAPHNIA	50	100	MINIMUM	PER- CENT
FL0027731	BONIFAY STP	EFFLUENT	2/28/2007	001-1	P 00600	NITROGEN, TOTAL	11.2	10	MAXIMUM	MG/L
FL0027731	BONIFAY STP	EFFLUENT	2/28/2007	001-1	P 00665	PHOSPHORUS, TOTAL (AS P)	3.94	3.75	MO AVG	MG/L
FL0027731	BONIFAY STP	EFFLUENT	2/28/2007	001-1	P 00665	PHOSPHORUS, TOTAL (AS P)	12	6	MAXIMUM	MG/L
FL0027731	BONIFAY STP	EFFLUENT	2/28/2007	001-T	P TBP3B	NOEL STATRE 7DAY CHR CERIODAPHNIA	<100	100	MINIMUM	PER- CENT
FL0027731	BONIFAY STP	EFFLUENT	4/30/2007	001-1	P 00530	SOLIDS, TOTAL SUSPENDED	22	16	MAXIMUM	MG/L
FL0027731	BONIFAY STP	EFFLUENT	5/31/2007	001-1	P 00530	SOLIDS, TOTAL SUSPENDED	25	16	MAXIMUM	MG/L

NOTE: The Compliance Sampling Inspection (CSI) of December 12, 2006, revealed an exceedence of the facility's permit limit for un-ionized ammonia. The limit was ≤0.02 mg/L, and the value measured was 0.02184 mg/L. This exceedence was not included in the facility's Discharge Monitoring Report.

Appendix C

Explanation of Measurements

(1) Quality Assurance and Quality Control

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

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. A list of the analytes tested for, results, data qualifiers, the minimum detection limit and the practical quantitation limit are given in Appendix E. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits (Tables 1 and 2, Appendix B). Exceedances of Water Quality Criteria may be violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Chronic screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Pimephales promelas* following FDEP SOPs TA07_05 and TA07_09. Failure of toxicity testing may constitute a violation of 62-302.520(21), 62-302.530(62) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

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

(5) Habitat Assessment

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

(6) Algal Growth Potential (AGP)

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

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

(7) Algal Phytoplankton and Periphyton Assemblages

Methods: Qualitative periphyton were sampled at both control and test sites by taking subsamples of algae from natural substrates throughout the sample reach (QA Rule FS7220). Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100). Periphyton were subsampled and identified to the lowest practical level (FDEP SOPs AB03, AB03_1 and AB05). 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 measured in phytoplankton samples to estimate algal biomass (FDEP SOP BB05). High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be a violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

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

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

Community Composition: Shifts in relative proportions of major groups of algae downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Stevenson and Bahls 1999) and may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

(8) Benthic Macroinvertebrate Assemblages

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

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

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

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

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

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

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida. This Index was revised in 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. Scores are broken into three categories (I, II, and III). SCI 2007 categories are from Table LT 7200-2 of Draft DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.), September 17, 2007. 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 I, if it is shown to be related to a facility's effluent, may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

(9) Statistical Comparisons

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-04-16-34
City of Bonifay STP

Requester: Shannan Bogdanov
Field Report Prepared By: G. BUTTS

Customer: NW-DIST
Collected By: G BUTTS, C. STOLL
Send Final Report To: Greg Smith

Project ID: FYI5
Sampling Agency: FDEP NW DISTRICT
Glenn Butts

PMAS: 1143 MONDAY 04-16-07 YSI FAILURE

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	BONIFAY WWTP EFFLUENT	☒ Comp ☐ Grab	Date 04-15-07 Time 1100	Date 04-16-07 Time	
	Field ID: #1	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number: 1030M04317	
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH; Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number: FL0027731	
	Latitude o ' " . Longitude o ' " .	Comments: DAY 1 OF ~~96 hr~~ 7 day NKW Chronic Biogssay			

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	NW DIST CHEM LAB	☐ Comp ☒ Grab	Date 04-16-07 Time	Date 0705 Time	
	Field ID: BK	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 o ' " . Longitude o ' " .	Comments: BLANKS			

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

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab			
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc); Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' " . Longitude o ' " .	Comments: 2 Biossay 10.31 4.17.07 J.D. James Daniels			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G.BUTTS	04-16-07	DHL	Tom B	04/17/07 9:20				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-04-16-34
City of Bonifay STP

Requester: Shannan Bogdanov

Field Report Prepared By: G. Butts

Customer: NW-DIST

Collected By: Butts, ~~Butler~~ Donelan

Send Final Report To: Greg Smith

Project ID: FYI5

Sampling Agency: FDEP NW DISTRICT

Glenn Butts

PMAS: 1143 CAMP BRANCH RECEIVING WATER

Lab ID *	Location: CAMP BRANCH 50 METER UPSTREAM OF BONIFAY WWTP AT MAGNOLIA ST.			☐ Comp ☒ Grab	Collection (begin) Date: 04-16-07 Time: 0945 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID: # 4			Tot Res Chlorine (mg/L)		Diss Oxygen (mg/L)		Storet Station Number: 32.02.0030	
	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 o ' "	Longitude o ' "		Comments: YSI DID NOT OPERATE, FRESHNE BATTERY FAILURE					
Lab ID *	Location: CAMP BRANCH BELOW BONIFAY WWTP			☐ Comp ☒ Grab	Collection (begin) Date: 04-16-07 Time: 1078 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID: # 5			Tot Res Chlorine (mg/L)		Diss Oxygen (mg/L)		Storet Station Number: 32.02.0031	
	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 o ' "	Longitude o ' "		Comments: YSI FAILURE					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)		Diss Oxygen (mg/L)		Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft			☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)		Diss Oxygen (mg/L)		Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft			☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "		Comments					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G. Butts	04-16-07	DAL	Tom E	04/17/07 9:20				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-04-16-34
City of Bonifay STP

Requester: Shannan Bogdanov
Field Report Prepared By:

Customer: NW-DIST
Collected By: G. BUTTS
Send Final Report To Greg Smith

Project ID: FYI5
Sampling Agency:

PMAS: 1143

Lab ID *	Location: BONIFAY WWTP EFFLUENT	☐ Comp ☒ Grab	Collection (begin) Date 04-17-07 Time 1125 Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 9.6	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C) 21.45	pH 6.95	Sample Depth ☐ m ☐ ft	323 ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' " .	Longitude o ' " .	Comments 007. 104.8 - PESTICIDES				
Lab ID *	Location CAMP BRANCH UPSTREAM OF BONIFAY WWTP AT MAGNOLIA ST.	☐ Comp ☐ Grab	Collection (begin) Date 04-17-07 Time Eastern Central	Collection (end) Date Time 1000 Eastern Central	Bottle Group(s)**		
	Field ID #4	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.41	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C) 14.25	pH 6.14	Sample Depth ☒ m ☐ ft 0.3	170 ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' " .	Longitude o ' " .	Comments SCI NET SWEEPS,				
Lab ID *	Location CAMP BRANCH BELOW BONIFAY WWTP	☐ Comp ☐ Grab	Collection (begin) Date 04-17-07 Time Eastern Central	Collection (end) Date Time 1045 Eastern Central	Bottle Group(s)**		
	Field ID #5	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.17	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C) 19.63	pH 6.67	Sample Depth ☐ m ☒ ft 0.5	305 ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' " .	Longitude o ' " .	Comments SCI NET SWEEPS				
Lab ID *	Location	☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' " .	Longitude o ' " .	Comments				

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G. BUTTS	04-17-07	DHL					SK	4-18-07 / 8:55am

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-04-16-34
City of Bonifay STP

Requester: Shannan Bogdanov
Field Report Prepared By: G. BUTTS

Customer: NW-DIST
Collected By: G. BUTTS
Send Final Report To Greg Smith

Project ID: FYI5
Sampling Agency: FDEP NW DISTRICT
Glenn Butts

PMAS: 1143 WEDNESDAY 04-18-07

Lab ID *	Location: BONIFAY WWTP EFFLUENT			☒ Comp ☐ Grab	Collection (begin) Date 04-17-07 Time Eastern Central		Collection (end) Date 04-18-07 Time 1015 Eastern Central		Bottle Group(s)**
	Field ID: # 2			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 4.77		Storet Station Number 1030104317		
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	Temp (C) 21.63	pH 7.56	Sample Depth 0.5 ☐ m ☐ ft	374	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number FL0027731		
	Latitude o ' "	Longitude o ' "		Comments: DAY 2 OF ~~96hr~~ 7-day NEW Chronic Bioassay					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: 2 Bioassay 10:03 4.18.07 JD					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G. BUTTS	04-18-07	DAC						4-19-07 / 8:15a

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID * NW-DIST-2007-04-20-01 (FY15)

Request Number: RQ-2007-04-16-34
City of Bonifay STP

Customer: NW-DIST
Project ID: FY15
PMAS: 1143 FRIDAY 04-20-07

Requester: Shannan Bogdanov
Collected By: ~~BUTTS, WELLENDORF, JACKSON~~ NKW 9/20/07 Todd Risk
Sampling Agency: FDEP ~~NW DISTRICT~~ LABS

Field Report Prepared By:
Send Final Report To Greg Smith
Glenn Butts

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	BONIFAY WWTP EFFLUENT Field ID # 3	☒ Comp ☐ Grab	Date 04-19-07 Time	Date 04-20-07 Time	1 Bottle
	Matrix (Include type e.g. Salt, ~~Fresh~~, etc) FRESH Temp (C) pH	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number 103OM04317	
	Latitude o ' " Longitude o ' "	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number FL0027731	
		Comments DAY 3 of ~~4~~ 7-day NEW Chronic Biossay			
Lab ID *	Location Bonifay WWTP Effluent Field ID #3	☐ Comp ☒ Grab	Collection (begin) Date 4/20/07 Time 4:55 Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)** 3 Bottle
	Matrix (Include type e.g. Salt, Fresh, etc) FRESH Temp (C) pH	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Latitude o ' " Longitude o ' "	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
		Comments			
Lab ID *	Location Field ID	☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Matrix (Include type e.g. Salt, Fresh, etc) Temp (C) pH	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Latitude o ' " Longitude o ' "	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
		Comments			
Lab ID *	Location Field ID	☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Matrix (Include type e.g. Salt, Fresh, etc) Temp (C) pH	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Latitude o ' " Longitude o ' "	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
		Comments 4 biossy 1:00 4.20.07 LD.			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
TODD RISK	4/20/07	HAND DELIVERED						

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-08-06-42
City of Bonifay STP DAY 1

Requester: Shannan Bogdanov

Field Report Prepared By: G. Butts

Customer: NW-DIST

Collected By: G Butts

Send Final Report To Greg Smith

Project ID: FYI3 MONDAY

Sampling Agency: FDEP NW DISTRICT

PMAS: 1143 08-06-07

Glenn Butts

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
	BONIFAY WWTP EFFLUENT	☒ Comp ☐ Grab	Date 08-05-07 Time 8:00 Central	Date 08-06-07 Time 0945 Central	
	Field ID # 1	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.83	Storet Station Number GMS 1030M04317	
	Matrix (Include type e.g. Salt, ~~Fresh~~, etc) FRESH	Temp (C) 29.89	pH 7.13	Sample Depth 0.012 ☑ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) 397 ~~379~~
	Latitude o ' " .	Longitude o ' " .	Comments		NPDES Number FL0027731

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
	NW DISTRICT CHEM LAB PENSACOLA	☐ Comp ☒ Grab	Date Time Central	Date 08-06-07 Time 0645 Central	
	Field ID BLANKS	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)
	Latitude o ' " .	Longitude o ' " .	Comments		NPDES Number

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Central	Date Time 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)
	Latitude o ' " .	Longitude o ' " .	Comments		NPDES Number

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
		☐ Comp ☐ Grab	Date Time Central	Date Time 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)
	Latitude o ' " .	Longitude o ' " .	Comments 2 Blanks 1044 8.7.07 J.D. [illegible]		NPDES Number

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G. Butts	08-06-07	DAL					SK	8-7-07/9:40a

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

DAY 2 WEDNESDAY

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-08-06-42

City of Bonifay STP

08-08-07

Customer: NW-DIST

Project ID: FYI3

PMAS: 1143

Requester: Shannan Bogdanov

Collected By: FDEP NW DISTRICT

Sampling Agency: G. BUTTS

Field Report Prepared By: G. BUTTS

Send Final Report To Greg Smith

Glenn Butts

Lab ID *	Location			☒ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	BONIFAY WWTP EFFLUENT				08-07-07 8:20	08-08-07 0945	
	Field ID # 2			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	~~Storet~~ Station Number GWS 1030M04317	
	Matrix (Include type e.g. Salt, ~~Fresh~~, etc) FRESH	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number FL0027731	
	Latitude o ' "	Longitude o ' "		Comments USE YSI READINGS FROM MONDAY			

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

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

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
G. BUTTS	08-08-07	DHL	Tom. E	9:05 08/09/05				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 bioassay BA - 16:00

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2007-08-06-42
City of Bonifay STP

Event ID *

Requester: Shannan Bogdanov

Field Report Prepared By: Marshall Faircloth

Customer: NW-DIST

Collected By: Marshall Faircloth

Send Final Report To Greg Smith

Project ID: FYI3

Sampling Agency: FDEP

PMAS: 1143

Lab ID *	Location			Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Bonifay WWTP			☒ Comp ☐ Grab	Date 8-9-07 Time 0822 (Central)	Date 08/22 Time 8-10-07 (Central)	
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Bonifay Effluent 3			<0.03	9.4		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number	
	Fresh water	9°C	7.8	—	409		
	Latitude o ' " .	Longitude o ' " .		Comments THC Hach 64 1			

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

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

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Marshall Faircloth	8/9/07 1207	Ford Delivered WF	Tom B	08/10/07 12:10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

MF took 1 Blue 8-10-07 FYS 1208

Appendix E

Chemical analysis of effluent and receiving water

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	AGP/LN	Algal Growth Potential	10.8		mg DryWt/L	0.3	0.9
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	AGP/LN	Algal Growth Potential	40.33	A	mg DryWt/L	0.3	0.9
4/16/2007 11:00	Bonifay WWTP Effluent	AGP/LN	Algal Growth Potential	61.8		mg DryWt/L	0.3	0.9
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Chlor/BOD	Chlorophyll-A, Monochromatic, Water	1.7	U	ug/L	1.7	5.2
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Chlor/BOD	Phaeophytin-A, Monochromatic, Water	3	U	ug/L	3	9
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Chlor/BOD	Chlorophyll-A, Monochromatic, Water	1.7	U	ug/L	1.7	5.2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Chlor/BOD	Phaeophytin-A, Monochromatic, Water	3	U	ug/L	3	9
4/16/2007 11:00	Bonifay WWTP Effluent	Chlor/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	3.4		mg/L	0.2	2
4/16/2007 11:00	Bonifay WWTP Effluent	Chlor/BOD	Chlorophyll-A, Monochromatic, Water	0.85	U	ug/L	0.85	2.6
4/16/2007 11:00	Bonifay WWTP Effluent	Chlor/BOD	Phaeophytin-A, Monochromatic, Water	1.5	U	ug/L	1.5	4.5
4/17/2007 11:15	Camp Branch Upstream of Bonifay WWTP	Field Param.	Dissolved Oxygen	7.41		mg/L		
4/17/2007 11:15	Camp Branch Upstream of Bonifay WWTP	Field Param.	Sample Depth	0.3		m		
4/17/2007 11:15	Camp Branch Upstream of Bonifay WWTP	Field Param.	Specific Conductance	170		umhos/cm		
4/17/2007 11:15	Camp Branch Upstream of Bonifay WWTP	Field Param.	Temperature	14.25		C		
4/17/2007 11:15	Camp Branch Upstream of Bonifay WWTP	Field Param.	pH	6.14				
4/17/2007 11:25	Bonifay WWTP Effluent	Field Param.	Dissolved Oxygen	9.6		mg/L		
4/17/2007 11:25	Bonifay WWTP Effluent	Field Param.	Specific Conductance	323		umhos/cm		
4/17/2007 11:25	Bonifay WWTP Effluent	Field Param.	Temperature	21.45		C		
4/17/2007 11:25	Bonifay WWTP Effluent	Field Param.	pH	6.95				
4/17/2007 11:45	Camp Branch Below Bonifay WWTP	Field Param.	Dissolved Oxygen	7.17		mg/L		
4/17/2007 11:45	Camp Branch Below Bonifay WWTP	Field Param.	Sample Depth	0.5		m		
4/17/2007 11:45	Camp Branch Below Bonifay WWTP	Field Param.	Specific Conductance	305		umhos/cm		
4/17/2007 11:45	Camp Branch Below Bonifay WWTP	Field Param.	Temperature	19.63		C		
4/17/2007 11:45	Camp Branch Below Bonifay WWTP	Field Param.	pH	6.67				
4/18/2007 10:15	Bonifay WWTP Effluent	Field Param.	Dissolved Oxygen	9.77		mg/L		
4/18/2007 10:15	Bonifay WWTP Effluent	Field Param.	Specific Conductance	374		umhos/cm		
4/18/2007 10:15	Bonifay WWTP Effluent	Field Param.	Temperature	21.63		C		
4/18/2007 10:15	Bonifay WWTP Effluent	Field Param.	pH	7.56				
4/16/2007 7:05	Blank	Metals	Aluminum	25		ug/L	4	16
4/16/2007 7:05	Blank	Metals	Calcium	0.043	I	mg/L	0.02	0.08
4/16/2007 7:05	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/16/2007 7:05	Blank	Metals	Iron	5	U	ug/L	5	20
4/16/2007 7:05	Blank	Metals	Magnesium	0.0053	I	mg/L	0.005	0.02
4/16/2007 7:05	Blank	Metals	Zinc	5	U	ug/L	5	20
4/16/2007 7:05	Blank	Metals	Arsenic	0.5	U	ug/L	0.5	2
4/16/2007 7:05	Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
4/16/2007 7:05	Blank	Metals	Copper	0.2	U	ug/L	0.2	0.8
4/16/2007 7:05	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/16/2007 7:05	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
4/16/2007 7:05	Blank	Metals	Selenium	0.5	U	ug/L	0.5	2
4/16/2007 7:05	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Aluminum	402		ug/L	4	16
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Calcium	29		mg/L	0.02	0.08
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Chromium	1.79		ug/L	0.3	1.2

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Iron	1140		ug/L	5	20
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Magnesium	2.5		mg/L	0.005	0.02
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Zinc	13	I	ug/L	5	20
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Arsenic	1.6	I	ug/L	0.5	2
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Copper	2.65		ug/L	0.2	0.8
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Lead	1.46		ug/L	0.2	0.8
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Nickel	2.87		ug/L	0.25	1
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Selenium	0.5	U	ug/L	0.5	2
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Aluminum	629		ug/L	4	16
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Calcium	32.6		mg/L	0.02	0.08
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Chromium	1.15	I	ug/L	0.3	1.2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Iron	1030		ug/L	5	20
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Magnesium	3.7		mg/L	0.005	0.02
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Zinc	35		ug/L	5	20
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Arsenic	1.4	I	ug/L	0.5	2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Cadmium	0.05	I	ug/L	0.05	0.2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Copper	10.1		ug/L	0.2	0.8
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Lead	1.97		ug/L	0.2	0.8
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Nickel	1.18		ug/L	0.25	1
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Selenium	0.5	U	ug/L	0.5	2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Metals	Silver	0.29		ug/L	0.025	0.1
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Aluminum	205		ug/L	4	16
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Calcium	37.2		mg/L	0.02	0.08
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Chromium	0.75	I	ug/L	0.3	1.2
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Iron	268		ug/L	5	20
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Magnesium	4.7		mg/L	0.005	0.02
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Zinc	39		ug/L	5	20
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Arsenic	0.95	I	ug/L	0.5	2
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Cadmium	0.067	I	ug/L	0.05	0.2
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Copper	10.9		ug/L	0.2	0.8
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Lead	0.67	I	ug/L	0.2	0.8
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Nickel	1.04		ug/L	0.25	1
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Selenium	0.5	U	ug/L	0.5	2
4/16/2007 11:00	Bonifay WWTP Effluent	Metals	Silver	0.27		ug/L	0.025	0.1
4/16/2007 7:05	Blank	Nutrients	Ammonia-N	0.05	U	mg N/L	0.05	0.1
4/16/2007 7:05	Blank	Nutrients	NO2NO3-N	0.008	I	mg N/L	0.004	0.01
4/16/2007 7:05	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
4/16/2007 7:05	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
4/16/2007 7:05	Blank	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Nutrients	Ammonia-N	0.047		mg N/L	0.01	0.02
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Nutrients	NO2NO3-N	0.066		mg N/L	0.004	0.01
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Nutrients	O-Phosphate-P	0.027		mg P/L	0.004	0.01
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Nutrients	Kjeldahl Nitrogen	0.51		mg N/L	0.08	0.2
4/16/2007 9:45	Camp Branch Upstream of Bonifay WWTP	Nutrients	Total-P	0.062		mg P/L	0.02	0.06
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Nutrients	Ammonia-N	0.11		mg N/L	0.01	0.02
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Nutrients	NO2NO3-N	0.28		mg N/L	0.004	0.01

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Nutrients	O-Phosphate-P	0.71		mg P/L	0.036	0.09
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Nutrients	Kjeldahl Nitrogen	1.4		mg N/L	0.08	0.2
4/16/2007 10:30	Camp Branch Below Bonifay WWTP	Nutrients	Total-P	1		mg P/L	0.04	0.12
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	Ammonia-N	0.069		mg N/L	0.01	0.02
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	NO2NO3-N	0.62		mg N/L	0.004	0.01
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	O-Phosphate-P	1.2		mg P/L	0.08	0.2
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	Kjeldahl Nitrogen	1.4		mg N/L	0.08	0.2
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	Total-P	1.6		mg P/L	0.04	0.12
4/16/2007 11:00	Bonifay WWTP Effluent	Nutrients	TSS	19		mg/L	4	16
4/16/2007 7:05	Blank	Pesticides	Alachlor	0.58	U	ug/L	0.58	2.3
4/16/2007 7:05	Blank	Pesticides	Ametryn	0.048	U	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Atrazine	0.048	U	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
4/16/2007 7:05	Blank	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
4/16/2007 7:05	Blank	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
4/16/2007 7:05	Blank	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Chlorpyrifos Methyl	0.096	UJ	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Diazinon	0.048	UJ	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Ethion	0.048	U	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Ethoprop	0.096	U	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
4/16/2007 7:05	Blank	Pesticides	Fonofos	0.096	U	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Hexazinone	0.096	U	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Malathion	0.14	UJ	ug/L	0.14	0.56
4/16/2007 7:05	Blank	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
4/16/2007 7:05	Blank	Pesticides	Metolachlor	0.48	UJ	ug/L	0.48	1.9
4/16/2007 7:05	Blank	Pesticides	Metribuzin	0.096	U	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
4/16/2007 7:05	Blank	Pesticides	Naled	0.77	UJ	ug/L	0.77	3.1
4/16/2007 7:05	Blank	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
4/16/2007 7:05	Blank	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
4/16/2007 7:05	Blank	Pesticides	Parathion Methyl	0.096	U	ug/L	0.096	0.38
4/16/2007 7:05	Blank	Pesticides	Phorate	0.048	U	ug/L	0.048	0.19
4/16/2007 7:05	Blank	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
4/16/2007 7:05	Blank	Pesticides	Simazine	0.048	UJ	ug/L	0.048	0.19
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Chlorpyrifos Methyl	0.1	UJ	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Diazinon	0.05	UJ	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Malathion	0.15	UJ	ug/L	0.15	0.6
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Metolachlor	0.5	UJ	ug/L	0.5	2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
4/17/2007 11:25	Bonifay WWTP Effluent	Pesticides	Simazine	0.05	UJ	ug/L	0.05	0.2
4/16/2007 7:05	Blank	Organics	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	1,2-Dichlorobenzene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	1,3-Dichlorobenzene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	1,4-Dichlorobenzene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
4/16/2007 7:05	Blank	Organics	2,4-Dinitrophenol	15	U	ug/L	15	59
4/16/2007 7:05	Blank	Organics	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
4/16/2007 7:05	Blank	Organics	4,4'-DDD	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	4,4'-DDE	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	4,4'-DDT	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.8
4/16/2007 7:05	Blank	Organics	4-Nitrophenol	15	U	ug/L	15	59
4/16/2007 7:05	Blank	Organics	Acenaphthene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Acenaphthylene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Aldrin	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Anthracene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Benzidine	98	U	ug/L	98	390
4/16/2007 7:05	Blank	Organics	Benzo(a)anthracene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Benzo(a)pyrene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Benzo(b)fluoranthene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Benzo(g,h,i)perylene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Benzo(k)fluoranthene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 7:05	Blank	Organics	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	59
4/16/2007 7:05	Blank	Organics	Butyl benzyl phthalate	4.9	U	ug/L	4.9	20
4/16/2007 7:05	Blank	Organics	Chrysene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Di-n-butyl phthalate	4.9	U	ug/L	4.9	20
4/16/2007 7:05	Blank	Organics	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Dibenzo(a,h)anthracene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Dieldrin	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Dimethyl phthalate	49	U	ug/L	49	200
4/16/2007 7:05	Blank	Organics	Endosulfan I	3.9	U	ug/L	3.9	16
4/16/2007 7:05	Blank	Organics	Endosulfan II	3.9	U	ug/L	3.9	16
4/16/2007 7:05	Blank	Organics	Endosulfan sulfate	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Endrin	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Endrin aldehyde	3.9	U	ug/L	3.9	16
4/16/2007 7:05	Blank	Organics	Fluoranthene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Fluorene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Heptachlor	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Heptachlor epoxide	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Hexachloroethane	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Isophorone	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.8
4/16/2007 7:05	Blank	Organics	N-Nitrosodimethylamine	2	U	ug/L	2	7.8
4/16/2007 7:05	Blank	Organics	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Naphthalene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Nitrobenzene	2	U	ug/L	2	7.8
4/16/2007 7:05	Blank	Organics	Pentachlorophenol	2.9	U	ug/L	2.9	12
4/16/2007 7:05	Blank	Organics	Phenanthrene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Phenol	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	Pyrene	0.98	U	ug/L	0.98	3.9
4/16/2007 7:05	Blank	Organics	alpha-BHC	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	beta-BHC	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	delta-BHC	1.5	U	ug/L	1.5	5.9
4/16/2007 7:05	Blank	Organics	gamma-BHC	1.5	U	ug/L	1.5	5.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	1,2-Dichlorobenzene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	1,3-Dichlorobenzene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	1,4-Dichlorobenzene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,4-Dinitrophenol	15	U	ug/L	15	58

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4,4'-DDD	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4,4'-DDE	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4,4'-DDT	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	4-Nitrophenol	15	U	ug/L	15	58
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Acenaphthene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Acenaphthylene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Aldrin	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Anthracene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzidine	97	U	ug/L	97	390
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzo(a)anthracene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzo(a)pyrene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzo(b)fluoranthene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzo(g,h,i)perylene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Benzo(k)fluoranthene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Chrysene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Dibenzo(a,h)anthracene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Dieldrin	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Dimethyl phthalate	49	U	ug/L	49	190
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Endosulfan I	3.9	U	ug/L	3.9	16
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Endosulfan II	3.9	U	ug/L	3.9	16
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Endosulfan sulfate	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Endrin	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Endrin aldehyde	3.9	U	ug/L	3.9	16
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Fluoranthene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Fluorene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Heptachlor	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Heptachlor epoxide	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Hexachlorobutadiene	2.9	U	ug/L	2.9	12

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Hexachloroethane	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Isophorone	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Naphthalene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Nitrobenzene	1.9	U	ug/L	1.9	7.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Pentachlorophenol	2.9	U	ug/L	2.9	12
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Phenanthrene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Phenol	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	Pyrene	0.97	U	ug/L	0.97	3.9
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	alpha-BHC	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	beta-BHC	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	delta-BHC	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Organics	gamma-BHC	1.5	U	ug/L	1.5	5.8
4/16/2007 11:00	Bonifay WWTP Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	No Result		NOEC		
4/16/2007 11:00	Bonifay WWTP Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	No Result		NOEC		
8/6/2007 9:45	Bonifay WWTP Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100		NOEC		
8/6/2007 9:45	Bonifay WWTP Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100	K	NOEC		
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Aluminum	42	I	ug/L	20	80
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Calcium	39.7		mg/L	0.05	0.2
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Iron	81		ug/L	10	40
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Magnesium	5.2		mg/L	0.03	0.12
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Arsenic	0.5	U	ug/L	0.5	2
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Chromium	1	U	ug/L	1	4
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Copper	1.9		ug/L	0.25	1
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Lead	0.33	I	ug/L	0.2	0.8
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Nickel	0.95	I	ug/L	0.25	1
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Selenium	0.5	U	ug/L	0.5	2
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Silver	0.034	I	ug/L	0.025	0.1
8/6/2007 10:45	Bonifay WWTP Effluent	Metals	Zinc	27		ug/L	5	20
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Ammonia-N	0.054		mg N/L	0.01	0.02
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	NO2NO3-N	0.62		mg N/L	0.004	0.01
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Kjeldahl Nitrogen	0.53		mg N/L	0.08	0.2
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Total-P	1.3		mg P/L	0.04	0.12
8/6/2007 9:45	Bonifay WWTP Effluent	Nutrients	Dissolved Oxygen	7.83		mg/L		
8/6/2007 9:45	Bonifay WWTP Effluent	Nutrients	Specific Conductance	397		umhos/cm		
8/6/2007 9:45	Bonifay WWTP Effluent	Nutrients	Temperature	29.89		C		
8/6/2007 9:45	Bonifay WWTP Effluent	Nutrients	pH	7.13				
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Dissolved Oxygen	7.83		mg/L		
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Specific Conductance	397		umhos/cm		
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	Temperature	29.89		C		
8/6/2007 10:45	Bonifay WWTP Effluent	Nutrients	pH	7.13				
8/6/2007 7:45	BLANK	Metals	Aluminum	28	I	ug/L	20	80

Date_Sampled	Station	Group	Component	Result	Remark	Units	MDL	PQL
8/6/2007 7:45	BLANK	Metals	Calcium			mg/L		
8/6/2007 7:45	BLANK	Metals	Iron	10	U	ug/L	10	40
8/6/2007 7:45	BLANK	Metals	Magnesium	0.03	U	mg/L	0.03	0.12
8/6/2007 7:45	BLANK	Metals	Arsenic	0.5	U	ug/L	0.5	2
8/6/2007 7:45	BLANK	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
8/6/2007 7:45	BLANK	Metals	Chromium	1	U	ug/L	1	4
8/6/2007 7:45	BLANK	Metals	Copper	0.28	I	ug/L	0.25	1
8/6/2007 7:45	BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
8/6/2007 7:45	BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
8/6/2007 7:45	BLANK	Metals	Selenium	0.5	U	ug/L	0.5	2
8/6/2007 7:45	BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/6/2007 7:45	BLANK	Metals	Zinc	5	U	ug/L	5	20
8/6/2007 7:45	BLANK	Nutrients	Ammonia-N	0.014	I	mg N/L	0.01	0.02
8/6/2007 7:45	BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
8/6/2007 7:45	BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
8/6/2007 7:45	BLANK	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06

Appendix F

Additional toxicological and microbiological results

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia

Facility: Bonifay, City of (MF) WWTF
Address: 911 East Bay Ave., Bonifay
County: Holmes
NPDES Permit #: FL 0027731
Contact/District: Glenn Batts / NW District

LIMS entry: 5-8-07 MF verified: 5-9-07 JD

Diluent/ Batch: 20% DMW / 4-12-07 Test Days Used: 0-3
20% DMW / 4-19-07 Test Days Used: 4-7

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

Start Date: 4/17/07 Time: 1330
End Date: 4-24-07 Time: 1050

Organism: *Ceriodaphnia dubia*
Organism Batch #: 15-07
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 1-7-07 2-7-07
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-2007-04-17-29	1001605	4/16/07 / 1100	4/17/07 / 0920
Test Day 2	2	TLH-2007-04-19-37	1002423	4/18/07 / 1015	4/19/07 / 0915
Test Day 4	3	TLH-2007-04-20-18	1002799	4/20/07 / 0955	4/20/07 / 1000

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	Not measured			<0.03	<0.03	<0.03	105	117	113
Diluent/Control:				<0.03	<0.03	<0.03	79	79	84
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	PPV	PPV	DA/PPV	PPV	PPV	PPV
Verified by:	MF	MF	MF	BA	BA	BA	BA	BA	BA
	Conductivity (circle one) (umhos-cm) (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	363	367	399	0.279	<0.017	<0.017	119	117	122
Diluent/Control:	176	174	174	<0.017	<0.017	<0.017	88	88	86
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	BA	BA	BA	BA	BA	BA	PPV	PPV	PPV
Verified by:	PPV	PPV	PPV	PPV	PPV	PPV	BA	BA	BA

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. 25.3 max. 26.3 mean 25.6
Room B246 min. 24.9 max. 26.2 mean 25.2

Investigators' signatures
Rachel Lichaine Q
Bruce Robertson
Marshall Faircloth
Jonathan Daniel
Nicole Wellendorf
REVIEWER

Test Replicate	Loaded from culture vial
1	B5
2	B12
3	B15
4	B16
5	B20
6	B21
7	A7
8	A10
9	A16
10	A29

Statistics	
Control % CV:	31.3
Dunnetts PMSD:	23.1
Reproduction NOEC:	100 %
Survival NOEC:	100 %
T-test value	0.60609
T- table value:	1.734
df:	18

MF reproduction

Comments: NCR 2434 created 5/2/07. Data reported as No Result MF 5/2/07.
Samples were not consistently collected as flow proportional composite samples, samples were a mix of grab and composite samples MF 5-9-07

Test Page 1 of 3

PAGE 000004

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: City of Bradenton (STP)

LIMS Sample # 1001605 for lab sample 1

Start Date: 4/17/07 Time: 1340

End Date: 4/24/07 Time: 10:50

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	4	0	0	4	10	0.4
	4	0	4	5	6	1	4	4	0	4	3	31	10	3.1
	5	7	8	8	7	0	8	5	7	6	6	62	10	6.2
	6	0	0	0	0	9	0	X	8	11	0	28	9	~~2.83~~ 3.1
	7	0	0	7	9	17	0	1	0	0	15	48	9	~~4.89~~ 5.3
	8													
	Total	7	12	20	22	27	12	9	19	21	24	173	10	17.3

mf Stray counts MF 5-10-07

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100% sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	5	2	2	0	9	10	0.9
	4	0	4	4	2	0	0	0	0	0	5	15	10	1.5
	5	6	4	0	4	3	1	2	10	5	7	42	10	4.2
	6	7	0	7	0	8	8	11	10	12	8	71	10	7.1
	7	3	9	12	8	8	10	0	0	0	0	50	10	5
	8													
	Total	16	17	23	14	19	19	18	22	19	20	187	10	18.7

Organisms loaded by: MF	
Day	Counted/ verified by:
0	BS
1	B12 BA
2	B15 BA
3	B16 BA
4	B20 BA
5	B21 SD
6	A7 BA
7	A10 BA
8	A16 —

Pooled from these vials MF 4/11/07

Concentration	Mean neonates /adult	% survival
Control	17.3	90
100%	18.7	100

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

Comments: Control vs 100%

T-Tests reproduction: Mean 17.3 | 18.7

T. value 0.60609

Table value 1.734

Df = 18 NOT significant

Survival

T-value = 1.00000

table = 1.73400

Df = 18

NOT significant

*Day 0 is test initiation day

X = Dead (original organism)

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: CITY OF BONIFAY (STP)

LIMS Sample # : 1001605 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)	Conductivity (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm)	Conductivity (mmhos/cm)
Day 0	sample:	Control	M	8.2	24.1	7.4	0.176 JD							
	1	100%	M	7.8	24.0	7.4	363							
	Measured by:			JD	JD	JD	JD							
	Recorded by:			JD	JD	JD	JD							
Day 1	sample:	Control	M	8.2	24.9	7.6	0.172 BA		M	8.1	24.0	7.0	194.8	
	1	100%	M	7.9	25.1	7.5	355		M	8.1	24.0	6.5	386	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 2	sample:	Control	M	8.2	24.7	7.6	0.174 BA		M	8.1	24.1	6.4	197	
	2		M	7.9	24.8	7.6	362		M	8.1	24.1	6.0	431	
	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	8.2	24.8	7.4	174		M	8.0	24.0	6.6	204	
	2	100%	M	7.9	25.4	8.1	367		M	8.3	24.0	6.5	410	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 4	sample:	Control	M	8.2	24.2	7.4	174		M	8.0	24.0	6.8	183	
	3	100%	M	7.9	24.8	8.1	399		M	8.1	24.0	6.8	403	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 5	sample:	Control	M	8.2	24.8	7.3	178		M	8.2	24.2	7.8	184	
	3	100%	M	7.8	24.9	6.8	398		M	8.4	24.1	7.8	436	
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
Day 6	sample:	Control	M	8.2	25.2	7.6	172		M	8.0	25.0	6.5	195	
	3	100%	M	8.1	25.2	7.4	399		M	8.4	25.1	6.5	439	
	Measured by:			BA	BA	BA	BA			BA	BA	BA	BA	
	Recorded by:			BA	BA	BA	BA			BA	BA	BA	BA	
Day 7	sample:	Control	M						M	8.0	24.3	6.1	207	
	3		M						M	8.4	24.1	6.9	454	
	Measured by:									BA	BA	BA	BA	
	Recorded by:									BA	BA	BA	BA	
Day 8	sample:	Control							M					
	3								M					
	Measured by:													
	Recorded by:													

Comments:

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

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: Bonifay WWTF
Address: 911 East Bay Ave., Bonifay
County: Holmes
NPDES Permit #: FL0027731
Contact/District: Glenn Butts / NW District

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: 4-17-07 Time: 1400
End Date: 4-24-07 Time: 1300

Diluent/ Batch:
MHW / 4-2-07 not used 5-4-07 MF Test Days Used: NA MF 5-9-07
MHW / 4-16-07 Test Days Used: 0 - 4
ASW 4-20-07 Test Days Used: 5 - 7
ASW / — Test Days Used: —

Organism age : <24 ~~days~~ hours PPV
Feeding Prior to Test and Daily
Artemia Lot # : 636-536-910
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #		Day 3	51-07
Day 0	48-07	Day 4	52-07
Day 1	49-07	Day 5	53-07
Day 2	50-07	Day 6	54-07

LIMS:	Date	Initials
Entry:	5-1-07	MF
Verification:	5.8.07	JD

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2007-04-17-29	1001605	4/16/07 / 1100	4/17/07 / 0920
Test Day 2	2	TLH-2007-04-19-37	1002423	4/18/07 / 1015	4/19/07 / 0915
Test Day 4	3	TLH-2007-04-20-18	1002799	4/20/07 / 0955	4/20/07 / 1000

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		<0.03	<0.03	<0.03	105	117	113	119	117	122
Diluent/Control:				<0.03	<0.03	<0.03	76	76	75	103	103	95
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	PPV BA	PPV BA	BA/PPV BA	PPV BA	PPV BA	PPV BA	PPV BA	PPV BA	PPV BA
Verified by:	MF	MF	MF									

	Conductivity (circle one) (umhos-cm) mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)			Temperature Shipped ≤6° C (all samples): (yes) no
Lab Sample#:	1	2	3	1	2	3	1	2	3	Holding Time ≤36 hours (yes) no
Sample:	368	369	390	0.279	<0.017	<0.017	~~0.04~~ 0.1	0.1	0.12	Light Intensity : 50 - 100 ft. candles
Diluent/Control:	355 MF	322	322	<0.017	<0.017	<0.017	~~0.1~~ 0.08	0.08	0.09	Photoperiod : 16 light 8 dark
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler	Temperature Range °C:
Measured by:	JD	JD	JD	BA	BA	BA	JD	JD	PP	Incubator # 2 min 25.3 max 26.3 mean 25.7
Verified by:	MF	BA	BA	PPV	PPV	PPV	BA	BA	BA	Water bath # ____ min ____ max ____ mean ____
										Room B246 min 24.9 max 26.2 mean 25.3

Investigators' signatures
James Daniels
Brad McCreight
Bruce Mathews
Marshall Faircloth
Nicole Nelle
REVIEWER

Statistics	
Control %cv: growth	NA
Dunnetts PMSD: growth	NA
Survival NOEC:	<100%
Survival LOEC:	100%
Growth NOEC:	NA
Growth LOEC:	NA

Comments: NCR 2434 created 5/2/07. Data reported as No result. MF 5-2-07
Samples were not consistently collected as flow proportioned composite samples. Samples were a mix of grab and composite samples. MF 5-2-07
Due to large quantity of rapidly settling particulates, an aliquot of the samples was filtered through a 60um mesh nitex screen and also tested. MF-5-9-07

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: City of Bradenton (STP)

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

LIMS Sample Number: 1001605 for lab sample #1

Start Date: 4/11/07 Time: 1400

End Date: 4-24-07 Time: 1300

		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
100 % sample concentration	A	10	10	10	10	10	8 2D	8	8
	B	10	10	10	10	10	8 2D	8	8
	C	10	10	10	10	10	9 1D	8 1D	7 1D
	D	10	10	10	10	10	9 1D	8 1D	8
100% Filtered ~~Control~~	A	10	10	10	10	10	7 3D	6 1D	6
	B	10	10	10	10	10	10	8 2D	8
	C	10	10	10	10	10	9 1D	7 2D	7
	D	10	10	10	10	10	10	9 1D	8 1D
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	PPV	JD	JD	JD
Verified by: MF									

Comments: Survival T-test Control vs 100%

Calculated T-value – 13.12660 DF=6

Table T-value – MF ~~2.13200~~ 1.94300

Significant difference in Survival

Proportion Mean Control 1.0

Mean 100% 0.775

Control vs Filtered

8.19858

MF ~~2.13200~~ 1.94300

MF 5-2-07

mean Control 1.0

Filtered 0.725

0% Mortality – Control = 0%

MF 5/9/07

100% sample = 22.5%

Filtered 100% = 27.5%

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

P. promelas SOP TA-07_09 *M. beryllina* SOP TA-07_14

Sample Source: CITY OF BONIFAY (STP)

LIMS Sample #: 1001605 (for Lab sample #1)

			Old Sample						New Sample					
Test Day ↓		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth
Day 0	sample:	Control							A	8.1	24.8	7.6	347	0.09
	1	100%							A	7.8	24.8	8.8	368	0.11
	Measured by:									JD	JD	JD	JD	JD
	Recorded by:									JD	JD	JD	JD	JD
Day 1	sample:	Control	B	8.0	24.8	7.3	335	0.09	B	8.1	24.0	7.6	336	0.10
	1	100%	B	7.9	24.9	6.5	373	0.11	B	7.8	24.2	7.8	364	0.11
	Filtered 100% Measured by:			8.0	24.7	6.6	370	0.11		7.9	24.3	7.8	363	0.10
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD		JD/JD	JD/JD	JD/JD	JD/JD	JD/JD
Day 2	sample:	Control	C	7.4	24.0	5.3	334	0.03	C	8.0	24.2	7.5	322	0.09
	2	100%	C	7.6	24.1	4.6	378	0.11	C	7.8	24.8	7.8	369	0.11
	Filtered 100% Measured by:			7.6	24.3	4.4	377	0.11		7.9	24.7	7.5	366	0.10
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD		JD/JD	JD/JD	JD/JD	JD/JD	JD/JD
Day 3	sample:	Control	D	7.7	25.7	5.8	359	0.10	D	8.0	24.7	7.4	322	0.08
	2	100%	D	7.8	24.4	5.6	381	0.11	D	7.8	24.8	7.5	371	JD 0.11
	Filtered 100% Measured by:			7.7	24.9	4.4	380	0.11		7.8	24.8	7.6	370	0.11
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD		JD/JD	JD/JD	JD/JD	JD/JD	JD/JD
Day 4	sample:	Control	A	7.7	24.1	6.6	9329	0.09	A	7.8	24.1	7.7	322	0.09
	3	100%	A	7.7	24.2	6.6	8376	0.11	A	7.7	24.3	7.7	390	0.12
	Filtered 100% Measured by:			7.8	24.2	6.5	380	0.11		7.8	24.3	7.8	392	0.12
	Measured by/ Recorded by:			BA/BA	BA/BA	BA/BA	BA/BA	BA/BA		PAV/PAV	PAV/PAV	PAV/PAV	PAV/PAV	PAV/PAV
Day 5	sample:	Control	B	7.7	24.0	7.1	332	0.09	B	8.0	24.1	7.9	330	0.08
	3	100%	B	7.9	24.1	7.2	408	0.13	B	7.6	24.0	8.0	398	0.12
	Filtered 100% Measured by:			7.9	24.3	7.2	401	0.12		7.7	24.0	8.2	388	0.12
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD		JD/JD	JD/JD	JD/JD	JD/JD	JD/JD
Day 6	sample:	Control	C	7.5	24.5	6.1	331	0.09	C	7.9	24.7	7.2	325	0.08
	3	100%	C	7.8	24.5	6.4	403	0.12	C	7.6	24.7	8.1	398	0.12
	Filtered 100% Measured by:			7.9	24.5	6.3	404	0.12		7.7	24.8	7.9	401	0.12
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD		JD/JD	JD/JD	JD/JD	JD/JD	JD/JD
Day 7	sample:	Control	D	7.5	24.5	5.1	337	0.09						
	3	100%	D	7.9	24.6	6.9	408	0.13						
	Filtered 100% Measured by:			7.9	24.6	7.0	405	0.12						
	Measured by/ Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD						

Filtered 100% New
pH - 7.8
Temp - 24.0
DO - 7.9
cond - 366 u
sal - 0.10
measured/recorded by: JD

Test Rep. = Replicate Record Salinity < 1 if freshwater Circle µmhos-cm or mmhos-cm

Comments:

revised 6/24/05 mf

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: City of Bonifay (STP)

LIMS Sample Number: 1001605 for lab sample #1

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # Fish	Mean wt. (mg)
			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control	A	159	0.02432	0.03049	0.00617	10	0.617
	B	160	0.02437	0.03136	0.00699	10	0.699
	C	161	0.02501	0.02989	0.00488	10	0.488
	D	162	0.02402	0.03139	0.00737	10	0.737
100 % sample	A	163	0.02426	0.02877	0.00451	10	0.451
	B	164	0.02330	0.02794	0.00464	10	0.464
	C	165	0.02328	0.02758	0.00430	10	0.430
	D	166	0.02475	0.03028	0.00553	10	0.553
~~Control~~ F:Hexed 100% Sample	A	167	0.02450	0.02832	0.00382	10	0.382
	B	168	0.02503	0.02973	0.00470	10	0.470
	C	169	0.02506	0.02895	0.00389	10	0.389
	D	170	0.02471	0.02920	0.00449	10	0.449
% sample	A				Control mean	10	0.63525
	B				100% mean	10	0.47450
	C				100% Filtered mean	10	0.42250
	D					10	
	- Weighed by initials:		PPV by MF	MF			

Growth	%CV	PMSD
Control	NA	NA

Growth	Table	Calculated	dF	
T-test	1.94300	2.61813	6	Control vs 100%
	1.94300	3.58957	6	Control vs 100% Filtered

Drying ERO 3400	
Temperature °C:	105°C
Hours:	8 hours

Tare Weighing Date: 3-9-07 Final Weighing Date: 4-27-07

			Measured Value		S-weight Value
Tare Pan 1 after Pan 5	0.02426 @ 0.02425	S-weights	0.10001	@	0.10000
Tare Pan 1 after Pan 8	0.02428 @ 0.02425	at tare	0.29999	@	0.30000
Final Pan 1 after Pan 5	0.03051 @ 0.03049	S-weights	0.01000	@	0.01000
Final Pan 1 after Pan 8	0.03051 @ 0.03049	at final	0.04001	@	0.04000

Comments:



FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia

Facility: Bonifay WWTP
Address: 911 East Bay Ave.
County: Holmes
NPDES Permit #: FL 0027731
Contact/District: Glenn Butts / Northwest

LIMS entry: 8.17.07 MF verified: 8/17/07 JD

Diluent/ Batch: 20% DMW / 8-3-07 Test Days Used: 8.7.07 - 8.11.07 (13 MF)
20% DMW / _____ Test Days Used: _____

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

Start Date: 8.7.07 Time: 1250
End Date: 8.11.07 Time: 1155

Organism: *Ceriodaphnia dubia*
Organism Batch #: 32-07
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 1-07 1-7-07
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-2007-08-07-02	1032625	8-6-07 0945	8-7-07 1015
Test Day 2	2	TLH-2007-08-09-44-35	1034204	8-8-07 0935	8-9-07 1000
Test Day 4	3	TLH-2007-08-10766	1034570	8-10-07 0822	8-10-07 1200

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	Not measured	Not measured	<0.03	<0.03	<0.03	<0.03	122	121	122
Diluent/Control:				<0.03	<0.03	<0.03	84	84	84
Method:	—	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	Strip Test MF	JD	JD	JD	BA	BA	BA / JD
Verified by:	MF	MF	BA	BA	BA	BA	MF	JD	JD/BA

	Conductivity (circle one) (µmhos-cm) (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	390	397	436	<0.017	<0.017	0.468	119	133	121
Diluent/Control:	175	181	180	<0.017	<0.017	<0.017	95	95	95
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	MF	BA/MF	BA/JD (Hardness)	MF	MF	MF	BA	BA	BA / JD
Verified by:	BA	MF/BA	MF	BA	BA	BA	MF	JD	JD/BA

Temperature Shipped ≤6° C (all samples) (yes) no (A) MF
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.1 max. 26.3 mean 25.8
Room B246 min. 24.7 max. 24.3 mean 25.6

Investigators' signatures
James Dail
Marshall Faircloth
Bruce Gibson
Nicki Wellendorf
REVIEWER

Test Replicate	Loaded from culture vial
1	B1
2	B4
3	B7
4	B8
5	B17
6	B13
7	B14
8	B15
9	B24
10	B20

Statistics	
Control % CV:	41.5%
Dunnetts PMSD:	26.24%
Reproduction NOEC:	100%
Survival NOEC:	100%
Reproduction T-test value	0.78069
T- table value:	1.734
df:	18

Comments: Survival T-test T value = 1.0000 Table value = 1.73400 DF = 18
no significant difference in survival between control and 100% sample - MF 8-21-07
(A) 3rd sample collected & received in lab within two hours. Sample was cooling as expected. MF 8-21-07

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: Bonifay WWTP

LIMS Sample # 1032625 for lab sample 1

Start Date: 8-7-07 Time: 1250

End Date: 8/14/07 Time: 1115

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	5	0	6	3	2	0	0	4	0	0	20	10	2
	4	0	4	0	0	0	4	4	0	4	6	22	10	2.2
	5	2	5	3	3	X0	8	4	8	8	11	52	9	5.7
	6	14	19	25	17	-	18	16	19	15	14	181	9	~~14.89~~
	7	6	17	17	15	-	0	1	15	0	0	83	9	19.9 (A)
	8													7.1 30
	Total	21	28	11	23	2	30	21	31	27	31	228	10	22.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100 % sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	1	0	3	4	4	0	0	3	0	0	15	10	1.5
	4	0	3	0	0	0	3	5	0	4	3	18	10	1.8
	5	~~85~~ 8	8	6	8	2	7	0	6	9	10	61	10	6.1
	6	16	15	16	12	15	11	4	11	13	4	107	10	10.7
	7	12	0	16	13	14	~~15~~ 16	6	12	11	0	~~72~~ 81	10	8.1 (A)
	8													
	Total	22	26	25	19	21	21	11	20	26	17	201	10	20.1 (28.4 30)

(201 30)

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

Concentration	Mean neonates /adult	% survival
Control	22.8	90
100%	20.1	100

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

Comments: S = split brood rec 8/12/07 (A) Test terminated on Day 6 - All control requirements met, Day 7 control Rep 6 Rep 3 data collected but not used, MF 8-17-07

*Day 0 is test initiation day

X = Dead (original organism)

06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Bonifay WWTP

LIMS Sample #: 1032625 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	New Sample: pH (su)	New Sample: Temp (°C)	New Sample: DO (mg/L)	New Sample: Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	Old Sample: pH (su)	Old Sample: Temp (°C)	Old Sample: DO (mg/L)	Old Sample: Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample: Control		M	8.2	25.2	7.8	175					
	1	100%	M	7.9	25.9	8.1	390					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample: Control		M	8.1	25.0	7.4	176	M	8.0	24.7	7.6	178
	1	100%	M	7.8	25.7	7.5	389	M	7.7	24.6	7.4	395
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample: Control		M	8.2	25.7	7.7	181	M	8.3	24.6	7.6	210
	2	100%	M	7.8	25.8	7.2	396	M	8.3	24.5	7.5	417
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample: Control		M	8.1	24.1	7.7	180	M	8.0	24.3	7.3	177
	2	100%	M	7.8	25.4	7.4	403	M	7.7	24.2	7.3	392
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 4	sample: Control		M	8.1	24.4	7.7	174	M	8.2	24.8	7.9	131
	3	100%	M	8.0	25.3	8.6	425	M	8.3	24.9	7.9	405
	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	8.2	24.6	7.8	173	M	8.1	25.3	8.0	184
	3	100%	M	7.9	24.6	8.4	420	M	8.1	25.2	7.2	415
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	sample: Control		M	8.1	25.2	8.1	182	M	8.3	25.7	7.9	214
	3	100%	M	7.8	25.7	8.1	420	M	8.3	25.1	7.8	450
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 7 (A)	sample: Control		M	8.2	24.1	8.0	202	M				
	3	100%	M	8.4	24.4	7.4	421	M				
	Measured by:			JS	JS	JS	JS					
	Recorded by:			JS	JS	JS	JS					
Day 8	sample: Control							M				
	3							M				
	Measured by:											
	Recorded by:											

Comments: (A) Day 7 Parameters are for old sample not new sample - MF 8-17-07

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

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: Bonifay WWTP
Address: 911 East Bay Ave.
County: Holmes
NPDES Permit #: FL 0027731
Contact/District: Glenn Butts / Northwest District

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

Start Date: 8-6-07 Time: 1345
End Date: 8-14-07 Time: 1115

Diluent/ Batch: MHW / 7.27.07 Test Days Used: 8.7.07 (8.8.07)
MHW / 8.7.07 Test Days Used: 8.7.07 - 8.10.07
MHW / 8.10.07 Test Days Used: 8.10.07 - 8.14.07
ASW / — Test Days Used: —
ASW / — Test Days Used: —

Organism age: <24 hours
Feeding Prior to Test and Daily
Artemia Lot #: GSL-S56-10
Chamber size: 1000 ml
Test volume: 500 ml

Artemia Batch #		Day 3	123-07
Day 0	120-07	Day 4	124-07
Day 1	121-07	Day 5	125-07
Day 2	122-07	Day 6	126-07

LIMS:	Date	Initials
Entry:	8.17.07	MF
Verification:	8/17/07	JD

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2007-08-01-02	1032625	8-6-07 0945	8-9-07 1015
Test Day 2	2	TLH-2007-08-01-01	1034204	8-8-07 09:45	8-9-07 10:00
Test Day 4	3	TLH-2007-08-1066	1034570	8-10-07 08:32	8-10-07 12:00

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	<0.03	122	121	122	118 (132)	132 (132)	121
Diluent/Control:				<0.03	<0.03	<0.03	74	74	74	96	96	96
Method:	—	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	MF	JD	JD	JD	BA	BA	BA/JD	BA	BA	BA/JD
Verified by:	MF	MF	JD	BA	BA	BA	MF	JD	BA/JD	MF	JD	JD/BA

	Conductivity (circle one) (µmhos-cm mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	321 (321)	397	436	<0.017	<0.017	0.468	<1	<1	<1
Diluent/Control:	345 (345)	349	335	<0.017	<0.017	<0.017	<1	<1	<1
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	JD	JD	MF	MF	JD	BA	JD	JD
Verified by:	BA	MF	MF	JD	BA	BA	MF	MF	MF

Temperature Shipped ≤6° C (all samples) (yes) no (B) MF 8.10.07
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft candles
Photoperiod : 16 light 8 dark
Temperature Range °C
Incubator # 2 min 25.1 max 26.3 mean 25.8
Water bath # ___ min ___ max ___ mean ___
Room B246 min 24.8 max 26.3 mean 25.6

Investigators' signatures
Marshall Faircloth
James Dimit
Blue Adkins

Najla Williams
REVIEWER

Statistics	
Control %cv:	4.7% 8.1
Dunnetts PMSD:	11.92
Survival NOEC:	100 %
Survival LOEC:	>100 %
Growth NOEC:	>100 %
Growth LOEC:	>100 %

Comments: (A) TLH-2007-08-01-04 BA 8.10.07
(B) 2nd sample collected and delivered. Temperature was acceptable (24 hours between collection & delivery) MF 8.10.07

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: Bonifay WWTP

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

LIMS Sample Number: 1032625 for lab sample #1

Start Date: 8.7.07 Time: 1315

End Date: 8.14.07 Time: 1115

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	9[1D]	3[1D]	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
100 % sample concentration	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	8[2D]	8	8
	D	10	10	10	10	10	10	10	10
Control	A	10							
	B	10							
	C	10							
	D	10							
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	JD	BA	JD	JD
Verified by: BA									

Comments: Survival T-Tests - No significant difference in survival between control and 100% sample.

Table value 1.754 | calculated value 0.000000 | df 6 | MF 8-21-07

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

P. promelas SOP TA-07_09 *M. beryllina* SOP TA-07_14

Sample Source: Bonifay WWTP

LIMS Sample #: 1032625 (for Lab sample #1)

Test Day		Conc.	Old Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth	New Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth
Day 0	sample:	Control							A	8.0	24.3	7.9	321	<1
	1	100%							A	7.8	24.3	8.2	395	<1
	Measured by:									JD	JD	JD	JD	JD
	Recorded by:									JD	JD	JD	JD	JD
Day 1	sample:	Control	B	7.7	24.6	7.0	324	<1	B	8.0	24.9	7.6	325	<1
	1	100%	B	8.1	24.2	7.0	394	<1	B	7.8	25.3	7.6	396	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 2	sample:	Control	C	7.8	24.1	6.1	319	<1	C	8.1	24.6	7.5	375	<1
	2	100%	C	7.8	24.5	6.3	401	<1	C	7.8	24.6	7.1	405	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 3	sample:	Control	D	7.7	24.1	6.4	335	<1	D	8.0	24.4	7.2	334	<1
	2	100%	D	7.8	24.1	6.0	404	<1	D	7.9	24.5	7.1	404	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 4	sample:	Control	A	7.8	24.6	6.8	353	<1	A	8.2	24.6	7.8	346	<1
	3	100%	A	7.8	24.6	6.4	415	<1	A	8.1	24.7	7.8	421	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 5	sample:	Control	B	7.6	24.3	7.5 (311)	332	332 <1	B	8.0	24.7	7.0	322	<1
	3	100%	B	7.5	24.3	5.0	428	428 <1	B	7.9	24.5	7.4	423	<1
	Measured by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
Day 6	sample:	Control	C	7.7	25.0	6.9	390	<1	C	8.2	24.7	7.6	345	<1
	3	100%	C	7.7	24.7	6.0	426	<1	C	7.8	24.7	8.0	458	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 7	sample:	Control	D	7.7	25.1	7.4	333	<1						
	3	100%	D	7.7	25.0	7.3	432	<1						
	Measured by:			JD	JD	JD	JD	JD						
	Recorded by:			JD	JD	JD	JD	JD						

Test Rep. = Replicate Record Salinity < 1 if freshwater Circle µmhos-cm or mmhos-cm

Comments:

revised 6/24/05 mf

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: Bonifay WWTP

LIMS Sample Number: 103265 for lab sample #1

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # Fish	Mean wt. (mg)
			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control	A	353	0.03090	0.03590	0.005	10	.500
	B	354	0.02125	0.02730	0.00605	10	.605
	C	355	0.03072	0.03630	0.00558	10	.558
	D	356	0.02243	0.02774	0.00531	10	.531
10% sample	A	357	0.03110	0.03459	0.00349	10	.349
	B	358	0.03151	0.03556	0.00405	10	.405
	C	359	0.01938	0.02258	0.00320	10	.320
	D	360	0.02133	0.02573	0.00440	10	.440
Control	A				mean initial wt ~~10~~		0.5485
	B				mean 10% wt	10	0.381
	C					10	
	D					10	
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		DH/JD	DD			

Growth	%CV	PMSD
Control	8.1	11.92

Growth	Table	Calculated	dF
T-test	1.73400	4.97129	6
Survival	Table	Calculated	dF
T-test	1.73400	0.00000	6

Drying	Freezer
Temperature °C:	105
Hours:	5

Tare Weighing Date: 6.14.07 Final Weighing Date: 6.17.07

			Measured Value		S-weight Value
Tare Pan 1 after Pan 5	0.02624 @	0.02627	S-weights at tare	0.00456 g	@ 0.005
Tare Pan 1 after Pan 8	0.02191 @	0.02194		0.00000 g	@ 0.001
Final Pan 1 after Pan 5	0.03590 @	0.03600	S-weights at final	0.00503 g	@ 0.005
Final Pan 1 after Pan 8	0.02558 @	0.02562		0.01000 g	@ 0.001

Comments: Growth T-test showed a significant difference between growth in the controls and growth in the 10% weight. MF-8-21-07

Test Page 4 of 4 PAGE 000024 revised 08/24/06 MF/SP

City of Bonifay WWTP *Ceriodaphnia dubia* chronic screening test, August 2007
Summary Statistics and ANOVA

Transformation = None

Conc.	n	Mean	s.d.	cv%
Control	10	22.8000	9.4728	41.5
100% Effluent	10	20.1000	5.4661	27.2

*) the mean for this conc. is significantly less than
the control mean at alpha = 0.05 (1-sided) by Dunnett's test

Minimum detectable difference for Dunnett's test = -5.983177
This difference corresponds to -26.24 percent of control

Between concentrations
sum of squares = 36.450000 with 1 degrees of freedom.
Error mean square = 59.805556 with 18 degrees of freedom.

Bartlett's test p-value for equality of variances = .110

PMSD = 26.24%
Method lower bound = 13%, upper bound = 47%

City of Bonifay WWTP *Pimephales promelas* chronic screening test, August 2007
Summary Statistics and ANOVA

Transformation = None

Conc.	N	Mean	s.d.	cv%
Control	4	.5485	.0445	8.1
100% Effluent	4	.3810	.0506	13.3

*) the mean for this conc. is significantly less than
the control mean at alpha = 0.05 (1-sided) by Dunnett's test

Minimum detectable difference for Dunnett's test = -.065365
This difference corresponds to -11.92 percent of control

Between concentrations
sum of squares = .056112 with 1 degrees of freedom.

Error mean square = .002271 with 6 degrees of freedom.

Bartlett's test p-value for equality of variances = .829

PMSD = 11.92%
Method lower PMSD bound = 12% Upper bound = 30%

Florida Department of Environmental Protection
Northwest District Chemistry Laboratory
160 Governmental Center
Pensacola, FL 32502
DOH Accreditation E31887
Chemical Analysis Report

Project ID: Bonifay WWTP
Sample Date:04/17/07
Report Date: 04/25/07
Pages: 5
Log Number: 20116-20117

Certified by: **William Chandler, Laboratory Chemist**

Abbreviations and data remark codes

A- Value reported is the mean of two or more determinations.
B- Results based on colony counts outside the acceptable range. Applies to membrane filter colony counts generated from a plate in which total number of colonies is outside the method indicated ideal range.
H- Value based on field kit determination.
I- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J- Estimated value.
K- Actual value is known to be less than value given.
L- Actual value is known to be greater than value given.
N- Presumptive evidence of presence of material.
O- Sampled, but analysis lost or not performed.
Q- Sample held beyond normal holding time.
T- Value reported is less than the criterion of detection.
U- Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V- Analyte was detected in both sample and method blank.
Y- The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z- Colonies were too numerous to count (TNTC).

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program.
Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

Comments:

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: BONIFAY WWTP Type: DW Requested By: BUTTS

Site	Date	Time	Depth	Log	Samplers
1	04/16/07	1100	0.15	20101	BUTTS

Code	Parameter	Units	Site ID 1
00029	Log Number	LOG	20101
31501	Total coliform	#/100ml	420Q
31616	Fecal coliform	#/100ml	13BQ

BONIFAY EFFLUENT

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: BONIFAY WWTP upstream
SITE: 4
DATE: 04/17/07
SAMPLED BY: BUTTS

TYPE: DW
STORET#: N/A
TIME: 1000
REQUESTED BY: BUTTS

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	20116
00094	Conductivity	µmho/cm	170
00299	Diss. oxygen (probe)	mg/l	7.41
00010	Water temperature	°C	14.25
00400	pH	units	6.14
00080	Color	Pt-Co	70A
00076	Turbidity	NTU	8A
31501	Total coliform	#/100ml	2800
31616	Fecal coliform	#/100ml	200
00310	BOD, 5 day, total	mg/l	2.6
00530	Residue, nonfilt.	mg/l	5UA

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: BONIFAY WWTP downstream
SITE: 5
DATE: 04/17/07
SAMPLED BY: BUTTS

TYPE: DW
STORET#: N/A
TIME: 1045
REQUESTED BY: BUTTS

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	20117
00094	Conductivity	µmho/cm	305
00299	Diss. oxygen (probe)	mg/l	7.17
00010	Water temperature	°C	19.63
00400	pH	units	6.67
00080	Color	Pt-Co	15
00076	Turbidity	NTU	3
31501	Total coliform	#/100ml	700
31616	Fecal coliform	#/100ml	48
00310	BOD, 5 day, total	mg/l	1.7A
00530	Residue, nonfilt.	mg/l	5U

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 8-3-07 Test Days Used: 8.07.1 - 8.13.07
20% DMW / - Test Days Used: -
Toxicant/ Batch: NaCl / 8.7.07

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 32-01 / <24 hr.
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 1-07 1-7-07
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 8-7-07 Time: 1310
End Date: 8.13.07 Time: 1200

Water Quality Parameters	20% DMW	Diluent (or other)	Method	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	—	HACH	BA	MF
Alkalinity (mg/L as $CaCO_3$):	84	—	HACH	BA	MF
Hardness (mg/L as $CaCO_3$):	45	—	HACH	BA	MF
Total Ammonia (mg/L as N):	<0.017	—	DENVER	MF	BA
Conductivity (µmhos-cm / mmhos-cm):	175	—	YSI (Mettler)	MF	BA

Results	
Control % CV:	39.0
Dunnetts PMSD:	30.3
Reproduction NOEC:	1.3
Reproduction LOEC:	2.0
Survival NOEC:	1.3
Survival LOEC:	2.0
ICP_{20}:	1.15
ICP_{25}:	1.22

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

Test Replicate	Loaded from culture vial
1	B1
2	B4
3	B7
4	B5
5	B17
6	B13
7	B14
8	B15
9	B24
10	B20

Comments:

Test Terminated on Day 6 - Validation requirement met. MF 8-13-07

Investigators' signatures

Marshall Fairbott
Bill Arbo
James Daniels

Nicole Wellenby
REVIEWER

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.1 max. 26.3 mean 25.8
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.8 max. 26.5 mean 25.6

Ceriodaphnia dubia Survival and Reproduction

Start Date: 8-7-07 Time: 1310 Loaded by: MF
End Date: 8-13-07 Time: 1200 Verified by: SP

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	4	6	5	4	3	0	2	6	7	0	31	10	~~0~~ 3.1
	4	0	1	0	0	0	1	2(S)	0	0	3	~~3~~ 7	10	0.7
	5	1	0	6	3	7	1/10(S)	8	2	9	10	57	10	5.7
	6	10	0	12	16	13	14	13	17	16	16	127	10	12.7
	7													
	8													
	Total	15	1	23	23	23	26	25	25	32	29	222	10	22.2
0.59 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	7	0	6	4	0	0	0	5	0	0	22	10	2.20
	4	0	4	0	0	0	5	4	0	MF 4/5	6	24	10	2.4
	5	8	1/8(S)	11	10	6	11	10	5	9	12	91	10	9.1
	6	17	14	17	16	14	1	14	15	13	17	138	10	13.8
	7													
	8													
	Total	32	27	34	30	20	17	28	25	27	35	275	10	27.5
0.89 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	5	0	4	4	5	0	0	5	4	0	~~27~~ NA 27	10	~~2.7~~ 2.7
	4	0	5	0	0	0	6	5	0	0	4	~~10~~ 20	10	2
	5	9	8	7	7	7	10	9	7	11	0	~~10~~ 75	10	7.5
	6	16	14	14	17	13	1	13	12	16	8	~~10~~ 124	10	12.4
	7													
	8													
	Total	30	27	25	28	25	17	27	24	31	12	246	10	24.6

Comments: S = split on A 8-12-07 Control Rep 6 day 5 / 0.59 ppt Rep 2 Day 5 Control Rep 7 Day 4

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
1.3 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	0	5	0	1	0	0	3	0	0	13	10	1.3
	4	0	3	0	0	4	4	2	0	0	4	17	10	1.7
	5	7	0	8	10	9	10	8	7	10	0	69	10	6.9
	6	5	0	12	12	15	0	9	10	9	0	72	10	7.2
	7													
	8													
	Total	16	3	25	22	29	14	19	20	19	4	171	10	17.1
2.0 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	X	0	0	0	0	0	0	0	9	0
	4	0	X2	0	|	0	2	2	0	3	2	11	8	1.4
	5	mX2	|	0	|	X0	0	0	0	0	0	2	7	0.28
	6	0	|	X0	|	|	7	6	X0	6	6	25	5	5
	7		|	|	|	|							
	8		|	|	|	|							
	Total	2	2	0	0	0	9	8	0	9	8	38	10	3.8
3.0 ppth	0												10	
	1	X	|	|	X	|	|	|	|	X		5	
	2	|	X	0	|	|	X	X	|	|	X	0	1	0
	3	|	|	X	|	|	|	|	|	|	|	0	0	0
	4	|	|	|	|	|	|	|	|	|	|	0	0	0
	5	|	|	|	|	|	|	|	|	|	|	0	0	0
	6	|	|	|	|	|	|	|	|	|	|	0	0	0
	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	8.2	24.9	7.9	175					
	0.59 ppth	M	8.0	25.1	7.9	1335					
	0.89 ppth	M	8.1	25.2	7.8	1860					
	1.3ppth	M	8.1	25.1	7.8	2650					
	2.0 ppth	M	8.1	25.1	7.7	3800					
	3.0 ppth	M	8.1	25.2	7.7	5560					
	Measured by:		MF	MF	MF	MF					
	Recorded by:		MF	MF	MF	MF					
Day 1	Control	M	8.1	24.2	7.4	179	A	8.1	24.5	7.4	184
	0.59 ppth	M	8.1	24.5	7.5	1301	A	8.1	24.3	7.4	1363
	0.89 ppth	M	8.1	24.6	7.5	1871	A	8.1	24.3	7.4	1911
	1.3ppth	M	8.1	24.7	7.5	2680	A	8.1	24.4	7.4	2750
	2.0 ppth	M	8.1	24.6	7.5	3870	A	8.1	24.5	7.4	3990
	3.0 ppth	M	8.1	24.5	7.4	5560	A	8.0	24.6	7.4	5650
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 2	Control	M	8.0	24.6	7.8	180	A	8.3	24.9	7.6	194
	0.59 ppth	M	8.0	24.8	7.9	1296	A	8.2	24.8	7.6	1350
	0.89 ppth	M	8.1	24.8	7.8	1865	A	8.2	24.8	7.5	1903
	1.3ppth	M	8.1	24.7	7.8	2670	A	8.2	24.7	7.6	2750
	2.0 ppth	M	8.1	24.7	7.8	3850	A	8.2	24.8	7.6	3920
	3.0 ppth	M	8.1	24.7	7.7	5610	B	8.2	24.7	7.6	5680
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 3	Control	M	8.2	24.7	7.8	177	A	8.0	24.0	7.3	187
	0.59 ppth	M	8.1	24.9	7.8	1295	A	7.4	24.0	7.4	1354
	0.89 ppth	M	8.1	24.9	7.7	1852	A	7.9	24.1	7.3	1883
	1.3ppth	M	8.1	24.8	7.7	2690	A	7.4	24.3	7.4	2683
	2.0 ppth	M	8.1	24.8	7.7	3910	A	8.0	24.3	7.4	3820
	3.0 ppth	M	8.1	24.7	7.7	5640	A	8.0	24.1	7.4	5580
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA

Comments:

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

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 4	Control	M	8.1	24.6	7.5	174	A	8.2	24.8	7.8	184
	0.59 ppth	M	8.1	25.7	7.4	1290	A	8.1	24.7	7.8	1340
	0.89 ppth	M	8.1	25.8	7.6	1850	A	8.1	24.8	7.7	1852
	1.3ppth	M	8.1	24.9	7.7	2600	A	8.1	24.7	7.7	2730
	2.0 ppth	M	8.1	25.0	7.6	3890	A	8.1	24.7	7.6	3970
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 5	Control	M	8.1	24.6	7.8	178	A	8.2	24.8	7.9	187
	0.59 ppth	M	8.0	24.6	7.9	1236	A	8.1	24.6	7.8	1263
	0.89 ppth	M	8.0	24.5	7.9	1847	A	8.1	24.6	8.0	1850
	1.3ppth	M	8.0	25.5	7.7	2670	A	8.1	24.8	7.8	2650
	2.0 ppth	M	8.0	25.5	7.6	3910	A	8.0	24.6	7.7	3920
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 6	Control	M					A	8.4	25.0	7.8	187
	0.59 ppth	M					A	8.3	24.7	7.9	1325
	0.89 ppth	M					A	8.2	24.8	7.8	1828
	1.3ppth	M					A	8.2	24.8	7.8	2770
	2.0 ppth	M					A	8.2	24.7	7.7	3590
	3.0 ppth	M									
	Measured by:							MF	MF	MF	MF
	Recorded by:							MK	MF	MF	MF
Day 7	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										

Test Day 6 Control Conc. Test Method Met. MF 8/13/07

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

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/8-7-07 Test Days Used: 8.7.07 – 8.13.07 Start Date: 8.7.07 Time: 1250

Diluent/ Batch: mix – 8.9.07 Test Days Used: 8.14.07 – 8.19.07 End Date: 8.14.07 Time: 11:25

Toxicant/ Batch # 1g/l KCl 8.7.07 Organism Batch #/ Age: 8.7.07A / 24hrs

Artemia Lot # : GSL-536-90

Artemia Batch #	Day 2 123-07	Day 5 125-07
Day 0 120-07	Day 3 123-07	Day 6 126-07
Day1 121-07	Day 4 124-07	

Chamber size : 1000 ml

Test volume : 500 ml

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 8-7-07	Diluent MHW 8-7-07 ~~(or other)~~	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	79	79	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	96	97	HACH	BA	JD
Total Ammonia (mg/L as N):	0.017	<0.017	DENVER	MF/BA	JD
Conductivity µmhos-cm (mmhos-cm):	0.320	9332	METTLER	JD	BA

Statistics	
Growth NOEC:	0.5 g/L
Growth LOEC:	1 g/L
Growth IC_{20}:	0.5165 g/L
Growth IC_{25}:	0.5751 g/L
Ctrl % CV:	12.47 %
Dunnetts PMSD:	24.46 %
Survival NOEC:	0.25 g/L
Survival LOEC:	0.5 g/L

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 25.1 max. 26.3 mean 25.8

Water bath # ____ min. _____ max. _____ mean _____

Room B246 min. 24.8 max. 26.3 mean 25.0

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

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

Investigators' signatures

Jason Daniels

Marshall Faircloth

Jesse Adams

Nicole Wellendorf

REVIEWER

Comments:

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)

Concentration	Replicate	Chamber	TEST DAY 0	1	2	3	4	5	6	7
Control	A	A	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
.0625	A	A5	10	10	10	10	10	10	10	10
	B	A6	10	10	10	10	10	10	9 D	9
	C	A7	10	10	10	10	10	10	10	10
	D	A8	10	10	10	10	10	10	10	10
.125	A	A9	10	10	10	7 3D	7	7	6 D	6
	B	A12	10	10	10	10	10	10	10	10
	C	A11	10	10	10	10	10	10	10	10
	D	A12	10	10	10	10	10	10	10	10
.25	A	A13	10	10	10	10	10	10	10	10
	B	A14	10	10	10	10	9 D	9	9	9
	C	A15	10	10	10	10	10	10	10	10
	D	A16	10	10	10	10	10	10	10	10
.5	A	A17	10	10	10	10	10	10	10	9 D
	B	A18	10	10	10	10	10	10	9 D	8 D
	C	A19	10	10	10	10	10	9 D	9	9
	D	A20	10	10	10	10	9 D	9	9	9
1.0	A	A21	10	4 6D	3 5D	0 3D	—	—	—	—
	B	A22	10	0 1D	—	—	—	—	—	—
	C	A23	10	3 7D	3	2 1D	2	1 D	0 1D	—
	D	A24	10	0 1D	—	—	—	—	—	—
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by*:		JD	JD	JD	JD	BA	JD	JD
		Concentrations prepared by:		D	JD	JD	JD	BA	JD	JD

Comments:
Loading verified by BA

*verified by for 0 hour

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 8/7/07 Time: 1250

End Date: 8/11/07 Time: 1125

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

Concentration: µg/L g/L (circle one)

circle µmhos or mmhos

Test Day		Before Renewal					Test Start and After Renewal				
	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)
Day 0	Control						A	8.1	24.3	7.8	0.320
	0.625						A	8.1	24.3	7.8	0.450
	.175						A	8.2	24.3	7.8	0.559
	.25						A	8.2	24.4	7.8	0.782
	.50						A	8.2	24.5	7.9	1.27
	1.0						A	8.2	24.7	7.8	2.13
							A				
	Measured by:							JJ	JJ	JJ	JJ
	Recorded by:							JJ	JJ	JJ	JJ
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 1	Control	B	7.8	24.6	6.6	0.326	B	8.0	24.3	7.4	0.324
	0.625	B	7.9	24.4	6.4	0.452	B	8.1	24.3	7.5	0.416
	.175	B	7.9	24.3	7.0	0.562	B	8.1	24.3	7.5	0.559
	.25	B	7.8	24.2	7.0	0.777	B	8.2	24.5	7.6	0.749
	.50	B	7.8	24.0	6.1	1.27	B	8.1	24.3	7.5	1.27
	1.0	B	7.8	24.0	6.6	2.21	B	8.1	24.5	7.4	2.18
		B					B				
	Measured by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ
	Recorded by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 2	Control	C	7.7	24.6	5.6	0.337	C	8.0	24.3	7.4	0.400
	0.625	C	7.7	24.6	5.3	0.428	C	7.9	24.3	7.3	0.472
	.175	C	7.8	24.1	6.1	0.558	C	8.0	24.3	7.2	0.570
	.25	C	7.7	24.1	6.4	0.790	C	8.0	24.2	7.3	0.340
	.5	C	7.8	24.1	6.7	1.28	C	8.0	24.1	7.3	1.25
	1.0	C	7.8	24.1	6.3	2.30	C	8.1	24.1	7.4	2.18
		C					C				
	Measured by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ
	Recorded by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 3	Control	D	7.7	24.6	5.1	0.332	D	7.9	24.5	7.1	0.324
	0.625	D	7.7	24.5	5.0	0.475	D	7.9	24.4	7.1	0.429
	.175	D	7.7	24.4	5.2	0.583	D	7.9	24.3	7.2	0.534
	.25	D	7.7	24.4	4.8	0.870	D	7.9	24.3	7.2	0.809
	.5	D	7.7	24.6	5.2	1.28	D	7.9	24.2	7.1	1.24
	1.0	D	7.7	24.4	6.0	2.26	D	7.9	24.3	7.1	2.20
		D					D				
	Measured by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ
	Recorded by:		JJ	JJ	JJ	JJ		JJ	JJ	JJ	JJ

Comments:

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

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

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

circle µmhos or mmhos

Test Day		Before Renewal					After Renewal				
↓	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos (mmhos)
Day 4	Control	A	8.0	24.4	6.1	0.332	A	8.2	24.5	7.7	0.326
	0.0625	A	7.8	24.5	5.9	0.436	A	8.1	24.5	7.7	0.432
	.125	A	7.7	24.5	5.7	0.593	A	8.0	24.5	7.6	0.579
	.25	A	7.7	24.5	6.8	0.817	A	8.1	24.6	7.6	0.805
	.5	A	7.8	24.5	6.7	1.25	A	8.1	24.5	7.6	1.25
	1.0	C x MF	7.8	24.4	6.8	2.23	C x MF	8.1	24.5	7.6	2.20
		A					A				
	Measured by:	[redacted]	JJ	JJ	JJ	JJ	[redacted]	JJ	JJ	JJ	JJ
	Recorded by:	[redacted]	JJ	JJ	JJ	JJ	[redacted]	JJ	JJ	JJ	JJ
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 5	Control	B	8.1	24.0	7.9	0.329	B	7.6	24.5	6.5	0.326
	00625	B	8.1	24.1	7.5	0.430	B	7.6	24.5	6.5	0.431
	0.125	B	8.1	24.2	7.5	0.575	B	7.6	24.5	6.6	0.584
	0.25	B	8.0	24.2	7.5	0.800	B	7.6	24.5	6.6	0.812
	0.5	B	8.0	24.3	7.5	1.25	B	7.6	24.6	6.7	1.27
	1.0	C MF B	8.1	24.3	7.5	2.19	C x MF	7.6	24.7	6.8	2.23
		B					B				
	Measured by:	[redacted]	BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:	[redacted]	BA	BA	BA	BA		BA	BA	BA	BA
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 6	Control	C	7.6	24.5	7.3	0.338	C	8.2	24.5	7.7	0.376
	0.0625	C	7.6	24.5	6.5	0.441	C	8.2	24.5	8.0	0.462
	0.125	C	7.6	24.4	6.2	0.582	C	8.1	24.5	8.2	0.598
	.25	C	7.6	24.4	5.9	0.821	C	8.1	24.5	8.0	0.829
	.5	C	7.7	24.6	6.7	1.28	C	8.2	24.7	7.7	1.26
	1.0	C	7.7	24.6	6.7	2.21	C				
		C					C				
	Measured by:	[redacted]	JJ	JJ	JJ	JJ	[redacted]	JJ	JJ	JJ	JJ
	Recorded by:	[redacted]	JJ	JJ	JJ	JJ	[redacted]	JJ	JJ	JJ	JJ
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 7	Control	D	7.7	24.6	7.2	0.336	D	[redacted]			
	.0625	D	7.7	24.6	6.8	0.439	D				
	.125	D	7.7	24.5	6.5	0.592	D				
	125	D	7.7	24.5	6.6	0.838	D				
	.150	D	7.7	24.5	6.7	1.25	D				
		D					D				
		D					D				
	Measured by:	[redacted]	JJ	JJ	JJ	JJ					
	Recorded by:	[redacted]	JJ	JJ	JJ	JJ					

Comments:

Appendix H

Habitat Assessment Field Sheets

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: 8070 SUBMITTING AGENCY NAME: FDEP NW DIST	STORET STATION NUMBER: ~~32.62.0030~~ NEW 32020257 7/13/07	DATE (M/D/Y): 03-19-07	TIME: 1010	RECEIVING BODY OF WATER: CAMP BRANCH	
REMARKS: SITE ALSO IS A STORMWATER DITCH HD'S OUT	COUNTY: HOLMES	LOCATION: 50 METERS UPSTREAM FROM BONIFAY WWTP BELOW MAGNOLIA STREET	FIELD ID/NAME: # 4 H.D SET OUT		

RIPARIAN ZONE/STREAM FEATURES — HD START OF INCUBATION

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

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
			10	80	10		

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

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

WIDTH OF RIPARIAN VEGETATION (m) On least buffered side: 10 M

LIST & MAP DOMINANT VEGETATION ON BACK

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT: 2.0 m wide

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

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

0.17 m/s	0.15 m/s	0.10 m/s
0.4 m deep	0.3 m deep	0.3 m deep

HIGH WATER MARK: 2.5 + 0.3 = 2.8
(m above present water level) (present depth in m) (m above bed)

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

SEDIMENT/SUBSTRATE

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

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

SEDIMENT DEPOSITION: SLUDGE: ☐ SAND SMOTHERING: NONE SLIGHT (MODERATE) SEVERE SILT SMOTHERING: NONE SLIGHT (MODERATE) SEVERE OTHER: _____

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	5			SAND	10		
LEAF PACKS OF MATS	5			MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE	60			OTHER:			
UNDERCUT BANKS/ROOTS	20			DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHC/CM) OR SALINITY (PPT):	DO %		SECCHI (M):
TOP	0.118	12.23	8.11	10.27	213	94.8		
MID-DEPTH	—							
BOTTOM	—							

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

WATER ODORS (CHECK BOX): NORMAL: ☐ SEWAGE: ☐ PETROLEUM: ☐ CHEMICAL: ☐ OTHER: ☒ MUSTY ODOR

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

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

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

WEATHER CONDITIONS/NOTES:

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

SAMPLING TEAM: F BUTERA G BUTTS

SIGNATURE: Glenn Butts

DATE: 03-19-07

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: 81 IC SUBMITTING AGENCY NAME: FDEP NW DIST	STORET STATION NUMBER: 32.02.0031 NWW 3202015B 7/30/04	DATE (M/D/Y): 03-19-07	TIME 1040	RECEIVING BODY OF WATER: CAMP BRANCH	
REMARKS: TEST SITE HD'S OUT	COUNTY: HOLMES	LOCATION: 50 METERS BELOW BONIFAY WWTP	FIELD ID/NAME: SET OUT # 5 HD OUT		

RIPARIAN ZONE/STREAM FEATURES — HD START OF INCUBATION

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

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
10		15	5	25	45		

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

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

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

LIST & MAP DOMINANT VEGETATION ON BACK

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT — 3.0 m wide

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

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

0.30 m/s	0.30 m/s	0.25 m/s
0.4 m deep	0.4 m deep	0.3 m deep

HIGH WATER MARK: 2.5 + 0.4 = 2.9
(m above present water level) (present depth in m) (m above bed)

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

SEDIMENT/SUBSTRATE

SEDIMENT ODORS: NORMAL: ☐ SEWAGE: ☒ PETROLEUM: ☐ CHEMICAL: ☐ ANAERobic: ☐ OTHER: ☒ MUSTY

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

SEDIMENT DEPOSITION: SLUDGE: ☐ SAND SMOTHERING: NONE SLIGHT MODERATE (SEVERE) SILT SMOTHERING: NONE SLIGHT MODERATE (SEVERE) OTHER: _____

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	5			SAND	60		
LEAF PACKS OF MATS	5			MUD/MUCK/SILT			
AQUATIC VEGETATION	10			OTHER:	5		
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	15			DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):	DO%		SECCHI (M):
TOP	0.248	18.52	7.53	5.52	323	56.0		
MID-DEPTH								
BOTTOM								

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

WATER ODORS (CHECK BOX): NORMAL: ☒ SEWAGE: ☐ PETROLEUM: ☐ CHEMICAL: ☐ OTHER: ☒ MUSTY ODOR

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

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

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

WEATHER CONDITIONS/NOTES:

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

SAMPLING TEAM: F. BUTERA G. BUTTS

SIGNATURE: Glenn Butts

DATE: 03-19-07

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

32020257 NLW 8/3/07

SUBMITTING AGENCY CODE: 9010 / SUBMITTING AGENCY NAME: FDEP NW DIST	STORET STATION NUMBER: ~~32.02.0037~~	DATE (M/D/Y): 04.17.07	TIME: 1000	RECEIVING BODY OF WATER: CAMP BRANCH
REMARKS: CONTROL SITE	COUNTY: HOLMES	LOCATION: 50 METERS UPSTREAM FROM BONIFAY WWTP		FIELD ID/NAME: # 4

RIPARIAN ZONE/STREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			10	80	10		

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

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

Width of riparian vegetation (m) On least buffered side: 10 M

List & map dominant Vegetation on back

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

Artificially Impounded ☐ yes

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 2.0 m wide

0.14 m/s	0.15 m/s	0.10 m/s
0.4 m deep	0.3 m deep	0.3 m deep

High Water Mark: 2.5 (m above present water level) + 0.3 (present depth in m) = 2.8 (m above bed)

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

SEDIMENT/SUBSTRATE

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

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

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

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	5			Sand	10		
Leaf Packs of Mats	5			Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubbie	60			Other:			
Undercut banks/Roots	20			*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):	DO %		Secchi (m):
Top	0.3	14.25	6.14	7.41	170	67.8		
Mid-depth								
Bottom								

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

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

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

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

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

Weather Conditions/Notes: RAIN SPATE PAST WEEKEND CAUSING RAPID RISE IN CREEK.
HD'S RETRIEVED 04-16-07

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

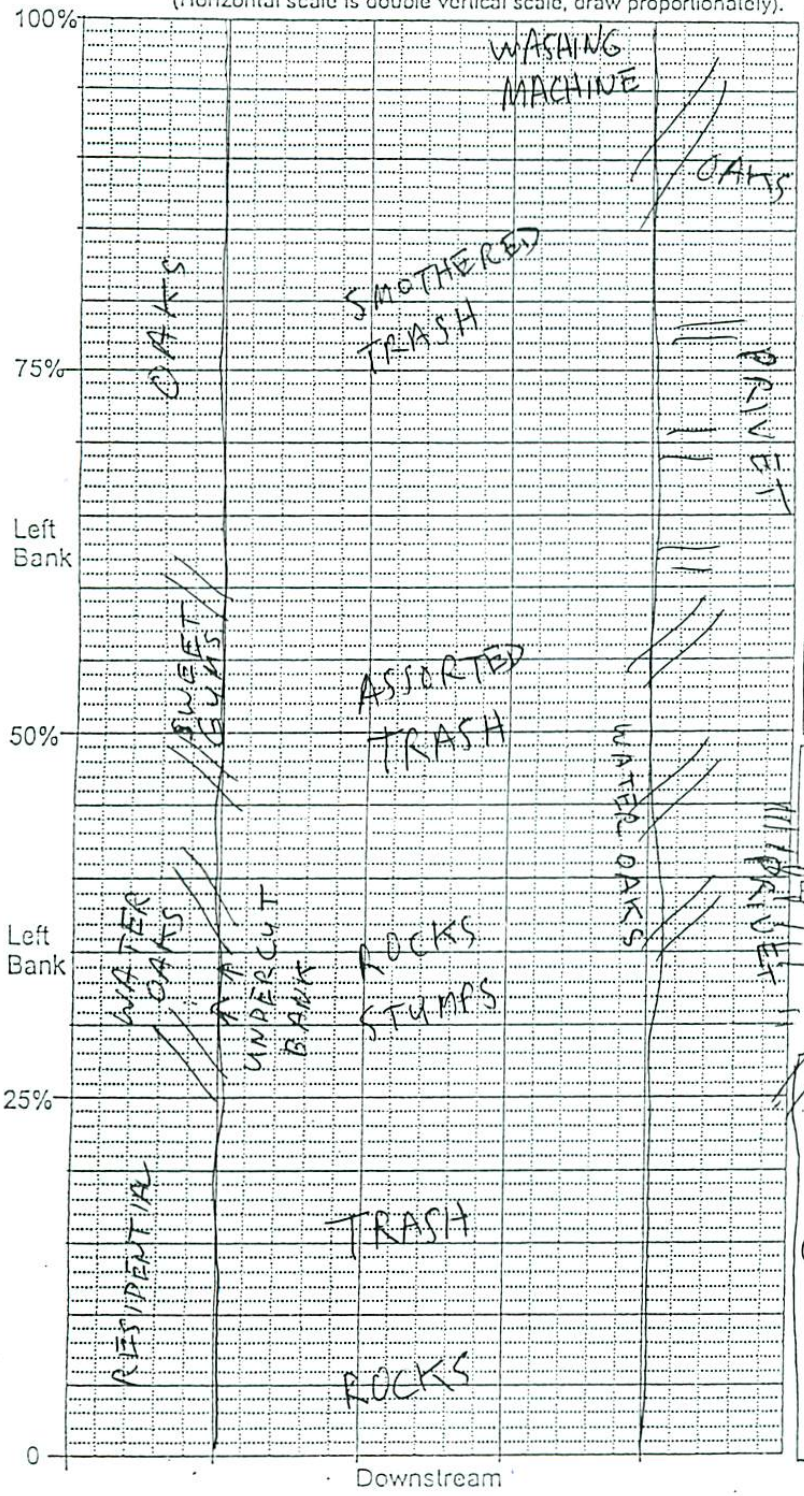
SAMPLING TEAM: G. Butts, L. DONELAN

SIGNATURE: Glenn Butts DATE: 04-17-07

Site Map / Habitat Sketch

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

Field ID: 4 04-17-07



Substrates: Code key, draw proportionate habitat abundance.

- [X] Snags
- [X] Roots/undercut banks
- [ ] Leaf Packs (or mats)
- [ ] Macrophytes
- [X] TRASH
- [ ] UNDERCUT BANK
- [ ]

Velocity:
Note where velocity measures were taken.

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:
SAMPLING BEGINS AT MAGNOLIA ST DOWNSTREAM 100 M TO A WASHING MACHINE



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

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

32020257 NKW 8/3/07

SUBMITTING AGENCY CODE: 8010 SUBMITTING AGENCY NAME: NW DISTRICT	STORET STATION NUMBER: ~~32-02-0030~~	DATE (M/D/Y): 04-17-07	RECEIVING BODY OF WATER: CAMP BRANCH

REMARKS: CONTROL SITE	COUNTY: HOLMES	LOCATION: 50 METERS UPSTREAM FROM BONIFAY WWTP	FIELD ID/NAME: # 4

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 8	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 (8) 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 4	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 (4) 3 2 1
Water Velocity 7	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 (7) 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 3 Primary Score 22	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 (3) 2 1
Secondary Habitat Components Artificial Channelization 3	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 (3) 2 1
Bank Stability Right Bank 5 Left Bank 5	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. (5) 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 1 Left Bank 4	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 (4)	Less than 6 m of native buffer zone due to intensive human activities 3 2 (1)
Riparian Zone Vegetation Quality Right Bank 5 Left Bank 5 Secondary Score 28	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

50 TOTAL SCORE

ANALYSIS DATE: 04-17-07	ANALYST: BUTTS, DONELAN	SIGNATURE: Glenn Butts

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

3202 0158 NKW 8/3/07

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: NW DISTRICT	STORET STATION NUMBER: ~~32.02.0031~~	DATE (M/D/Y): 04-17-07	TIME: 1045	RECEIVING BODY OF WATER: CAMP BRANCH
REMARKS: TEST SITE	COUNTY: HOLMES	LOCATION: 50 METERS BELOW BONIFAY WWTP	FIELD ID/NAME: # 5	

RIPARIAN ZONE/STREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
10		15	5	25	45		

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

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

Width of riparian vegetation (m) On least buffered side: 10 M

List & map dominant Vegetation on back

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

Artificially Impounded ☐ yes

High Water Mark: 2.5 (m above present water level) + 0.4 (present depth in m) = 2.9 (m above bed)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect — 3.0 m wide

0.30 m/s	0.30 m/s	0.25 m/s
0.4 m deep	0.4 m deep	0.3 m deep

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

SEDIMENT/SUBSTRATE

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

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

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

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	5			Sand	60		
Leaf Packs of Mats	5			Mud/Muck/Silt			
Aquatic Vegetation	10			Other:	5		
Rock or Shell Rubbie				Other:			
Undercut banks/Roots	15			*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):	DO %		Secchi (m):
Top	0.5	19.63	6.67	7.17	305	75.6		
Mid-depth								
Bottom								

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

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

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

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

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

Weather Conditions/Notes:

SCI SWEEPS 04-17-07

HD'S RETRIEVED 04-16-07

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

SAMPLING TEAM: G. BUTTS, L. DONELAN

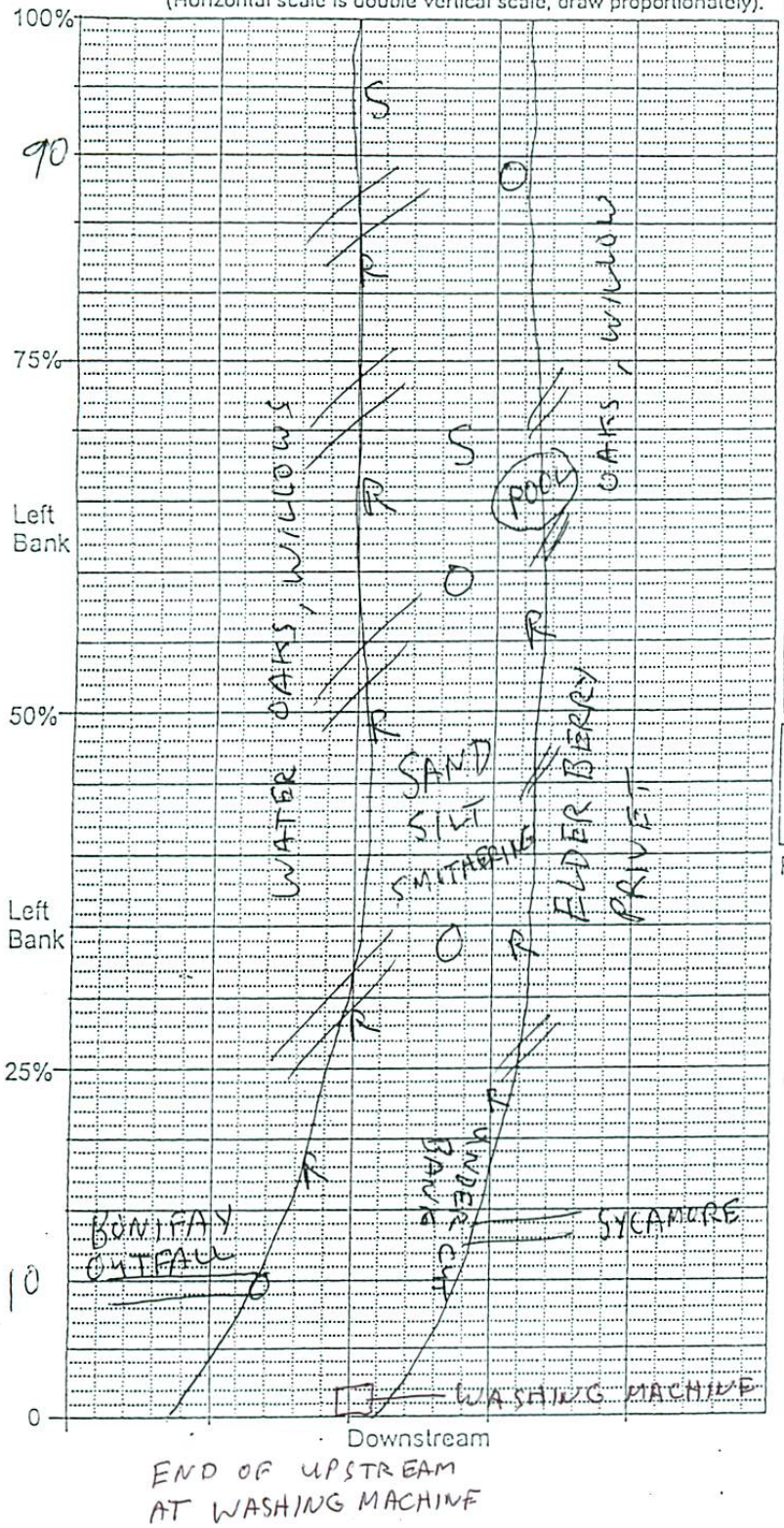
SIGNATURE: Glenn Butts

DATE: 04-17-07

Site Map / Habitat Sketch

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

Field ID: 5 04-17-07



Substrates: Code key, draw proportionate habitat abundance.

- [S] Snags
- [RV] Roots/undercut banks
- [O] Leaf Packs (or mats)
- [ ] Macrophytes
- [ ] _____
- [ ] _____
- [ ]

Velocity:
Note where velocity measures were taken.

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 vegetaton is altered or eliminated.

Plants observed/other notes:

SAMPLING BEGINS AT OUTFALL TO 75M DOWNSTREAM IN MOST PRODUCTIVE HABITAT

ALL 100 M IS SAME REDUNDANT HABITAT

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

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

3202 0158 NRW 8/3/07

SUBMITTING AGENCY CODE: 8010 SUBMITTING AGENCY NAME: NW DISTRICT	STORET STATION NUMBER: ~~32.02.0031~~	DATE (M/D/Y): 04-17-07	RECEIVING BODY OF WATER: CAMP BRANCH

REMARKS: TEST SITE	COUNTY: HOLMES	LOCATION: 50 METERS BELOW BONIFAY WWTP	FIELD ID/NAME: # 5

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 9	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 (9) 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 1	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 (1)
Water Velocity 10	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec (10) 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 2 Primary Score 22	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 (2) 1
Secondary Habitat Components Artificial Channelization 3	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 (3) 2 1
Bank Stability Right Bank 4 Left Bank 8	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. (8) 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 (4)	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 2 Left Bank 8	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m (8) 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 (2) 1
Riparian Zone Vegetation Quality Right Bank 4 Left Bank 6 Secondary Score 35	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody machrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

57 TOTAL SCORE

ANALYSIS DATE: 04-17-07	ANALYST: BUTTS, DONELAN	SIGNATURE: Glenn Butts

Appendix I-1

Taxa list and number counted for the Wet ID portion of qualitative natural periphyton collections from Bonifay WWTF receiving waters on April 16, 2007.

	Control Site (# counted)	Test Site (# counted)
Bacillariophyta		
Bacillariophyta	288	227
Chlorophycota		
Ankistrodesmus falcatus	1	10
Chlamydomonas sp.	-	1
Chlorella sp.	1	3
Scenedesmus sp.	-	1
Scenedesmus bijuga	-	2
Chrysophyta		
Dinobryon sp.	1	-
Cyanophycota		
Cyanobium parvum	2	6
Cyanobium plancticum	-	9
Jaaginema sp.	3	13
Oscillatoria princeps	1	-
Planktolyngbya sp.	-	5
Planktothrix sp.	1	4
Pseudanabaena sp.	-	1
Rhabdoderma lineare	-	8
Schizothrix calcicola	5	1
Stigonema sp.	-	1
Synechocystis sp.	1	5
Euglenophycota		
Trachelomonas sp.	1	1

Appendix I-2

Taxa list and number counted for the Diatom ID portion of qualitative natural periphyton collections from Bonifay WWTF receiving waters on April 16, 2007.

	Control Site (# counted)	Test Site (# counted)
Achnanthaceae		
Achnanthes sp.	37	15
Achnanthes exigua	7	11
Achnanthes hungarica	2	-
Achnanthes lanceolata	1	3
Achnanthes minutissima	42	17
Achnanthes rupestoides	4	1
Amphipleuraceae		
Amphipleura pellucida	-	1
Frustulia sp.	1	3
Bacillariaceae		
Denticula sp.	2	-
Nitzschia sp.	67	68
Nitzschia amphibia	7	16
Nitzschia frustulum	3	-
Nitzschia sinuata tabellaria	33	-
Tryblionella sp.	4	2
Class Bacillariophyceae		
Bacillariophyceae	34	51
Cymbellaceae		
Cymbella sp.	5	-
Cymbellaceae	4	7
Encyonema sp.	1	-
Encyonema neomesianum	-	3
Encyonema silesiacum	1	-
Diadesmidaceae		
Diadesmis confervacea	-	18
Diadesmis contenta	11	3
Luticola mutica	1	14
Eunotiaceae		
Eunotia sp.	2	21
Fragilariaceae		
Fragilaria sp.	1	-
Fragilariaceae	9	12
Synedra acus	-	1
Synedra ulna	1	16
Gomphonemataceae		
Gomphonema sp.	52	74
Gomphonema affine	-	2
Gomphonema grovei	4	1
Gomphonema parvulum	11	26
Melosiraceae		
Melosira sp.	5	9
Naviculaceae		
Navicula sp.	37	25

Navicula constans	1	1
Navicula cryptocephala	-	1
Navicula ingenua	3	-
Navicula minima	40	9
Navicula seminulum	-	11
Naviculaceae	54	38
Sellaphora pupula	-	2
Neidiaceae		
Neidium sp.	1	1
Pinnulariaceae		
Caloneis sp.	-	2
Pinnularia sp.	1	14
Pleurosigmataceae		
Gyrosigma sp.	6	-
Sellaphoraceae		
Fallacia sp.	3	-
Stauroneidaceae		
Stauroneis smithii	1	1
Surirellaceae		
Surirella sp.	1	-

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples for the Control Site, n= 2 samples for the Test Site) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Bonifay WWTF and collected on April 16, 2007. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site (avg # per m^2)	**Test Site** (avg # per m^2)
Annelida		
Oligochaeta		
Bratislavia unidentata	-	92
Dero digitata complex	14	19
Haemonais waldvogeli	-	31
Nais communis complex	80	-
Slavina appendiculata	70	49
Arthropoda		
Crustacea		
Decapoda		
Palaemonetes sp.	3	-
Isopoda		
Oniscidae	3	-
Insecta		
Coleoptera		
Stenelmis sp.	-	4
Diptera		
Ablabesmyia mallochi	3	-
Chironomus sp.	24	126
Conchapelopia sp.	12	31
Cricotopus bicinctus	3	18
Dicrotendipes modestus	23	13
Dicrotendipes simpsoni	23	13
Dicrotendipes sp. A Epler	6	-
Glyptotendipes sp.	-	1,759
Goeldichironomus holoprasinus	3	-
Kiefferulus sp.	9	-
Nanocladius sp.	6	13
Paratanytarsus sp.	38	31
Phaenopsectra punctipes grp.	-	18
Polypedilum fallax	4	-
Polypedilum illinoense grp.	18	308
Polypedilum scalaenum grp.	7	44
Polypedilum tritum	-	31
Rheotanytarsus exiguus grp.	14	-
Rheotanytarsus pellucidus	7	-
Tanytarsus sp. C Epler	84	130
Tanytarsus sp. L Epler	-	19
Tanytarsus sp. P Epler	-	14
Tanytarsus sp. U Epler	12	33
Thienemanniella xena	3	-
Thienemannimyia grp.	129	165

Odonata		
Argia tibialis	3	-
Ischnura sp.	3	-
Mollusca		
Bivalvia		
Undetermined	-	8
Gastropoda		
Ancylidae	3	44
Hydrobiidae	-	4
Micromenetus sp.	3	16
Physidae	3	-

Appendix J-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples for the Control Site, n=2 samples from the Test Site) incubated upstream and downstream of the Bonifay WWTF for 28 days and collected on April 16, 2007.

	Control Site (# counted)	Test Site (# counted)
Annelida		
Oligochaeta		
Bratislavia unidentata	-	23
Dero digitata complex	5	5
Haemonais waldvogeli	-	8
Nais communis complex	30	-
Slavina appendiculata	27	12
Arthropoda		
Crustacea		
Decapoda		
Palaemonetes sp.	1	-
Isopoda		
Oniscidae	1	-
Insecta		
Coleoptera		
Stenelmis sp.	-	1
Diptera		
Ablabesmyia mallochi	1	-
Chironomus sp.	9	32
Conchapelopia sp.	4	8
Cricotopus bicinctus	1	4
Dicrotendipes modestus	9	3
Dicrotendipes simpsoni	9	3
Dicrotendipes sp. A Epler	2	-
Glyptotendipes sp.	-	443
Goeldichironomus holoprasinus	1	-
Kiefferulus sp.	3	-
Nanocladius sp.	2	3
Paratanytarsus sp.	14	8
Phaenopsectra punctipes grp.	-	4
Polypedilum fallax	1	-
Polypedilum illinoense grp.	7	78
Polypedilum scalaenum grp.	3	11
Polypedilum tritum	-	8
Rheotanytarsus exiguus grp.	6	-
Rheotanytarsus pellucidus	2	-
Tanytarsus sp. C Epler	32	33
Tanytarsus sp. L Epler	-	4
Tanytarsus sp. P Epler	-	3
Tanytarsus sp. U Epler	4	9
Thienemanniella xena	1	-
Thienemannimyia grp.	50	42
Odonata		

Argia tibialis	1	-
Ischnura sp.	1	-
Mollusca		
Bivalvia		
Undetermined	-	2
Gastropoda		
Ancylidae	1	11
Hydrobiidae	-	1
Micromenetus sp.	1	4
Physidae	1	-

Appendix K-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of the Bonifay WWTF on April 17, 2007. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site		Test Site	
	Rep 1 (# counted)	Rep 2 (# counted)	Rep 1 (# counted)	Rep 2 (# counted)
Annelida				
Hirudinea				
Glossiphoniidae	-	-	-	1
Oligochaeta				
Bratislavia unidentata	-	-	6	6
Dero digitata complex	-	1	3	4
Dero furcata	-	-	4	4
Haemonais waldvogeli	-	-	20	26
Ilyodrilus templetoni	-	-	6	-
Limnodrilus hoffmeisteri	7	17	13	21
Limnodrilus profundicola	-	-	12	-
Nais communis complex	-	1	-	1
Arthropoda				
Crustacea				
Decapoda				
Palaemonetes sp.	1	-	-	-
Insecta				
Collembola				
Undetermined Collembola	-	1	-	-
Coleoptera				
Gonielmis dietrichi	1	-	-	-
Suphisellus sp.	1	-	-	-
Diptera				
Ablabesmyia mallochi	1	-	1	1
Anopheles sp.	1	-	-	-
Atrichopogon sp.	1	-	-	-
Chironomus sp.	4	9	48	48
Conchapelopia sp.	1	-	-	-
Cryptochironomus sp.	-	1	-	-
Culex sp.	1	-	-	-
Dasyhelea sp.	-	-	1	-
Dicrotendipes sp.	1	-	-	1
Dicrotendipes modestus	-	4	2	-
Glyptotendipes sp.	1	-	-	-
Goeldichironomus sp.	-	-	1	-
Larsia sp.	1	-	-	-
Nanocladius sp.	-	3	-	-
Paraphaenocladius sp.	-	-	1	1
Paratanytarsus sp.	-	5	1	-
Polypedilum illinoense grp.	-	-	7	2
Polypedilum scalaenum grp.	1	3	4	2
Polypedilum tritum	-	5	1	1

	Procladius (holotanypus)	-	1	-	-
	Psychodidae	-	-	1	-
	Rheotanytarsus exiguus grp.	1	-	-	-
	Simulium sp.	1	-	-	-
	Tanytarsus sp. C Epler	10	5	-	-
	Tanytarsus sp. G Epler	-	-	1	-
	Tanytarsus sp. U Epler	5	4	-	-
	Thienemannimyia grp.	4	10	-	2
	Tipulidae	1	-	-	-
	Tribelos fuscicornis	1	-	-	-
Mollusca					
Bivalvia					
	Corbicula fluminea	19	11	-	-
	Sphaeriidae(mollusca)	-	15	3	2
	Sphaerium striatinum	7	-	-	-
Gastropoda					
	Ancylidae	4	5	1	2
	Fossaria sp.	11	4	-	1
	Micromenetus sp.	26	16	3	8
	Physidae	38	20	10	9

Appendix K-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of the Bonifay WWTF on April 17, 2007.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Hirudinea				
Glossiphoniidae	-	-	-	1
Oligochaeta				
Bratislavia unidentata	-	-	5	5
Dero sp.	-	-	3	4
Dero digitata complex	-	1	1	1
Dero furcata	-	-	1	1
Haemonais waldvogeli	-	-	16	21
Ilyodrilus templetoni	-	-	1	-
Limnodrilus hoffmeisteri	1	3	2	7
Limnodrilus profundicola	-	-	2	-
Naididae	-	-	7	8
Nais communis complex	-	1	-	1
Tubificidae	6	14	26	14
Arthropoda				
Crustacea				
Decapoda				
Palaemonetes sp.	1	-	-	-
Insecta				
Collembola				
Undetermined Collembola	-	1	-	-
Coleoptera				
Gonielmis dietrichi	1	-	-	-
Suphisellus sp.	1	-	-	-
Diptera				
Ablabesmyia mallochi	1	-	1	1
Anopheles sp.	1	-	-	-
Atrichopogon sp.	1	-	-	-
Chironomidae	8	10	-	1
Chironomus sp.	3	8	48	47
Conchapelopia sp.	1	-	-	-
Cryptochironomus sp.	-	1	-	-
Culex sp.	1	-	-	-
Dasyhelea sp.	-	-	1	-
Dicrotendipes sp.	1	1	1	1
Dicrotendipes modestus	-	2	1	-
Glyptotendipes sp.	1	-	-	-
Goeldichironomus sp.	-	-	1	-
Larsia sp.	1	-	-	-
Nanocladius sp.	-	2	-	-
Paraphaenocladius sp.	-	-	1	1
Paratanytarsus sp.	-	4	1	-
Polypedilum illinoense grp.	-	-	7	2
Polypedilum scalaenum grp.	1	2	4	2

	Polypedilum tritum	-	4	1	1
	Procladius (holotanypus)	-	1	-	-
	Psychodidae	-	-	1	-
	Rheotanytarsus exiguus grp.	1	-	-	-
	Simulium sp.	1	-	-	-
	Tanytarsus sp. C Epler	5	4	-	-
	Tanytarsus sp. G Epler	-	-	1	-
	Tanytarsus sp. U Epler	4	3	-	-
	Thienemannimyia grp.	3	8	-	2
	Tipulidae	1	-	-	-
	Tribelos fuscicornis	1	-	-	-
Mollusca					
Bivalvia					
	Corbicula fluminea	19	11	-	-
	Sphaeriidae(mollusca)	6	15	3	2
	Sphaerium striatinum	1	-	-	-
Gastropoda					
	Ancylidae	4	5	1	2
	Fossaria sp.	11	4	-	1
	Micromenetus sp.	26	16	3	8
	Physidae	38	20	10	9

The Bioassay of the City of Bonifay WWTF effluent sampled on April 16, 2007, 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 F L 0 0 2 7 7 3 1 11	12 0 7 0 4 1 6	18 **B**	19 **S**	20 1

Remarks

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The Priority Pollutants Analysis for Bioassay of the City of Bonifay WWTF effluent sampled on April 16, 2007, 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 F L 0 0 2 7 7 3 1 11	12 0 7 0 4 1 6	18 **X**	19 **S**	20 1

Remarks

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Biological Analyses of the City of Bonifay WWTF effluent sampled on April 16, 2007, 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 F L 0 0 2 7 7 3 1 11	12 0 7 0 4 1 6	18 **S**	19 **S**	20 1

Remarks

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