

Biological Assessment of

GRU – Main Street WRF

Alachua County

NPDES #FL0027251

Sampled October 29, 2007

April 2008

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	GRU – Main Street WRF
Physical Address:	200 S.E. 16th Ave. Gainesville, FL
County:	Alachua
NPDES Number:	**FL0027251**
Permit Expiration:	September 14, 2008

Toxics Sampling Inspection **(XSI)**

Date Sampled: October 29, 2007

Results: Copper, nickel, and zinc were detected in the effluent at levels above the practical quantitation limits (PQL), and arsenic and iron were detected between the method detection limits (MDL) and PQLs. All effluent metals complied with Class III Water Quality Criteria (62-302.530, F.A.C.) and facility permit limits. Metals at Control and Test Sites complied with Class III Water Quality Criteria.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: October 29 and 31, 2007, and November 2, 2007

Results: The dechlorinated effluent sample was not chronically toxic to the fish, *Pimephales promelas,* or to the water flea, *Ceriodaphnia dubia,* during 7-day chronic screening bioassays. The bioassay samples were collected prior to dechlorination at the facility due to constraints with the composite sampler.

Water Quality Inspection **(WQI)**

Date Sampled: October 29 and 30, 2007

Results: Fecal coliforms were not detected in the effluent and were not measured in the receiving waters on October 29. Fecal coliforms were detected at the Test Site (520 colony forming units [CFU]/ml) on October 30 at a level seven times that of the Control Site (68 CFU/ml); levels at the Control Site complied with Class III Water Quality Criteria, but the Test Site levels violated the criteria (≤ 400 CFU; 62-302.530(6), F.A.C.). Higher fecal coliform counts at the Test Site cannot be attributed with certainty to the effluent because effluent and in-stream samples were not collected on the same day. Levels of pH, dissolved oxygen, and specific conductance complied with effluent limits and water quality criteria for all sites; however, specific conductance was more than twice as high at the Test Site (888 µmhos/cm) as at the Control Site (381 µmhos/cm), due to high specific conductance in the effluent (992 µmhos/cm). Effluent total nitrogen concentration was 6.8 mg/L, and total nitrogen at the Test Site (6.2 mg/L) was an order of magnitude greater than at the Control Site (0.57 mg/L). Effluent total phosphorus concentration was 0.5 mg/L, and total phosphorus at the Test Site (0.51 mg/L) was twice as high as at the Control Site (0.26 mg/L). Effluent nutrient concentrations complied with permit limits (numeric limits only for total ammonia, un-ionized ammonia, and organic

nitrogen). The effluent and Test Site algal growth potential (AGP) values (288 and 260 mg dry wt/L, respectively) were an order of magnitude higher than the AGP value at the Control Site (13.4 mg dry wt/L); all AGP values exceeded the "problem" threshold of 5 mg dry wt/L for fresh waters.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: October 29, 2007

Results: Periphyton community composition did not differ between Control and Test Sites. Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers showed similar communities at the Control and Test Sites; both sites had fairly low taxa diversity. SCI scores for the Control (19) and Test Sites (23) were both in the lowest category, Category Three, indicating low quality macroinvertebrate communities. The biological communities in Sweetwater Branch are already degraded by flashy hydrology and high specific conductance such that the increase in specific conductance and nutrients from the effluent does not appear to be causing further degradation. Both sites may also be influenced by an inactive landfill upstream.

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 Gainesville Regional Utilities (GRU) – Main Street Water Reclamation Facility (WRF) is located in Alachua County, Florida (Appendix A). This facility is an advanced secondary activated sludge wastewater treatment facility. The treatment system consists of two mechanical bar screens, one vortex grit removal unit, an odor control solid bed, three aeration basins, three secondary clarifiers, one continuously backwashed Dynasand filter system, three chlorine contact basins, and two aerobic digesters (see Facility Summary in Appendix B). The effluent is then discharged into the Class III fresh waters of Sweetwater Branch. The design flow of the wastewater system is 7.50 million gallons per day (MGD) annual average daily flow (AADF). The AADF from November 2006 through October 2007 was 5.73 MGD. The actual mean flow during this survey was 6.63 MGD (facility information from Joe Emery and Eesa Ali of the FDEP Northeast District).

Surface Water Quality Criteria and facility permit limits are listed in Tables 1 and 2. According to the facility's monthly discharge monitoring reports, the plant has not had any violations within the past year. The facility is operating under Consent Order OGC Number 05-1477, which requires the facility to submit annual reports on its efforts to prevent grease blockages in the sewer system, which had resulted in sewage overflow in the past (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 Sweetwater Branch 60 meters upstream of the discharge) and a Test Site (located in Sweetwater Branch approximately 20 meters downstream of the discharge). There is an inactive landfill, with armoring on the stream side, immediately upstream of the Control Site reach. The Control Site was potentially influenced by the landfill, while the Test Site was influenced by the landfill and the GRU effluent. Detailed methods and their relationship to Florida Administrative Code are given in Appendix C.

All field and laboratory biological methods followed Biology Section Standard Operating Procedures (SOPs, see http://www.floridadep.org/labs/qa/2002sops.htm for details) and met FDEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm). All effluent samples were collected as grab samples from sampling point EFD-1, after dechlorination, except for the bioassay samples which were collected as 24-hr flow-proportional composite samples from EFA-1, after disinfection but before dechlorination. The bioassay samples were dechlorinated with sodium thiosulfate in the lab prior to use in the chronic screening toxicity tests.

The following were involved in this investigation: Eesa Ali and Steve Nye (FDEP Northeast District), and FDEP Central Laboratory in Tallahassee. See Appendix D for the chain of custody form (sample submittal form). The report was reviewed by District representatives and the Point Source Studies Review Committee (Michael Tanski, Jennifer Paris, and Nancy Ross).

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. Organic pollutants were not detected in the effluent. Effluent total nitrogen was 6.8 mg/L, and effluent total phosphorus was 0.5 mg/L (Table 1). All nutrient levels were higher at the Test Site than at the Control Site, due to nutrient contributions from the effluent. Total nitrogen and nitrate+nitrite concentrations, respectively, were 6.2 mg/L and 4.4 mg/L at the Test Site compared to 0.57 mg/L and 0.14 mg/L at the Control Site. The total phosphorus concentration at the Test Site was 0.51 mg/L compared to 0.26 mg/L at the Control Site (Table 1). Un-ionized ammonia was not detected in any effluent or in-stream samples. Effluent concentrations of total ammonia (0.12 mg/L) and organic nitrogen (1.68 mg/L) met their respective permit limits of 4.87 mg/L and 3.5 mg/L. Nitrate+nitrite was detected in the field blank between the method detection limit (MDL) and practical quantitation limit (PQL).
- Effluent dissolved oxygen, pH, and specific conductance complied with Class III Fresh Water Quality Criteria (62-302, F.A.C.) and facility permit limits. However, specific conductance and temperature were elevated at the Test Site (888 µmhos/cm and 23.4°C) compared to the Control Site (381 µmhos/cm and 19.9°C), and those elevated levels appeared to be due to the effluent (992 µmhos/cm and 24.1°C). Specific conductance during the site recon on August 8, 2007, was 560 µmhos/cm at the Control Site and 1,010 µmhos/cm at the Test Site.
- The dechlorinated effluent sample was not chronically toxic to the fish, *Pimephales promelas,* or to the water flea, *Ceriodaphnia dubia,* during 7-day chronic screening bioassays (See Table 1 for results, Appendix F for bioassay bench sheets, and Appendix G for supporting standard reference toxicant data). The sodium thiosulfate used to remove the chlorine from the sample is capable of removing other toxicants, so data should be interpreted with caution.
- Due to a scheduling omission, fecal coliforms samples were collected from the effluent on October 29, 2007, but from the receiving waters on October 30, 2007. Fecal

Table 1. Effluent limits, Class III Freshwater Criteria, and chemical, microbiological, and toxicological data for samples collected on October 29, 2007.

GRU Main Street WRF	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	-	-	-
Lindane (µg/L)	-	≤ 0.08 sp	-	-	-
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.41	0.14	0.36
Total Phosphorus	-	-	0.5	0.26	0.51
Total Ammonia	-	≤ 4.87 sp	0.12	0.025	0.032
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	5 f	0.14 f	4.4 f
Total Kjeldahl Nitrogen	-	Report p	1.8	0.43	1.8
Organic Nitrogen	-	≤ 3.5 sp	1.68 c	0.405 c	1.768 c
Total Nitrogen	-	Report p	6.8 c	0.57 c	6.2 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	84	107
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 6.0	8.7	9.3	8.6
pH (SU)	6.0 - 8.5	6.4 - 8.4	6.5	7.6	7.5
Conductivity (µmhos/cm)	≤ 1,275	-	992	381	888
Temperature °C	-	Report	24.1	19.9	23.4
Sample Depth (m)	-	-	-	0.2	0.4
Total Residual Chlorine	-	≤ 0.01 s	< 0.03	-	-
Total Suspended Solids (mg/L)	-	≤ 20.0 sp	-	-	-
CBOD, 5 day (mg/L)	-	≤ 10.0 sp	-	-	-
Chlorophyll a (µg/L) corrected	-	-	1.1 I	2.9	0.73 I
Phaeophytin (µg/L)	-	-	0.24 U	1	0.24 U
Flow (MGD)	-	≤ 7.5 a	6.42 *	-	-
Hardness (mg $CaCO_3$)	-	Report	152.16 c	172.72 c	159.25 c
Toxicity (7-day chronic screening bioassay, % effluent NOEC)					
Bioassay - Water flea dechlorinated	-	100% p	100% ¥	-	-
Bioassay - Fish dechlorinated	-	100% p	100% ¥	-	-
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms #	≤ 400&	≤ 800 s	2 U	68 **	520 **

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

f - Analyte detected in field blank between MDL and PQL

p - Limit is for a 24-hr flow proportional composite sample

s - Single sample

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

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

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

¥ - Result from a 24-hr flow-proportional composite sample; Compliance point for chronic toxicity is EFD-1, but sample collected from EFA -1

* - Measured on 11/1/07

** - Collected on 10/30/07

- Analyses conducted at the DEP Northeast District Lab

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

coliforms were not detected in the effluent (See Table 1 for results and Appendix F for laboratory worksheets). Fecal coliforms at the Test Site (520 colony forming units [CFU]) exceeded the Class III Water Quality Criterion used if fewer than 10 samples are taken within a month (≤ 400 CFU; 62-302.530(6), F.A.C), whereas the concentration at Control Site (68 CFU) was below the limit. We cannot conclude with certainty that the increase was due to contributions from the effluent because a sample was not taken from the effluent on the same day.

- Arsenic, copper, 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.; Table 2) and facility permit limits; arsenic and iron were detected between the MDL and PQL. Aluminum, arsenic, cadmium, nickel, and zinc were detected at the Control Site and arsenic, iron, lead, and zinc were detected at the Test Site at levels between the MDL and PQL. Copper, iron, and lead were detected at the Control Site and copper and nickel were detected at the Test Site above the PQL. All metal detections complied with Class III Fresh Water Quality Criteria. Aluminum, cadmium, copper, iron, and lead were slightly higher at the Control Site than at the Test Site, possibly due to the influence of an inactive landfill directly upstream of the Control Site or other urban influences (Appendix A, Table 2). Effluent results for copper and nickel were estimated due to insufficient spike recovery in lab quality control measures.

- 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 weight/L represents a "problem" threshold for fresh receiving waters, implying

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

GRU Main Street WRF	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	60 U	-	110 I	-	60 U
Arsenic	≤ 50	-	0.5 I	≤ 50	0.86 I	≤ 50	0.58 I
Cadmium	≤ 0.4 b	-	0.02 U	≤ 0.41 b	0.057 I	≤ 0.38 b	0.02 U
Calcium (mg/L)	-	-	36.2 A	-	54	-	39.7
Chromium-III	≤ 121.5 b	-	1 U	≤ 134.83 b	1 U	≤ 126.16 b	1 U
Copper	≤ 13.4 b	-	1.3 AJ	≤ 14.88 b	1.89	≤ 13.88 b	1.12
Iron	≤ 1,000	-	43 I	≤ 1,000	320	≤ 1,000	110 I
Lead	≤ 5.4 b	-	0.2 U	≤ 6.38 b	1.1	≤ 5.75 b	0.4 I
Magnesium (mg/L)	-	-	15 A	-	9.2	-	14.6
Mercury	≤ 0.012	Report p	-	≤ 0.012	-	≤ 0.012	-
Nickel	≤ 74.4 b	-	1.27 AJ	≤ 82.83 b	0.8 I	≤ 77.33 b	1.13
Selenium	≤ 5.0	-	0.5 U	≤ 5.0	0.5 U	≤ 5.0	0.5 U
Silver	≤ 0.07	≤ 0.07 p	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 171.0 b	Report p	20 A	≤ 190.38 b	9.1 I	≤ 177.72 b	18 I

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness
p - Limit for a 24-hr flow-proportional composite sample
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
U - Material analyzed for but not detected; value reported is the method detection limit

nutrient enrichment. Effluent AGP was 288 mg dry weight/L (Table 3). The AGP values at the upstream Control Site and downstream Test Site were 13.4 mg dry weight/L and 260 mg dry weight/L, respectively, indicating that the effluent is greatly contributing to nutrient enrichment at the Test Site. The analytical chemistry suggests that the Control Site is nitrogen-limited, but that the effluent and Test Site are co-limited by both nitrogen and phosphorus. There was no evidence of growth inhibition in the AGP data (Table 3).

- Chlorophyll-*a*, detected at low levels in water samples of the effluent and from the Control and Test Sites, and was slightly higher at the Control Site (Table 1). We note that nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. pH, shading, turbidity). Thus it is not necessarily contradictory for ambient nutrient levels to be high and for low chlorophyll to be detected in water samples.

- Habitat assessment scores were 84 at the Control Site and 107 at the Test Site, placing both sites in the Sub-optimal category (Table 1, Appendix C(5), data sheets in Appendix H). The Control Site scored more poorly than the Test Site because of slightly less habitat substrate, lower water velocity, and a greater degree of channelization.

- Periphyton algal community composition between the Control and Test Sites were very similar (Table 4, Appendix I). Both sites were dominated by diatoms, with diatoms comprising 96.3% and 87.0% of the community at the Control and Test Sites, respectively. The Test Site community contained 12.3% cyanobacteria (blue-green algae) individuals compared with 3.0% at the Control Site, which is a small difference but may result from nutrient enrichment.

- Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers showed no major differences between the Control Site and the Test Site (Table 5, Appendix J). Taxa richness was similar at the Control (28) and Test (21) Site. Shannon-Weaver diversity was fairly low at both sites (1.90 for Control Site and 2.38 for Test Site) because 70.8% and 49.5% of the Control and Test Site samples, respectively, were dominated by *Polypedilum illinoense* grp., ubiquitous fly larvae. The Test Site had a higher percentage of caddisflies (Trichoptera), probably due to greater water velocity at the Test

Table 3. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata,* and ratios of nitrogen to phosphorus. Control Site was nitrogen-limited, whereas the effluent and Test Site were co-limited by nitrogen and phosphorus.

GRU Main Street WRF							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	288.0 A	194.6 ± 38.9	176.3 ± 35.3	258.4 ± 51.7	215.0 ± 43.0	12.5	13.6
Control Site	13.4	6.3 ± 1.3	-	21.7 ± 4.3	-	1.2	2.2
Test Site	260.0	168.4 ± 33.7	154.8 ± 31.0	235.6 ± 47.1	219.3 ± 43.9	12.3	12.2

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

Site. NOTE: This portion of Sweetwater Branch has a very flashy hydrograph due to urban development in the watershed, so three floating Hester-Dendy samplers were deployed as well as three samplers anchored to the streambed. For both sites, two floating and one anchored sampler were retrieved, and the rest were either buried in sand or exposed to air during the deployment. Due to the shallow nature of the stream, it is acceptable to combine the floating and anchored samplers to yield the required sample size of three samplers.

- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Table 6 and in Appendix K. The Control Site SCI score of 19 and the Test Site SCI score of 23 placed them both in Category 3, the lowest quality category. The Control and Test Sites both had few sensitive taxa, and both sites had a high percent of Very Tolerant individuals. The Control Site was dominated by the fly larvae *Polypedilum illinoense* grp., while the Test Site was dominated by the caddisfly, *Cheumatopsyche* sp, both ubiquitous, pollution tolerant taxa. The greater number of caddisflies at the Test Site was likely due to greater water velocity. Based on habitat assessment scores, the habitat in the stream should support a healthy macroinvertebrate community. High specific conductance and frequent extreme water flow events are probably the key limiting factors for the macroinvertebrate community.

Summary

Both DMR and FDEP data from this inspection indicate no water quality standards or permit exceedances by this facility. The effluent contributes very high levels of nutrients to the stream; the total nitrogen at the Test Site was an order of magnitude greater than at the Control Site, and the total phosphorus concentration at the Test Site was twice as great. AGP results show that the effluent is contributing to nutrient enrichment in Sweetwater Branch. The Test Site fecal coliforms concentration exceeded the Class III Fresh Water Quality Criterion on the day after the main inspection; no in-stream sample was taken during the main inspection. The macroinvertebrate community in this portion of Sweetwater Branch is already suppressed by other urban influences such that the effluent did not cause further degradation of the community.

Literature Cited

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Table 4. Periphyton Composition - Qualitative.

GRU Main Street WRF	Control Site	Test Site
Number of Wet Taxa	7	10
Number of Wet Algal Units Identified	300	301
Percent Dominant Wet Taxon	96.3	87.0
Dominant Wet Taxon Name	Bacillariophyta (Diatoms)	Bacillariophyta (Diatoms)
Number of Diatom Taxa	36	33
Number of Diatom Algal Units Identified	501	500
Percent Dominant Diatom Taxon	14.2	17.4
Dominant Diatom Taxon Name	*Achnanthes* sp.	*Nitzschia* sp.
Percentage Composition for Wet Algae		
Blue-green algae	3.0	12.3
Green algae	0.7	0.7
Diatoms	96.3	87.0

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative.

GRU Main Street WRF	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	1.90	2.38
Number of Taxa	28	21
Florida Index	12	16
Number of EPT Taxa	3	2
Percent Dominant Taxon	70.8	49.5
Dominant Taxon Name	*Polypedilum illinoense* grp. (Diptera)	*Polypedilum illinoense* grp. (Diptera)
Total Number of Individuals (counted)	850	806
Total Number of Individuals (#/m^2)	2,250	2,133
Community Composition: Percent of total		
Acariformes	0.6	0.0
Amphipoda	0.1	0.0
Coleoptera	1.4	3.8
Diptera	85.0	73.2
Ephemeroptera	0.0	0.1
Gastropoda	8.2	3.8
Odonata	1.5	0.6
Oligochaeta	2.7	0.0
Plecoptera	0.0	0.0
Trichoptera	0.4	18.1
Other	0.0	0.3
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	2.7	0.0
Piercers	0.1	0.0
Predators	2.7	1.9
Scrapers	9.1	5.8
Shredders	36.3	25.5
Surface Deposit Feeders	44.6	48.6
Suspension Feeders	3.8	18.1
Unknown	0.7	0.0

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Table 6. Macroinvertebrate Dipnet Samples - Qualitative.

GRU Main Street WRF	Control		Test	
Summary Statistics				
Stream Condition Index 2007 (value)	19 A		23 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	16	15	18	14
Number of Ephemeroptera Taxa	1	1	1	1
Number of Trichoptera Taxa	1	2	1	1
Number of Clinger Taxa	1	2	1	1
Number of Long-lived Taxa	1	0	0	1
Number of Sensitive Taxa	0	0	0	1
Percent of Dominant Taxon	25.5	33.8	30.5	32.5
Percent Suspension Feeders and Filterers	13.8	11.2	31.8	34.1
Percent of Tanytarsini Individuals	0.0	0.0	0.0	0.0
Percent of Very Tolerant Individuals	36.2	42.6	44.2	51.0
Total Number of Individuals	149	148	154	157
Community Composition: Percent of total				
Dominant Taxon (name)	*Polypedilum illinoense* grp. (Diptera)	*Polypedilum illinoense* grp. (Diptera)	*Cheumatopsyche* sp. (Trichoptera)	*Cheumatopsyche* sp. (Trichoptera)
Bivalvia	1.3	0.0	0.0	0.6
Coleoptera	18.8	15.5	8.4	8.3
Diptera	36.2	40.5	46.1	44.6
Ephemeroptera	0.7	0.7	2.0	2.6
Gastropoda	14.8	14.9	3.3	1.9
Odonata	15.4	15.5	8.4	9.6
Oligochaeta	0.0	0.0	0.7	0.0
Plecoptera	0.0	0.0	0.0	0.0
Trichoptera	10.7	10.8	30.5	32.5
Other	2.0	2.0	0.6	0.0
Functional Feeding Groups: Percent of total				
Burrowing Deposit Feeders	0.0	0.0	0.7	0.0
Piercers	0.0	0.7	0.0	0.0
Predators	16.1	16.9	9.1	10.8
Scrapers	23.8	22.6	7.5	6.1
Shredders	15.4	16.9	11.0	14.0
Surface Deposit Feeders	28.2	29.7	39.9	35.0
Suspension Feeders	13.8	11.2	31.8	34.1
Unknown	2.7	2.0	0.0	0.0

A - Value reported is the mean of two determinations

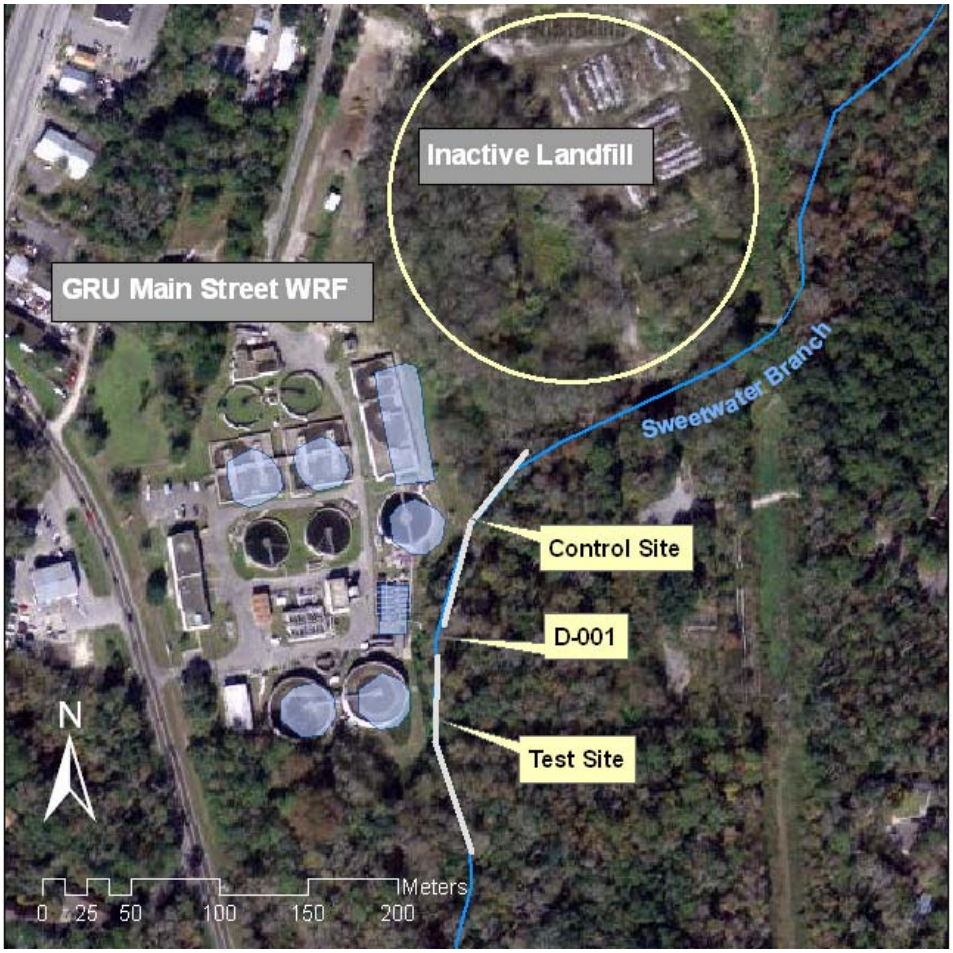
* SCI_2007 categories from Table LT 7200-2 of Draft DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.),September 17, 2007: Values 0 ≤ 34 are Category III; Values 35 < 67 are Category II; Values 68 ≤ 100 are Category I

Appendices

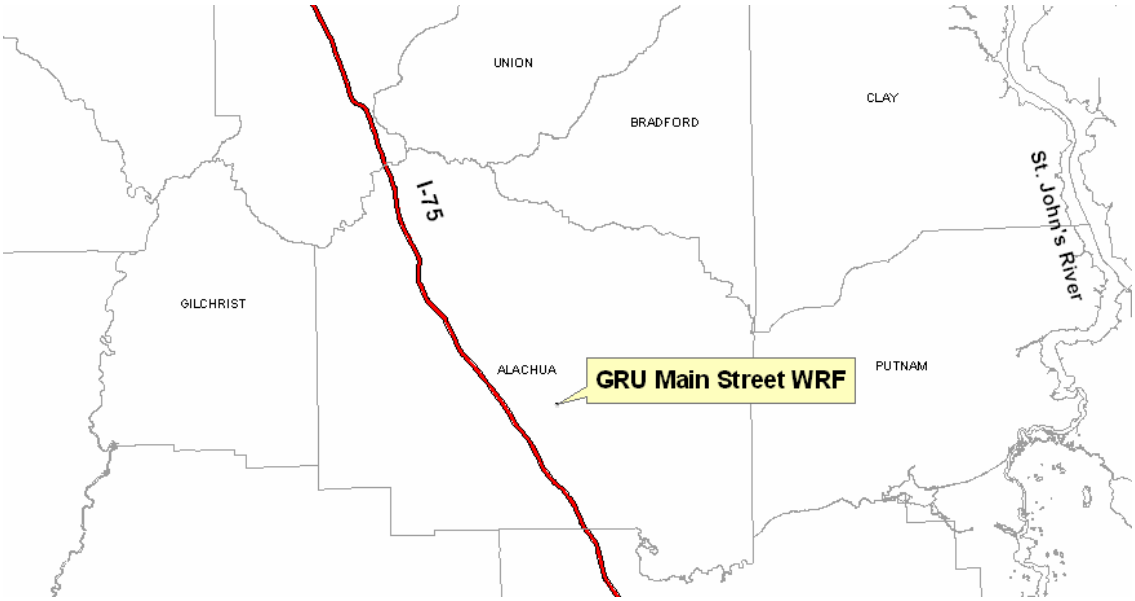
- Appendix A. Map of facility
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- Appendix I-1. Periphyton: Wet taxa list and number of individuals counted
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- Appendix J1. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2; collapsed)
- 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 GRU Main Street WRF in Northern Florida



Appendix B

Facility Summary and DMR data

State of Florida
Department of Environmental Protection
Facility Introduction

GRU Mainstreet wastewater reclamation facility (WRF) is an existing 7.50 mgd annual average daily flow (AADF) advanced secondary activated sludge wastewater treatment facility consisting of a preliminary treatment system which includes two mechanical bar screens, one vortex grit removal unit, an odor control solid bed, three aeration basins, three secondary clarifiers, one continuously backwashed Dynasand filter system, three chlorine contact basins, and two aerobic digesters. The wastewater residuals are aerobically stabilized to meet Class B requirements and land applied to approved sites. They have a 7.5 MGD annual average daily flow (AADF) permitted discharge to Sweetwater Branch (Class III fresh waters) at Discharge Location (D-001). The facility uses gas chlorine and liquid dechlorination. The average annual flow to the WWTF for January 2006 till July 2007 was 5.46 MGD.

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

Facility Name (as it appears on permit): GRU - Main Street Water Reclamation Facility		**Former Names:** N/A
Physical Address: 200 S.E. 16th Avenue Gainesville, Florida 32601	**NPDES Permit No.:** FL0027251 **Expiration Date:** September 14, 2008	**Prepared By:** Joseph Emery
County: Alachua	**District:** Northeast District	**Facility Type:** Domestic Wastewater

Function of Facility: Treats domestic wastewater to secondary standards prior to discharge to Sweetwater Branch (Class III fresh waters).

Sampling Location (actual permit designation of permitted sampling point):
EFA-1 - Effluent sample point after basic-level disinfection but before dechlorination.
EFD-1 - Effluent sample point after dechlorination and before discharge to the outfall.
EFB-1 - Sample point at the parshall flume immediately after filtration but prior to disinfection.
CAL-1 - Calculated values
SWU-1 - Sample point approximately 300 feet north of the Outfall D-001
SWD-1 - Sample point approximately 300 feet south of the Outfall D-001
PPI-1 - Effluent sample point after high-level disinfection and 740 feet from the W-3 reuse pump station.
PPI-2 - Effluent sample point after high-level disinfection and 3200 linear feet from the W-3 pump station.
EFB-1 - Sample point at the parshall flume immediately after filtration but prior to disinfection.
INF-1 - Influent sample point to the treatment train prior to any biological, chemical, physical treatment or dilution.
CAL-2 - Calculated value, total of all reuse flows (R-001, R-002, and R-003).
RMP-B - Residuals sampling point after series aerobic digester stabilization at the digester sludge pump.

Description of permitted outfall:

Surface Water Discharge: An existing 7.5 MGD annual average daily flow (AADF) permitted discharge to Sweetwater Branch (Class III fresh waters) at Discharge Location (D-001). The point of discharge D-001 is located approximately at latitude 29 ° 38' 03" N, longitude 82 ° 19' 03" W.

Type III Reuse Discharge: a slow-rate public access irrigation system reuse with reclaimed water as follows: Reuse system R-001 (low flow) receives reclaimed water at low flow conditions (28200 gal/hr at PHF). Existing Reuse Use of Reclaimed Water includes reclaimed water for reuse system R-002, at 1.955 MGD. Reuse system R-003 (high flow) receives reclaimed water at high flow conditions (56400 gal/hr at PHF). The total permitted capacity of the reuse system R-001 is 0.6768 MGD maximum day and R-003 is 1.3536 MGD maximum day.

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

An existing 7.50 mgd annual average daily flow (AADF) advanced secondary activated sludge wastewater treatment facility consisting of a preliminary treatment system which includes two mechanical bar screens, one vortex grit removal unit, an odor control solid bed, three aeration basins, three secondary clarifiers, one continuously backwashed Dynasand filter system, three chlorine contact basins, and two aerobic digesters. The wastewater residuals are aerobically stabilized to meet Class B requirements and land applied to approved sites.

Receiving Waters: Sweetwater Branch	**Classification (indicate whether fresh or marine):** Class III fresh waters
Temperature (C):	**Design Flow:**
pH (SU):	**Mean Flow (for previous 12 months):**
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.):

The permittee shall conduct a daphnid, *Ceriodaphnia dubia*, Survival and Reproduction Test and a fathead minnow, *Pimephales promelas*, Larval Survival and Growth Test. These tests shall be conducted using a control (0% effluent) and one test concentration of 100% effluent. The toxicity tests specified above shall be conducted quarterly. For each set of chronic tests conducted, a minimum of three different 24-hour composite samples of final effluent shall be collected and used per the sampling schedule discussed in EPA/600/4-91/002, Section 8 (or the most current edition). All test solutions shall be renewed daily. If test results do not meet the acceptability criteria of EPA/600/4-91/002 Section 13.11 and Section 11.11 (or the most current edition), that test shall be repeated. A chronic test will be considered valid only if the acceptability criteria referenced above are met.

Administrative or Consent Orders:
OGC Number 05-1477 - Consent Order executed requires facility to submit annual reports and inspection schedule for restaurants and collection system.

Facility Mixing Zone Details: N/A

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year:
N/A

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

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

List Effluent Limits (include additional sheets as necessary):

Outfall D.001 (Class III fresh water):

This facility has seasonal limits.

The first period: From April through November of each year.

The second period: From December through March of each year.

Parameter and Units	Limit	Describe special permit conditions and permit modifications:
Flow	7.5 Report	Annual Average Monthly Average
Percent Capacity, (TMADF/Permitted Capacity) x 100 (PERCENT)	Report	Monthly Average
BOD, Carbonaceous 5 day, 20C (MG/L)	5.0 5.0 7.5 10.0	Annual Average Monthly Average Weekly Average Single Sample Max.
Solids, Total Suspended (MG/L)	10.0 10.0 15.0 20.0	Annual Average Monthly Average Weekly Average Single Sample Max.
pH (SU)	6.4 to 8.4	Minimum and Maximum

Coliform, Fecal (#/100ML)	200.0 Report 400.0 800.0	Annual Average Monthly Geo. Mean. 90th Percentile Single Sample Max.
Total Residual Chlorine (For Disinfection) (MG/L)	0.5	Minimum
Total Residual Chlorine (For Dechlorination) (MG/L)	0.01	Single Sample Max.
Lindane (µg/L)	0.063 0.08	Annual Average Single Sample Max.
Nitrogen, Total Kjeldahl as N (MG/L)	Report Report	Monthly Average Single Sample Max.
Oxygen, Dissolved (DO) (MG/L)	6.0	Single Sample Min.
Nitrogen, Ammonia, Total unionized (as N) (MG/L)	Report 0.02	Monthly Average Single Sample Max.
Silver, Total Recoverable (UG/L)	0.07	Single Sample Max.
Nitrogen, Ammonia, Total as N (MG/L)	4.87 (From April through November)	Single Sample Max.
Oxygen demand, Ultimate (MG/L)	52.0 (From April through November)	Single Sample Max.
Nitrogen, Ammonia, Total as N (MG/L)	3.46 (from December through March)	Single Sample Max.
Oxygen demand, Ultimate (MG/L)	38.0 (From December through March)	Single Sample Max.
Organic Nitrogen, as N (MG/L)	Report 3.5	Monthly Average Single Sample Max
Total Nitrogen, as N	Report Report	Monthly Average Single Sample Max
Zinc, Total Recoverable (ug/L)	Report	Single Sample Max
Mercury, Total Recoverable (ug/L)	Report	Single Sample Max
Chronic, Whole Effluent Toxicity (%)	100	Single Sample Min.
Temperature, Water (DEG C)	Report	Single Sample Max.
Hardness, Total as CaCO3 (MG/L)	Report	Single Sample Max.
Land Application System		
R-001, R-002, and R-002		
Parameter and Units	Limit	Describe special permit conditions and permit modifications:

Flow (MGD)	0.0035	Annual Average Peak Hourly
Flow (MGD)	2.8 2.9	Annual Average Peak Hourly
BOD, Carbonaceous 5 day, 20C (MG/L)	20.0 30.0 45.0 60.0	Annual Average Monthly Average Weekly Average Single Sample Max.
Solids, Total Suspended (MG/L)	5.0	Single Sample Max.
pH (SU)	6.0 to 8.5	Minimum and Maximum
Coliform, Fecal, % less than detection (PERCENT)	75	Minimum
Coliform, Fecal (#/100ML)	25	Single Sample Max.
Total Residual Chlorine (For Disinfection) (MG/L)	1.0	Minimum
Turbidity (NTU)	Report	Single Sample Max.
Giardia (CYSTS/100 L)	Report	Single Sample Max.
Cryptosporidium (OOCYSTS/100 L)	Report	Single Sample Max.
INF-01		
Parameter and Units	Limit	Describe special permit conditions and permit modifications:
BOD, Carbonaceous 5 day, 20C (MG/L)	Report	Monthly Average
Solids, Total Suspended (MG/L)	Report	Monthly Average
RMP-B		
Parameter and Units	**Limit**	**Describe special permit conditions and permit modifications:**
Total Nitrogen, % dry weight	Report	Single Sample Max.
Total Phosphorus, % dry weight	Report	Single Sample Max.
Total Potassium, % dry weight	Report	Single Sample Max.
Arsenic, mg/kg dry weight	Maximum	Single Sample Max.
Cadmium, mg/kg dry weight	Maximum	Single Sample Max.
Copper, mg/kg dry weight	Maximum	Single Sample Max.
Lead, mg/kg dry weight	Maximum	Single Sample Max.
Mercury, mg/kg dry weight	Maximum	Single Sample Max.
Molybdenum, mg/kg dry weight	Maximum	Single Sample Max.
Nickel, mg/kg dry weight	Maximum	Single Sample Max.
Selenium, mg/kg dry weight	Maximum	Single Sample Max.
Zinc, mg/kg dry weight	Maximum	Single Sample Max.
pH, std. units	Report	Single Sample Max.
Total Solids, %	Report	Single Sample Max.
Nitrogen, lb/ac/yr	Maximum	Single Sample Max.
Arsenic, lb/ac	Cumulative Maximum	Single Sample Max.

Cadmium, lb/ac	Cumulative Maximum	Single Sample Max.
Copper, lb/ac	Cumulative Maximum	Single Sample Max.
Lead, lb/ac	Cumulative Maximum	Single Sample Max.
Mercury, lb/ac	Cumulative Maximum	Single Sample Max.
Nickel, lb/ac	Cumulative Maximum	Single Sample Max.
Selenium, lb/ac	Cumulative Maximum	Single Sample Max.
Zinc, lb/ac	Cumulative Maximum	Single Sample Max.
Stream Monitoring SWU-1 and SWD-1		
Parameter and Units	**Limit**	**Describe special permit conditions and permit modifications:**
DO	Report	Annual Grab
pH	Report	Annual Grab
temperature	Report	Annual Grab
conductivity	Report	Annual Grab
Hardness ($CaCO_3$),	Report	Annual Grab
$CBOD_5$	Report	Annual Grab
TSS	Report	Annual Grab
NH_3	Report	Annual Grab
TKN	Report	Annual Grab
NO_2+ NO_3	Report	Annual Grab
Total Phosphorous	Report	Annual Grab
Ortho-Phosphorous	Report	Annual Grab
chlorophyll-a	Report	Annual Grab
Fecal coliform	Report	Annual Grab
Stream flow	Report	Annual Grab

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(61) 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 fecal coliform bacteria following FDEP SOPs MB1_0 and MB1_1. High levels of fecal coliform bacteria may constitute violation of 62-302.530(6) 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(46) F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may be a violation of 62-302.530(61), F.A.C..

(7) Algal Periphyton Assemblages

Methods: Qualitative periphyton samples were collected at both control and test sites by taking subsamples of algae from natural substrates throughout the sample reach (QA Rule FS7220). Periphyton were subsampled and identified to the lowest practical level, usually species (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(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

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(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C.

(8) Benthic Macroinvertebrate Assemblages

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(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al*., 1989). Increases in the percent contribution of the dominant taxon related to a facility's effluent may constitute violations of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

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(10) 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(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders (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(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida. 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(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

(9) Statistical Comparisons

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

Appendix D

Chain of Custody form

NEDFS-01-06
1/19/07

Department of Environmental Protection Northeast District Field Sheet

Sample Source: GRU [illegible] RQ#: [illegible] 23 Date [illegible] Page 1 of 1

Meter #3 Acid Kit#1 Ortho Kit #2 Sampling Team [illegible]

LAB ID #	Site Name:	Field/Storet #:	Measured By:	Matrix***:

Time	Temp °C	Cond µohm cm⁻¹	Sal %	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/ HS	Total Depth	Sample Depth
9:10	23.05	992	0.49	6.97	5.66	107.5					

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock **Equipment:** ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler_____

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☒ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☒ Ice ☐ H_2SO_4 ☐ pH<2	A	[illegible]
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other: _____	☒ Ice ☒ 0.45µm flt	A	[illegible]
BOD: ☐ N/A ☒ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☒ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☒ W-FIAS ☒ W-ICPMS ☐ W-ICP-Tr	☒ Ice ☒ HNO_3 ☒ pH <2	A	[illegible]
AGP/Other: ☐ N/A ☒ AA-AGP ☐ AA-Lim-Nut ☐ Other	☐ Ice	A	[illegible]
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli	☐ Ice	A	[illegible]
Comments and conditions:			

LAB ID #	Site Name: GRU Mainstreet WWTF Blank	Field/Storet #:	Measured By:	Matrix***:

Time	Temp °C	Cond µohm cm⁻¹	Sal %	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/ HS	Total Depth	Sample Depth
10:15											

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock **Equipment:** ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler_____

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☐ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☐ Ice ☐ H_2SO_4 ☐ pH <2		
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other: _____	☐ Ice ☐ 0.45µm flt		
BOD: ☐ N/A ☐ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☐ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☐ W-FIAS ☐ W-ICPMS ☐ W-ICP-Tr	☐ Ice ☐ HNO_3 ☐ pH <2		
AGP/Other: ☐ N/A ☐ AA-AGP ☐ AA-Lim-Nut ☐ Other	☐ Ice		
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli	☐ Ice		
Comments and conditions: The info from this site came from the bottles and was filled in by Rec Aqua Staff			

LAB ID #	Site Name:	Field/Storet #:	Measured By:	Matrix***:

Time	Temp °C	Cond µohm cm⁻¹	Sal %	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/ HS	Total Depth	Sample Depth

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock **Equipment:** ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler_____

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☐ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☐ Ice ☐ H_2SO_4 ☐ pH<2		
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other: _____	☐ Ice ☐ 0.45µm flt		
BOD: ☐ N/A ☐ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☐ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☐ W-FIAS ☐ W-ICPMS ☐ W-ICP-Tr	☐ Ice ☐ HNO_3 ☐ pH <2		
AGP/Other: ☐ N/A ☐ AA-AGP ☐ AA-Lim-Nut ☐ Other	☐ Ice		
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli	☐ Ice		
Comments and conditions:			

*Preservatives: 1ml. added per 500 ml. sample unless otherwise noted, iced within 15 minutes ** J: samples run in Jacksonville Lab
***Matrix: SWF=Surface Water, Fresh SWS=Surface Water, Salt GW=Ground Water Sed=Sediment Other=Write In

Relinquished: [illegible]	Date: 10-24-07	Time: 15:4	Received: Tom B 10/30/07 9:10	☐ < 6°C ☐ on ice ☐ < 2 pH
Relinquished:	Date:	Time:	Received:	Shipping:

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID:*

Request Number: RQ-2007-10-29-23
GRU Main Street WRF

Requester: Michael Tanski
Field Report Prepared By: EA

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

Collected By: SNEA
Sampling Agency: DEP
Send Final Report To: Tom Kallemeyn

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time	Eastern / Central	Collection (end) Date / Time	Eastern / Central	Bottle Group(s)**
	Sweetwater branch control 60m up from eff	☐ Comp ☑ Grab	10/29/07 1317	Eastern / Central			B, C (5), (2)
	Field ID: CONTROL	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 7.25		Storet Station Number:		
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C): 19.85	pH: 7.58	Sample Depth: 0.2 ☑ m ☐ ft	0.18 ☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 381		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)**
	Sweetwater br. test 70m down from eff.	☐ Comp ☑ Grab	10/29/07 1430	Eastern / Central			B, C (5), (2)
	Field ID: TEST	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 5.57		Storet Station Number:		
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C): 23.41	pH: 7.47	Sample Depth: 0.4 ☑ m ☐ ft	0.44 ☑ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 884		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:			

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:			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	10/31/07	hand delivered	[illegible]	10/31/07 10:30				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

29-23

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-10-~~29-05~~

~~Lab~~ GRU Main St

Requester: Lee Banks

Field Report Prepared By: EA

Customer: NE-DIST

Collected By: SNEAT

Send Final Report To Lee Banks or Tom Kallemeyn

Project ID: SMP

Sampling Agency: DEP

PMAS:

Lab ID *	Location GRU effluent Main St.		☐ Comp ☐ Grab	Collection (begin) Date 10/30/07 Time 1515 Eastern Central	Collection (end) Date 10/31/07 Time 1435 Eastern Central		Bottle Group(s)**	Ax2
	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 2nd day sampling C.S. Tox					
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 samples 9:41 11.1.07 SD, Tox					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	10/31/07	DHL	ABB	11-1-07				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Marshall, 0.47mg/L @ sample point 0.0 mg/L after SO_2 line - (Wednesday)

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2007-10-29-04
DU[redacted]

Requester: Thomas Kallemeyn
Field Report Prepared By: EA
Customer: NE-DIST
Collected By: EA/SN
Send Final Report To Lee Banks or Tom Kallemeyn
Project ID: SMP
Sampling Agency: DEP
PMAS:

11/1/07

Lab ID *	Location ITW Main street final eff	☑ Comp ☐ Grab	Collection (begin) Date [redacted] Time 1033 Eastern Central	Collection (end) Date 11/2/07 Time 1055 Eastern Central	Bottle Group(s)** A+3		
	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 6.42 Mgal total 100 ml / 020 Mgals				
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
[redacted]	11/2/07	Hand delivered	[redacted]	11-2-07 15:03				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Cl Thursday 11/1/07 0.04 mg/L After SO_2 0.66 mg/L before SO_2 @ sample point
Cl Friday 11/2/07 0.03 mg/L " 1.02 mg/L "

Appendix E

Chemical analysis of effluent and receiving water

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	GRU EFFLUENT	AGP/LN	Algal Growth Potential	288	A	mg DryWt/L	0.3	0.9
10/29/2007	GRU EFFLUENT	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.1	I	ug/L	0.55	1.7
10/29/2007	GRU EFFLUENT	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.24	U	ug/L	0.24	0.71
10/29/2007	GRU EFFLUENT	Toxicology	Bioassay-Chronic-Scrn-FW-Fish	100		NOEC		
10/29/2007	GRU EFFLUENT	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia	100		NOEC		
10/29/2007	GRU EFFLUENT	Metals	Aluminum	60	U	ug/L	60	240
10/29/2007	GRU EFFLUENT	Metals	Selenium	0.5	U	ug/L	0.5	2
10/29/2007	GRU EFFLUENT	Metals	Calcium	36.2	A	mg/L	0.075	0.3
10/29/2007	GRU EFFLUENT	Metals	Nickel	1.27	AJ	ug/L	0.25	1
10/29/2007	GRU EFFLUENT	Metals	Copper	1.3	AJ	ug/L	0.25	1
10/29/2007	GRU EFFLUENT	Metals	Lead	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Metals	Iron	43	I	ug/L	30	120
10/29/2007	GRU EFFLUENT	Metals	Chromium	1	U	ug/L	1	4
10/29/2007	GRU EFFLUENT	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/29/2007	GRU EFFLUENT	Metals	Magnesium	15	A	mg/L	0.04	0.16
10/29/2007	GRU EFFLUENT	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
10/29/2007	GRU EFFLUENT	Metals	Zinc	20	A	ug/L	5	20
10/29/2007	GRU EFFLUENT	Metals	Arsenic	0.5	I	ug/L	0.5	2
10/29/2007	GRU EFFLUENT	Nutrients	Ammonia-N	0.12		mg N/L	0.01	0.02
10/29/2007	GRU EFFLUENT	Nutrients	Kjeldahl Nitrogen	1.8		mg N/L	0.08	0.2
10/29/2007	GRU EFFLUENT	Nutrients	O-Phosphate-P	0.41		mg P/L	0.04	0.1
10/29/2007	GRU EFFLUENT	Nutrients	Total-P	0.5		mg P/L	0.02	0.06
10/29/2007	GRU EFFLUENT	Nutrients	NO2NO3-N	5		mg N/L	0.04	0.1
10/29/2007	GRU EFFLUENT	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
10/29/2007	GRU EFFLUENT	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
10/29/2007	GRU EFFLUENT	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU EFFLUENT	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
10/29/2007	GRU EFFLUENT	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
10/29/2007	GRU EFFLUENT	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU EFFLUENT	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	GRU EFFLUENT	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
10/29/2007	GRU EFFLUENT	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU EFFLUENT	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU EFFLUENT	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
10/29/2007	GRU EFFLUENT	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
10/29/2007	GRU EFFLUENT	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU EFFLUENT	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
10/29/2007	GRU EFFLUENT	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
10/29/2007	GRU EFFLUENT	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
10/29/2007	GRU EFFLUENT	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzo(b)fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Chrysene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzo(k)fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzo(a)anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Acenaphthene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Acenaphthylene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzo(a)pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Dimethyl phthalate	48	U	ug/L	48	190
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Fluorene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Naphthalene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Phenanthrene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	57
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007	GRU EFFLUENT	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
10/29/2007	GRU EFFLUENT	Field Parameters	Specific Conductance	992		umhos/cm		
10/29/2007	GRU EFFLUENT	Field Parameters	pH	6.47		SU		
10/29/2007	GRU EFFLUENT	Field Parameters	Temperature	24.05		C		
10/29/2007	GRU EFFLUENT	Field Parameters	Dissolved Oxygen	8.66		mg/L		

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	CONTROL	AGP/LN	Algal Growth Potential	13.4		mg DryWt/L	0.3	0.9
10/29/2007	CONTROL	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.9		ug/L	0.62	1.9
10/29/2007	CONTROL	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1		ug/L	0.27	0.8
10/29/2007	CONTROL	Metals	Iron	320		ug/L	30	120
10/29/2007	CONTROL	Metals	Selenium	0.5	U	ug/L	0.5	2
10/29/2007	CONTROL	Metals	Magnesium	9.2		mg/L	0.04	0.16
10/29/2007	CONTROL	Metals	Chromium	1	U	ug/L	1	4
10/29/2007	CONTROL	Metals	Arsenic	0.86	I	ug/L	0.5	2
10/29/2007	CONTROL	Metals	Lead	1.1		ug/L	0.2	0.8
10/29/2007	CONTROL	Metals	Calcium	54		mg/L	0.075	0.3
10/29/2007	CONTROL	Metals	Zinc	9.1	I	ug/L	5	20
10/29/2007	CONTROL	Metals	Nickel	0.8	I	ug/L	0.25	1
10/29/2007	CONTROL	Metals	Copper	1.89		ug/L	0.25	1
10/29/2007	CONTROL	Metals	Cadmium	0.057	I	ug/L	0.02	0.08
10/29/2007	CONTROL	Metals	Aluminum	110	I	ug/L	60	240
10/29/2007	CONTROL	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/29/2007	CONTROL	Nutrients	Ammonia-N	0.025		mg N/L	0.01	0.02
10/29/2007	CONTROL	Nutrients	Total-P	0.26		mg P/L	0.02	0.06
10/29/2007	CONTROL	Nutrients	Kjeldahl Nitrogen	0.43		mg N/L	0.08	0.2
10/29/2007	CONTROL	Nutrients	NO2NO3-N	0.14		mg N/L	0.004	0.01
10/29/2007	CONTROL	Nutrients	O-Phosphate-P	0.14		mg P/L	0.008	0.02
10/29/2007	CONTROL	Field Parameters	Specific Conductance	381		umhos/cm		
10/29/2007	CONTROL	Field Parameters	Sample Depth	0.2		m		
10/29/2007	CONTROL	Field Parameters	Dissolved Oxygen	9.25		mg/L		
10/29/2007	CONTROL	Field Parameters	Salinity			PPTh		
10/29/2007	CONTROL	Field Parameters	Temperature	19.85		C		
10/29/2007	CONTROL	Field Parameters	pH	7.58		SU		
10/29/2007	TEST	AGP/LN	Algal Growth Potential	260		mg DryWt/L	0.3	0.9
10/29/2007	TEST	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.24	U	ug/L	0.24	0.71
10/29/2007	TEST	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.73	I	ug/L	0.55	1.7
10/29/2007	TEST	Metals	Nickel	1.13		ug/L	0.25	1
10/29/2007	TEST	Metals	Copper	1.12		ug/L	0.25	1
10/29/2007	TEST	Metals	Arsenic	0.58	I	ug/L	0.5	2
10/29/2007	TEST	Metals	Calcium	39.7		mg/L	0.075	0.3
10/29/2007	TEST	Metals	Iron	110	I	ug/L	30	120
10/29/2007	TEST	Metals	Magnesium	14.6		mg/L	0.04	0.16
10/29/2007	TEST	Metals	Zinc	18	I	ug/L	5	20
10/29/2007	TEST	Metals	Aluminum	60	U	ug/L	60	240
10/29/2007	TEST	Metals	Selenium	0.5	U	ug/L	0.5	2
10/29/2007	TEST	Metals	Lead	0.4	I	ug/L	0.2	0.8
10/29/2007	TEST	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
10/29/2007	TEST	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/29/2007	TEST	Metals	Chromium	1	U	ug/L	1	4

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	TEST	Nutrients	Ammonia-N	0.032		mg N/L	0.01	0.02
10/29/2007	TEST	Nutrients	NO2NO3-N	4.4		mg N/L	0.04	0.1
10/29/2007	TEST	Nutrients	Kjeldahl Nitrogen	1.8		mg N/L	0.08	0.2
10/29/2007	TEST	Nutrients	O-Phosphate-P	0.36		mg P/L	0.016	0.04
10/29/2007	TEST	Nutrients	Total-P	0.51		mg P/L	0.02	0.06
10/29/2007	TEST	Field Parameters	Sample Depth	0.4		m		
10/29/2007	TEST	Field Parameters	Specific Conductance	888		umhos/cm		
10/29/2007	TEST	Field Parameters	pH	7.47		SU		
10/29/2007	TEST	Field Parameters	Dissolved Oxygen	8.57		mg/L		
10/29/2007	TEST	Field Parameters	Temperature	23.41		C		
10/29/2007	GRU BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
10/29/2007	GRU BLANK	Metals	Chromium	1	U	ug/L	1	4
10/29/2007	GRU BLANK	Metals	Arsenic	0.5	U	ug/L	0.5	2
10/29/2007	GRU BLANK	Metals	Aluminum	60	U	ug/L	60	240
10/29/2007	GRU BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
10/29/2007	GRU BLANK	Metals	Iron	30	U	ug/L	30	120
10/29/2007	GRU BLANK	Metals	Selenium	0.5	U	ug/L	0.5	2
10/29/2007	GRU BLANK	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
10/29/2007	GRU BLANK	Metals	Copper	0.25	U	ug/L	0.25	1
10/29/2007	GRU BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
10/29/2007	GRU BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/29/2007	GRU BLANK	Metals	Zinc	5	U	ug/L	5	20
10/29/2007	GRU BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
10/29/2007	GRU BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
10/29/2007	GRU BLANK	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
10/29/2007	GRU BLANK	Nutrients	NO2NO3-N	0.01	I	mg N/L	0.004	0.01
10/29/2007	GRU BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
10/29/2007	GRU BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
10/29/2007	GRU BLANK	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
10/29/2007	GRU BLANK	Pesticides	Ethoprop	0.097	U	ug/L	0.097	0.39
10/29/2007	GRU BLANK	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU BLANK	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
10/29/2007	GRU BLANK	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
10/29/2007	GRU BLANK	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
10/29/2007	GRU BLANK	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Fonofos	0.097	U	ug/L	0.097	0.39
10/29/2007	GRU BLANK	Pesticides	Hexazinone	0.097	U	ug/L	0.097	0.39
10/29/2007	GRU BLANK	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU BLANK	Pesticides	Naled	0.78	U	ug/L	0.78	3.1
10/29/2007	GRU BLANK	Pesticides	Gamma-BHC	0.0097	U	ug/L	0.01	0.04
10/29/2007	GRU BLANK	Pesticides	Metribuzin	0.097	U	ug/L	0.097	0.39

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	GRU BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU BLANK	Pesticides	Parathion Methyl	0.097	U	ug/L	0.097	0.39
10/29/2007	GRU BLANK	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Chlorpyrifos Methyl	0.097	U	ug/L	0.097	0.39
10/29/2007	GRU BLANK	Pesticides	Metolachlor	0.49	U	ug/L	0.49	2
10/29/2007	GRU BLANK	Pesticides	Phorate	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
10/29/2007	GRU BLANK	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
10/29/2007	GRU BLANK	Pesticides	Alachlor	0.58	U	ug/L	0.58	2.3
10/29/2007	GRU BLANK	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
10/29/2007	GRU BLANK	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
10/29/2007	GRU BLANK	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
10/29/2007	GRU BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007	GRU BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
10/29/2007	GRU BLANK	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007	GRU BLANK	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	58
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
10/29/2007	GRU BLANK	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
10/29/2007	GRU BLANK	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
10/29/2007	GRU BLANK	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	MDL	PQL
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
10/29/2007	GRU BLANK	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
10/29/2007	GRU BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	Dimethyl phthalate	48	U	ug/L	48	190
10/29/2007	GRU BLANK	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.7
10/29/2007	GRU BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
10/29/2007	GRU BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
10/29/2007	GRU BLANK	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
10/29/2007	GRU BLANK	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	58
10/29/2007	GRU BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
10/29/2007	GRU BLANK	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.8
10/29/2007	GRU BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12

Appendix F

Additional physical, chemical, toxicological and microbiological results

Screen MF (mirrored strike through)

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia

NOTE: definitive five brood sheets used because of extra Survey Controls mf 12/4

Facility: GRU Mainstreet WRF
Address: 200 S.E. 11th Ave, Gainsville, FL 32601
County: Alachua
NPDES Permit #: FL ~~0027251~~ BIA 0027251
Contact/District: NE-DIST / Joseph Emery

LIMS entry: 11-15-07 MF verified: BA 11-15-07

Diluent/ Batch: 20% DMW / 10-23-07 Test Days Used: 0-3
20% DMW / 11-2-07 Test Days Used: 4-7

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

Start Date: 10-30-07 Time: 13:30
End Date: 11-6-07 Time: 1400

Organism: *Ceriodaphnia dubia*
Organism Batch #: 44-07
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 7-26-07 7-26-07
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-2007-11-08-03	1061949	10/29/07 / 10:10	10-30-07 / 10:49
Test Day 2	2	TLH-2007-11-01-52	1059873	10/31/07 / 11:35	11-1-07 / 9:41
Test Day 4	3	TLH-2007-11-02-54	1060613	11/2/07 / 10:55	11-2-07 / 15:15

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:	2.2	0.47	0.66	0.98	0.45	0.56	71	69	67
Diluent/Control:				<0.03	<0.03	<0.03	84	81	81
Method:	~~facility~~ MF meter	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	SN	EA	JD	JD	JD	BA	BA	BA
Verified by:	MF	SN	EA	BA	BA	BA	JD	JD	JD
	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:	1013	1053	175	<0.017	<0.017	<0.017	164	156	143
Diluent/Control:	173	173	952	<0.017	<0.017	<0.017	92	91	91
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	BA/JD	BA	BA	MF	MF	MF	BA	BA	BA
Verified by:	JD / BA	JD	JD	BA	BA	BA	JD	JD	JD

Temperature Shipped ≤6° C (all samples) (yes) no hand delivered Cooler
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.6 max. 25.7 mean 25.1
Room B246 min. 23.7 max. 26.1 mean 24.9

Test Replicate	Loaded from culture vial
1	A19
2	A27
3	A5
4	A7
5	A11
6	A21
7	B7
8	B15
9	B16
10	B27

Results	
Control % CV:	23.6
Dunnetts PMSD:	16.3%
Reproduction NOEC:	100%
Reproduction LOEC:	>100%
Survival NOEC:	100%
Survival LOEC:	>100%
ICP_{20}:	—
ICP_{25}:	—

Incorrect Crosstab MF 11/15/07

Investigators' signatures

Bill Atkins
James Daniel
Marshall Faircloth

Rhetta C. Wolfe
REVIEWER

Comments: Bioassay samples were dechlorinated prior to use in the toxicity tests. Sodium thiosulfate (0.025N) was used to dechlorinate the samples. The ~~sample~~ same volume of sodium thiosulfate that was added to the samples was added to the "dechlorinated" controls. 1.1 mL/L was added to sample 1 0.6 mL/L was added to sample 2 || 0.7 mL/L was added to sample 3. MF 11/15/07

Test Page 1 of 5 PAGE 000011 revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: GRU Mainstreet

LIMS Sample #: 1061949 for lab sample #1

Start Date: 10.30.07 Time: 13:30

End Date: 11-6-07 Time: 1400

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	0	0	0	0	10	0
	4	2	0	0	0	0	1	2	0	2	0	7	10	0.7
	5	5	2	6	4	3	6	3	5	0	5	39	10	3.9
	6	0	6	8	8	6	0	0	8	4	6	46	10	4.6
	7	9	10	0	15	11	9	9	12	11	10	96	10	9.6
	8													
	Total	16	18	14	27	20	16	14	25	17	21	188	10	18.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
Decl ctrl ~~6.25%~~	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	0	0	0	0	10	0
	4	0	0	0	2	0	1	0	0	0	0	3	10	0.3
	5	4	2	5	5	3	6	3	5	6	5	44	10	4.4
	6	5	6	8	0	6	8	0	8	7	6	54	10	5.4
	7	7	9	10	9	11	0	6	0	10	13	75	10	7.5
	8													
	Total	16	17	23	16	20	15	9	13	23	24	176	10	17.6

Organisms loaded by: BA

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

Concentration	Mean neonates /adult	% survival
Control Decl CTL	18.8	100
~~6.25%~~ 12.50%	17.6	100
~~12.50%~~ 6.25%	20	100
25%		
50%		
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: Decl = dechlorinated CTL = Control

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: GRU Mainstreet WRF

LIMS Sample # : 106949 for lab sample #1

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
DCl 1008 ~~12.50%~~	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	0	0	0	0	10	0
	4	0	2	1	3	0	2	1	3	2	2	16	10	1.6
	5	4	5	2(S)	6	3	6	7	0	5	4	42	10	4.2
	6	9	0	6	0	8	10	0	6	0	11	50	10	5.0
	7	14	10	13	8	11	0	11	14	11	0	92	10	9.2
	8													
	Total	27	17	22	17	22	18	19	23	18	17	200	10	20.0

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*													
	1													
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	Total													

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*													
	1													
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	Total													

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*													
	1													
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	Total													

Comments: (S) = Split brood MF 11-11-07

Dcl : dechlorinated

000013

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

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: GRU Mainstreet WRF

LIMS Sample #: 1061949 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	8.0	24.7	~~7.6~~ 7.6 BA	173					
	1	~~DCL ctrl 6.25%~~	M	8.1	24.4	7.7	184					
	1	~~DCL 100% 12.5%~~	M	7.9	24.3	7.9	984					
	1	~~25%~~	M	—	—	—	—					
	1	~~50%~~	M	—	—	—	—					
	1	~~100%~~	M	—	—	—	—					
	Measured by:			BA	BA	BA	BA					
	Recorded by:			BA	BA	BA	BA					
Day 1	sample:	Control	M	7.8	24.3	7.5	174	M	8.2	24.2	7.8	177
	1	~~DCL ctrl 6.25%~~	M	8.0	24.3	7.6	177	M	8.2	24.1	7.8	187
	1	~~DCL 100% 12.5%~~	M	7.9	24.7	7.7	978	M	8.0	24.0	7.7	988
	1	25%	M	—	—	—	—	M	—	—	—	—
	1	50%	M	—	—	—	—	M	—	—	—	—
	1	100%	M	—	—	—	—	M	—	—	—	—
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample:	Control	M	8.0	24.1	7.6	179	M	8.0	24.0	6.9	193
	2	~~DCL ctrl 6.25%~~	M	8.1	24.7	7.7	179	M	8.1	24.0	7.3	203
	2	~~100 DCL 12.5%~~	M	7.9	25.2	7.7	1032	M	7.9	24.0	7.1	1014
	2	25%	M	—	—	—	—	M	—	—	—	—
	2	50%	M	—	—	—	—	M	—	—	—	—
	2	100%	M	—	—	—	—	M	—	—	—	—
	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	8.1	24.0	8.0	173	M	8.0	24.0	7.2	191
	2	~~DCL ctrl 6.25%~~	M	8.3	24.0	8.0	182	M	8.1	24.0	7.4	196
	2	~~DCL 100 12.5%~~	M	8.0	24.7	8.3	1053	M	8.0	24.0	7.8	1060
	2	25%	M	—	—	—	—	M	—	—	—	—
	2	50%	M	—	—	—	—	M	—	—	—	—
	2	100%	M	—	—	—	—	M	—	—	—	—
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA

Comments: DCL ctl = dechlorinated control MF 11-3-07
DCL 100 = 100% sample - dechlorinated, MF 11-3-07

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

revised 08/24/06 MF/SP

000014

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: GRU Main Street WRF

LIMS Sample #: 106949 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (~~mmhos/cm~~)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (~~mmhos/cm~~)
Day 4	sample:	Control	M	8.0	24.2	7.9	175	M	7.9	24.1	7.0	202
	3	DCL CTL ~~6.25%~~	M	8.1	24.6	8.2	185	M	8.0	24.2	7.3	208
	3	DCL 100 ~~12.5%~~	M	7.9	25.3	8.2	952	M	7.9	24.0	7.7	1120
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M					M				
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	7.9	24.1	7.9	175	M	7.6	24.5	8.0	~~MF~~ 8.0 184
	3	DCL CTL ~~6.25%~~	M	7.9	24.1	8.0	180	M	7.7	24.6	7.9	193
	3	DCL 100 ~~12.5%~~	M	7.6	25.0	8.3	950	M	7.7	24.6	7.7	951
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M					M				
	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	7.9	24.0	7.4	173	M	8.0	24.2	7.3	190
	3	DCL CTL ~~6.25%~~	M	8.0	24.0	~~BA~~ 7.6	181	M	8.0	24.2	7.4	187
	3	DCL 100 ~~12.5%~~	M	7.8	24.0	7.6	933	M	7.9	24.3	7.5	997
	3	25%	M	—	—	—	—	M				
	3	50%	M	—	—	—	—	M				
	3	100%	M	—	—	—	—	M				
	Measured by:			BA	BA	BA	BA		MF	MF	MF	MF
	Recorded by:			BA	BA	BA	BA		MF	MF	MF	MF
Day 7	sample:	Control	M					M	8.0	24.6	7.4	186
	3	DCL CTL ~~6.25%~~	M					M	7.9	24.5	7.2	194
	3	DCL 100 ~~12.5%~~	M					M	7.9	24.5	7.2	992
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M					M				
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF

Comments: DCL CTL = dechlorinated control >MF 11-3-07
DCL 100 = dechlorinated 100% sample

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

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: (GRU) Main Street WRF
Address: 200 S.E. 16th AVE. Gainsville, Fl. 32601
County: Alachua
NPDES Permit #: FL~~0027511~~ DMR 0027251
Contact/District: NE-DIST/ Joseph Emery

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: 10.30.07 Time: 1200
End Date: 11-6-07 Time: 1100

Diluent/ Batch:
MHW / 10.25.07 Test Days Used: 0-3
MHW / 11-2-07 Test Days Used: 4-7
ASW / — Test Days Used: —
ASW / — Test Days Used: —

Organism age : <24HRS days
Feeding Prior to Test and Daily
Artemia Lot # : 651-526-90
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #		Day 3	152-07
Day 0	149-07	Day 4	153-07
Day 1	150-07	Day 5	154-07
Day 2	151-07	Day 6	155-07

LIMS:	Date	Initials
Entry:	11-15-07	MF
Verification:	11-15-07	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2007-11-08-03	106 1949	10-29-07 / 10:10	10-30-07 / 10:49
Test Day 2	2	TLH-2007-11-01-52	1059873	10-31-07 / 14:35	11-1-07 / 9:41
Test Day 4	3	TLH-2007-11-02-54	1060613	11-2-07 / 10:55	11-2-07 / 15:15

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:	2.2	0.47	0.66	0.98	0.45	0.56	71	69	67	164	150	143
Diluent/Control:				<0.03	<0.03	<0.03	80	80	82	94	94	96
Method:	Facility Anal	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	SW	EA	JD	JD	JD	BA	BA	BA	BA	BA	BA
Verified by:	MF	SW	EA	BA	BA	BA	JD	JD	JD	JD	JD	JD

	Conductivity (circle one) (µmhos-cm mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	991	1034	969	<0.017	<0.017	<0.017	<1	<1	<1
Diluent/Control:	331	336	340	<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	MF	JD	JD	JD
Verified by:	BA	BA	BA	BA	BA	BA	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. 24.6 max. 25.7 mean 25.1
Water bath # ____ min. ____ max. ____ mean ____
Room B246 min. 23.7 max. 26.1 mean 24.9

Investigators' signatures
James Daniels
Brad Nesler
Marshall Faircloth

Loretta C. Wolfe
REVIEWER

Statistics	
Control %cv:	17.9
Dunnetts PMSD:	19.7
Survival NOEC:	~~100%~~
Survival LOEC:	71.00%
Growth NOEC:	100%
Growth LOEC:	71.00%

Comments: BioAssay samples were dechlorinated prior to use in the toxicity tests. Sodium thiosulfate (0.025N) was used to dechlorinate the samples. The same volume of thiosulfate was added to the "dechlorinated" controls. 1.1 mg/L was used for sample 1 || 0.6 mg/L was used for sample 2 || 0.7 mL/L was used for sample 3. MF 11-15-07

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: (grab) Main Street

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

LIMS Sample Number: 061949 for lab sample #1

Start Date: 10.30.07 Time: 1200

End Date: 11.6.07 Time: 1100

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A/ C17 (chamber)	10	10	10	10	10	10	10	10
	B/ C18	10	9 ID	9	9	9	8 ID	8	8
	C/ C19	10	9 ID	9	8 ID	7 ID	7	7	7
	D/ C20	10	9 ID	9	8 ID	8	8	8	8
100 % sample concentration dechlor	A/ C21	10	10	10	10	10	10	10	10
	B/ C22	10	9 ID	8 ID	8	8	8	8	8
	C/ C23	10	10	9 ID	9	9	9	9	9
	D/ C24	10	9 ID	9	8 ID	8	8	8	8
dechlor Control	A/ D1	10	10	10	10	10	10	10	10
	B/ D2	10	9 ID	8 ID	8	7 ID	7	7	7
	C/ D3	10	10	10	10	10	10	10	10
	D/ D4	10	9 ID	8 ID	7 ID	6 ID	6	6	6
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	BA	JD	JD	JD
Verified by: BA									

Comments: dechlor = dechlorinated ma 11/02/08

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

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

Sample Source: Main Street

LIMS Sample #: 106149 (for Lab sample #1)

Test Day			Old Sample							New Sample						
							Cond							Cond		
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)	Salinity ppth		Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)	Salinity ppth	
Day 0	sample:	Control								A	8.2	24.3	7.7	331	0.09	
	1	100%								A	8.0	24.6	7.8	991	0.44	
	dechlor ctrl										8.2	24.5	8.0	343	0.10	
	Measured by: / Recorded by:										JD/JD	JD/JD	JD/JD	JD/JD	JD/JD	
Day 1	sample:	Control	B	7.9	24.0	7.4	JD/335	0.10		B	8.0	24.2	7.7	332	0.09	
	1	100%	B	7.7	24.1	7.2	980	0.43		B	7.8	24.3	7.7	979	0.43	
	dechlor ctrl			7.9	24.0	7.1	363	0.11			8.1	24.3	7.6	341	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	7.9	24.2	7.3	JD/335	0.10		C	8.0	24.4	7.4	3360	0.09	
	2	100%	C	7.7	24.0	6.16	979	0.43		C	7.8	25.0	7.4	1034	0.45	
	dechlor ctrl			7.9	24.1	6.7	516	0.19			8.1	24.7	7.5	352	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	24.0	7.0	335	0.09		D	8.0	24.0	7.3	335	0.09	
	2	100%	D	7.6	24.2	6.4	1012	0.43		D	7.8	24.5	7.5	1055	0.47	
	dechlor ctrl			7.7	24.0	6.7	352	0.10			8.0	24.3	7.4	347	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 4	sample:	Control	A	7.7	24.1	7.0	345	0.09		A	7.6	24.0	7.6	340	0.09	
	3	100%	A	7.5	24.2	6.5	1060	0.48		A	7.6	24.1	7.8	969	0.45	
	dechlor ctrl			7.7	24.0	6.5	349	0.10			7.8	24.0	7.8	344	0.10	
	Measured by: / Recorded by:			BA/BA	BA/BA	BA/BA	BA/BA	BA/BA			BA/BA	BA/BA	BA/BA	BA/BA	BA/BA	
Day 5	sample:	Control	B	7.4	24.0	6.8	339	0.09		B	7.6	24.0	7.5	JD/467	0.10	
	3	100%	B	7.3	24.1	6.5	964	0.42		B	7.5	24.9	8.0	969	0.42	
	dechlor ctrl			7.4	24.2	6.3	357	0.11			7.8	24.0	7.7	JD/367	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 6	sample:	Control	C	7.5	24.0	6.5	333	0.09		C	7.6	24.0	7.7	319	0.09	
	3	100%	C	7.4	24.0	6.4	959	0.42		C	7.5	24.0	7.7	940	0.40	
	dechlor ctrl			7.6	24.0	6.4	369	0.11			7.7	24.0	7.6	353	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 7	sample:	Control	D	7.5	24.0	6.8	337	0.09								
	3	100%	D	7.5	24.0	6.7	974	0.42								
	dechlor ctrl			7.6	24.0	6.7	359	0.12								
	Measured by: / Recorded by:			JD/JD	JD/JD	JD/JD	JD/JD	JD/JD								

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

Comments: dechlor = dechlorinated and ctrl = control MA 1/2/08
100% sample is dechlorinated. MA 1/2/08

revised 6/24/05 mf

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: gov Main Street

LIMS Sample Number: 1061940 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	361	0.02205	0.02617	0.00412	10	.412
	B	362	0.02087	0.02444	0.00357	10	.357
	C	363	0.02102	0.02367	0.00265	10	.265
	D	364	0.02148	0.02528	0.00380	10	.380
100 % sample	A	365	0.02145	0.02651	0.00506	10	.506
	B	366	0.02176	0.02569 ~~0.02744~~	0.00393	10	.393
	C	367	0.02245	0.02671 ~~0.02569~~	0.00426	10	.426
	D	368	0.02199	0.02674	0.00475	10	.475
Control Leachate	A	369	0.02176	0.02568	0.00392	10	.392
	B	370	0.02255	0.02651	0.00396	10	.396
	C	371	0.02136	0.02565	0.00429	10	.429
	D	372	0.02269	0.02564	0.00295	10	.295
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:						

Growth	%CV	PMSD
Control	17.9%	19.7%

Growth	Table	Calculated	dF
T-test	1.94300	-2.39050	6

Control mean 0.3535 mg/org
Decl control mean 0.378 mg/org
100% (decl) mean 0.450 mg/org

Drying	
Temperature °C:	106
Hours:	8

Tare Weighing Date: 11.6.07 Final Weighing Date: 11.13.07

			Measured Value		S-weight Value
A Tare Pan 1 after Pan 5	50	~~0.02617 @ 0.02619~~	S-weights	@	0.01000
Tare Pan 1 after Pan 8		~~0.02617 @ 0.02620~~	at tare	@	0.03
Final Pan 1 after Pan 5		0.02617 @ 0.02619	S-weights	@	0.01
Final Pan 1 after Pan 8		0.02617 @ 0.02620	at final	@	0.05

Comments:
A Tare: P2: 0.02204 after P5; 0.02205 after P8 0.02207

T-Test for GRU Mainstreet WRF *Ceriodaphnia dubia* chronic screening bioassay - reproduction.				
Sample:	GRU Main Street WRF	Dates tested:	10/30/2007 - 11/06/2007	
Species:	*Ceriodaphnia dubia*	Test Type:	chronic screen	
	Leave rep value blank if few reps used			
	Teatment A	Treatment B	#of Reps./sample	10
Replicate #	Control Dechlorinated	100% Dechlorinated		
1	16	27		p=0.05
2	17	17	df	Table t-value
3	23	22	1	6.31400
4	16	17	2	2.92000
5	20	22	3	2.35300
6	15	18	4	2.13200
7	9	19	5	2.01500
8	13	23	6	1.94300
9	23	18	7	1.89500
10	24	17	8	1.86000
			9	1.83300
Average	17.60	20.00	10	1.81200
			18	1.734
	t-value=	-1.28408		
	df=	18		

T-Tests for GRU Mainstreet dechlorinated sample *Pimephales promelas* bioassay,

	Survival and Growth.			
Sample:	GRU Main Street WRF	Dates tested:	10/30/2007 - 11/06/2007	
Species:	*Pimephales promelas*	Test Type:	Chronic Screening, Survival	
	Treatment A	Treatment B	# of Reps/Sample	4
	Control Dechlorinated	100% dechlorinated		p=0.05
	1.00	1.00	df	Table t-value
	0.70	0.80	1	6.31400
	1.00	0.90	2	2.92000
	0.60	0.80	3	2.35300
			4	2.13200
Average	0.825	0.875	5	2.01500
			6	1.94300
	t-value=	-0.18402	7	1.89500
	df=	6.00000	8	1.86000
			9	1.83300
			10	1.81200
			18	1.73400
Sample:	GRU Main Street WRF	Date tested:	10/30/2007-11/06/2007	
Species:	*Pimephales promelas*	Test Type:	Chronic screening, Growth	
	Leave rep value blank if few reps used			
	Teatment A	Treatment B	#of Reps./sample	4
Replicate #	Control Dechlorinated	100% Dechlorinated		
1	0.392	0.506		p=0.05
2	0.396	0.393	df	Table t-value
3	0.429	0.426	1	6.31400
4	0.295	0.475	2	2.92000
			3	2.35300
			4	2.13200
			5	2.01500
Average	0.37800	0.45000	6	1.94300
			7	1.89500
	t-value=	-1.88025	8	1.86000
	df=	6	9	1.83300
			10	1.81200
			18	1.734

STATE OF FLORIDA

DEPT. OF ENVIRONMENTAL PROTECTION

NORTHEAST DISTRICT

Division of Water Facilities
Technical Support
7825 Baymeadows Way,suite 200B
Jacksonville, Florida 32256

Microbiology Report

Name: GRU mainstreet **Survey type:** 5yi
Sample: effluent **Sample date:** 10/29/07

D.O.H.accred.#E32890 S.M.9222B S.M.9222D

Lab I.D.#	Site Name	Analysis Date	Time of Sample	Time of Analysis	Total colif. #cfu/100ml	code	Fecal colif. #cfu/100ml	code
072925jm	GRU mainsytreet efflu.	10/29/2007	10:10	15:30			2	U

Results for NELAP accredited tests contained in this report meet the requirements for the National Environmental Accredidation Program.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - Value reported is less than the minimum quantitation limit, and greater than or equal to the minimum detection 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 value reported is the minimum detection limit.
V - Analyte was detected in both sample and method blank.
Z - Colonies were too numerous to count (TNTC). # represents amnt.filtered.

SURVEY TYPE: Ambient Monitoring--Trend,Reference Stream,Reference Lake,BioReconn,Special project
Permit Compliance--5th Year,3rd Year,CSI,CEI,PAI,RI,Complaint Potable Water--Sanitary Survey,Facility Inspection
SAMPLE TYPE: Suface Water,Ground Water,Potable Water,Treated Effluent,Untreated Effluent,Sediment,Sludge,Soil

Signature Sample Results: Jeremy Parrish Date: 11/2/2007

STATE OF FLORIDA

DEPT. OF ENVIRONMENTAL PROTECTION

NORTHEAST DISTRICT

Division of Water Facilities
Technical Support
7825 Baymeadows Way,suite 200B
Jacksonville, Florida 32256

Microbiology Report

Name: sweetwater branch GRU fifth year **Survey type:** 5yi
Sample: surface water **Sample date:** 10/30/07

D.O.H.accred.#E32890

Lab I.D.#	Site Name	Analysis Date	Time of Sample	Time of Analysis	S.M.9222B Total colif. #cfu/100ml	code	S.M.9222D Fecal colif. #cfu/100ml	code
072943jm	sweet.crk.control upstr.	10/30/2007	15:18	19:35			68	
072944jm	sweet.crk.test dwnst.	10/30/2007	15:18	19:35			520	

Results for NELAP accredited tests contained in this report meet the requirements for the National Environmental Accredidation Program.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - Value reported is less than the minimum quantitation limit,
and greater than or equal to the minimum detection 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 value reported
is the minimum detection limit.
V - Analyte was detected in both sample and method blank.
Z - Colonies were too numerous to count (TNTC). # represents amnt.filtered.
SURVEY TYPE: Ambient Monitoring--Trend,Reference Stream,Reference Lake,BioReconn,Special project
Permit Compliance--5th Year,3rd Year,CSI,CEI,PAI,RI,Complaint Potable Water--Sanitary Survey,Facility Inspection
SAMPLE TYPE: Suface Water,Ground Water,Potable Water,Treated Effluent,Untreated Effluent,Sediment,Sludge,Soil

Signature Sample Results: Jeremy Parrish Date: 11/2/2007

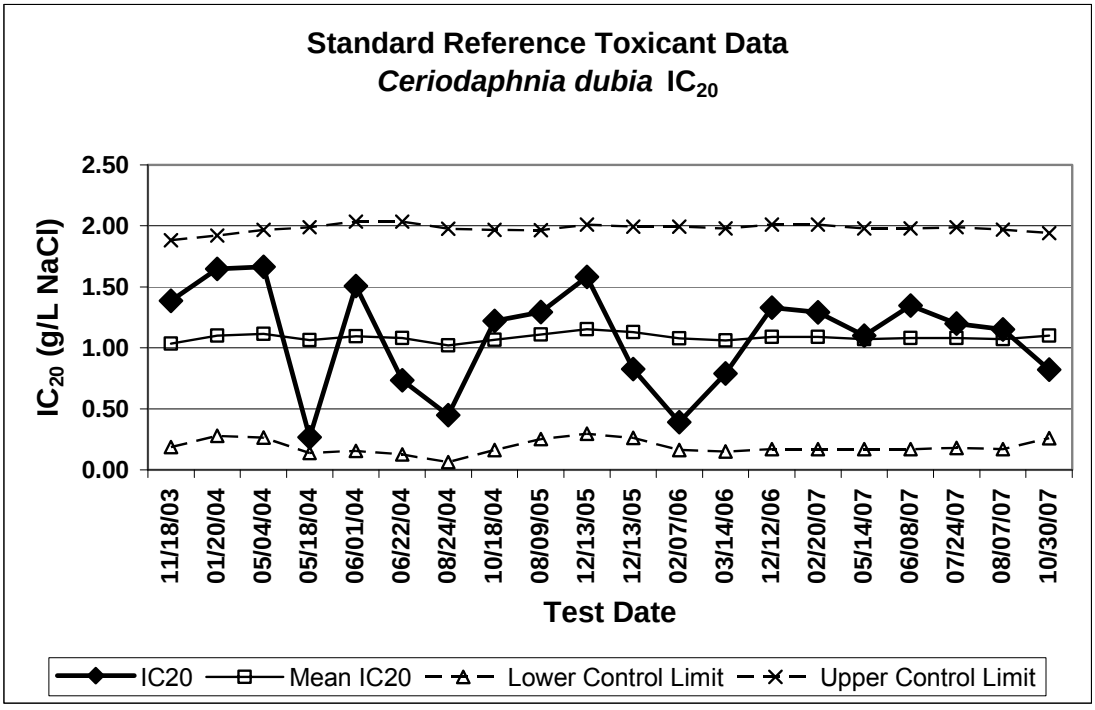
Appendix G

Standard Reference Toxicant data

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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
11/18/03	1.39	1.03	0.42	0.19	1.88
01/20/04	1.65	1.10	0.41	0.28	1.92
05/04/04	1.66	1.12	0.43	0.26	1.97
05/18/04	0.27	1.06	0.46	0.14	1.99
06/01/04	1.51	1.10	0.47	0.15	2.04
06/22/04	0.73	1.08	0.48	0.13	2.03
08/24/04	0.45	1.02	0.48	0.06	1.98
10/18/04	1.22	1.07	0.45	0.16	1.97
11/16/04	1.29	1.11	0.43	0.25	1.96
08/09/05	1.58	1.15	0.43	0.30	2.01
12/13/05	0.83	1.13	0.43	0.26	1.99
02/07/06	0.39	1.08	0.46	0.16	1.99
03/14/06	0.79	1.06	0.46	0.15	1.98
12/12/06	1.33	1.09	0.46	0.17	2.01
02/20/07	1.29	1.09	0.46	0.17	2.01
05/14/07	1.10	1.07	0.45	0.17	1.98
06/08/07	1.35	1.08	0.45	0.17	1.98
07/24/07	1.20	1.08	0.45	0.18	1.99
08/07/07	1.15	1.07	0.45	0.17	1.97
10/30/07	0.82	1.10	0.42	0.26	1.94

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



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 10-23-07 Test Days Used: 0-3
20% DMW / 11-2-07 Test Days Used: 4-8
Toxicant/ Batch: NaCl / 10-29-07

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 44-07 / <24 hr.
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 7-26-07 7-26-07
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 10-30-07 Time: 13:30
End Date: 11-7-07 Time: 0800

Water Quality Parameters	20% DMW	Diluent (or other)	Method	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	DD	BA
Alkalinity (mg/L as $CaCO_3$):	84	82	HACH	BA	DD
Hardness (mg/L as $CaCO_3$):	92	96	HACH	BA	DD
Total Ammonia (mg/L as N):	<0.017	<0.017	DENVER	MF	BA
Conductivity µmhos-cm (mmhos-cm):	0.175	0.174	YSI / Mettler	BA	DD

Results	
Control % CV:	14.77 %
Dunnetts PMSD:	20.7 %
Reproduction NOEC:	0.59 g/L
Reproduction LOEC:	0.89 g/L
Survival NOEC:	2 g/L
Survival LOEC:	3 g/L
ICP_{20}:	0.8210
ICP_{25}:	1.3392

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

Test Replicate	Loaded from culture vial
1	A19
2	A27
3	A5
4	A7
5	A11
6	A21
7	B7
8	B15
9	B16
10	B27

Comments:

Investigators' signatures

Brad Benken
Jason Daniel
Marshall Faircloth

REVIEWER

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.6 max. 25.7 mean 25.1
Incubator # 3 min. 24.3 max. 25.7 mean 25.0
Room B246 min. 23.7 max. 26.1 mean 24.9

Ceriodaphnia dubia Survival and Reproduction

Start Date: 10.30.07 Time: 13:30 Loaded by: BA
End Date: 11-7-07 Time: 0800 Verified by: MF

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	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	0	0	0	1	0	0	2	3	10	0.3
	5	4	4	3	2	4	3	2 (S)	6	3	0	31	10	3.1
	6	11	6	4	6	0	8	10	7	7	9	68	10	6.8
	7	12	0	0	0	9	0	0	0	0	0	21	10	2.1
	8	0	11	11	12	17	12	9	11	14	12	109	10	10.9
	Total	27	21	18	20	30	23	22	24	24	23	232	10	23.2
0.59 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	BA 0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	2	0	0	2	0	2	2	0	1	2	11	10	1.1
	5	5	2	4	5	2	6	6	5	1 (S)	6	42	10	4.2
	6	9	7	8	1 (S)	6	10	0	9	5	0	55	10	5.5
	7	4 (S)	11	0	11	10	0	9	0	11	11	67	10	6.7
	8	13	0	12	15	0	11	13	14	0	13	91	10	9.1 (B)
	Total	20	20	24	19	18	18	17	28	18	19	26 1/20 (A)	10	26.6 / 20.1
0.89 ppth	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	0	0	0	0	10	0
	4	0	0	0	0	0	0	2	0	2	0	4	10	0.4
	5	5	2	2	4	2	4	5	2	0	5	31	10	3.1
	6	11	6	5	6	6	7	0	5	6	8	60	10	6.0
	7	X (D)	10	8	9	8	0	8	9	10	14	76	9	7.6
	8	—	0	0	10	0	0	14	0	15	1 (S)	40	9	4.0
	Total	16	18	15	19	16	11	15	16	18	28	211 / 172 (A)	9	17.3 / 23.9 (3) MF

Comments: Rep 7 Control Split MF 11-4-07 Rep 4 0.59 Split 11-5-07 MF Rep 9 0.59 split 11-4-07 MF

(S) = split brood MF 11-7-07

Totals are for three broods only MF 11-7-07

(A) ~~211 = 3 with 4th brood~~ ~~171 = 3rd brood~~ MF 11-7-07 Not including rep 7 MF 1-28-08

(3) means for 3rd broods - MF 1-2-08

(A) = 1st # (or the 2 #'s) is total neonates, 2nd number is total for 3 broods w/ neonates MF 1-

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	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	0	0	1	1	0	1	0	3	10	0.3
	5	4	2	1	5	4	6	2	3	0	6	27	10	2.7
	6	8	5	5	5	0	0	0	1 (S)	4	8	36	10	3.6
	7	12	7	8	12	8	8	8	8	9	13	93	10	9.3
	8	1 (S)	0	0	0	14	11	14	11	0	0	51	10	5.1
	Total	25	14	14	22	26	15	11	23	14	27	210 / 191 (A)	10	19.1 (A)
2.0 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	X0	0	0	0	9	0
	3	0	0	0	0	0	0	0		0	0	0	9	0
	4	0	0	0	0	0	0	0		0	0	0	9	0
	5	2	0	X0	X0	0	2	MF 24		1	1	10	7	1
	6	2	3			2	0	6		2	0	15	7	1.5
	7	0	5			0	3	(S) 1		1 (S)	0	10	7	1
	8	0	1			0	0	9		7	4	21	7	2.1
	Total	4	9	0	0	2	5	MF 20	0	11	5	56	7	5.6 (A)
3.0 ppth	0												10	
	1			X				X	X		X		6	
	2	X	X		X	X	X			X		0	0	0
	3													
	4													
	5													
	6													
	7													
	8													
	Total													

Comments:

(S) = split brood MF 11-7-07

(A) 210 = all months 191 = 3rd brood (1st + 2nd broods) total MF 11-7-07

(B) means for 3rd brood MF 1-2-08 (1st and 2nd)

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	8.0	24.0	7.8	0.175					
	0.59 ppth	M	8.0	24.1	7.7	1.30					
	0.89 ppth	M	80	24.3	7.5	1.82					
	1.3ppth	M	8.0	24.4	7.6	2.58					
	2.0 ppth	M	8.0	24.4	7.4	3.71					
	3.0 ppth	M	8.0	24.2	7.4	5.41					
	Measured by:		BA	BA	BA	BA					
	Recorded by:		BA	BA	BA	BA					
Day 1	Control	M	7.9	24.4	7.5	0.174	M	8.0	24.0	7.6	0.178
	0.59 ppth	M	7.9	24.5	7.6	1.250	M	8.0	24.0	7.6	1.39
	0.89 ppth	M	8.0	24.5	7.6	1.78	M	8.0	24.0	7.6	1.89
	1.3ppth	M	8.0	24.4	7.6	2.56	M	8.0	24.0	7.6	2.71
	2.0 ppth	M	8.0	24.3	7.7	3.69	M	8.1	24.0	7.6	3.89
	3.0 ppth	M	8.0	24.3	8.0	5.40	M	8.1	24.0	7.6	5.55
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 2	Control	M	7.9	24.0	7.3	0.179	M	8.2	24.0	7.4	0.186
	0.59 ppth	M	8.0	24.1	7.6	1.26	M	8.1	24.0	7.4	1.32
	0.89 ppth	M	8.0	24.3	7.6	1.81	M	8.1	24.0	7.4	1.79
	1.3ppth	M	8.0	24.3	7.6	2.58	M	8.1	24.0	7.4	2.78
	2.0 ppth	M	8.0	24.2	7.5	3.70	M	8.1	24.0	7.3	3.72
	3.0 ppth	M	8.0	24.3	7.5	5.45	M	8.1	24.0	7.3	5.66
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 3	Control	M	8.0	24.0	7.9	0.176	M	8.0	24.0	7.1	0.189
	0.59 ppth	M	8.0	24.0	7.7	1.25	M	8.0	24.0	7.1	1.36
	0.89 ppth	M	8.0	24.0	7.7	1.80	M	8.0	24.0	7.1	1.87
	1.3ppth	M	8.0	24.0	7.6	2.57	M	8.0	24.0	7.0	2.70
	2.0 ppth	M	8.0	24.0	7.7	3.70	M	8.0	24.0	7.0	3.82
	3.0 ppth	M	–	–	–	–	M	–	–	–	–
	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

(A) DAY 0 #'s within Day 1 spaces - MF 11-7-07 NO new sample IN DAY 8.

Test Day	Conc.	Replicate	New Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (~~µmhos/cm~~) (mmhos/cm)	Replicate	Old Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (~~µmhos/cm~~) (mmhos/cm)
Day 0	Control	M (A)	~~8.0~~	~~24.0~~	~~7.8~~	~~0.175~~	M	8.0	24.7	7.3	0.190
	0.59 ppth	M	~~8.0~~	~~24.1~~	~~7.7~~	~~1.30~~	M	7.9	24.7	7.4	1.39
	0.89 ppth	M	~~8.0~~	~~24.3~~	~~7.5~~	~~1.82~~	M	8.0	24.9	7.3	1.92
	1.3ppth	M	~~8.0~~	~~24.4~~	~~7.6~~	~~2.58~~	M	8.0	24.9	7.2	2.77
	2.0 ppth	M	~~8.0~~	~~24.4~~	~~7.4~~	~~3.71~~	M	8.0	24.9	7.2	3.88
	3.0 ppth	M	~~8.0~~	~~24.2~~	~~7.4~~	~~5.40~~					
	Measured by:		BA	BA	BA	BA		MF	MF	MF	MF
	Recorded by:		BA	BA	BA	BA		MF	MF	MF	MF
Day 3	Control	M	8.1	24.3	8.0	0.174	M	8.1	24.4	7.4	0.194
	0.59 ppth	M	8.0	24.4	8.1	1.255	M	8.0	24.3	7.4	1.345
	0.89 ppth	M	8.0	25.5	7.9	1.854	M	8.0	24.3	7.5	1.88
	1.3ppth	M	8.0	25.3	7.8	2.590	M	8.0	24.2	7.4	2.81
	2.0 ppth	M	8.0	25.6	7.7	3.780	M	8.0	24.2	7.3	3.88
	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	8.0	24.0	8.0	0.174	M	8.1	24.4	7.5	0.200
	0.59 ppth	M	7.9	24.2	8.0	1.235	M	8.0	24.2	7.5	1.296
	0.89 ppth	M	7.9	24.4	7.7	1.832	M	8.0	24.3	7.5	1.877
	1.3ppth	M	7.9	24.5	7.7	2.59	M	8.0	24.2	7.5	2.63
	2.0 ppth	M	7.9	24.6	7.8	3.75	M	8.0	24.1	7.3	3.78
	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 7	Control	M	7.9	24.0	7.3	0.175	M	8.0	24.4	7.1	0.185
	0.59 ppth	M	7.9	24.0	7.6	1.28	M	7.8	24.1	7.2	MF 1.30
	0.89 ppth	M	8.0	24.0	7.5	1.81	M	7.8	24.4	7.1	1.88
	1.3ppth	M	8.0	24.0	7.5	2.58	M	7.9	24.0	7.2	2.75
	2.0 ppth	M	8.0	24.0	7.5	3.72	M	7.9	24.3	7.3	3.95
	3.0 ppth	M	—	—	—	—	MF				
	Measured by:		BA	BA	BA	BA		MF	MF	MF	MF
	Recorded by:		BA	BA	BA	BA		MF	MF	MF	MF
Day 8	Control	M	8.2	24.1	7.6	0.175	M	8.2	24.5	7.5	0.200
	0.59 ppth	M	8.1	24.1	7.5	1.31	M	8.1	24.3	7.6	1.32
	0.89 ppth	M	8.0	24.0	7.5	1.85	M	8.1	24.4	7.5	1.88
	1.3ppth	M	8.0	24.1	7.5	2.61	M	8.1	24.6	7.5	2.79
	2.0 ppth	M	8.0	24.2	7.4	3.73	M	8.0	24.6	7.4	3.82
	3.0 ppth	M					M				
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF

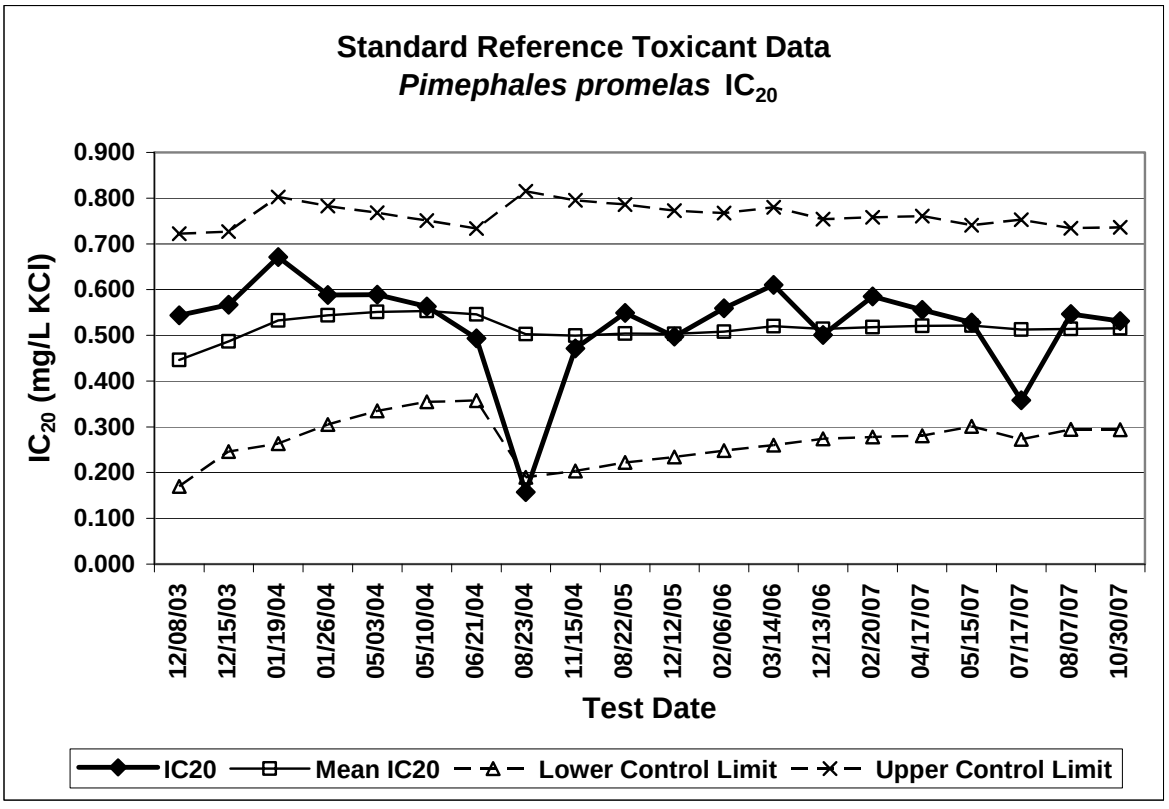
Replicate M= "Metered" vial, a surrogate vial for parameters

Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
12/08/03	0.544	0.446	0.14	0.170	0.723
12/15/03	0.567	0.487	0.12	0.246	0.727
01/19/04	0.671	0.533	0.13	0.263	0.802
01/26/04	0.588	0.544	0.12	0.305	0.782
05/03/04	0.589	0.551	0.11	0.335	0.768
05/10/04	0.563	0.553	0.10	0.355	0.751
06/21/04	0.494	0.546	0.09	0.358	0.734
08/23/04	0.157	0.503	0.16	0.190	0.815
11/15/04	0.472	0.499	0.15	0.204	0.795
08/22/05	0.549	0.504	0.14	0.222	0.786
12/12/05	0.497	0.503	0.13	0.234	0.772
02/06/06	0.559	0.508	0.13	0.248	0.767
03/14/06	0.610	0.520	0.13	0.260	0.780
12/13/06	0.501	0.514	0.12	0.274	0.754
02/20/07	0.585	0.518	0.12	0.278	0.758
04/17/07	0.556	0.521	0.12	0.281	0.761
05/15/07	0.528	0.521	0.11	0.301	0.741
07/17/07	0.358	0.513	0.12	0.273	0.753
08/07/07	0.547	0.514	0.11	0.294	0.734
10/30/07	0.531	0.515	0.11	0.294	0.736

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



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: Mod. Hw / 10-25-07 Test Days Used: 0 - 3

Diluent/ Batch: M. hw / 11-2-07 Test Days Used: 4 - 7

Toxicant/ Batch # : KCl / 10.2907

Artemia Lot # : GSL-536-90

Start Date: 10.30.07 Time: 1215

End Date: 11-6-07 Time: 1115

Organism Batch #/ Age: 10-30-07 chronic / < 24hrs

Artemia Batch #	Day 2 151-07	Day 5 154-07
Day 0 149-07	Day 3 152-07	Day 6 155-07
Day1 150-07	Day 4 153-07	

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	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	80	82	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	94	96	HACH	BA	JD
Total Ammonia (mg/L as N):	<0.017	<0.017	DENVER	MF	BA
Conductivity µmhos-cm mmhos-cm:	0.329	0.335	METTLER	JD	BA

Statistics	
Growth NOEC:	0.5 g/L
Growth LOEC:	1 g/L
Growth IC_{20}:	0.5314
Growth IC_{25}:	0.5614
Ctrl % CV:	7.92 %
Dunnetts PMSD:	~~26.3 %~~ 18.6 % MF
Survival NOEC:	0.5
Survival LOEC:	1.0 g/L

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 24.6 max. 25.7 mean 25.1

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

Room B246 min. 23.7 max. 26.1 mean 24.9

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

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

Investigators' signatures

James Daniels

Brian Allen

Marshall Faircloth

Loretta Wolfe

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 (circle one)

Concentration	Replicate	Chamber	TEST DAY 0	1	2	3	4	5	6	7
Control	A	A1	10	10	10	9 10	9	9	9	9
	B	A2	10	10	10	10	10	10	10	10
	C	A3	10	9 ID	8 ID	8	7 ID	7	7	7
	D	A4	10	9 ID	9	9	9	9	8 ID	8
.0625	A	A5	10	9 ID	9	9	9	9	8 ID	7 ID
	B	A6	10	10	9 ID	9	9	9	9	9
	C	A7	10	10	10	10	10	10	10	10
	D	A8	10	9 ID	9	9	9	9	9	9
.125	A	A9	10	10	10	10	10	10	9 ID	9
	B	A10	10	8 2D	8	8	8	8	8	6 2D
	C	A11	10	10	9 ID	9	9	9	9	9
	D	A12	10	8 2D	7 ID	7	7	7	7	7
.25	A	A13	10	9 ID	9	9	9	9	9	9
	B	A14	10	8 2D	8	8	8	8	8	8
	C	A15	10	10	10	10	10	10	10	10
	D	A16	10	8 2D	7 ID	7	7	7	7	7
.5	A	A17	10	8 2D	7 ID	7	7	7	7	7
	B	A18	10	7 2D	7	7	7	7	7	7
	C	A19	10	6 4D	5 ID	5	5	5	5	5
	D	A20	10	7 2D	7	7	7	7	7	7
1.0	A	A21	10	2 8D	1 ID	1	1	1	1	0 ID
	B	A22	10	4 6D	3 ID	2 ID	1 ID	1	1	1
	C	A23	10	2 8D	0 2D	–	–	–	–	–
	D	A24	10	1 9D	0 1D	–	–	–	–	–
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by*:		JD	JD	JD	BA	JD	JD	JD
		Concentrations prepared by:		JD	JD	JD	BA	JD	JD	JD

Comments: Verified by BA

*verified by for 0 hour

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 10.30.07 Time: 1215

End Date: 11.6.07 Time: 1115

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

Concentration: µg/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	24.0	7.6	0.329
	.0625						A	8.1	24.1	7.7	0.456
	.125						A	8.1	24.1	7.6	0.566
	.25						A	8.1	24.0	7.7	0.797
	.5						A	8.1	24.0	7.7	1.28
	1.0						A	8.1	24.1	7.8	2.21
							A				
	Measured by:							JD	JD	JD	JD
	Recorded by:							JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 1	Control	B	7.9	24.0	7.6	0.335	B	8.0	24.0	7.7	0.348
	.0625	B	7.9	24.0	7.5	0.455	B	8.0	24.0	7.7	0.444
	.125	B	7.9	24.0	7.5	0.560	B	8.0	24.0	7.8	0.560
	.25	B	7.9	24.0	7.4	0.798	B	8.1	24.0	7.8	0.803
	.5	B	7.9	24.0	7.3	1.25	B	8.1	24.0	7.7	1.28
	1.0	B	7.9	24.0	7.2	2.15	B	8.1	24.1	7.8	2.20
		B					B				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 2	Control	C	7.8	24.1	6.9	0.335	C	8.1	24.2	7.6	0.335
	10625	C	7.8	24.0	6.8	0.445	C	8.1	24.3	7.7	0.445
	.125	C	7.7	24.0	6.7	0.572	C	8.0	24.2	7.6	0.575
	.25	C	7.8	24.0	6.5	0.808	C	8.1	24.2	7.4	0.809
	.5	C	7.8	24.0	6.8	1.28	C	8.1	24.2	7.5	1.29
	1.0	C	7.8	24.1	6.8	2.22	B & C	8.1	24.1	7.6	2.21
		C					C				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 3	Control	D	7.7	24.0	6.7	0.344	D	8.0	24.0	7.4	0.335
	10625	D	7.8	24.0	6.9	0.448	D	8.0	24.0	7.4	0.449
	.125	D	7.8	24.0	6.9	0.583	D	8.0	24.0	7.5	0.587
	.25	D	7.8	24.0	6.7	0.814	D	8.1	24.0	7.5	0.794
	.5	D	7.7	24.1	6.8	1.29	D	8.1	24.0	7.6	1.29
	1.0	D	7.8	24.1	6.6	2.22	D	8.0	24.0	7.4	2.11
		D					D				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD

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	7.7	24.0	7.4	0.343	A	7.8	24.0	7.5	0.336
	.0625	A	7.8	24.2	7.0	0.457	A	7.9	24.0	7.6	0.452
	.125	A	7.8	24.3	7.0	0.579	A	7.9	24.0	7.7	0.573
	.25	A	7.8	24.3	6.7	0.804	A	7.9	24.0	7.7	0.801
	.5	A	7.8	24.1	6.8	1.30	A	7.9	24.0	7.7	1.32
	1.0	A	7.8	24.1	7.0	2.24	A	7.9	24.0	7.7	2.22
		A					A				
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 5	Control	B	7.5	24.0	7.1	0.340	B	8.1	24.0	7.8	0.323
	.0625	B	7.5	24.1	7.1	0.454	B	8.1	24.0	7.7	0.412
	.125	B	7.5	24.1	6.8	0.577	B	8.1	24.0	7.7	0.561
	.25	B	7.5	24.0	6.5	0.808	B	8.1	24.0	7.7	0.780
	.5	B	7.5	24.0	6.5	1.28	B	8.0	24.0	7.7	1.27
	1.0	B	7.5	24.0	7.0	2.26	B	8.1	24.0	7.7	2.21
		B					B				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 6	Control	C	7.6	24.0	6.4	0.333	C	7.8	24.0	7.4	0.322
	.0625	C	7.6	24.0	6.6	0.432	C	7.8	24.0	7.6	0.400
	.125	C	7.6	24.0	6.8	0.583	C	7.8	24.0	7.6	0.527
	.25	C	7.7	24.0	7.0	0.809	C	7.9	24.0	7.7	0.790
	.5	C	7.7	24.0	7.0	1.32	C	7.9	24.0	7.8	1.24
	1.0	C	7.7	24.0	7.1	2.29	C	7.9	24.0	7.9	2.17
		C					C				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 7	Control	D	7.5	24.0	7.0	0.331	D				
	.0625	D	7.5	24.0	6.9	0.400	D				
	.125	D	7.5	24.0	6.9	0.549	D				
	.25	D	7.6	24.0	6.9	0.795	D				
	.5	D	7.6	24.0	7.1	1.29	D				
	1.0	D	7.6	24.0	7.1	2.24	D				
		D					D				
	Measured by:		JD	JD	JD	JD					
	Recorded by:		JD	JD	JD	JD					

Comments:

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

Concentration: µg/L (d/D) (circle one)

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	373	0.02223	0.02679	0.00456	10	.456
	B	374	0.02662	0.02587	0.00525	10	.525
	C	375	0.02223	0.02743	0.00520	10	.520
	D	376	0.02243	0.02768	0.00455	10	.455
.0625	A	377	0.02203	0.02600	0.00397	10	.397
	B	378	0.02424	0.02853	0.00429	10	.429
	C	379	0.02299	0.02853	0.00554	10	.554
	D	380	0.02325	0.02820	0.00495	10	.495
.125	A	381	0.02328	0.02912	0.00584	10	.584
	B	382	0.02292	0.02877	0.00585	10	.585
	C	383	0.02395	0.03018	0.00623	10	.623
	D	384	0.02339	0.02837	0.00498	10	.798
.25	A	385	0.02297	0.02844	0.00557	10	.557
	B	386	0.02429	0.02935	0.00506	10	.506
	C	387	0.02264	0.02691	0.00427	10	.427
	D	388	0.02399	0.02888	0.00484	10	.784
.5	A	389	0.02470	0.02897	0.00427	10	.427
	B	390	0.02319	0.02779	0.00460	10	.460
	C	391	0.02202	0.02534	0.00332	10	.332
	D	392	0.02089	0.02559	0.00470	10	.470
1.0	A	~~393~~ —				10	
	B	393	0.02310	0.02348	0.00038	10	.038
	C	—				10	
	D	—				10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	JD	JD			

Comments:

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

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

Empty Pan Weights Date: 11.6.07

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.022207	@	0.022207
after Pan 10	0.022205 07 10	@	0.022205 07 10
after Pan 15	0.022206 07 10	@	0.022206 07 10
after Pan 20	0.022206 07 10	@	0.022206 07 10
after Pan 25	0.022207	@	0.022207 07 10
after Pan 30	0.022205 07 10	@	0.022205 07 10
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.01000	@	0.01
	0.03003	@	0.03

Fish + Pan Weights Date: 11.13.07

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.026794	@	0.026794
after Pan 10	0.026811	@	0.026794
after Pan 15	0.026822	@	0.026794
after Pan 20	0.026833	@	0.026794
after Pan 25	0.026833	@	0.026794
after Pan 30	0.026832	@	0.026794
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.00999	@	0.01
	0.05003	@	0.05

Drying Oven ID: ERO 34080

Temperature °C: 100

Drying Hours: 3

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

Comments:

Inhibition concentration and Dunnetts statistics for the *Ceriodaphnia dubia* chronic SRT (reproduction) performed concurrently with the GRU Main Street WRF chronic bioassay, October 30 through November 5, 2007.

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	10/30/2007 13:30	Test ID:	1cdsrt1007	Sample ID:	REF-Ref Toxicant
End Date:	11/7/2007 08:00	Lab ID:	Ceriodaphnia dubia chronic SRT	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia
Comments:	Chronic C. dubia SRT concurrent with GRU Main Street chronic bioassay				

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	27.000	21.000	18.000	20.000	30.000	23.000	22.000	24.000	24.000	23.000
0.59	20.000	20.000	24.000	19.000	18.000	18.000	17.000	28.000	18.000	19.000
0.89	16.000	18.000	15.000	19.000	16.000	11.000	15.000	16.000	18.000	27.000
1.3	25.000	14.000	14.000	22.000	26.000	15.000	11.000	23.000	14.000	27.000
2	4.000	9.000	0.000	0.000	2.000	5.000	20.000	0.000	11.000	5.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	23.200	1.0000	23.200	18.000	30.000	14.765	10	23.200	1.0000
0.59	20.100	0.8664	20.100	17.000	28.000	16.822	10	20.100	0.8664
0.89	17.100	0.7371	17.100	11.000	27.000	24.104	10	18.100	0.7802
1.3	19.100	0.8233	19.100	11.000	27.000	31.650	10	18.100	0.7802
2	5.600	0.2414	5.600	0.000	20.000	112.687	10	5.600	0.2414
3	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.942645	0.93	0.88521	0.832876
Bartlett's Test indicates equal variances (p = 0.18)	6.279566	13.2767		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL		Skew
IC05*	0.2208	0.1457	0.1380	0.6534	1.3026
IC10*	0.4415	0.1649	0.2760	0.8000	0.7360
IC15	0.6470	0.2566	0.4139	1.3391	1.3025
IC20	0.8210	0.2977	0.5519	1.3991	0.3246
IC25	1.3392	0.2561	0.7397	1.4633	-0.7595
IC40	1.5341	0.0811	1.3787	1.6697	0.7989
IC50	1.6640	0.0863	1.5273	1.8308	1.2755

* indicates IC estimate less than the lowest concentration

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.942645	0.93	0.88521	0.832876
Bartlett's Test indicates equal variances (p = 0.18)	6.279566	13.2767		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	0.59	0.89	0.724638		4.799975	0.206895	456.07	23.30444	2.2E-09	4, 45

Inhibition concentration and Dunnetts statistics for *Pimephales promelas* (growth) chronic SRT performed concurrent with the GRU Main Street WRF chronic bioassay, October 30 through November 6, 2007.

Larval Fish Growth and Survival Test-7 Day Growth					
Start Date:	10/30/2007 12:15	Test ID:	1ppsrt1007	Sample ID:	REF-Ref Toxicant
End Date:	11/6/2007 11:15	Lab ID:	P. promelas chronic SRT 10 30	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	PP-Pimephales promelas
Comments:	P. promelas SRT concurrent with GRU Main Street chronic test				

Conc-gm/L	1	2	3	4
D-Control	0.4560	0.5250	0.5200	0.4550
0.0625	0.3970	0.4290	0.5540	0.4950
0.125	0.5840	0.5850	0.6230	0.4980
0.25	0.5570	0.5060	0.4270	0.4890
0.5	0.4770	0.4600	0.3320	0.4700
1	0.0000	0.0380	0.0000	0.0000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.4890	1.0000	0.4890	0.4550	0.5250	7.922	4	0.5101	1.0000
0.0625	0.4688	0.9586	0.4688	0.3970	0.5540	14.926	4	0.5101	1.0000
0.125	0.5725	1.1708	0.5725	0.4980	0.6230	9.237	4	0.5101	1.0000
0.25	0.4948	1.0118	0.4948	0.4270	0.5570	10.837	4	0.4948	0.9699
0.5	0.4348	0.8891	0.4348	0.3320	0.4770	15.838	4	0.4348	0.8523
1	0.0095	0.0194	0.0095	0.0000	0.0380	200.000	4	0.0095	0.0186

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.963411	0.884	-0.47979	-0.30322
Bartlett's Test indicates equal variances (p = 0.48)	4.494028	15.08627		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL(Exp)		Skew
IC05	0.2924	0.0801	0.0922	0.5310	0.3643
IC10	0.3986	0.0945	0.1153	0.5962	-0.1117
IC15	0.5014	0.0699	0.1977	0.5789	-0.9393
IC20	0.5314	0.0500	0.3328	0.6052	-1.5276
IC25	0.5614	0.0373	0.4096	0.6313	-0.7850
IC40	0.6513	0.0286	0.5458	0.7101	-0.5701
IC50	0.7113	0.0241	0.6229	0.7630	-0.5548

Auxiliary Tests					Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)					0.963411		0.884		-0.47979	-0.30322
Bartlett's Test indicates equal variances (p = 0.48)					4.494028		15.08627			
Hypothesis Test (1-tail, 0.05)	**NOEC**	**LOEC**	**ChV**	**TU**	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Dunnett's Test	0.5	1	0.707107		0.091158	0.186418	0.163424	0.002861	2.1E-10	5, 18
Treatments vs D-Control										

Statistics for *Pimephales promelas* and *Ceriodaphnia dubia* survival for the chronic SRTs performed concurrently with the chronic bioassays of the GRU Main Street WRF, October 30 - November 7, 2007.

Larval Fish Growth and Survival Test-7 Day Survival

Start Date:	10/30/2007 12:15	Test ID:	1ppsrt1007	Sample ID:	REF-Ref Toxicant
End Date:	11/6/2007 11:15	Lab ID:	P. promelas chronic SRT 10 30	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	PP-Pimephales promelas
Comments:	P. promelas SRT concurrent with GRU Main Street chronic test				

Conc-gm/L	1	2	3	4
D-Control	0.9000	1.0000	0.7000	0.8000
0.0625	0.7000	0.9000	1.0000	0.9000
0.125	0.9000	0.6000	0.9000	0.7000
0.25	0.9000	0.8000	1.0000	0.7000
0.5	0.7000	0.7000	0.5000	0.7000
1	0.0000	0.1000	0.0000	0.0000

			Transform: Arcsin Square Root					1-Tailed		
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	0.8500	1.0000	1.1898	0.9912	1.4120	15.281	4			
0.0625	0.8750	1.0294	1.2253	0.9912	1.4120	14.199	4	-0.320	2.410	0.2673
0.125	0.7750	0.9118	1.0938	0.8861	1.2490	16.848	4	0.866	2.410	0.2673
0.25	0.8500	1.0000	1.1898	0.9912	1.4120	15.281	4	0.000	2.410	0.2673
0.5	0.6500	0.7647	0.9397	0.7854	0.9912	10.948	4	2.255	2.410	0.2673
*1	0.0250	0.0294	0.1995	0.1588	0.3218	40.840	4	8.930	2.410	0.2673

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.952195	0.884	-0.08858	-0.95351
Bartlett's Test indicates equal variances (p = 0.74)	2.73814	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	0.5	1	0.707107		0.226293	0.262594	0.617343	0.024596	1.6E-07	5, 18

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date:	10/30/2007 13:30	Test ID:	1cdsrt1007	Sample ID:	REF-Ref Toxicant
End Date:	11/7/2007 08:00	Lab ID:	Ceriodaphnia dubia chronic SR	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia
Comments:	Chronic C. dubia SRT concurrent with GRU Main Street chronic bioassay				

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.59	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.89	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Conc-gm/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
D-Control	1.0000	1.0000	0	10	10	10		
0.59	1.0000	1.0000	0	10	10	10	1.0000	0.0500
0.89	0.9000	0.9000	1	9	10	10	0.5000	0.0500
1.3	1.0000	1.0000	0	10	10	10	1.0000	0.0500
2	0.7000	0.7000	3	7	10	10	0.1053	0.0500
3	0.0000	0.0000	10	0	10	10		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test Treatments vs D-Control	2	3	2.44949	

MBL Aquaculture
4569 Samuel Street
Sarasota, Florida 34233
TEL: (800) 889-0384
FAX: (941) 922-3874
EMAIL: sales@mblaquaculture.com
WEB: www.MBLAquaculture.com

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/29/07

Shipped to: FL. DEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	100	7 DAYS	MS071025	25°C	25‰
Menidia beryllina	100	10 DAYS	MSC71019	25°C	25‰
Cyprinella leedsi	150	12 DAYS	CL071017	25°C	
Pimephales promelas	350	< 24HRS	FMC71028-1510	25°C	
	150			25°C	

Packed by: _____

Shipped Via: _____

Notes: _____

Thank you for your order.

Assessment Field Sheets

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: DEP SUBMITTING AGENCY NAME:	STORET STATION NUMBER: —	DATE (M/D/Y): 10/29/07	TIME: 1200	RECEIVING BODY OF WATER: Paynes Lake
REMARKS: FY15'07	COUNTY: Alachua	LOCATION: control site GRU Mainstreet Sweetwater Branch	FIELD ID/NAME: 60m up from eff. —	

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)
25				30	20	20	5 encampments

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: 5

List & map dominant Vegetation on back

Typical Width (m) Depth (m)/Velocity (m/sec) Transect 5 m wide

0.1 m/s 0.2 m/s 0.1 m/s

0.1 m deep 0.3 m deep 0.1 m deep

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

Artificially Impounded ☐ yes

High Water Mark: 3 (m above present water level) + 0.2 (present depth in m) = 3.2 (m above bed)

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

SEDIMENT/SUBSTRATE

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

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

Sediment Deposition: Sludge: ☐ Sand Smothering: none moderate slight severe Silt smothering: none moderate slight severe Other: —

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	0.2	5	<2m²	Sand	93.6	5	
Leaf Packs of Mats	0.8	5		Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubbie	4.4	5		Other:			
Undercut banks/Roots	1	5		*Draw acrial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):	00%		Secchi (m):
Top								
Mid-depth								0.6L
Bottom	0.2	19.85	7.58	9.25	381 / 0.18	101.5		

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

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

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

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

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

Weather Conditions/Notes: Overcast 100% rainy... 65°F

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

SAMPLING TEAM: SH / EA

SIGNATURE: [signature]

DATE: 10/29/07

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

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY): 10/29/07	RECEIVING BODY OF WATER: Vaines Pond
REMARKS: control	COUNTY: Alachua	LOCATION: Sweetwater br. 60m SP from eff	FIELD ID/NAME:

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 11	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 13	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 15 14 (13) 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 11 Primary Score 41	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 4	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 (4) 3 2 1
Bank Stability Right Bank 3 Left Bank 3	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. (3) 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 3	Width of native vegetation greater than 18 m 10 9	Width of native vegetation >12 to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 43	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions 10 9	>50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of stream bank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less 3 2 1

84 **TOTAL SCORE**

ANALYSIS DATE: 10/29/07	ANALYST: Lesa Ali	SIGNATURE:

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: DEP SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 10/29/07	TIME: 1430	RECEIVING BODY OF WATER: Perkins Pond	
REMARKS: FY15	COUNTY: Marion	LOCATION: Sweetwater Branch Trib site GRU Main St	FIELD ID/NAME: 20m down from eff.		

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)
25				30	20	20	5 encampment

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: 5

List & map dominant Vegetation on back

Artificially Channelized ☐ no ☐ ☐ ☐
severe some recovery mostly recovered
Artificially Impounded ☐ yes more sinuous

High Water Mark: 3 + 0.3 = 3.3
(m above present water level) (present depth in m) (m above bed)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect 4 m wide

0.2 m/s 0.4 m/s 0.2 m/s

0.1 m deep 0.3 m deep 0.1 m deep

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

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ ~~Anaerobic~~: ☐ Other: ☐

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

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

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	4	5		Sand	81.75	5	
Leaf Packs of Mats	0			Mud/Muck/Silt			
Aquatic Vegetation	0			Other:			
Rock or Shell Rubble	5.25	5		Other:			
Undercut banks/Roots	6	5		*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):	D.O %		Secchi (m):
Top								
Mid-depth								
Bottom	0.4	23.41	7.047	8.57	888 / 0.44	100.8%		0.6L

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: ☑ CL

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

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

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

Weather Conditions/Notes:
Overcast 100%
68°F drizzling

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

SAMPLING TEAM: SNEA

SIGNATURE:

DATE: 10/29/07

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

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
		10/29/07	Panny Lane

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
FYI TEST	Manatee	Sweetwater Branch Test Site	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 13	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 (13) 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 9	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 (9) 8 7 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 14	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 (18) 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 12 Primary Score 53	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 13	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 (13) 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 3 Left Bank 3	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. (3) 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 5	Width of native vegetation greater than 18 m 10 9	Width of native vegetation >12 to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 54	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions 10 9	>50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of stream bank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less 3 2 1

107 **TOTAL SCORE**

ANALYSIS DATE:	ANALYST:	SIGNATURE:
10/29/07	Fesa Ali	

Appendix I-1

Wet taxa list and number of individuals counted for qualitative natural periphyton collections made from GRU Mainstreet WRF discharge on October 29, 2007.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyta	289	262
Chlorophycota		
Chlorella sp.	-	1
Cosmarium sp.	2	-
Oedogonium sp.	-	1
Cyanophycota		
Cyanobium parvum	2	15
Jaaginema sp.	3	10
Oscillatoria tenuis	1	1
Planktolyngbya sp.	1	2
Planktothrix sp.	-	1
Pleurocapsa sp.	2	-
Schizothrix calcicola	-	3
Synechocystis sp.	-	5

Appendix I-2

Diatom taxa list and number of individuals counted for qualitative natural periphyton collections made from GRU Mainstreet WRF discharge on October 29, 2007.

	Control site	Test site
Bacillariophyceae		
Achnanthes sp.	71	60
Achnanthes clevei	3	9
Achnanthes exigua	24	32
Achnanthes lanceolata	21	13
Achnanthes rupestoides	8	-
Amphora sp.	28	24
Bacillariophyceae	51	55
Caloneis sp.	8	2
Caloneis bacillum	1	-
Capartogramma crucicula	3	3
Cocconeis sp.	-	1
Cocconeis placentula	47	21
Diadesmis confervacea	20	11
Diadesmis contenta	-	1
Diploneis sp.	-	2
Encyonema evergladianum	2	-
Eunotia sp.	2	7
Eunotia bilunaris	1	-
Geissleria decussis	4	3
Gomphonema sp.	10	10
Gomphonema grovei	1	-
Gomphonema parvulum	5	8
Hippodonta hungarica	1	-
Hippodonta sp.	-	4
Luticola mutica	-	2
Navicula sp.	42	27
Navicula constans	-	2
Navicula cryptocephala	3	-
Navicula cryptotenella	6	-
Navicula gastrum	2	-
Navicula kotschyi	3	4
Navicula minima	45	22
Navicula porifera	1	-
Navicula seminulum	2	-
Naviculaceae	-	5
Nitzschia sp.	70	87
Nitzschia amphibia	1	36
Nitzschia clausii	-	6
Planothidium sp.	4	3
Sellaphora sp.	2	-
Sellaphora pupula	1	-
Tryblionella sp.	3	3
Coscinodiscophyceae		
Cyclotella meneghiniana	2	5
Fragilariophyceae		
Fragilaria sp.	-	11
Fragilariaceae	3	11
Opephora sp.	-	10

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the GRU Mainstreet WRF and collected on October 29, 2007. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Oligochaeta		
Dero digitata complex	8	-
Aeolosoma sp.	3	-
Naididae	37	-
Nais communis complex	5	-
Pristina leidyi	3	-
Tubificidae	5	-
Arthropoda		
Arachnida		
Acariformes		
Hydrodroma sp.	8	-
Lebertia sp.	5	-
Oribatida		
Undetermined Oribatida	-	3
Crustacea		
Amphipoda		
Hyalella azteca	3	-
Insecta		
Coleoptera		
Elmidae	5	-
Microcylloepus pusillus	21	82
Stenelmis sp.	5	-
Collembola		
Undetermined Collembola	-	3
Diptera		
Atrichopogon sp.	8	5
Chironomidae	209	135
Chironomus sp.	11	286
Corynoneura sp.	21	-
Cricotopus bicinctus	-	8
Dicrotendipes neomodestus	140	-
Dicrotendipes simpsoni	5	-
Goeldichironomus cf. *natans*	13	-
Hemerodromia sp.	-	3
Nanocladius sp.	8	-
Nanocladius cf. *rectinervis*	5	-
Pentaneura inconspicua	5	19
Polypedilum illinoense grp.	1,418	963
Polypedilum scalaenum grp.	34	-
Pseudochironomus sp.	16	-
Rheocricotopus robacki	-	24
Stratiomyidae	-	3
Thienemanniella sp.	5	5
Thienemanniella lobapodema	-	8
Thienemanniella sp. C Epler	13	71
Thienemanniella xena	-	32
Ephemeroptera		

Appendix J-1 (continued)

	Control Site	Test Site
Baetidae	-	3
Odonata		
Argia sp.	32	8
Coenagrionidae	-	3
Enallagma coecum	3	3
Trichoptera		
Cheumatopsyche sp.	3	368
Hydropsychidae	-	19
Hydroptila sp.	3	-
Neotrichia sp.	3	-
Mollusca		
Gastropoda		
Ancylidae	156	13
Ferrissia hendersoni	29	40
Melanoides sp.	-	5
Physidae	-	24

Appendix J-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples) incubated upstream and downstream of the GRU Mainstreet WRF for 28 days and collected on October 29, 2007.

	Control Site	Test Site
Annelida		
Oligochaeta		
Aeolosoma sp.	1	-
Dero digitata complex	3	-
Naididae	14	-
Nais communis complex	2	-
Pristina leidyi	1	-
Tubificidae	2	-
Arthropoda		
Arachnida		
Acariformes		
Hydrodroma sp.	3	-
Lebertia sp.	2	-
Oribatida		
Undetermined Oribatida	-	1
Crustacea		
Amphipoda		
Hyalella azteca	1	-
Insecta		
Coleoptera		
Elmidae	2	-
Microcylloepus pusillus	8	31
Stenelmis sp.	2	-
Collembola		
Undetermined Collembola	-	1
Diptera		
Atrichopogon sp.	3	2
Chironomidae	79	51
Chironomus	4	108
Corynoneura sp.	8	-
Cricotopus bicinctus	-	3
Dicrotendipes neomodestus	53	-
Dicrotendipes simpsoni	2	-
Goeldichironomus cf. *natans*	5	-
Hemerodromia sp.	-	1
Nanocladius sp.	3	-
Nanocladius cf. *rectinervis*	2	-
Pentaneura inconspicua	2	7
Polypedilum illinoense grp.	536	364
Polypedilum scalaenum grp.	13	-
Pseudochironomus sp.	6	-
Rheocricotopus robacki	-	9
Stratiomyidae	-	1
Thienemanniella sp.	2	2
Thienemanniella lobapodema	-	3
Thienemanniella sp. C Epler	5	27
Thienemanniella xena	-	12
Ephemeroptera		
Baetidae	-	1

Appendix J-2 (continued)

	Control Site	Test Site
Odonata		
Argia sp.	12	3
Coenagrionidae	-	1
Enallagma coecum	1	1
Trichoptera		
Cheumatopsyche sp.	1	139
Hydropsychidae	-	7
Hydroptila sp.	1	-
Neotrichia sp.	1	-
Mollusca		
Gastropoda		
Ancylidae	59	5
Ferrissia hendersoni	11	15
Melanoides sp.	-	2
Physidae	-	9

Appendix K-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of GRU Mainstreet WRF on October 29, 2007. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Oligochaeta				
Enchytraeidae	-	-	1	-
Arthropoda				
Insecta				
Coleoptera				
Curculionidae	1	-	-	-
Microcylloepus pusillus	27	23	13	13
Collembola				
Undetermined Collembola	-	-	1	-
Diptera				
Atrichopogon sp.	-	-	1	1
Chironomus sp.	2	2	29	19
Cricotopus bicinctus	-	-	2	2
Dicrotendipes neomodestus	5	3	4	3
Goeldichironomus holoprasinus	-	2	-	-
Kiefferulus sp.	1	-	-	-
Nanocladius sp.	1	-	-	-
Pentaneura inconspicua	1	2	-	1
Polypedilum illinoense grp.	38	50	31	41
Polypedilum scalaenum grp.	6	-	-	-
Pseudochironomus sp.	-	-	1	-
Rheocricotopus robacki	-	-	-	1
Stenochironomus sp.	-	-	1	-
Thienemanniella sp. C Epler	-	1	2	-
Thienemanniella xena	-	-	-	2
Ephemeroptera				
Acentrella sp.	1	-	-	-
Acentrella parvula	-	1	3	4
Odonata				
Argia sp.	23	22	1	-
Calopteryx sp.	-	1	-	-
Enallagma sp.	-	-	12	-
Enallagma coecum	-	-	-	15
Trichoptera				
Cheumatopsyche sp.	16	15	47	51
Hydroptila sp.	-	1	-	-
Mollusca				
Bivalvia				
Corbicula fluminea	2	-	-	1
Gastropoda				
Ferrissia hendersoni	14	16	2	3
Melanoides sp.	8	6	2	-
Physidae	-	-	1	-
Platyhelminthes				
Undetermined Platyhelminthes	3	3	-	-

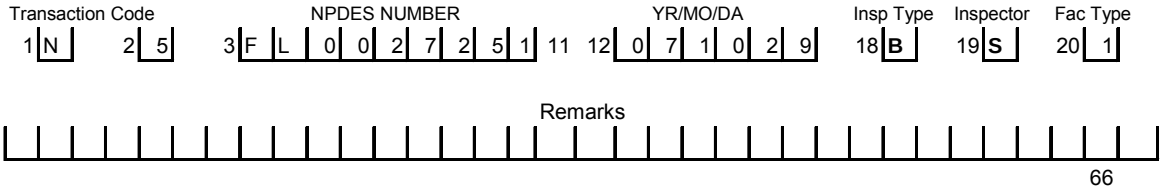
Appendix K-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of GRU Mainstreet WRF facility on October 29, 2007.

	Control Site		Test Site	
Taxon Name	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Oligochaeta				
Enchytraeidae	-	-	1	-
Arthropoda				
Insecta				
Coleoptera				
Curculionidae	1	-	-	-
Microcylloepus pusillus	27	23	13	13
Collembola				
Undetermined Collembola	-	-	1	-
Diptera				
Atrichopogon sp.	-	-	1	1
Chironomidae	10	3	7	8
Chironomus sp.	2	2	26	17
Cricotopus bicinctus	-	-	2	2
Dicrotendipes neomodestus	4	3	4	3
Goeldichironomus holoprasinus	-	2	-	-
Kiefferulus sp.	1	-	-	-
Nanocladius sp.	1	-	-	-
Pentaneura inconspicua	1	2	-	1
Polypedilum illinoense grp.	30	47	27	35
Polypedilum scalaenum grp.	5	-	-	-
Pseudochironomus sp.	-	-	1	-
Rheocricotopus robacki	-	-	-	1
Stenochironomus sp.	-	-	1	-
Thienemanniella sp.	-	-	-	1
Thienemanniella sp. C Epler	-	1	2	-
Thienemanniella xena	-	-	-	1
Ephemeroptera				
Acentrella sp.	1	-	1	-
Acentrella parvula	-	1	2	4
Odonata				
Argia sp.	22	20	1	-
Calopteryx sp.	-	1	-	-
Coenagrionidae	1	2	2	6
Enallagma sp.	-	-	10	4
Enallagma coecum	-	-	-	5
Trichoptera				
Cheumatopsyche sp.	16	15	47	51
Hydroptila sp.	-	1	-	-
Mollusca				
Bivalvia				
Corbicula fluminea	2	-	-	1
Gastropoda				
Ferrissia hendersoni	14	16	2	3
Melanoides sp.	8	6	2	-
Physidae	-	-	1	-
Platyhelminthes				
Undetermined Platyhelminthes	3	3	-	-

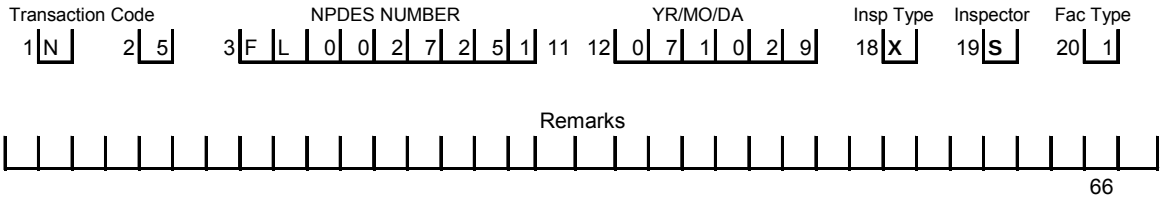
The Bioassay of the GRU Main Street WRF effluent sampled on October 29, 2007, NPDES #FL0027251

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



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)



Biological Analyses of the GRU Main Street WRF effluent sampled on October 29, 2007, NPDES #FL0027251

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

