

Biological Assessment of

Florida State Hospital WWTP

Gadsden County

NPDES # FL0031402

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Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

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EPA End Sheet

Facility Overview

The Florida State Hospital Wastewater Treatment Plant is a Municipal Domestic Wastewater Treatment plant. The effluent is discharged via an unnamed tributary into North Mosquito Creek, a Class III Fresh Water (see map Appendix A). The design flow of the wastewater system is 1.3 million gallons per day (MGD) annual average daily flow. The annual average flow for October, 2009 to September, 2010 was 0.3242 MGD. The plant discharges continuously, and the flow measured during this survey was 0.2298 MGD (Northwest District sampling staff).

See the Facility Summary (Appendix 2) for a description of the facility, summary of permit limits, and discharge monitoring report (DMR) information.

Methods

The purpose of this investigation was to determine the discharge's effects on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Mosquito Creek beginning approximately 20m upstream from the confluence of the unnamed tributary and North Mosquito Creek and ending approximately 120m upstream) and a Test Site (located approximately 10m downstream the confluence of the unnamed tributary and North Mosquito Creek and ending 110m downstream). Effluent samples were taken as grab and composite samples from monitoring location EFD-01 after dechlorination.

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

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.

The following were involved in this investigation: Caroline Horton and James McRoy (FDEP Northwest District Branch Office, Tallahassee), Nathan Mulkey and Rick Abad (FDEP Northwest District Office, Pensacola), and DEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Ed Smith, Nancy Ross and Cari Butler).

Results and Discussion

Organic Constituents (See Table 1 and Appendix E)

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

Metals (See Table 2 and Appendix E)

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

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

- Tests were performed November 2 through November 9, 2010
- The effluent sample NOEC for the fish, *Pimephales promelas*, and the NOEC for the water flea, *Ceriodaphnia dubia,* during the chronic screen bioassays were 100%, and therefore, complied with effluent permit limits and Class III Fresh Water Quality Criteria (62-302.530 F. A. C.).

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

- Habitat Assessment scores were similar at the Control Site (123) and Test Site (135), which places both sites in the Optimal category (see Appendix C). The Test Site had four productive habitats

whereas the Control Site had three productive habitats. The Test Site also had higher water velocity and less habitat smothering than the Control Site.

- Total Residual Chlorine of the effluent (0.04 mg/L) as measured in the FDEP laboratory exceeded Class III Fresh Water Quality Criterion (62-302-.530(18) F.A.C.) and effluent permit limits. This measurement is Q-qualified because the sample was held beyond normal holding time.
- Dissolved oxygen (mg/L), pH (Standard Units), and specific conductance (µmhos/cm) of the effluent complied with Class III Fresh Water Quality Criteria (62-302.530 F.A.C.) and effluent permit limits.
- Chlorophyll *a* was undetected in the effluent sample and was detected at low levels at both the Control and Test Sites.
- Total suspended solids (mg/L) and Carbonaceous Biological Oxygen Demand (CBOD; mg/L) of the effluent complied with permit limits.

Microbiology (See Table 1 and Appendix E)

- Fecal coliforms were not detected in the effluent.
- Fecal Coliforms in the Control Site and Test Site were detected at levels which complied with Class III Fresh Water Quality Criterion (62-302.530(6) F.A.C.).

Nutrients (See Table 1 and Appendix E)

- Effluent nutrient levels complied with permit limits and the Class III Fresh Water Quality Criteria.
- Total phosphorus, ortho-phosphate, and nitrogen values detected at both the Control and Test Sites were lower than effluent values. Nutrient measurements at the Control and Test Sites were similar to each other. Although Test Site ortho-phosphate measurements were higher than those of the Control Site, the Test Site is not elevated to the level of the effluent.
- No nutrients were detected in the field blank.

Algal Growth Potential (See Table 3 and Appendix E)

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller et al. 1978). Raschke and Shultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value in the effluent sample (103.0 mg/L) using the freshwater species, *Pseudokirchneriella subcapitata,* was approximately 20 times greater than the "problem" threshold value. The analytical chemistry suggests that the effluent is nitrogen limited.
- The Control Site AGP value was 5.3 mg/L and the Test Site AGP value was 9.5 mg/L. The Control Site and Test Site were phosphorus limited.

Bioassessment

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

- Periphyton communities at both the Control and Test Sites consisted mostly of diatoms. The diatom community at both sites was dominated by *Cocconeis fluviatilis*. The Control Site had approximately 10% more blue-green algae than the Test Site as well as slightly more green algae. There were no adverse affects apparent on the periphyton community in North Mosquito Creek from the effluent.

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

- Quantitative macroinvertebrate data were collected from Hester Dendy samplers (4 reps each) at the Control and Test Sites. The samplers were placed on the bottom of the stream bed approximately 0.3 m deep. The Shannon-Weaver diversity scores were high at the Control and Test Sites (4.60 and 4.32 respectively). Both sites were dominated by dipterans, which are generally considered to be pollution tolerant. However, both sites had sensitive taxa, such as ephemeropterans, present as well.
- Qualitative macroinvertebrate data from dipnet samples indicated that the macroinvertebrate communities at the Control Site and the Test Site were very similar. The Test Site scored 70 A on the Stream Condition Index (SCI), and the Control Site scored 72 A, placing both sites in Category 1 (see Appendix C for an explanation of SCI Categories). Both sites had similar numbers of ephemeroptera, trichoptera, sensitive and clinger taxa. The percentage of suspension feeders was similar at both sites. The Test Site had a slightly lower percentage of tanytarsini individuals. (See

Appendix C for an explanation of how these SCI metrics typically respond to human disturbance). Overall, there were no negative effects on macroinvertebrates at the Test Site that were attributable to the effluent.

Conclusion

Effluent total residual chlorine measured in the FDEP laboratory exceeded Class III Fresh Water Quality Criterion (62-302-.530(18) F.A.C.) and effluent permit limits. This measurement is Q-qualified because the sample was held beyond normal holding time. Ortho-phosphate, total phosphorus, and total nitrogen values of the effluent were higher than amounts detected at the Control Site and Test Site. The AGP value in the effluent sample was approximately 20 times greater than the "problem" threshold value. While the AGP value for the Test Site was nearly double the Control Site value, it is an order of magnitude lower than the level of the effluent. There did not appear to be significant nutrient enrichment at the Test Site from the effluent, and the effluent did not appear to adversely affect the periphyton or macroinvertebrate communities in this survey.

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

Florida State Hospital WWTP	Class III Criteria	Effluent Limits	Effluent 11/01/10 Grab (**Composite)	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected		
Nutrients (mg/L)					
Ortho-phosphate	-	-	2.5	0.011 I	0.021
Total Phosphorus	-	≤ 16.0 s	2.6	0.035	0.035
Total Ammonia	-	≤ 4.0 s	0.025	0.049	0.048
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	5	1.1	1.1
Total Kjeldahl Nitrogen	-	-	0.71	0.39	0.4
Organic Nitrogen	-	-	0.685 c	0.341 c	0.352 c
Total Nitrogen	-	≤ 25.0 p	5.71 c	1.49 c	1.5 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	123	135
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 5.0	8.6	7.0	7.4
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.5	6.4	6.2
Conductivity (µmhos/cm)	≤ 1,275	-	260	74.1	72.5
Temperature (°C)	-	Report	22.3	18.2	18.1
Sample Depth (m)	-	-	0.15	0.2	0.2
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	0.04† Q	-	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55 U	1.8	1.6 I
Phaeophytin (µg/L)	-	-	0.4 U	1.9 A	1.6
Total Suspended Solids (mg/L)	-	≤40.0 s	4 U	5 I	7 I
Turbidity (NTU)	< 29 t	-	1.4	6.5	6.4 A
CBOD, 5 day (mg/L), N - inhibited	-	≤40.0 s	0.74 I J	0.92 I J	1.2 I J
Chloride (mg/L)	-	-	38	6.7	6.7
Fluoride (mg/L)	≤ 10.0	-	0.12	0.059 I	0.059 I
Sulfate (mg/L)	-	-	19	1	1
Flow (MGD)	-	≤1.3 a	0.3242 a	-	-
Hardness (mg $CaCO_3$)	-	-	136.03 c	23.48 c	23.60 c
Toxicity (Chronic Screen, NOEC, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*	-	-	100**	-	-
Bioassay - Fish *(Pimephales promelas)*	-	-	100**	-	-
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms ¥	≤ 400s #	≤800s	2 U	62	58

Value exceeds the Class III Water Quality Criteria or permit limits

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

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.

Florida State Hospital WWTP	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	60 U	-	420	-	460
Arsenic	≤ 50	-	0.61 I	≤ 50	0.27 I	≤ 50	0.25 U
Cadmium	≤ 0.34 b	-	0.031 I	≤ 0.10 b	0.03 U	≤ 0.10 b	0.03 U
Calcium (mg/L)	-	-	39.8	-	4.39	-	4.39
Chromium-III	≤ 110.88 b	-	0.3 U	≤ 27.69 b	0.3 U	≤ 27.69 b	0.41 I
Copper	≤ 12.13 b	Report p	9.07	≤ 2.85 b	1.17	≤ 2.85 b	1.14
Iron	≤ 1,000	-	72 I	≤ 1,000	420	≤ 1,000	410
Lead	≤ 4.71 b	-	0.4 I	≤ 0.54 b	0.3 I	≤ 0.54 b	0.34 I
Magnesium (mg/L)	-	-	8.9	-	3.04	-	3.07
Mercury	≤ 0.012	-	-	≤ 0.012	-	≤ 0.012	-
Nickel	≤ 67.67 b	-	0.75 I	≤ 16.14 b	0.25 U	≤ 16.14 b	0.25 U
Selenium	≤ 5.0	-	0.39 I	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Silver	≤ 0.07	Report p	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 155.51 b	-	21	≤ 37.02 b	5 U	≤ 37.02 b	5 U

See Table 1 for calculated hardness.

b - Value is calculated based on hardness
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
p - 16 hour flow proportioned composite
U - Material analyzed for but not detected; value reported is the method detection limit

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

Florida State Hospital WWTP							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	103.0 A	191.0 ± 38.2		217.0 ± 43.4		2.0	2.2
Control Site	5.3		4.7 ± 0.9		15.1 ± 3.0	104.5	42.6
Test Site	9.5		9.0 ± 1.8		15.1 ± 3.0	54.7	42.9

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

Table 4. Periphyton Composition - Qualitative.

Florida State Hospital WWTP	Control Site	Test Site
Number of Wet Taxa	9	11
Number of Wet Algal Units Identified	301	301
Percent Dominant Wet Taxon	79.1	90.4
Dominant Wet Taxon Name	Bacillariophyta (Diatoms)	Bacillariophyta (Diatoms)
Number of Diatom Taxa	57	66
Number of Diatom Algal Units Identified	500	500
Percent Dominant Diatom Taxon	19.0	13.6
Dominant Diatom Taxon Name	*Cocconeis fluviatilis*	*Cocconeis fluviatilis*
Percentage Composition for Wet Algae		
Blue-green algae	17.3	7.6
Green algae	3.7	1.7
Diatoms	79.1	90.4
Euglenophytes	0.0	0.3

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative.

Florida State Hospital WWTP	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	4.60	4.32
Number of Taxa	55	45
Number of EPT Taxa	15	12
Percent Dominant Taxon	13.6	17.8
Dominant Taxon Name	*Polypedilum flavum* (Diptera)	*Polypedilum flavum* (Diptera)
Total Number of Individuals (counted)	948	761
Total Number of Individuals (#/m^2)	1,884	1,514
Community Composition: Percent of total		
Amphipoda	0.1	0.0
Coleoptera	3.2	3.2
Diptera	63.7	55.6
Ephemeroptera	17.2	13.5
Gastropoda	1.7	2.9
Odonata	0.1	0.0
Oligochaeta	0.0	0.3
Plecoptera	0.0	0.0
Trichoptera	13.8	24.1
Other	0.2	0.5
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	0.0	0.3
Piercers	0.1	0.0
Predators	7.2	3.1
Scrapers	9.0	9.0
Shredders	8.8	10.7
Surface Deposit Feeders	48.7	33.9
Suspension Feeders	25.9	34.4
Unknown	0.2	8.6

Table 6. Macroinvertebrate Dipnet Samples - Qualitative.

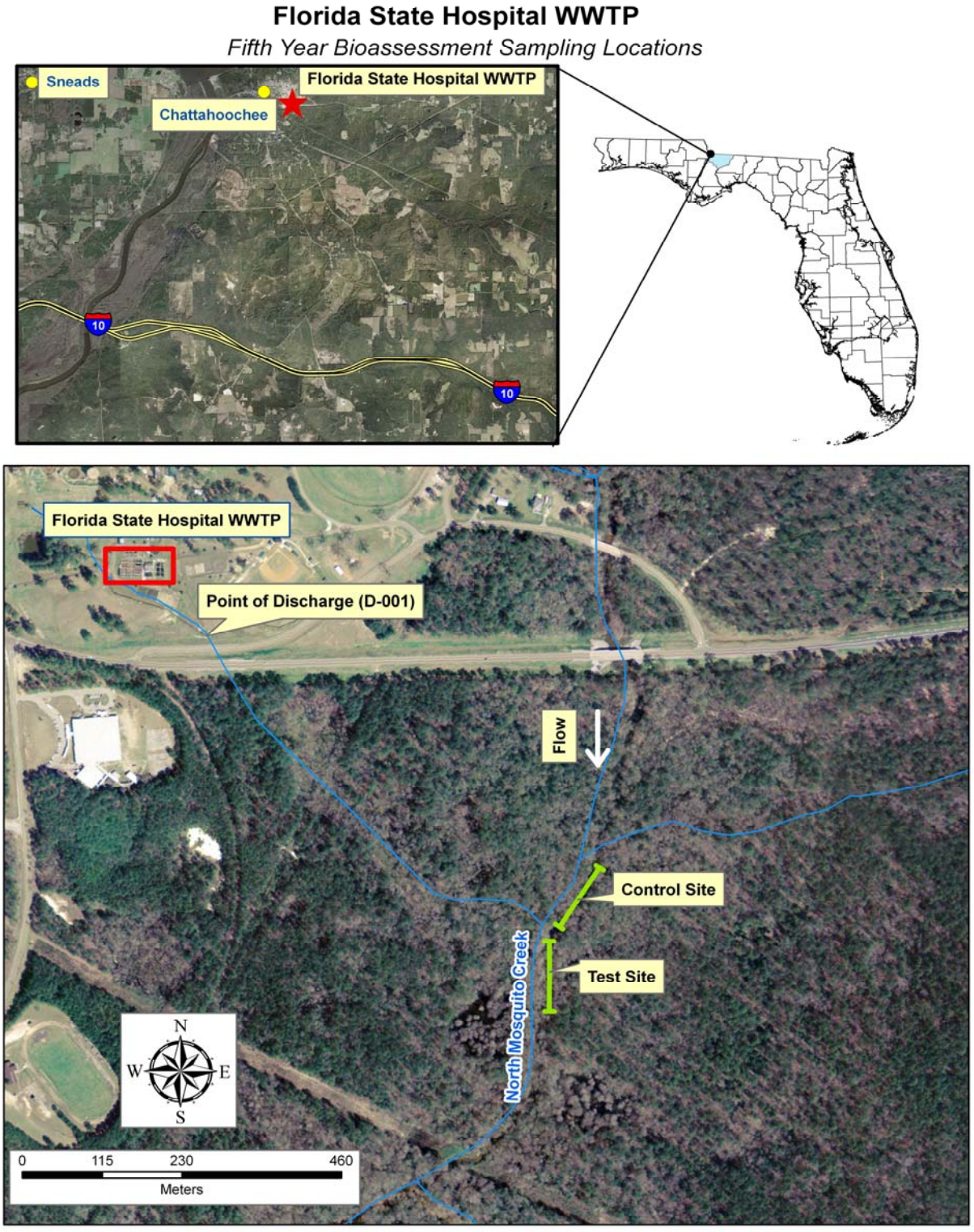
Florida State Hospital WWTP	Control Site		Test Site	
Summary Statistics				
Stream Condition Index 2007 (value)	72 A		70 A	
Stream Condition Index 2007 (category) *	Category 1		Category 1	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	36	40	32	35
Number of Ephemeroptera Taxa	5	5	4	5
Number of Trichoptera Taxa	5	7	6	7
Number of Clinger Taxa	8	10	9	9
Number of Long-lived Taxa	2	3	3	3
Number of Sensitive Taxa	8	9	8	9
Percent of Dominant Taxon	11.3	11.3	8.1	8.1
Percent Suspension Feeders and Filterers	24.7	29.9	28.1	27.8
Percent of Tanytarsini Individuals	6.9	4.4	1.9	3.8
Percent of Very Tolerant Individuals	4.4	6.9	8.1	5.6
Total Number of Individuals	160	159	160	160
Community Composition: Percent of total				
Dominant Taxon Name	*Microcylloepus pusillus* (Coleoptera)	*Hydropsyche* sp. (Trichoptera)	*Microcylloepus pusillus* /*Isonychia* sp. (Coleoptera/ Ephemeroptera)	*Polypedilum flavum* (Diptera)
Acariformes	0.0	0.0	0.0	0.0
Amphipoda	5.6	5.7	1.9	1.9
Bivalvia	1.9	1.3	3.1	5.0
Coleoptera	23.8	17.6	17.5	16.9
Decapoda	0.0	0.0	0.0	0.6
Diptera	25.0	18.9	16.9	25.0
Ephemeroptera	13.1	18.9	23.1	13.1
Gastropoda	1.3	1.9	13.1	16.9
Isopoda	0.0	0.0	0.6	0.0
Odonata	1.9	3.8	1.3	0.6
Oligochaeta	1.3	0.6	0.0	0.0
Plecoptera	0.0	0.0	0.6	0.0
Trichoptera	25.6	30.8	21.9	20.0
Other	0.6	0.6	0	0
Functional Feeding Groups: Percent of total				
Browser-Grazers	0.0	0.0	0.3	0.0
Burrowing Deposit Feeders	0.6	0.6	0.0	0.0
Parasites	0.6	0.0	0.0	0.0
Piercers	0.0	1.9	0.0	0.0
Predators	5.0	8.2	2.8	5.3
Scavengers	0.0	0.0	0.3	0.3
Scrapers	19.7	16.0	25.6	28.1
Shredders	15.3	11.3	14.7	15.9
Surface Deposit Feeders	34.1	31.5	28.1	22.5
Suspension Feeders	24.7	29.9	28.1	27.8
Unknown	0.0	0.6	0.0	0.0

A - Value reported is the mean of two determinations

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

Appendix A

Map of Facility



Appendix B

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen	**Contact Number:** (850)595-0553
Facility Name (as it appears on permit): Florida State Hospital	**Former Names:**
NPDES Permit Number: FL0031402	**Permit Expiration Date:** November 21, 2011
Physical Address: Blackberry Lane Chattahoochee, FL 32324	
District: NWD	**County:** Gadsden
Function of Facility: Domestic wastewater treatment facility	
Facility Type: Domestic	**Permitted Capacity (MGD):** 1.3 MGD annual average daily flow
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): **.292 mgd (average of monthly averages 9/1/10 – 8/31/10)**	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): **n/a**	
Description of type of Discharge: ☒ **Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

Effluent:
EFA-01 Post -disinfection: Sample site
EFD-01 Grab and composite samples of effluent to Mosquito Creek to the Apalachicola River
FLW-01 Flow to D-001

Ambient Monitoring Stations:
SWA – 01 100 yards downstream of the confluence of the drainage ditch serving Florida State Hospital ((FSH) and North Mosquito Creek.
SWB-02 Background Ambient Monitoring in North Mosquito Creek – U.S. Highway 90 at Bridge

Description of Permitted Outfall(s):

Discharge is to North Mosquito Creek by way of an onsite drainage ditch (D-001) which is concrete lined above U.S. Highway 90. North Mosquito Creek is a tributary of Mosquito Creek which then discharges to the Apalachicola River. Discharge Location (D-001) discharges at a depth of approximately 0.0 feet. The point of discharge is located approximately at latitude 30 o 42' 05" N, longitude 84 o 49' 59" W.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

An existing 1.3 MGD annual average daily flow permitted capacity activated sludge wastewater treatment facility. The wastewater treatment plant consists of pretreatment (bar screen & grit chamber), primary clarifiers, nitrification, secondary clarification, chlorination, dechlorination, anaerobic digestion, aerobic digestion and residual drying beds.

PART I: Continued

List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent to North Mosquito Creek by way of an onsite drainage ditch (D-001) which is concrete lined above U.S. Highway 90. North Mosquito Creek is a tributary of Mosquito Creek which then discharges to the Apalachicola River. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow, in conduit or thru treatment plant	MGD	Maximum	1.3	-	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	20.0	25.0	30.0	40.0	Weekly	16-hour flow proportioned composite	EFD-01	
Solids, Total Suspended	MG/L	Maximum	20.0	25.0	30.0	40.0	Weekly	16-hour flow proportioned composite	EFD-01	
pH	SU	Range	-	-	-	6.0 to 8.5	Continuous	Grab	EFD-01	See Cond.I.A.3
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				Weekly	Grab	EFD-01	
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Daily	Grab	EFD-01	
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	0.5	Continuous	Grab	EFA-01	See Cond.I.A.3, 6
Nitrogen, Total	MG/L	Maximum	12.5	16.0	18.75	25.0	Weekly	16-hour flow proportioned composite	EFD-01	
Ammonia, Total as N	MG/L	Maximum	2.0	2.5	3.0	4.0	Weekly	Grab	EFD-01	
Ammonia, Unionized as N	MG/L	Maximum	-	-	-	0.02	Weekly	Calculated	EFD-01	
Phosphorus, Total (as P)	MG/L	Maximum	8.0	10.0	12.0	16.0	Weekly	16-hour flow proportioned composite	EFD-01	
Whole Effluent Toxicity (Chronic)	See Permit Condition I.A.9								EFD-01	
Temperature, Water	DEG C	Maximum	-	-	-	Report	Weekly	Grab	EFD-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	5.0	Daily	Grab	EFD-01	
Total Recoverable Silver	ug/l as Ag	Maximum	-	-	-	Report	Monthly	16-hour flow proportioned composite	EFD-01	See Permit Condition I.A.8
Total Recoverable Copper	ug/l as Cu	Maximum	-	-	-	Report	Monthly	16-hour flow proportioned composite	EFD-01	See Permit Condition I.A.7
Hardness (as $CaCO_3$)	See Permit Condition I.A.7						Monthly	16-hour flow proportioned composite	EFD-01	

I.A.

5. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected (the 90th percentile value) during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. Note: To report the 90th percentile value, list the fecal coliform values obtained during the month in ascending order. Report the value of the sample that corresponds to the 90th percentile (multiply the number of samples by 0.9). For example, for 30 samples, report the corresponding fecal coliform number for the 27th value of ascending order. *[62-600.440(4)(c)]*

7. The limit for copper shall be calculated using the following equation: e(0.8545[lnH]-1.702). Total hardness shall be measured at the time of the effluent sample. The "ln H" means the natural logarithm of total hardness expressed as mg/L of CaCO3. For metals criteria involving equations with hardness, the hardness shall be set at 25 mg/L if actual hardness is <25 mg/L and set at 400 mg/L if actual hardness is >400 mg/L. The measured effluent value shall be recorded on the DMR in the parameter row for copper (effluent)." The calculated effluent limit shall be recorded on the DMR in the parameter row for copper (calculated limit)." Compliance with the effluent limitation is determined by calculating the difference between the measured effluent value and the calculated. The compliance value shall be recorded on the DMR in the parameter row for copper (effluent minus calculated limit)." Normally, if the compliance value is greater than 0.00, the permittee will be considered in violation of the limitation. However, for this permitting cycle or until this permit is revised, the limit for copper shall be "Report Only". *[62-302.530(24)]*

8. The maximum limitation for total recoverable silver (Ag) is 0.07 ug/L. However, for this permitting cycle or until this permit is revised, the limit for silver shall be "Report Only". *[62-302.530(60)]*

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Apalachicola River	Class III Fresh

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

c. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and one test concentration of **100%** final effluent.

(3) The permittee shall conduct 7-day chronic toxicity tests using the daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and the fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.

(4) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th ed., EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

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

d. Sampling Requirements

(1) For each routine or additional follow-up test conducted, a total of three 24-hour composite samples of final effluent shall be collected and used per the sampling protocol discussed in EPA-821-R-02-013, Section 8.
(2) The first composite sample shall be used to initiate the test. The remaining two composite samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or started no more than 30 days before the date of each routine or additional follow-up test conducted. The SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptablity criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (C. dubia) and Section 11.12 (P. promelas).
(3) If, during any test, 100% mortality occurs in the 100% effluent concentration prior to the end of the test and control mortality is less than 20% at that time, that test (including the control) shall be terminated with the conclusion that the test fails and constitutes non-compliance.

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

N/A

Facility Mixing Zone Details (if applicable):

N/A

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

Date	Parameter and Units	Limit	Result
None			

Describe previous FYI and WQBEL study:

The established WQBEL effluent limitations are 1.3 MGD flow, 20.0 mg/L 5-day biochemical oxygen demand, 20.0 mg/L total suspended solids, 12.5 mg/L total nitrogen, 8.0 mg/L total phosphorus, 5.0 mg/L dissolved oxygen. The limitations are based on a Level I Water Quality Based Effluent Limitation (WQBEL) Study approved with wastewater permit FL0031402-003-DW1P/NR (issued April 17, 2001). The WQBEL Study was conducted pursuant to Rules 62-600.430 and 62-650, Florida Administrative Code (F.A.C.), to establish the final effluent limits during the last permitting period. The WQBEL was continued in this permit.

Describe previous or current Enforcement Actions (including WLs):

None

Describe any violations or problems noted in previous inspection:

None

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

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

PART II: Sampling Event Information

Date(s) sample collected: 11/1/10	**Sampler(s):** Nathan Mulkey, Rick Abad
Temperature (Deg C): 22.29	**pH (SU):** 7.47
Dissolved Oxygen (mg/L): 8.56	**Conductivity (umhos/cm):** 260
Total Residual Chlorine (mg/L):	**Total Residual Chlorine - after Disinfection (mg/L):**
Method of Chlorination:	**Method of De-chlorination:**
Flow During Sample Collection for each outfall(MGD): 229,800 gallons for entire day (0.2298)	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix C

Explanation of Measurements

(1) Quality Assurance and Quality Control

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

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

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

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedence of 62-302.530(6) and/or a violation of facility permit limits.

(5) Habitat Assessment

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

(6) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a “problem” threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

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

Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedence of 62-302.530(61) F.A.C.

(7) Algal Phytoplankton and Periphyton Assemblages

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

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

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

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

Community Composition: Shifts in relative proportions of major groups of algae downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Stevenson and Bahls 1999) and may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C.

(8) Benthic Macroinvertebrate Assemblages

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

Taxa richness: Taxa richness is the number of distinct macroinvertebrate taxa present in a sample. Stress, habitat destruction and pollution tend to reduce the number of different types of organisms present (Karr and Chu 1998). Decreases in taxa richness related to a facility's effluent may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

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

Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Fore et. al. 2007, Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders and shredders (Fore et. al. 2007). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C., 62-302.530(47)(b) F.A.C. and/or 62-302.530(61) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as

compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitute exceedences of 62-302.530(10) F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida (Fore et. al. 2007). This Index was revised in 2007 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned according to in which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists -and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa, number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. As human disturbance increases, it is expected that taxa richness, the number of Ephemeroptera taxa, Trichoptera taxa, sensitive taxa, clinger taxa, long-lived taxa, and the percent contribution of Tanytarsini and suspension and filter feeders will decrease while percent contribution of dominant taxon, and percent contribution of very tolerant taxa will increase.

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

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

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

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By: N. Milky

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

Collected By: Nathan Milky / Rick Alred
Send Final Report To: Toni Edwards

Sampling Agency: FDEP

Lab ID *	Location						Bottle Group(s)**
	Florida State Hospital WWTF	☐ Comp ☑ Grab	Collection (begin) Date 11/1/10 Time 1210 (Eastern) Central	Collection (end) Date Time (Eastern) Central			
	Field ID: Effluent	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (include type e.g. Salt, (Fresh) etc)	Temp (C)	pH	Sample Depth ☑ m 0.15 ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: From D-001				

Lab ID *	Location						Bottle Group(s)**
	Florida State Hospital WWTF	☐ Comp ☑ Grab	Collection (begin) Date 11/1/10 Time 1225 (Eastern) Central	Collection (end) Date Time (Eastern) Central			
	Field ID: Blank	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments				

Lab ID *	Location						Bottle Group(s)**
	Florida State Hospital WWTF	☑ Comp ☐ Grab	Collection (begin) Date 10/31/10 Time 0830 (Eastern) Central	Collection (end) Date 11/1/10 Time 0830 (Eastern) Central			
	Field ID: TOX 1	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (include type e.g. Salt, (Fresh) etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments				

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

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
[signature]	11/1/10 1415	HAND					[signature]	11-1-10 2:26

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Received 1 Broadway Troy 11-1-10 1423 MF

Page 1 of 4

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Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Event ID *

Requester: Cari Butler
Field Report Prepared By: J. Weger

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

Collected By: T. Risk, J. Weger, H. Walters, P. Flores
Send Final Report To: Toni Edwards
Sampling Agency: FDEP - BioLab

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Florida State Hospital	☐ Comp ☒ Grab Date 11/01/10 Time 10:30 ☐ Eastern ☒ Central	Date Time ☐ Eastern ☒ Central	B, C
	Field ID: Test Site	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 7.42	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 18.1	pH: 6.88	Sample Depth: ☒ m ☐ ft 0.2
				Salinity (PPTh): ☐ Sp Conductance (umho/cm): ☒ 72.5
				NPDES Number:
	Latitude: 84.82370 ☒ dd ☐ dms	Longitude: 30.69686 ☒ dd ☐ dms		Comments: PERIPHYTON, WATER, SCI

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Florida State Hospital	☐ Comp ☒ Grab Date 11/01/10 Time 11:10 ☐ Eastern ☒ Central	Date Time ☐ Eastern ☒ Central	B, C
	Field ID: Control Site	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 7.00	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 18.2	pH: 6.37	Sample Depth: ☒ m ☐ ft 0.2
				Salinity (PPTh): ☐ Sp Conductance (umho/cm): ☒ 74.1
				NPDES Number:
	Latitude: 30.69732 ☒ dd ☐ dms	Longitude: 84.82727 ☒ dd ☐ dms		Comments: PERIPHYTON, WATER, SCI

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab Date 11/01/10 Time 11:40 ☐ Eastern ☒ Central	Date Time ☐ Eastern ☒ Central	E
	Field ID: Control Site 1A	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C):	pH:	Sample Depth: ☐ m ☐ ft
				Salinity (PPTh): ☐ Sp Conductance (umho/cm):
				NPDES Number:
	Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms		Comments:

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab Date 11/01/10 Time 11:40 ☐ Eastern ☒ Central	Date Time ☐ Eastern ☒ Central	E
	Field ID: Control Site 2A	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C):	pH:	Sample Depth: ☐ m ☐ ft
				Salinity (PPTh): ☐ Sp Conductance (umho/cm):
				NPDES Number:
	Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms		Comments:

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
J. Weger	11/01/10 3:45	hand delivery	APS	11/1/10 15:45				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 micros 11/1/10 gs 1608

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By:
Send Final Report To: Toni Edwards

Sampling Agency:

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10	Date Time	
	Field ID: Control Site 3A	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10	Date Time	
	Field ID: Control Site 4A	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10	Date Time	
	Field ID: Control Site 1B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10	Date Time	
	Field ID: Control Site 2B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

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			AB	11-1-10 1545				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By:
Send Final Report To: Toni Edwards

Sampling Agency:

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10 Eastern Central	Date Time Eastern Central	
	Field ID: Control Site 3B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 11:10 Eastern Central	Date Time Eastern Central	
	Field ID: Control Site 4B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 10:30 Eastern Central	Date Time Eastern Central	
	Field ID: Test Site 1A	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time / Eastern Central	Collection (end) Date / Time / Eastern Central	Bottle Group(s)**
	Florida State Hospital HD	☐ Comp ☒ Grab	Date 11/01/10 Time 10:30 Eastern Central	Date Time Eastern Central	
	Field ID: Test Site 2A	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			ABJ	11-1-10 15:45				

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** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By:
Send Final Report To: Toni Edwards

Sampling Agency:

Lab ID *	Location			Collection (begin)		Collection (end)		Bottle Group(s)**
	Florida State Hospital HD			☐ Comp ☒ Grab	Eastern Central Date 11/01/10 Time 10:30	Eastern Central Date	Time	
	Field ID: Test Site 3A			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments				

Lab ID *	Location			Collection (begin)		Collection (end)		Bottle Group(s)**
	Florida State Hospital HD			☐ Comp ☒ Grab	Eastern Central Date 11/01/10 Time 10:30	Eastern Central Date	Time	
	Field ID: Test Site 4A			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments				

Lab ID *	Location			Collection (begin)		Collection (end)		Bottle Group(s)**
	Florida State Hospital HD			☒ Comp ☒ Grab	Eastern Central Date 11/01/10 Time 10:30	Eastern Central Date	Time	
	Field ID: Test Site 1B			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments				

Lab ID *	Location			Collection (begin)		Collection (end)		Bottle Group(s)**
	Florida State Hospital HD			☒ Comp ☒ Grab	Eastern Central Date 11/01/10 Time 10:30	Eastern Central Date	Time	
	Field ID: Test Site 2B			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments				

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			AB	11-1-10 15-45				

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** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By:
Send Final Report To: Toni Edwards

Sampling Agency:

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

Lab ID *	Location: Florida State Hospital HD	Comp / Grab: ☒ Grab	Collection (begin) Eastern Central: Date 11/9/10 Time 10:30	Collection (end) Eastern Central: Date / Time	Bottle Group(s)**
	Field ID: Test Site 3B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) / Temp (C) / pH	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	
	Latitude dd / dms	Longitude dd / dms	Comments		

Lab ID *	Location: Florida State Hospital HD	Comp / Grab: ☒ Grab	Collection (begin) Eastern Central: Date 11/9/10 Time 10:30	Collection (end) Eastern Central: Date / Time	Bottle Group(s)**
	Field ID: Test Site 4B	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) / Temp (C) / pH	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	
	Latitude dd / dms	Longitude dd / dms	Comments		

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

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

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				11-4-10 15:45				

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last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By: Caroline Horton, James McRay
Send Final Report To: Toni Edwards
Sampling Agency: FDEP

Lab ID *	Location			☑ Comp ☐ Grab	Collection (begin) Date 11/2/10 Time 0830	Eastern Central	Collection (end) Date 11/3/10 Time 0830	Eastern Central	Bottle Group(s)**
	Field ID TOX 2			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

Lab ID *	Location			☐ Comp ☐ Grab	Collection (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 ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

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

Lab ID *	Location			☐ Comp ☐ Grab	Collection (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 ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments					

Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time	Eastern Central	Collection (end) Date Time	Eastern Central	Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Comments 2 Biomassay Rec'd in Tox by JD 11,3,10 11:05					

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** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2010-11-01-20
FYI for Florida State Hospital

Requester: Cari Butler
Field Report Prepared By:

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

Collected By: Caroline Horton, James McRoy
Sampling Agency: FDEP
Send Final Report To: Toni Edwards

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Florida State Hospital WWTF	☑ Comp ☐ Grab	Date 11/4/10 Time 8:30	Date 11/5/10 Time 8:30	
	Field ID: TOX 3	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft; ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

Lab ID *	Location	Comp / Grab	Collection (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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

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

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

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
		☐ 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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments: 3 bimassay Rec'd in Tox by JD. 11.5.10 13:39		

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	11/5/10 1:33pm	HAND		11/5/10 1335				

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** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix E
Physical/Chemical and Habitat Assessment field sheets

DEP-SOP-001/01: Form FD 9000-5
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): 11/1/10	RECEIVING BODY OF WATER:
REMARKS:	COUNTY:	LOCATION: FL State Hospital Control	FIELD ID/NAME:

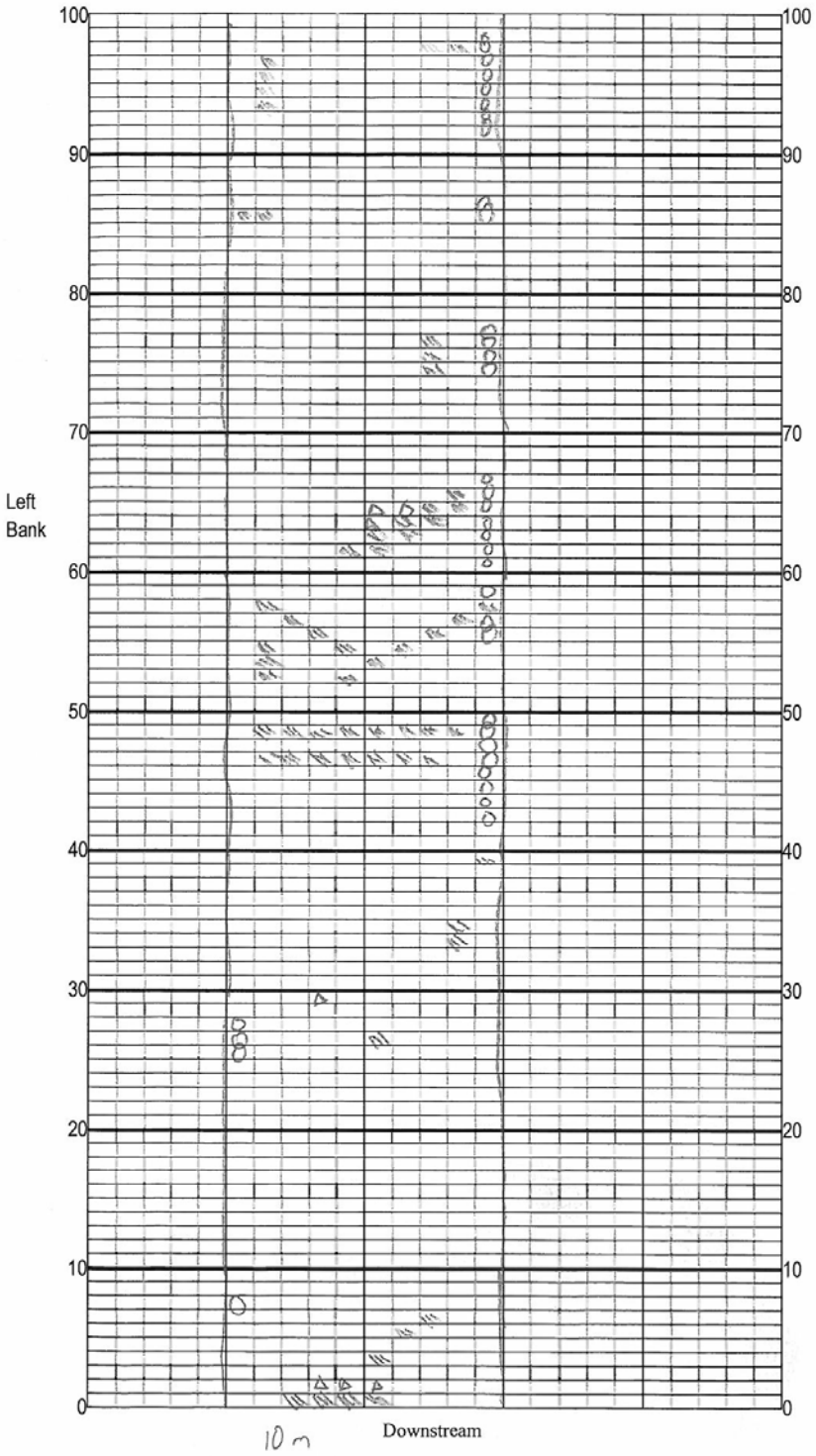
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 14	Four or more productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates 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 8	Greater than 30% productive habitat present at site 20 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 9 (8) 7 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 14	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 15 (14) 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 14 Primary Score 50	Adequate number of pools (1-2 per 12 times width) and <25% of habitats affected by sand or silt accumulation. 20 19 18 17 16	Adequate number of pools (1-2 per 12 times width) and >25% of habitats affected by sand or silt accumulation. 15 (14) 13 12 11	Does not have required number of pools (1-2 per 12 times width) and/or has shallow pools (<2 times prevailing depth). 10 9 8 7 6	Pools are absent. Most habitats affected by sand or silt accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	Good sinuosity. No evidence of dredging or artificial straight-ening. No spoil banks. Diversity of depths. (20) 19 18 17 16	Good sinuosity within old chan-nelized area and a diversity of depths. Evidence of dredging in the past (>10 yrs) but mostly recovered. 15 14 13 12 11	Some sinuosity developed within channelized area or some diversity of depth, but typically no pools (>2 times prevailing depth) present. 10 9 8 7 6	Straightened with spoil banks. Box-cut, monotypic depth. 5 4 3 2 1
Bank Stability Right Bank 7 Left Bank 6	Bankfull > 60% of bank height. Slope of bank ≤ 60°. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 (7) (6)	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 73	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants, trees, understory shrubs, or non-woody macrophytes). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

123 **TOTAL SCORE**

Date: 11/1/10	Analyst: TODD RISK	Signature:

Form FD 9000-5 Revision Date: June 6, 2008

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



Substrates: Code key, draw proportionate habitat abundance.

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

Velocity:
Note where velocity measures were taken.

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

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

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

1000 / 10 (0)

CONTROL SITE

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

Revision Date: September 10, 2008

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID : _____ ORG ID : _____

COUNTY : Gadsden STORET # : _____

DATE : 11/01/10 TIME : 11:10

Latitude : Dec. deg. N 30.68733 (degrees) (minutes) (seconds)

Longitude : Dec. deg. W 84.89787 (degrees) (minutes) (seconds)

SITE NAME : Control Site SAMPLE COMPLETE ? _____

FIELD ID/NAME : _____ RECEIVING BODY OF WATER : _____

RIPARIAN ZONE / STREAM FEATURES

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

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

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

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

Width of Riparian Vegetation (m) on Each Buffer Side

Left Bank : >18 Right Bank : >18

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

Artificially Impounded ☐ Yes ☒ No

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

	Top	Bottom	
Width			8.5 Avg m wide
Depth			m deep
Velocity	0.3 m/s	0.33 m/s	m/s

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

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

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

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

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

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

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)		5	
Undercut Banks / Roots		5	
Leaf Packs or Mat		5	
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand (Bottom)		5	
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.2	18.2	6.37	7.00	74.1	—	☒ VOB
Mid-Depth :							
Bottom :							

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

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

Water Sample Taken ? ☒ Yes ☐ No

Algae Sample Taken ? ☒ Yes ☐ No

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

Clarity ☒ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

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

WEATHER CONDITIONS / NOTES : Cool, 70s, sunny

ABUNDANCE

	Absent	Rare	Common	Abundant
Periphyton : Very few	☐	☐	☒	☐
Fish : Pistia sp.	☐	☐	☒	☐
Aquatic Macrophytes :	☐	☒	☐	☐
Iron/Sulfur Bacteria :	☒	☐	☐	☐

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

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

SAMPLING TEAM : J. Weger, H. Walters, P. Flores, Todd Rick

SIGNATURE : _____ DATE : 11/01/10

Revision Date: September 5, 2008

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

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): 11/1/10	RECEIVING BODY OF WATER:
REMARKS:	COUNTY:	LOCATION: FL State Hospital Test Site	FIELD ID/NAME:

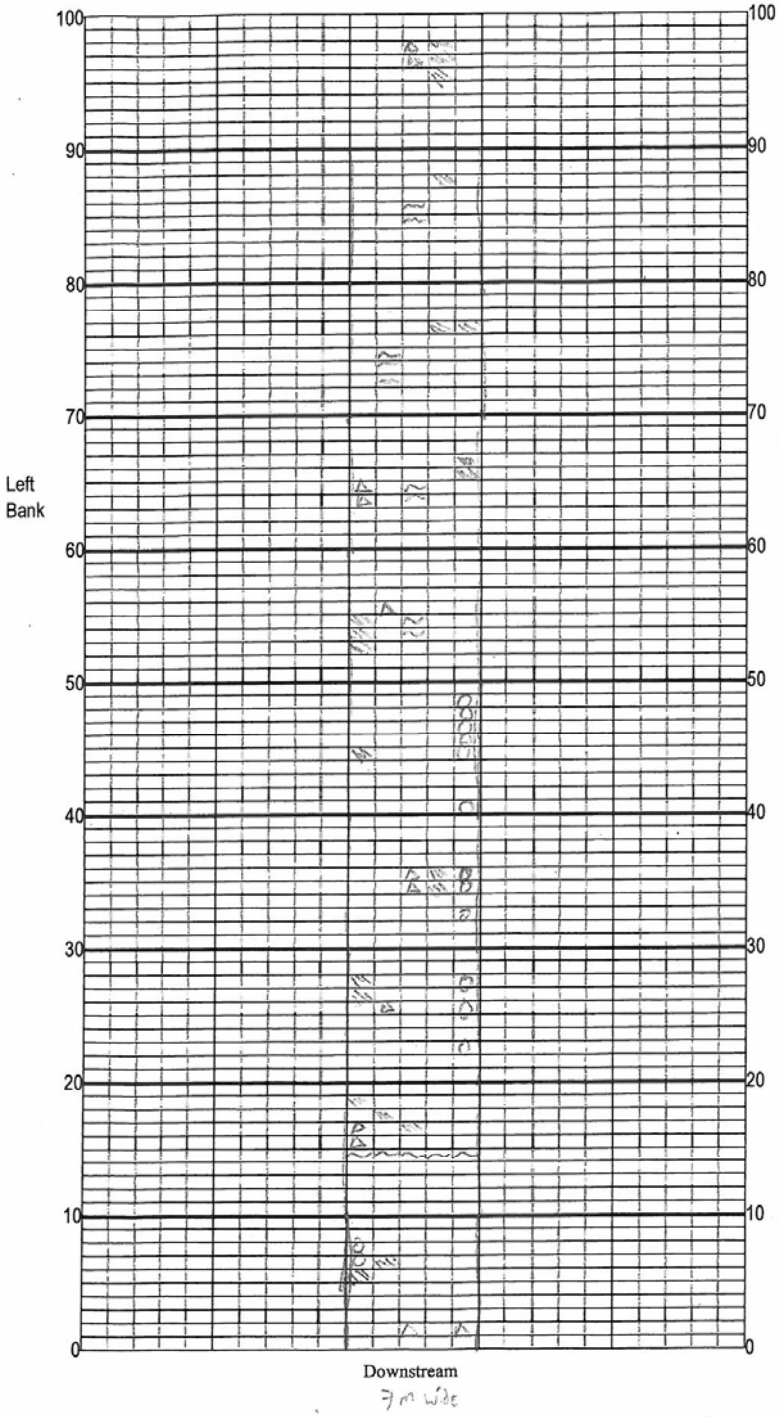
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 19	Four or more productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 (19) 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 7	Greater than 30% productive habitat present at site 20 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 9 8 (7) 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 16	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 (18) 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 17 Primary Score 41	Adequate number of pools (1-2 per 12 times width) and <25% of habitats affected by sand or silt accumulation. 20 19 18 (17) 16	Adequate number of pools (1-2 per 12 times width) and >25% of habitats affected by sand or silt accumulation. 15 14 13 12 11	Does not have required number of pools (1-2 per 12 times width) and/or has shallow pools (<2 times prevailing depth). 10 9 8 7 6	Pools are absent. Most habitats affected by sand or silt accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	Good sinuosity. No evidence of dredging or artificial straight-ening. No spoil banks. Diversity of depths. (20) 19 18 17 16	Good sinuosity within old chan-nelized area and a diversity of depths. Evidence of dredging in the past (>10 yrs) but mostly recovered. 15 14 13 12 11	Some sinuosity developed within channelized area or some diversity of depth, but typically no pools (>2 times prevailing depth) present. 10 9 8 7 6	Straightened with spoil banks. Box-cut, monotypic depth. 5 4 3 2 1
Bank Stability Right Bank 7 Left Bank 7	Bankfull > 60% of bank height. Slope of bank ≤ 60°. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 (7) 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 20	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants, trees, understory shrubs, or non-woody macrophytes). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

135 **TOTAL SCORE**

Date: 11/1/10	Analyst: TODD [illegible]	Signature: TODD Risk

Form FD 9000-5 Revision Date: June 6, 2008

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



Substrates: Code key, draw proportionate habitat abundance.

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

Velocity:
Note where velocity measures were taken.

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

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

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

700 / 6100
5800
$5000

TEST SITE

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

Revision Date: September 10, 2008

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID : _____ ORG ID : _____

COUNTY : _____ STORET # : _____

DATE : 11/1/10 TIME : 10:30

Latitude : @ 84.92570 (degrees) (minutes) [ ] (seconds)

Longitude : @ 30.69486 (degrees) (minutes) [ ] (seconds)

SITE NAME : Florida State Hospital **SAMPLE COMPLETE ?** _____

FIELD ID/NAME : Test Site RECEIVING BODY OF WATER : _____

RIPARIAN ZONE / STREAM FEATURES

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

Forest/Natural	silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
100							

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

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

Width of Riparian Vegetation (m) on Each Buffer Side

Left Bank : [ ] Right Bank : [ ]

High Water Mark: [ ] + [ ] = [ ]
(m) (above present water level) (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

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

[ ] m wide

[ ] m/s [ ] m/s [ ] m/s

[ ] m deep [ ] m deep [ ] m deep

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

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

SEDIMENT / SUBSTRATE

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse

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

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

SUBSTRATE TYPE

Assessment Tool: ☑ SCI ☐ BioRecon ☐ LCI ☐ LVI

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

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.2	18.1	6.98	7.48	78.5		
Mid-Depth :							☐ VOB
Bottom :							

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

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

Water Sample Taken ? ☑ Yes ☐ No

Algae Sample Taken ? ☑ Yes ☐ No

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

Clarity ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

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

WEATHER CONDITIONS / NOTES :

ABUNDANCE

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

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

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

SAMPLING TEAM : SIGNATURE : DATE :

Revision Date: September 5, 2008

10:30

Appendix F

Chemical analysis of effluent and receiving water

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
11/1/2010 12:25	Blank	Metals	Aluminum	60	U	ug/L	60	240
11/1/2010 12:25	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
11/1/2010 12:25	Blank	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
11/1/2010 12:25	Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
11/1/2010 12:25	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/1/2010 12:25	Blank	Metals	Copper	0.5	U	ug/L	0.5	1
11/1/2010 12:25	Blank	Metals	Iron	30	U	ug/L	30	120
11/1/2010 12:25	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
11/1/2010 12:25	Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
11/1/2010 12:25	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
11/1/2010 12:25	Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/1/2010 12:25	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/1/2010 12:25	Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
11/1/2010 12:25	Blank	Metals	Zinc	5	U	ug/L	5	20
11/1/2010 12:25	Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
11/1/2010 12:25	Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
11/1/2010 12:25	Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
11/1/2010 12:25	Blank	Nutrients	Color (true)	5	U	PCU	5	5
11/1/2010 12:25	Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
11/1/2010 12:25	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
11/1/2010 12:25	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
11/1/2010 12:25	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
11/1/2010 12:25	Blank	Nutrients	Organic Carbon	1	U	mg C/L	1	5
11/1/2010 12:25	Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
11/1/2010 12:25	Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
11/1/2010 12:25	Blank	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
11/1/2010 12:25	Blank	Pesticides	Alachlor	0.72	U	ug/L	0.72	2.9
11/1/2010 12:25	Blank	Pesticides	Aldrin	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Alpha-BHC	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Ametryn	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Atrazine	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Azinphos Methyl	0.24	UJ	ug/L	0.24	0.96

11/1/2010 12:25	Blank	Pesticides	Beta-BHC	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Bromacil	0.24	U	ug/L	0.24	0.96
11/1/2010 12:25	Blank	Pesticides	Butylate	0.24	U	ug/L	0.24	0.96
11/1/2010 12:25	Blank	Pesticides	Chlordane	0.24	U	ug/L	0.24	0.96
11/1/2010 12:25	Blank	Pesticides	Chlorpyrifos Ethyl	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Chlorpyrifos Methyl	0.12	U	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	DDD-p,p'	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	DDE-p,p'	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	DDT-p,p'	0.036	U	ug/L	0.036	0.14
11/1/2010 12:25	Blank	Pesticides	Delta-BHC	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Diazinon	0.06	UJ	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Dieldrin	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Endosulfan I	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Endosulfan II	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Endosulfan Sulfate	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Endrin	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Endrin Aldehyde	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Ethion	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Ethoprop	0.12	U	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	Fenamiphos	0.24	UJ	ug/L	0.24	0.96
11/1/2010 12:25	Blank	Pesticides	Fonofos	0.12	U	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	Gamma-BHC	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Heptachlor	0.012	U	ug/L	0.012	0.048
11/1/2010 12:25	Blank	Pesticides	Heptachlor Epoxide	0.024	U	ug/L	0.024	0.096
11/1/2010 12:25	Blank	Pesticides	Hexazinone	0.12	UJ	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	Malathion	0.18	U	ug/L	0.18	0.72
11/1/2010 12:25	Blank	Pesticides	Metalaxyl	0.3	UJ	ug/L	0.3	1.2
11/1/2010 12:25	Blank	Pesticides	Methoxychlor	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Metolachlor	0.6	U	ug/L	0.6	2.4
11/1/2010 12:25	Blank	Pesticides	Metribuzin	0.12	U	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	Mevinphos	0.24	U	ug/L	0.24	0.96
11/1/2010 12:25	Blank	Pesticides	Naled	0.96	UJ	ug/L	0.96	3.8
11/1/2010 12:25	Blank	Pesticides	Norflurazon	0.18	UJ	ug/L	0.18	0.72
11/1/2010 12:25	Blank	Pesticides	Parathion Ethyl	0.18	U	ug/L	0.18	0.72
11/1/2010 12:25	Blank	Pesticides	Parathion Methyl	0.12	U	ug/L	0.12	0.48
11/1/2010 12:25	Blank	Pesticides	Phorate	0.06	U	ug/L	0.06	0.24

11/1/2010 12:25	Blank	Pesticides	Prometryn	0.18	U	ug/L	0.18	0.72
11/1/2010 12:25	Blank	Pesticides	Simazine	0.06	U	ug/L	0.06	0.24
11/1/2010 12:25	Blank	Pesticides	Toxaphene	0.9	U	ug/L	0.9	3.6
11/1/2010 12:25	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	11	U	ug/L	11	43
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	64
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2-Chloronaphthalene	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2-Chlorophenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	2-Nitrophenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	43	U	ug/L	43	170
11/1/2010 12:25	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.5
11/1/2010 12:25	Blank	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L	16	64
11/1/2010 12:25	Blank	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzidine	110	U	ug/L	110	430
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L	16	64
11/1/2010 12:25	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	5.3	U	ug/L	5.3	21
11/1/2010 12:25	Blank	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Diethyl phthalate	1.1	U	ug/L	1.1	4.3

11/1/2010 12:25	Blank	Priority Organic Pollutants	Dimethyl phthalate	11	U	ug/L	11	43
11/1/2010 12:25	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	5.3	U	ug/L	5.3	21
11/1/2010 12:25	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Hexachlorobenzene	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Hexachloroethane	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Isophorone	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.5
11/1/2010 12:25	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.5
11/1/2010 12:25	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.5
11/1/2010 12:25	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Pentachlorophenol	3.2	U	ug/L	3.2	13
11/1/2010 12:25	Blank	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.85
11/1/2010 12:25	Blank	Priority Organic Pollutants	Phenol	1.1	U	ug/L	1.1	4.3
11/1/2010 12:25	Blank	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.85
11/1/2010 11:10	Control Site	AGP/LN	Algal Growth Potential	5.26		mg DryWt/L	0.3	0.9
11/1/2010 11:10	Control Site	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.92	IJ	mg/L	0.2	2
11/1/2010 11:10	Control Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.8		ug/L	0.55	1.7
11/1/2010 11:10	Control Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.9	A	ug/L	0.4	1.2
11/1/2010 11:10	Control Site	Field Parameter	Dissolved Oxygen	7		mg/L		
11/1/2010 11:10	Control Site	Field Parameter	pH	6.37				
11/1/2010 11:10	Control Site	Field Parameter	Sample Depth	0.2		m		
11/1/2010 11:10	Control Site	Field Parameter	Specific Conductance	74.1		umhos/cm		
11/1/2010 11:10	Control Site	Field Parameter	Temperature	18.2		C		
11/1/2010 11:10	Control Site	Metals	Aluminum	420		ug/L	60	240
11/1/2010 11:10	Control Site	Metals	Arsenic	0.27	I	ug/L	0.25	1
11/1/2010 11:10	Control Site	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
11/1/2010 11:10	Control Site	Metals	Calcium	4.39		mg/L	0.075	0.3
11/1/2010 11:10	Control Site	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/1/2010 11:10	Control Site	Metals	Copper	1.17		ug/L	0.5	1
11/1/2010 11:10	Control Site	Metals	Iron	420		ug/L	30	120

11/1/2010 11:10	Control Site	Metals	Lead	0.3	I	ug/L	0.2	0.8
11/1/2010 11:10	Control Site	Metals	Magnesium	3.04		mg/L	0.04	0.16
11/1/2010 11:10	Control Site	Metals	Nickel	0.25	U	ug/L	0.25	1
11/1/2010 11:10	Control Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/1/2010 11:10	Control Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/1/2010 11:10	Control Site	Metals	Sodium	3		mg/L	0.5	2
11/1/2010 11:10	Control Site	Metals	Zinc	5	U	ug/L	5	20
11/1/2010 11:10	Control Site	Microbiology	Fecal Coliforms-Membrane Filter	62		cfu/100 mL	2	2
11/1/2010 11:10	Control Site	Nutrients	Alkalinity	14		mg CaCO3/L	0.65	2.5
11/1/2010 11:10	Control Site	Nutrients	Ammonia-N	0.049		mg N/L	0.01	0.02
11/1/2010 11:10	Control Site	Nutrients	Chloride	6.7		mg Cl/L	0.2	0.5
11/1/2010 11:10	Control Site	Nutrients	Color (true)	50	A	PCU	5	5
11/1/2010 11:10	Control Site	Nutrients	Fluoride	0.059	I	mg F/L	0.035	0.1
11/1/2010 11:10	Control Site	Nutrients	Kjeldahl Nitrogen	0.39		mg N/L	0.08	0.2
11/1/2010 11:10	Control Site	Nutrients	NO2NO3-N	1.1		mg N/L	0.008	0.02
11/1/2010 11:10	Control Site	Nutrients	O-Phosphate-P	0.011	I	mg P/L	0.008	0.02
11/1/2010 11:10	Control Site	Nutrients	Organic Carbon	5		mg C/L	1	5
11/1/2010 11:10	Control Site	Nutrients	Sulfate	1		mg SO4/L	0.2	0.5
11/1/2010 11:10	Control Site	Nutrients	Total-P	0.035		mg P/L	0.004	0.01
11/1/2010 11:10	Control Site	Nutrients	TSS	5	I	mg/L	4	16
11/1/2010 11:10	Control Site	Nutrients	Turbidity	6.5		NTU	0.1	0.1
11/1/2010 12:10	Effluent	AGP/LN	Algal Growth Potential	103	A	mg DryWt/L	0.3	0.9
11/1/2010 12:10	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.74	IJ	mg/L	0.2	2
11/1/2010 12:10	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
11/1/2010 12:10	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
11/1/2010 12:10	Effluent	Field Parameter	Sample Depth	0.15		m		
11/1/2010 12:10	Effluent	Metals	Aluminum	60	U	ug/L	60	240
11/1/2010 12:10	Effluent	Metals	Arsenic	0.61	I	ug/L	0.25	1
11/1/2010 12:10	Effluent	Metals	Cadmium	0.031	I	ug/L	0.03	0.12
11/1/2010 12:10	Effluent	Metals	Calcium	39.8		mg/L	0.075	0.3
11/1/2010 12:10	Effluent	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/1/2010 12:10	Effluent	Metals	Copper	9.07		ug/L	0.5	1
11/1/2010 12:10	Effluent	Metals	Iron	72	I	ug/L	30	120
11/1/2010 12:10	Effluent	Metals	Lead	0.4	I	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Metals	Magnesium	8.9		mg/L	0.04	0.16
11/1/2010 12:10	Effluent	Metals	Nickel	0.75	I	ug/L	0.25	1

11/1/2010 12:10	Effluent	Metals	Selenium	0.39	I	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/1/2010 12:10	Effluent	Metals	Sodium	25.1		mg/L	0.5	2
11/1/2010 12:10	Effluent	Metals	Zinc	21		ug/L	5	20
11/1/2010 12:10	Effluent	Microbiology	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL	2	2
11/1/2010 12:10	Effluent	Nutrients	Alkalinity	109		mg CaCO3/L	0.65	2.5
11/1/2010 12:10	Effluent	Nutrients	Ammonia-N	0.025		mg N/L	0.01	0.02
11/1/2010 12:10	Effluent	Nutrients	Chloride	38		mg Cl/L	0.2	0.5
11/1/2010 12:10	Effluent	Nutrients	Color (true)	10		PCU	5	5
11/1/2010 12:10	Effluent	Nutrients	Fluoride	0.12		mg F/L	0.035	0.1
11/1/2010 12:10	Effluent	Nutrients	Kjeldahl Nitrogen	0.71		mg N/L	0.08	0.2
11/1/2010 12:10	Effluent	Nutrients	NO2NO3-N	5		mg N/L	0.04	0.1
11/1/2010 12:10	Effluent	Nutrients	O-Phosphate-P	2.5		mg P/L	0.04	0.1
11/1/2010 12:10	Effluent	Nutrients	Organic Carbon	2.9	I	mg C/L	1	5
11/1/2010 12:10	Effluent	Nutrients	Sulfate	19		mg SO4/L	0.2	0.5
11/1/2010 12:10	Effluent	Nutrients	Total-P	2.6		mg P/L	0.08	0.2
11/1/2010 12:10	Effluent	Nutrients	TSS	4	U	mg/L	4	16
11/1/2010 12:10	Effluent	Nutrients	Turbidity	1.4		NTU	0.1	0.1
11/1/2010 12:10	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
11/1/2010 12:10	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
11/1/2010 12:10	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Diazinon	0.05	UJ	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08

11/1/2010 12:10	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
11/1/2010 12:10	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
11/1/2010 12:10	Effluent	Pesticides	Hexazinone	0.1	UJ	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
11/1/2010 12:10	Effluent	Pesticides	Metalaxyl	0.25	UJ	ug/L	0.25	1
11/1/2010 12:10	Effluent	Pesticides	Methoxychlor	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
11/1/2010 12:10	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
11/1/2010 12:10	Effluent	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
11/1/2010 12:10	Effluent	Pesticides	Norflurazon	0.15	UJ	ug/L	0.15	0.6
11/1/2010 12:10	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
11/1/2010 12:10	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
11/1/2010 12:10	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
11/1/2010 12:10	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
11/1/2010 12:10	Effluent	Pesticides	Toxaphene	0.75	U	ug/L	0.75	3
11/1/2010 12:10	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	42
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	63
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.2

11/1/2010 12:10	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	42	U	ug/L	42	170
11/1/2010 12:10	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.3
11/1/2010 12:10	Effluent	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L	16	63
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	420
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L	16	63
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	5.2	U	ug/L	5.2	21
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	42
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	5.2	U	ug/L	5.2	21
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.83

11/1/2010 12:10	Effluent	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.3
11/1/2010 12:10	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.3
11/1/2010 12:10	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.3
11/1/2010 12:10	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Pentachlorophenol	3.1	U	ug/L	3.1	13
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.83
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.2
11/1/2010 12:10	Effluent	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.83
11/1/2010 8:30	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100		NOEC		
11/1/2010 8:30	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100		NOEC		
11/1/2010 10:30	Test Site	AGP/LN	Algal Growth Potential	9.54		mg DryWt/L	0.3	0.9
11/1/2010 10:30	Test Site	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.2	IJ	mg/L	0.2	2
11/1/2010 10:30	Test Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.6	I	ug/L	0.55	1.7
11/1/2010 10:30	Test Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.6		ug/L	0.4	1.2
11/1/2010 10:30	Test Site	Field Parameter	Dissolved Oxygen	7.42		mg/L		
11/1/2010 10:30	Test Site	Field Parameter	pH	6.22				
11/1/2010 10:30	Test Site	Field Parameter	Sample Depth	0.2		m		
11/1/2010 10:30	Test Site	Field Parameter	Specific Conductance	72.5		umhos/cm		
11/1/2010 10:30	Test Site	Field Parameter	Temperature	18.1		C		
11/1/2010 10:30	Test Site	Metals	Aluminum	460		ug/L	60	240
11/1/2010 10:30	Test Site	Metals	Arsenic	0.25	U	ug/L	0.25	1
11/1/2010 10:30	Test Site	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
11/1/2010 10:30	Test Site	Metals	Calcium	4.39		mg/L	0.075	0.3
11/1/2010 10:30	Test Site	Metals	Chromium	0.41	I	ug/L	0.3	1.2
11/1/2010 10:30	Test Site	Metals	Copper	1.14		ug/L	0.5	1
11/1/2010 10:30	Test Site	Metals	Iron	410		ug/L	30	120
11/1/2010 10:30	Test Site	Metals	Lead	0.34	I	ug/L	0.2	0.8
11/1/2010 10:30	Test Site	Metals	Magnesium	3.07		mg/L	0.04	0.16
11/1/2010 10:30	Test Site	Metals	Nickel	0.25	U	ug/L	0.25	1
11/1/2010 10:30	Test Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/1/2010 10:30	Test Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/1/2010 10:30	Test Site	Metals	Sodium	2.9		mg/L	0.5	2
11/1/2010 10:30	Test Site	Metals	Zinc	5	U	ug/L	5	20
11/1/2010 10:30	Test Site	Microbiology	Fecal Coliforms-Membrane Filter	58		cfu/100 mL	2	2
11/1/2010 10:30	Test Site	Nutrients	Alkalinity	14		mg CaCO3/L	0.65	2.5
11/1/2010 10:30	Test Site	Nutrients	Ammonia-N	0.048		mg N/L	0.01	0.02

11/1/2010 10:30	Test Site	Nutrients	Chloride	6.7		mg Cl/L	0.2	0.5
11/1/2010 10:30	Test Site	Nutrients	Color (true)	50		PCU	5	5
11/1/2010 10:30	Test Site	Nutrients	Fluoride	0.059	I	mg F/L	0.035	0.1
11/1/2010 10:30	Test Site	Nutrients	Kjeldahl Nitrogen	0.4		mg N/L	0.08	0.2
11/1/2010 10:30	Test Site	Nutrients	NO2NO3-N	1.1		mg N/L	0.008	0.02
11/1/2010 10:30	Test Site	Nutrients	O-Phosphate-P	0.021		mg P/L	0.008	0.02
11/1/2010 10:30	Test Site	Nutrients	Organic Carbon	4.9	I	mg C/L	1	5
11/1/2010 10:30	Test Site	Nutrients	Sulfate	1		mg SO4/L	0.2	0.5
11/1/2010 10:30	Test Site	Nutrients	Total-P	0.035		mg P/L	0.004	0.01
11/1/2010 10:30	Test Site	Nutrients	TSS	7	I	mg/L	4	16
11/1/2010 10:30	Test Site	Nutrients	Turbidity	6.4	A	NTU	0.1	0.1

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Florida State Hospital

LIMS Sample # 1309182 for lab sample 1

Start Date: 11/2/10 Time: 0930

End Date: 11/9/10 Time: 13:00

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	4	4	3	0	3	3	2	4	0	0	23	10	2.3
	5	6	7	6	4	4	0	8	06	4	8	54	10	5.4
	6	0	6	7	10	0	9	5	10	9	10	56	10	5.6
	7	9	0	0	9	8	9	0	7	7	0	49	10	4.9
	8													
	Total	19	17	16	23	15	21	15	18	20	18	182	10	18.2

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100% % sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	0	4	0	0	0	0	4	3	11	10	1.1
	5	10	7	9	0	9	31	7	7	6	0	49	10	4.9
	6	0	8	9	8	0	3	0	9	7	9	54	10	5.4
	7	12	0	0	9	11	10	8	0	9	11	70	10	7.0
	8													
	Total	22	15	18	21	20	14	15	16	20	23	184	10	18.4

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

Concentration	Mean neonates /adult	% survival
Control	18.2	100%
100%	18.4	100%

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

revised 7/15/2008 MF

Comments: (5) split brood

00 14

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

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Florida State Hospital SOP TA07_05

LIMS Sample #: 1309182 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 0 ←	simple:	Control	M	8.2	24.4	8.0	179					
	1	100%	M	8.4	24.3	7.5	416					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	simple:	Control	M	8.2	24.5	7.9	178	B M	8.2	24.2	7.9	207
	1	100%	M	8.1	25.5	8.3	418	B M	8.3	24.8	8.2	424
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 2	simple:	Control	M	7.8	24.6	6.9	177	M	7.9	25.2	6.9	183
	2	100%	M	8.1	24.9	7.3	412	M	8.0	24.6	6.3	429
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 3	simple:	Control	M	7.9	24.4	6.8	181	M	7.7	24.6	6.8	198
	2	100%	M	8.3	26.0	7.1	425	M	8.2	24.0	7.1	463
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 4	simple:	Control	M	8.1	25.8	8.1	185	A M N	8.1	24.5	7.8	195
	3	100%	M	8.2	25.8	8.3	434	A M N	8.2	24.3	8.1	475
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	simple:	Control	M	8.1	25.7	8.3	186	A M N	8.1	24.1	8.2	196
	3	100%	M	8.2	25.8	8.5	431	A M N	8.3	24.2	8.4	447
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	simple:	Control	M	7.9	24.0	7.3	173	M	7.9	24.0	5.8	181
	3	100%	M	8.2	24.1	7.4	400	M	8.0	24.0	6.6	449
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 7	simple:	Control	M					M	7.9	24.0	6.9	183
	3	100%	M	not renewed		MF	11/16/10	M	8.2	24.0	7.0	422
	Measured by:								BA	BA	BA	BA
	Recorded by:								BA	BA	BA	BA
Day 8	simple:	Control						M				
	3							M				
	Measured by:											
	Recorded by:											

Comments:

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

FDEP Biology Laboratory - Bioassay Instrument Identification

Test ID: Florida State Hospital Dates: 11-2-10 – 11-9-10

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

SM-2530B modified to allow use electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Comments: Entered by: BA 11-9-10

V 1.4 8/21/08 BA Pg 6 of 6

00 16

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: Florida State Hospital
Address: Blackberry Lane, Chattahoochee, FL 32324
County: Gadsden
NPDES Permit #: FL 0031402
Contact/District: Nathan Mulkey / Northwest

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

Start Date: 11.2.10 Time: 1320
End Date: 11.9.10 Time: 1045

Diluent/ Batch:
MHW / 10.26.10 Test Days Used: 0 - 7
MHW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____

Organism Batch #: 11.2.10
Organism age: <24 hrs -days (F)
Feeding Prior to Test and Daily
Artemia Lot #: 23613
Chamber size: 1000 ml
Test volume: 400 ml

Artemia Batch #			
Day 0	146.10	Day 4	150.10
Day 1	147.10	Day 5	151.10
Day 2	148.10	Day 6	152.10
Day 3	149.10		

LIMS:	Date	Initials
Entry:	11/16/10	MF
Verification:	11.17.10	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2010-11-01-09	1309182	11/1/10 0830	11/1/10 1423
Test Day 2	2	TLH-2010-11-03-52	1310009	11/3/10 0830	11/3/10 1102
Test Day 4	3	TLH-2010-11-05-55	1310823	11/5/10 0830	11/5/10 1330

Batch #	10.26.10		NA	NA	NA			
Water Quality Parameters	[X] MHW [ ] ASW	[ ] MHW [ ] ASW	Sample 1	Sample 2	Sample 3	Other:	Measured by:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	Not measured	Not measured	Not measured		[illegible]	[illegible]
Lab Total Residual Cl_2 (mg/L):	<0.03		0.04	<0.03	<0.03		MF/[illegible]	[illegible]
Alkalinity (mg/L as $CaCO_3$):	82		119	128	121		[illegible]	[illegible]
Hardness (mg/L as $CaCO_3$):	91		140	136	141		[illegible]	[illegible]
Total Ammonia (mg/L as N):	<0.017		<0.017	<0.017	<0.017		MF/[illegible]	[illegible]
Conductivity: umhos, mmhos:	339		430	417	443		DS/DP/TO	[illegible]
Salinity (ppth):	—		—	—	—		—	—

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: (if used)
Incubator # 2 min 25.1 max 26.0 mean 25.7 MF
Water bath # ___ min ___ max ___ mean ___
Room B246 min 22.7 max 25.1 mean 24.0 MF

Test Incubated in: [✓] Incubator #: 2
[ ] Waterbath #: ___

Investigators' signatures
James Davis
Marcell Fairclath
Amelia Rankin
Diana Flowers
Reed Harp

REVIEWER [illegible]

Statistics	
Control %cv:	17.5%
Dunnetts PMSD:	17.6%
Survival NOEC:	100%
Survival LOEC:	>100%
Growth NOEC:	100%
Growth LOEC:	>100%

Comments:

revised 7/15/08 MF

Chronic Bioassay Survival Benchsheet

Facility: Florida State Hospital

LIMS Sample Number: 1309182
(for Lab Sample # 1)

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

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

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	9 ID	9	9	9	9
	D	10	10	10	10	10	10	10	10
Sample 100% RO	A	10	10	10	10	10	9 10	9	9
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	9 10	9	9	9
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD	JD
Verified by: DP									

Comments:

Page 000009

Chronic Bioassay Parameters Benchsheet

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

Sample Source: Florida State Hospital Start Date: 11.2.10 End Date: 11-9-10

LIMS Sample #: 1309182 (for Lab sample #1) Start Time: 1320 End Time: 1045

conc = concentration rep = replicate circle umhos or mmhos

Test Day ↓		Conc.	New Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth	Old Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth
Day 0	sample:	Control	A	8.0	24.6	8.1	339							
	1	100%	A	8.4	25.8	8.0	430							
	1		A											
	1		A											
	1		A											
	1		A											
	1		A											
	Measured by:			DP	JD	DP	DP							
	Recorded by:			DP	JD	DP	DP							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	8.0	24.5	7.8	329		B	7.9	24.0	7.7	333	
	1	100%	B	8.2	24.7	7.8	416		B	8.1	24.1	7.5	421	
	1		B						B					
	1		B						B					
	1		B						B					
	1		B						B					
	1		B						B					
	Measured by:			ADR	ADR	ADR	ADR			DP	JD	DP	DP	
	Recorded by:			DP	DP	DP	DP			DP	DP	DP	DP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	7.9	24.7	7.7	333		C	7.6	24.9	6.9	334	
	2	100%	C	8.2	25.9	8.0	417		C	7.9	24.5	6.7	422	
	2		C						C					
	2		C						C					
	2		C						C					
	2		C						C					
	2		C						C					
	Measured by:			DP	JD	DP	DP			DP	JD	DP	DP	
	Recorded by:			DP	DP	DP	DP			DP	JD	DP	DP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.8	24.2	7.9	336		D	7.6	24.9	6.5	346	
	2	100%	D	8.1	24.1	7.5	431		D	7.9	24.7	6.5	439	
	2		D						D					
	2		D						D					
	2		D						D					
	2		D						D					
	2		D						D					
	Measured by:			DP	JD	DP	DP			DP	JD	DP	DP	
	Recorded by:			DP	DP	DP	DP			DP	DP	DP	DP	

Comments:

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

Chronic Bioassay Parameters Benchsheet

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

parameter pg 2

Sample Source: Florida State Hospital Start Date: 11-2-12 End Date: 11-9-12

LIMS Sample #: 1304182 (for Lab sample #1) Start Time: 1320 End Time: 1045

conc = concentration rep = replicate

Test Day ↓		Conc.	New Sample Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	Old Sample Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4	sample:	Control	A	8.1	24.2	8.4	345		A	7.5	24.0	8.1	349	
	3	100%	A	8.0	25.1	8.9	443		A	7.9	24.0	7.4	437	
	3		A						A					
	3		A						A					
	3		A						A					
	3		A						A					
	3		A						A					
	3		A						A					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	8.1	24.3	8.1	341		B	7.8	24.5	7.5	372	
	3	100%	B	8.1	24.0	8.2	442		B	7.8	24.9	7.4	462	
	3		B						B					
	3		B						B					
	3		B						B					
	3		B						B					
	3		B						B					
	3		B						B					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.8	24.1	8.2	320		C	7.6	25.0	7.4	349	
	3	100%	C	8.2	24.0	8.2	408		C	7.6	24.9	7.4	418	
	3		C						C					
	3		C						C					
	3		C						C					
	3		C						C					
	3		C						C					
	3		C						C					
	Measured by:			AQR	AQR	AQR	AQR			JD	JD	JD	JD	
	Recorded by:			DP	DP	DP	DP			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control							D	7.5	24.0	6.8	329	
	3	100%							D	7.9	24.0	7.6	417	
	3								D					
	3								D					
	3								D					
	3								D					
	3								D					
	Measured by:									DP	JD	DP	DP	
	Recorded by:									DP	JD	DP	DP	

Comments:

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

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Chronic Definitive Bioassay Weighing Benchsheet

Facility: Florida State Hospital

LIMS Sample Number: 1304182

(for Lab Sample # 1)

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

SOP TA06_21

Concentration	Replicate	Pan #	mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg
Control	A	1	0.02328	0.02926	0.00598	10	.598
	B	2	0.02269	0.03144	0.00875	10	.875
	C	3	0.02155	0.02909	0.00754	10	.754
	D	4	0.02256	0.03149	0.00893	10	.893
sample 100 %	A	5	0.02229	0.02947	0.00718	10	.718
	B	6	0.02352	0.03104	0.00752	10	.752
	C	7	0.02111	0.02870	0.00759	10	.759
	D	8	0.02101	0.02776	0.00675	10	.675
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
sample %	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		JD	JD		revised 7/16/08 mf	

$\bar{X}$ 0.780

Comments:

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

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

Page 000012

Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Florida State Hospital

LIMS Sample Number: 130 9182
(for Lab Sample # 1)

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

Drying Oven ID:	VWR #2
Temperature °C:	90
Hours:	8

Tare weighed by: JD
Final weighed by: JD

Tare Weighing Date: 11.8.10 Final Weighing Date: 11,12,10

				Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02329	@	0.02328	S-weights	0.0002	@ 0.01
Tare Pan 1 after Pan 10 (g)	0.02329	@	0.02328	at tare	0.03004	@ 0.03
Tare Pan 1 after Pan 15 (g)		@		S-weights	0.00999	@ 0.01
Tare Pan 1 after Pan 20 (g)		@		at final	0.05003	@ 0.05
Tare Pan 1 after Pan 25 (g)		@				
Tare Pan 1 after Pan 30 (g)		@		Balance: Ohaus 250D Ser# 1125481084		
Tare Pan 1 after Pan 35 (g)		@		S-Weights: BIO-S-Weights-01		
Tare Pan 1 after Pan 40 (g)		@				
Tare Pan 1 after Pan 45 (g)		@				
Tare Pan 1 after Pan 48 (g)		@				
Final Pan 1 after Pan 5 (g)	0.02926	@	0.02926			
Final Pan 1 after Pan 10 (g)	0.02928	@	0.02926			
Final Pan 1 after Pan 15 (g)		@				
Final Pan 1 after Pan 20 (g)		@				
Final Pan 1 after Pan 25 (g)		@				
Final Pan 1 after Pan 30 (g)		@				
Final Pan 1 after Pan 35 (g)		@				
Final Pan 1 after Pan 40 (g)		@				
Final Pan 1 after Pan 45 (g)		@				
Final Pan 1 after Pan 48 (g)		@				

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

Comments:

revised 7/16/08 MF

Test ID: Florida State Hospital Dates: Nov. 2-9, 2010

METER / DEVICE	ID	SOP	Parameter	Method	v used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity Salinity	SM 2510 B SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	EC#4 ✓
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓

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

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

entered by M.F. 11-30-10

V 1.1 9/21/10 MF/jd

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Appendix H

Standard Reference Toxicant Data

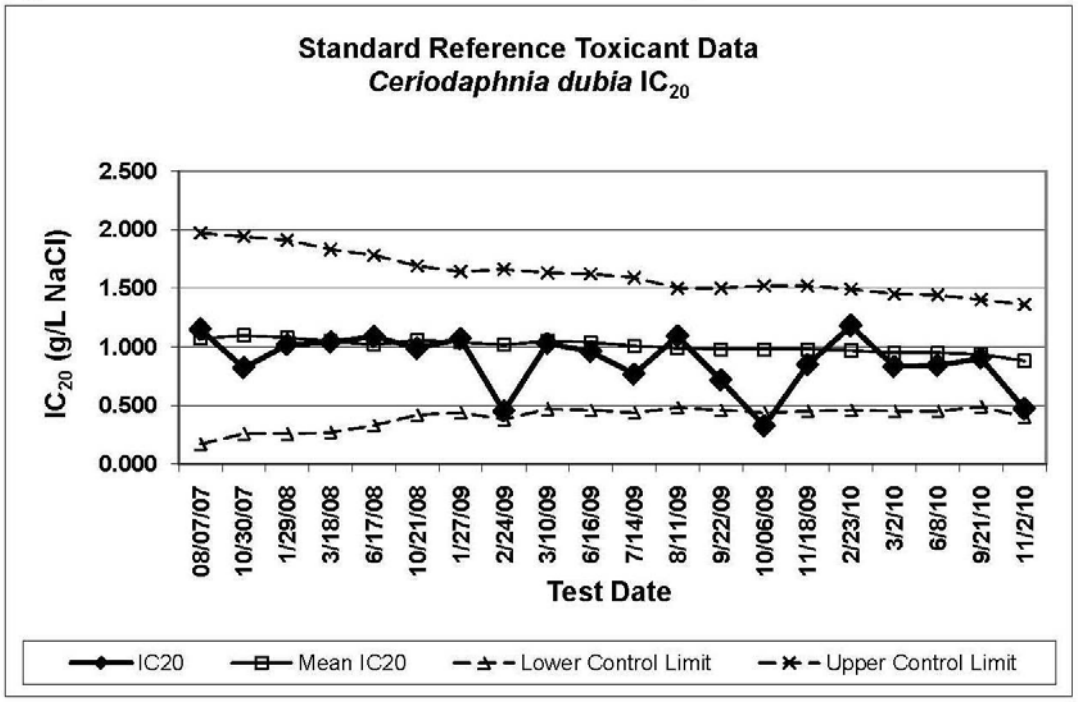
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
08/07/07	1.150	1.07	0.45	0.17	1.97
10/30/07	0.821	1.10	0.42	0.26	1.94
1/29/08	1.020	1.08	0.41	0.26	1.91
3/18/08	1.040	1.05	0.39	0.27	1.83
6/17/08	1.090	1.02	0.36	0.33	1.78
10/21/08	0.989	1.06	0.32	0.42	1.69
1/27/09	1.070	1.04	0.30	0.44	1.64
2/24/09	0.452	1.02	0.32	0.38	1.66
3/10/09	1.030	1.05	0.29	0.47	1.63
6/16/09	0.960	1.04	0.29	0.46	1.62
7/14/09	0.768	1.01	0.29	0.44	1.59
8/11/09	1.093	0.99	0.26	0.48	1.50
9/22/09	0.716	0.98	0.26	0.46	1.50
10/06/09	0.325	0.98	0.27	0.44	1.52
11/18/09	0.848	0.98	0.27	0.45	1.52
2/23/10	1.180	0.97	0.26	0.46	1.49
3/2/10	0.834	0.95	0.25	0.45	1.45
6/8/10	0.843	0.95	0.25	0.45	1.44
9/21/10	0.903	0.94	0.23	0.49	1.40
11/2/10	0.470	0.88	0.24	0.40	1.36

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

EPA 75th Percentile %CV for Reproduction **45%**
Lab %CV Reproduction **27.1%**

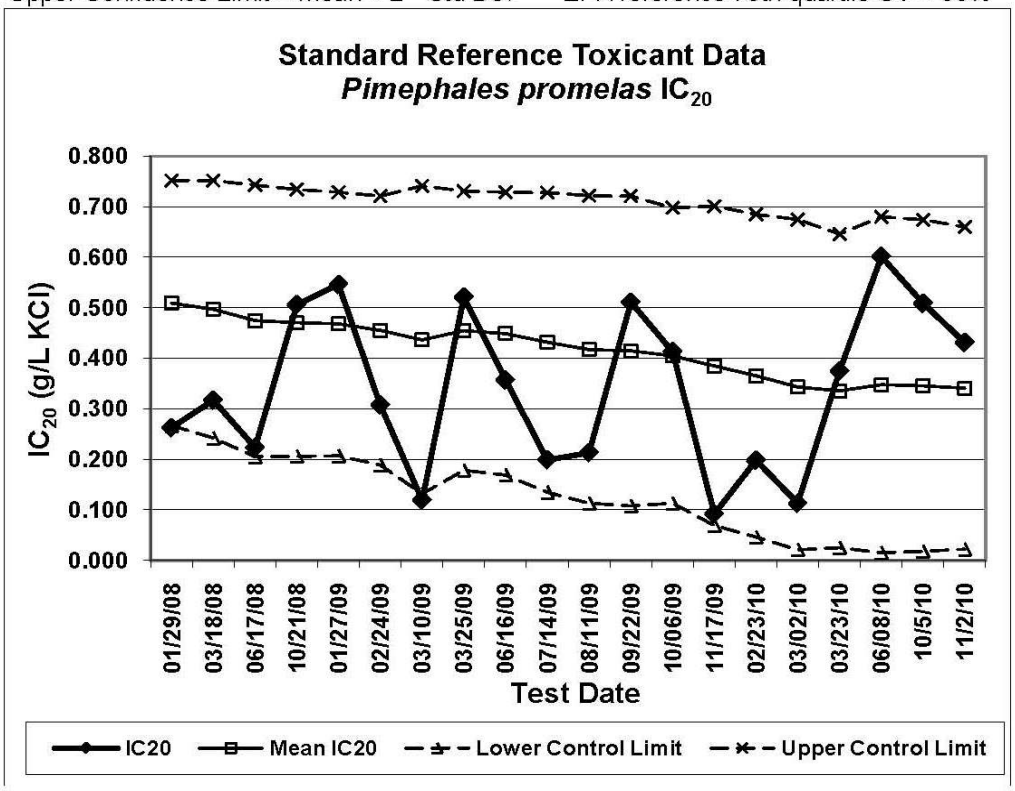


Florida Department of Environmental Protection
Bureau of Laboratories
Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Pimephales promelas (fathead minnow) - Potassium Chloride (KCl)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
01/29/08	0.263	0.509	0.12	0.267	0.752
03/18/08	0.317	0.497	0.13	0.242	0.752
06/17/08	0.223	0.474	0.13	0.205	0.743
10/21/08	0.506	0.470	0.13	0.206	0.734
01/27/09	0.546	0.468	0.13	0.207	0.729
02/24/09	0.308	0.455	0.13	0.189	0.721
03/10/09	0.119	0.437	0.15	0.132	0.741
03/25/09	0.521	0.455	0.14	0.178	0.731
06/16/09	0.357	0.449	0.14	0.169	0.729
07/14/09	0.199	0.432	0.15	0.135	0.728
08/11/09	0.213	0.417	0.15	0.113	0.722
09/22/09	0.511	0.415	0.15	0.108	0.721
10/06/09	0.413	0.405	0.15	0.113	0.698
11/17/09	0.092	0.385	0.16	0.069	0.701
02/23/10	0.198	0.365	0.16	0.046	0.685
03/02/10	0.113	0.343	0.16	0.021	0.675
03/23/10	0.375	0.336	0.16	0.025	0.646
06/08/10	0.601	0.348	0.17	0.015	0.680
10/05/10	0.509	0.346	0.16	0.018	0.674
11/02/10	0.431	0.341	0.16	0.022	0.660

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

CV = 47.4
EPA reference 75th quartile CV = 38%



MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

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Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 11/1/10

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina	150	12 DA-6	SS101020	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	350	C24hrs	FM101031-1545	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

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Appendix I-1

Wet ID taxa list and number of algal units counted to a target of 300 natural units for qualitative natural periphyton collections made from Florida State Hospital WWTP on 11/01/10.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyta	238	272
Chlorophycota		
Microthamnion strictissimum	3	1
Chlorella sp.	6	2
Scenedesmus quadricauda	2	-
Cosmarium sp.	-	1
Cosmarium pseudoretusum pseudoretusum	-	1
Cyanophycota		
Aphanocapsa sp.	1	-
Chroococcus minutus	2	-
Cyanobium parvum	-	2
Cyanothece aeruginosa	-	3
Synechocystis sp.	3	2
Jaaginema gracile	3	1
Planktothrix sp.	1	1
Schizothrix calcicola	42	14
Euglenophycota		
Lepocinclis sp.	-	1

Appendix I-2

Diatom taxa list and number of valves counted to a target of 500 valves for qualitative periphyton collected from Florida State Hospital WWTP on 11/01/10.

	Control Site	Test Site
Bacillariophyta		
Bacillariophyceae		
Achnanthes fluviatilis	3	-
Achnanthidium sp.	1	-
Achnanthidium affine	1	4
Achnanthidium exiguum	2	3
Achnanthidium microcephalum	7	14
Achnanthidium minutissimum	5	8
Cocconeis fluviatilis	68	95
Cocconeis placentula	-	5
Karayevia clevei	-	1
Lemnicola hungarica	-	2
Planothidium sp.	1	1
Planothidium delicatulum	-	1
Planothidium frequentissimum	7	4
Planothidium rostratum	8	11
Bacillaria paxillifer	2	2
Denticula sp.	2	-
Hantzschia amphioxys	1	-
Nitzschia sp.	41	21
Nitzschia acicularis	-	1
Nitzschia amphibia	13	-
Nitzschia lorenziana	2	-
Nitzschia palea	18	-
Tryblionella sp.	2	3
Tryblionella apiculata	-	1
Cymbella turgidula	-	2
Encyonema sp.	6	-
Encyonema neomesianum	-	5
Encyonema silesiacum	1	3
Gomphonema sp.	29	30
Gomphonema clevei	-	16
Gomphonema gracile	2	1
Gomphonema minutum	10	8
Gomphonema parvulum	20	14
Eunotia sp.	26	47
Eunotia formica	2	3
Eunotia monodon	23	11
Eunotia pectinalis undulata	2	-
Caloneis bacillum	1	-
Craticula sp.	1	-
Diadesmis confervacea	29	-
Diadesmis contenta	2	1
Fallacia sp.	1	1
Frustulia sp.	5	7

Appendix I-2 (Continued)

	Control Site	Test Site
Frustulia rhomboides	-	5
Frustulia saxonica	-	2
Geissleria acceptata	11	-
Geissleria decussis	4	1
Geissleria tectissima	1	-
Gyrosigma sp.	3	6
Hippodonta capitata	1	-
Hippodonta hungarica	1	-
Mayamaea atomus	5	1
Navicula sp.	24	54
Navicula cryptocephala	-	4
Navicula germainii	6	10
Navicula gregaria	2	-
Navicula longicephala	2	-
Navicula minima	11	-
Navicula rostellata	4	-
Navicula subplacentula	-	1
Navicula symmetrica	7	10
Naviculaceae	13	15
Neidium sp.	1	-
Nupela sp.	8	2
Pinnularia sp.	-	2
Sellaphora pupula	6	-
Sellaphora seminulum	8	1
Stauroneis sp.	2	-
Surirella sp.	-	2
Amphora sp.	1	-
Coscinodiscophyceae		
Aulacoseira sp.	1	6
Aulacoseira herzogii	4	2
Hydrosera whampoensis	2	-
Terpsinoe musica	-	3
Melosira sp.	-	2
Fragilariophyceae		
Asterionella sp.	-	5
Diatoma sp.	2	-
Fragilaria capucina	13	20
Fragilariaceae	2	4
Pseudostaurosira brevistriata	1	-
Staurosira construens	1	-
Staurosirella pinnata	2	9
Synedra sp.	-	1
Synedra ulna	-	6
Tabularia fasciculata	6	-
Mediophyceae		
Cyclostephanos invisitatus	1	-
Discostella pseudostelligera	-	1

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Florida State Hospital WWTP on 11/01/10. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Oligochaeta		
Bratislavia unidentata	-	2
Enchytraeidae	-	2
Arthropoda		
Arachnida		
Acariformes		
Sperchon sp.	-	-
Crustacea		
Amphipoda		
Hyalella azteca	2	-
Insecta		
Coleoptera		
Ancyronyx variegatus	-	8
Macronychus glabratus	46	28
Microcylloepus pusillus	6	2
Stenelmis sp.	8	10
Diptera		
Ablabesmyia mallochi	7	-
Ablabesmyia rhamphe grp.	20	-
Atrichopogon sp.	2	-
Cecidomyiidae	-	2
Chaoborus sp.	4	2
Corynoneura sp.	186	69
Cricotopus bicinctus	10	-
Dicrotendipes sp.	-	13
Dicrotendipes neomodestus	10	-
Labrundinia sp.	8	-
Labrundinia pilosella	-	-
Micropsectra sp. D Epler	8	-
Nanocladius sp.	4	-
Nilotanypus sp.	2	-
Nilotanypus fimbriatus	-	-
Parakiefferiella sp.	-	4
Parakiefferiella sp. F Epler	21	-
Paratanytarsus sp.	-	2
Pentaneura inconspicua	85	21
Phaenopsectra sp.	-	-
Polypedilum fallax	8	10
Polypedilum flavum	256	269

Appendix J-1 (continued)

	Control Site	Test Site
Polypedilum illinoense grp.	2	8
Rheocricotopus robacki	50	37
Rheotanytarsus exiguus grp.	78	182
Rheotanytarsus pellucidus	10	23
Simulium sp.	2	22
Stelechomyia perpulchra	2	4
Stempellinella fimbriata	-	-
Stenochironomus sp.	-	-
Tanytarsus sp. A Epler	97	-
Tanytarsus sp. C Epler	6	10
Tanytarsus sp. L Epler	86	6
Tanytarsus sp. M Epler	21	4
Tanytarsus sp. Y Epler	4	-
Thienemanniella lobapodema	133	52
Thienemanniella similis	-	28
Thienemanniella sp. B Epler	5	15
Thienemanniella xena	48	40
Thienemannimyia grp.	8	10
Tribelos fuscicornis	10	-
Tvetenia tshernovskii	2	6
Ephemeroptera		
Baetis intercalaris	32	56
Caenis sp.	129	22
Eurylophella doris	-	10
Isonychia sp.	42	44
Isonychia arida	-	-
Maccaffertium exiguum	22	38
Maccaffertium smithae	11	-
Stenacron sp.	-	13
Stenacron interpunctatum	13	-
Tricorythodes albilineatus	76	22
Megaloptera		
Corydalus cornutus	4	8
Odonata		
Argia sp.	2	-
Plecoptera		
Neoperla sp.	-	-
Trichoptera		
Cernotina sp.	-	2
Cheumatopsyche sp.	43	30
Hydropsyche sp.	41	-
Hydropsyche rossi	-	129
Hydroptila sp.	2	-
Macrostemum carolina	156	199
Neotrichia sp.	4	-
Neureclipsis sp.	-	-

Appendix J-1 (continued)

	Control Site	Test Site
Neureclipsis crepuscularis	8	-
Neureclipsis melco	-	6
Nyctiophylax sp.	3	-
Oecetis sp.	-	-
Oecetis persimilis	4	-
Orthotrichia sp.	-	-
Mollusca		
Gastropoda		
Ancylidae	26	24
Physa sp.	-	-
Elimia sp.	6	-
Elimia athearni	-	20

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 Florida State Hospital WWTP for 28 days and collected on 11/01/10.

	Control Site	Test Site
Annelida		
Oligochaeta		
Bratislavia unidentata	-	1
Enchytraeidae	-	1
Arthropoda		
Arachnida		
Acariformes		
Sperchon sp.	-	-
Crustacea		
Amphipoda		
Hyalella azteca	1	-
Insecta		
Coleoptera		
Ancyronyx variegatus	-	4
Elmidae	-	-
Macronychus glabratus	23	14
Microcylloepus pusillus	3	1
Stenelmis sp.	4	5
Diptera		
Ablabesmyia sp.	2	-
Ablabesmyia mallochi	3	-
Ablabesmyia rhamphe grp.	8	-
Atrichopogon sp.	1	-
Cecidomyiidae	-	1
Chaoborus sp.	2	1
Chironomidae	24	17
Corynoneura sp.	90	33
Cricotopus sp.	-	-
Cricotopus bicinctus	5	-
Dicrotendipes sp.	3	6
Dicrotendipes neomodestus	2	-
Labrundinia sp.	4	-
Labrundinia pilosella	-	-
Micropsectra sp. D Epler	4	-
Nanocladius sp.	2	-
Nilotanypus sp.	1	-
Nilotanypus fimbriatus	-	-
Parakiefferiella sp.	5	2
Parakiefferiella sp. F Epler	5	-
Paratanytarsus sp.	-	1
Pentaneura inconspicua	41	10

Appendix J-2 (continued)

	Control Site	Test Site
Phaenopsectra sp.	-	-
Polypedilum sp.	-	-
Polypedilum fallax	4	5
Polypedilum flavum	124	130
Polypedilum illinoense grp.	1	4
Rheocricotopus robacki	24	18
Rheotanytarsus exiguus grp.	38	88
Rheotanytarsus pellucidus	5	11
Simulium sp.	1	11
Stelechomyia perpulchra	1	2
Stempellinella fimbriata	-	-
Stenochironomus sp.	-	-
Tanytarsus sp.	2	-
Tanytarsus sp. A Epler	46	-
Tanytarsus sp. C Epler	3	5
Tanytarsus sp. L Epler	41	3
Tanytarsus sp. M Epler	10	2
Tanytarsus sp. Y Epler	2	-
Thienemanniella sp.	20	11
Thienemanniella lobapodema	50	21
Thienemanniella similis	-	11
Thienemanniella sp. B Epler	2	6
Thienemanniella xena	18	16
Thienemannimyia grp.	4	5
Tribelos fuscicornis	5	-
Tvetenia tshernovskii	1	3
Ephemeroptera		
Baetidae	-	3
Baetis intercalaris	16	25
Caenidae	-	-
Caenis sp.	65	11
Eurylophella doris	-	5
Heptageniidae	12	17
Isonychia sp.	21	22
Isonychia arida	-	-
Maccaffertium sp.	2	5
Maccaffertium exiguum	4	1
Maccaffertium smithae	2	-
Stenacron sp.	2	2
Stenacron interpunctatum	1	-
Tricorythodes albilineatus	38	11
Megaloptera		
Corydalus cornutus	2	4
Odonata		
Argia sp.	1	-

Appendix J-2 (continued)

	Control Site	Test Site
Plecoptera		
Neoperla sp.	-	-
Trichoptera		
Cernotina sp.	-	1
Cheumatopsyche	19	13
Hydropsyche sp.	18	55
Hydropsyche rossi	-	2
Hydropsychidae	15	22
Hydroptila sp.	1	-
Macrostemum carolina	69	88
Neotrichia sp.	2	-
Neureclipsis sp.	2	2
Neureclipsis crepuscularis	1	-
Neureclipsis melco	-	1
Nyctiophylax sp.	1	-
Oecetis sp.	-	-
Oecetis persimilis	2	-
Orthotrichia sp.	-	-
Polycentropodidae	1	-
Mollusca		
Gastropoda		
Ancylidae	13	12
Physa sp.	-	-
Elimia sp.	3	2
Elimia athearni	-	8

Appendix K-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Florida State Hospital WWTP on 11/01/10.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				
Branchiobdellida	1	-	-	-
Naididae	1	-	-	-
Pristina sp.	-	1	-	-
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	9	9	3	3
Decapoda				
Cambaridae	-	-	-	1
Isopoda				
Caecidotea sp.	-	-	1	-
Insecta				
Coleoptera				
Ancyronyx variegatus	2	1	-	2
Dubiraphia vittata	1	2	1	5
Macronychus glabratus	16	16	4	2
Microcylloepus pusillus	18	7	13	11
Stenelmis sp.	1	2	10	7
Diptera				
Atrichopogon sp.	1	-	-	1
Chironomus sp.	-	-	1	-
Corynoneura sp.	-	-	1	-
Cricotopus bicinctus	-	-	1	-
Dicrotendipes neomodestus	-	1	-	-
Goeldichironomus holoprasinus	-	-	2	-
Labrundinia sp.	-	-	-	2
Micropsectra sp. D Epler	7	3	-	1
Paratanytarsus sp.	1	-	-	-
Pentaneura inconspicua	-	1	-	-
Polypedilum flavum	14	4	6	13
Polypedilum illinoense grp.	6	10	8	6
Rheocricotopus robacki	1	2	-	-
Rheotanytarsus exiguus grp.	1	1	3	4
Rheotanytarsus pellucidus	-	1	-	-
Simulium sp.	3	3	5	11
Stenochironomus sp.	3	1	-	-
Tanytarsus sp. A Epler	1	1	-	-
Tanytarsus sp. C Epler	-	-	-	1
Tanytarsus sp. L Epler	1	-	-	-
Tanytarsus sp. M Epler	-	1	-	-
Thienemannimyia grp.	1	1	-	1

Appendix K-1 (continued)

	Control Site		Test Site	
	Rep 1	**Rep 2**	**Rep 1**	**Rep 2**
Ephemeroptera				
Baetis intercalaris	1	5	-	-
Caenis sp.	4	7	-	-
Isonychia sp.	4	3	13	7
Maccaffertium sp.	8	5	6	-
Maccaffertium exiguum	-	-	-	3
Maccaffertium smithae	-	-	-	1
Pseudocloeon propinquum	-	-	6	5
Tricorythodes albilineatus	4	10	12	5
Heteroptera				
Pelocoris carolinensis	1	-	-	-
Odonata				
Argia sp.	3	4	-	-
Boyeria vinosa	-	1	-	-
Calopterygidae	-	1	-	-
Calopteryx sp.	-	-	-	1
Enallagma sp.	-	-	2	-
Plecoptera				
Neoperla clymene	-	-	1	-
Trichoptera				
Cernotina sp.	-	1	-	-
Cheumatopsyche sp.	-	1	6	1
Hydropsyche sp.	11	18	7	9
Hydroptila sp.	-	3	-	-
Macrostemum carolina	16	17	6	4
Nectopsyche sp.	-	-	-	1
Nectopsyche exquisita	-	-	2	-
Neotrichia sp.	4	-	-	-
Oecetis sp.	4	8	-	-
Oecetis persimilis	-	-	3	4
Oecetis sphyra/morsei	-	-	-	1
Triaenodes sp.	6	1	11	-
Triaenodes perna/helo	-	-	-	12
Mollusca				
Bivalvia				
Corbicula fluminea	2	1	2	2
Eupera cubensis	1	1	3	6
Gastropoda				
Ancylidae	-	1	6	2
Micromenetus sp.	1	-	1	3
Physa sp.	-	-	6	11
Elimia sp.	1	2	-	11
Elimia curvicostata	-	-	8	-
Platyhelminthes				
Undetermined Platyhelminthes	-	1	-	-

Appendix K-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Florida State Hospital WWTP on 11/01/10.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Oligochaeta				
Branchiobdellida	1	-	-	-
Naididae	1	-	-	-
Pristina sp.	-	1	-	-
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	9	9	3	3
Decapoda				
Cambaridae	-	-	-	1
Isopoda				
Caecidotea sp.	-	-	1	-
Insecta				
Coleoptera				
Ancyronyx variegatus	2	1	-	2
Dubiraphia vittata	1	2	1	5
Macronychus glabratus	16	16	4	2
Microcylloepus pusillus	18	7	13	11
Stenelmis sp.	1	2	10	7
Diptera				
Atrichopogon sp.	1	-	-	1
Chironomidae	5	1	2	5
Chironomus sp.	-	-	1	-
Corynoneura sp.	-	-	1	-
Cricotopus bicinctus	-	-	1	-
Dicrotendipes neomodestus	-	1	-	-
Goeldichironomus holoprasinus	-	-	2	-
Labrundinia sp.	-	-	-	2
Micropsectra sp. D Epler	6	3	-	1
Paratanytarsus sp.	1	-	-	-
Pentaneura inconspicua	-	1	-	-
Polypedilum flavum	11	4	5	10
Polypedilum illinoense grp.	5	9	7	5
Rheocricotopus robacki	1	2	-	-
Rheotanytarsus exiguus grp.	1	1	3	3
Rheotanytarsus pellucidus	-	1	-	-
Simulium sp.	3	3	5	11
Stenochironomus sp.	3	1	-	-
Tanytarsus sp. A Epler	1	1	-	-
Tanytarsus sp. C Epler	-	-	-	1
Tanytarsus sp. L Epler	1	-	-	-
Tanytarsus sp. M Epler	-	1	-	-
Thienemannimyia grp.	1	1	-	1

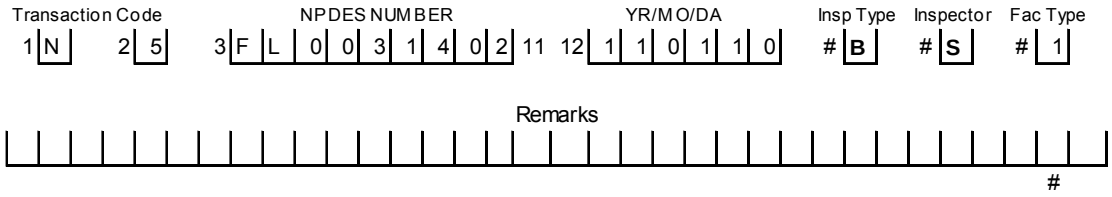
Appendix K-2 (continued)

	Control Site		Test Site	
	Rep 1	**Rep 2**	**Rep 1**	**Rep 2**
Ephemeroptera				
Baetidae	-	-	5	3
Baetis intercalaris	1	5	-	-
Caenis sp.	4	7	-	-
Isonychia sp.	4	3	13	7
Maccaffertium sp.	8	5	6	-
Maccaffertium exiguum	-	-	-	3
Maccaffertium smithae	-	-	-	1
Pseudocloeon propinquum	-	-	1	2
Tricorythodes albilineatus	4	10	12	5
Heteroptera				
Pelocoris carolinensis	1	-	-	-
Odonata				
Argia sp.	3	4	-	-
Boyeria vinosa	-	1	-	-
Calopterygidae	-	1	-	-
Calopteryx sp.	-	-	-	1
Enallagma sp.	-	-	2	-
Plecoptera				
Neoperla clymene	-	-	1	-
Trichoptera				
Cernotina sp.	-	1	-	-
Cheumatopsyche sp.	-	1	5	1
Hydropsyche sp.	11	18	7	6
Hydropsychidae	-	-	2	4
Hydroptila sp.	-	3	-	-
Macrostemum carolina	16	17	5	3
Nectopsyche sp.	-	-	-	1
Nectopsyche exquisita	-	-	2	-
Neotrichia sp.	4	-	-	-
Oecetis sp.	4	8	1	1
Oecetis persimilis	-	-	2	3
Oecetis sphyra/morsei	-	-	-	1
Triaenodes sp.	6	1	11	11
Triaenodes perna/helo	-	-	-	1
Mollusca				
Bivalvia				
Corbicula fluminea	2	1	2	2
Eupera cubensis	1	1	3	6
Gastropoda				
Ancylidae	-	1	5	2
Micromenetus sp.	1	-	1	3
Physa sp.	-	-	5	10
Undetermined Gastropoda	-	-	2	2
Elimia sp.	1	2	3	10
Elimia curvicostata	-	-	5	-
Platyhelminthes				
Undetermined Platyhelminthes	-	1	-	-

EPA Endsheet

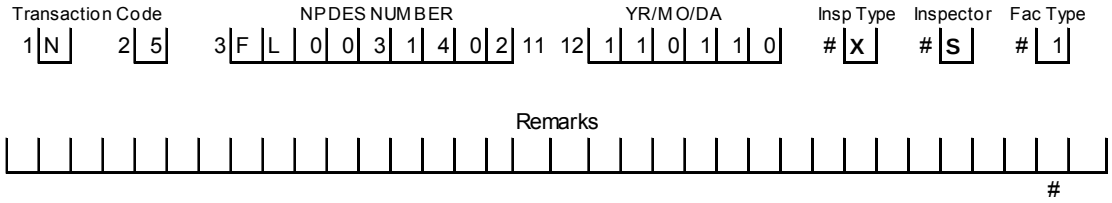
The Bioassay of the Florida State Hospital Wastewater Treatment Plant effluent sampled on November 11, 2010, NPDES #FL0031402

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 Florida State Hospital Wastewater Treatment Plant effluent sampled on November 11, 2010, NPDES #FL0031402

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



Biological Analyses of the Florida State Hospital Wastewater Treatment Plant effluent sampled on November 11, 2010, NPDES #FL0031402

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

