Biological Assessment of

Milton Wastewater Treatment Facility

Santa Rosa County

NPDES # FL0021903

Sampled April 16, 2012

August 2012

Biology Section

Bureau of Laboratories

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Facility Overview

The Milton Wastewater Treatment Facility is a Municipal Domestic Wastewater Treatment Facility. The effluent is discharged into the Blackwater River, a Class III Freshwater (see map Appendix A) via a submerged outfall. The design flow of the wastewater system is 2.5 million gallons per day (MGD) three month average. The average three-month average daily flow for April 2011 – March 2012 was 1.41 MGD. The facility discharges continuously. The flow measured during this survey was 1.28 MGD (Northwest District Office).

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

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

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 two stations in the Blackwater River: Station #1 (located approximately 20 m downstream of the Outfall D-001) and Station #2 (located approximately 100 m downstream of Station #1). These stations were chosen in an attempt to detect a gradient pattern for analytes detected in the effluent. While the Blackwater River is classified as a Class III Freshwater, the lower Blackwater River is tidally influenced. Methods for marine sampling of benthic macroinvertebrates were followed. Instream samples were collected on an incoming tide, although the rise from low to high tide was less than 1 foot (ProTides). Effluent samples for analyses were taken as grab samples from monitoring location EFF-01, after dechlorination. Toxicity samples were composite samples collected from EFF-01.

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/water/sas/sop/sops.htm for details) and met DEP quality assurance/quality control standards (see http://www.dep.state.fl.us/water/sas/qa/index.htm). Explanations of specific methods and measurements can be found in Appendix C.

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

Results

Organic Constituents (See Table 1 and Appendix F)

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

Metals (See Table 2 and Appendix F)

- All metals detected in the effluent grab samples were present at levels that complied with effluent permit limits and Class III Freshwater Quality Criteria (62-302.530, F. A. C.).
- All metals in Station #1 and Station #2 grab samples were either undetected or detected at levels that complied with Class III Freshwater Quality Criteria (62-302.530, F. A. C.).
- No metals were detected in the field blank.

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

- Tests were performed April 17 through April 24, 2012.

- The effluent sample NOEC for the fish, *Pimephales promelas*, during the chronic definitive bioassay was 100%, and therefore, complied with effluent permit limits.
- The water flea, *Ceriodaphnia dubia*, chronic definitive test was invalidated due to control mortality being greater than allowed by the method requirement. A non conformance report (NCR 4125) was issued for this test.

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

- The Station #1 shoreline consisted mostly of riprap and vertical seawalls, whereas the Station #2 shoreline was unaltered. The substrate at both stations was sand and organic silt. Runoff into both stations was characterized as mostly natural with a few small stormwater sources.
- Dissolved oxygen (mg/L), pH (Standard Units), and specific conductance (µmhos/cm) of the effluent, complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C.) and effluent permit limits.
- Dissolved oxygen (mg/L) of Station #1 and Station #2 for top and middle depths complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C.). Bottom depth dissolved oxygen at Station #1 (1.4 mg/L) and Station #2 (4.1 mg/L) was below the minimum limit for Class III Freshwater Quality Criterion (62-302-.530(30), F.A.C.). Dissolved oxygen decreased with measurement depth which indicates stratification of the water column, specifically a salt wedge which was measured by the specific conductance at the stations. The buoyant, fresh water of the effluent is not contributing to the low dissolved oxygen of the saline water below.
- The pH (Standard Units) for both Station #1 and Station #2 at the top, middle and bottom depths complied with Class III Freshwater Quality Criterion (62-302.530(51)(c), F.A.C.).
- The specific conductance (µmhos/cm) at both stations for top, middle, and bottom depths exceeded the 1275 µmhos/cm limit listed in Class III Freshwater Quality Criterion (62-302.530(22), F.A.C.). However, these stations are tidally influenced and conductivity does not appear to be increased greater than 50% above background levels of the lower Blackwater River by the effluent. The specific conductance and salinity increased with measurement depth indicating stratification of the water column at these stations.
- Alkalinity (mg CaCO3/L) of the effluent complied with Class III Criteria. The alkalinity of Station #1 and Station #2 were not being depressed by the effluent.
- Total residual chlorine (TRC) of the effluent was undetected in the bioassay sample as measured in the FDEP laboratory. The sample was held beyond the normal holding time for this measurement (Q qualifier).
- Chlorophyll *a* (corrected) was undetected in the effluent sample and was detected at a low level at both Station #1 and Station #2.
- Total suspended solids (TSS; mg/L) and Carbonaceous Biochemical Oxygen Demand (CBOD; mg/L) of the effluent complied with permit limits.
- Turbidity (NTU) of the effluent, Station #1 and Station #2 complied with Class III Criteria.
- Fluoride (mg/L) of the effluent, Station #1 and Station #2 complied with Class III Criteria.

Microbiology (See Table 1 and Appendix F)

- Enterococci and fecal coliform analyses were performed by the University of West Florida, Pensacola-Wetlands Research Laboratory.
- Fecal coliforms and enterococci were undetected in the effluent samples, which complied with Class III Freshwater Quality criterion (62-302.530(6), F.A.C) and facility permit limits.
- Fecal coliforms and enterococci in the Station #1 and Station #2 samples were detected at levels which complied with Class III Freshwater Quality Criterion (62-302.530(6), F.A.C.).
- Enterococci were detected in the method blank (V-qualifier) for the effluent sample and for the Station #2 sample.

Nutrients (See Table 1 and Appendix F)

- Effluent nutrient levels complied with permit limits.
- Station #1 and Station #2 nutrient results were similar.
- Ortho-phosphate detected in the effluent sample was 3 orders of magnitude higher than the ortho-phosphate detected at Station #1 and Station #2. Total phosphorus detected in the effluent sample was 2

orders of magnitude higher than total phosphorus detected at both stations. Total ammonia was undetected in the Station #1 sample and detected at a level between the method detection limit (MDL) and practical quantitation limit (PQL) in the effluent sample and the Station #2 sample. Nitrate+ nitrite detected in the effluent was approximately 9 times higher than the nitrate+ nitrite detected in the Station #1 and Station #2 samples. Total Kjeldahl nitrogen and organic nitrogen of the effluent sample were 3 times higher than the amounts detected at both stations. Total organic carbon (TOC) of the effluent sample was approximately 2 times higher than the TOC of Station #1 and Station #2. The nutrients detected at Station #1 and Station #2 are not as high as the nutrients in the effluent. Therefore, the effluent nutrients are being diluted in the Blackwater River. Nutrient enrichment by the effluent cannot be determined because samples from a Background or Control Site were not collected.

- No nutrients were detected in the field blank.

Algal Growth Potential (See Table 3 and Appendix F)

- Raschke and Shultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment.
- The AGP value in the effluent sample (217.0 mg dry wt/L) using the freshwater species, *Pseudokirchneriella subcapitata,* was approximately 43 times greater than the problem threshold value. The analytical chemistry suggests that the effluent is nitrogen limited.
- The AGP value in the Station #1 sample (23.7 mg dry wt/L) and the Station #2 sample (23.4 mg dry wt/L) were approximately 5 times greater than the problem threshold. Both stations were ortho-phosphate limited.
- The AGP values of the effluent are much higher than the AGP values of Station #1 and Station #2. All three values were above the problem threshold. Nutrient enrichment by the effluent cannot be determined because samples from a Background or Control Site were not collected.

Sediments (See Table 4, Figures 1, and Appendix F)

- Sediment samples consisting of sand and organic silt were collected from Station #1 and Station #2. Particle sizes of the two samples were similar, consisting primarily of sand. Both samples were less than 1% dry weight organic content.
- No organic constituents or metals detected in the Station#1 sediment or the Station #2 sediment exceeded the threshold effects level (TEL).
- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene and pyrene were detected in the Station #1 sediment sample between the MDL and PQL. Organic constituents were not detected in the Station #2 sediment.
- Copper was detected in both stations' sediments at low levels between the MDL and PQL.
- Lead was detected in the Station #1 sediment. At Station #2 lead was detected between the MDL and PQL.

Bioassessment

Phytoplankton (See Table 5 and Appendices I-1 and I-2)

- Phytoplankton communities at both Station #1 and Station #2 were similar, with very low densities, and consisted mostly of diatoms. The diatom community at both sites was dominated by the genus *Stephanodiscus* sp. The dominant wet algal taxon in both samples was *Cryptomonas* sp. There were no adverse affects apparent on the phytoplankton community in Blackwater River 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 three petite ponar drops each at Station #1 and Station #2. The sampling retrieved too few macroinvertebrates for any assessment of the community at these sites. The Shannon-Weaver diversity scores were not calculated because the number of individuals needed for an unbiased score was not reached.

Conclusion

Bottom depth dissolved oxygen at Station #1 (1.4 mg/L) and Station #2 (4.1 mg/L) were below the minimum limit for Class III Freshwater Quality Criterion (62-302-.530(30), F.A.C.). The buoyant, fresh water of the effluent is not contributing to the low dissolved oxygen in the saline water at the bottom depths of these stations. While the nutrients of the effluent are being diluted in the Blackwater River as indicated by the lower nutrient and AGP values of Station #1 and Station #2, nutrient enrichment cannot be determined as no background samples were collected. The detection of effluent impacts may be difficult when samples are collected downstream during an incoming tide or in large systems with higher potential for dilution. There were no adverse affects apparent on the phytoplankton community in Blackwater River from the effluent. Benthic macroinvertebrates samples were too depauperate to assess. Low bottom-depth dissolved oxygen at both stations may be acting as a stressor and contributing to the low numbers of benthic organisms.

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

Milton WWTF	Class III Criteria	Effluent Limits	Effluent	Station #1	Station #2
Organic Constituents (µg/L)					
	-	-	None Detected	-	-
Nutrients (mg/L)					
Ortho-phosphate	-	-	6	0.009 I	0.007 I
Total Phosphorus	-	Report p	6.6	0.027	0.025
Total Ammonia	-	Report	0.017 I	0.01 U	0.01 I
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	Report p	4.3	0.46	0.44
Total Kjeldahl Nitrogen	-	≤ 8.0 p	0.83	0.24	0.27
Organic Nitrogen	-	-	0.813 c	0.235 c	0.26 c
Total Nitrogen	-	Report p	5.13 c	0.7 c	0.71 c
Total Organic Carbon	-	-	5.1	2.1 I	2.0 I
General Physical and Chemical Parameters					
PChem Measurement Depth (m) -top	-	-	-	0.2	0.2
Pchem Measurement Depth (m)- middle	-	-	-	1.7	1.5
Pchem Measurement Depth (m)- bottom	-	-	-	3.4	3.0
Dissolved Oxygen (mg/L) - top	≥ 5.0	≥ 6.5 s	8.4	8.0	8.0
Dissolved Oxygen (mg/L) - middle	≥ 5.0	-	-	7.3	7.9
Dissolved Oxygen (mg/L) - bottom	≥ 5.0	-	-	1.4	4.1
Dissolved Oxygen (% saturation) - top	-	-	-	94	94
Dissolved Oxygen (% saturation) - middle	-	-	-	85	92
Dissolved Oxygen (% saturation) - bottom	-	-	-	17	49
pH (SU)- top	6.0 - 8.5	6.0 - 8.5	6.9	7.1	6.9
pH (SU)- middle	6.0 - 8.5	-	-	7.2	7.0
pH (SU)- bottom	6.0 - 8.5	-	-	6.9	6.7
Conductivity(µmhos/cm) - top	≤ 1,275	-	413	1819 §	1969 §
Conductivity(µmhos/cm) - middle	≤ 1,275	-	-	2600 §	2250 §
Conductivity(µmhos/cm) - bottom	≤ 1,275	-	-	13280 §	9043 §
Salinity -top	-	-	-	0.9	1.0
Salinity - middle	-	-	-	1.4	1.2
Salinity - bottom	-	-	-	7.7	5.1
Sample Depth (m)	-	-	0.15	0.15	0.15
Alkalinity (mg $CaCO_3$)	≥ 20.0	-	98 A	5.7	5.5
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	≤ 0.03 UQ£	-	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55 U	2.4	3.9
Phaeophytin (µg/L)	-	-	0.4 U	0.45 I	0.43 I
Total Suspended Solids (mg/L)	-	≤ 10.0 p	2 U	3 I	5 I
Turbidity (NTU)	< 29 t	-	1.8 A	2.7	3
Color (PCU)	-	-	2.6 I	13 A	12
CBOD, 5 day (mg/L), N - inhibited	-	≤ 16.0 s	0.21 I	0.46 I	1.0 I
Chloride (mg/L)	-	-	49	560	580
Fluoride (mg/L)	≤ 10.0	-	0.47	0.054 I	0.053 I
Sulfate (mg/L)	-	-	13	77	81
Flow (MGD)	-	≤ 2.5 a	1.4 a	-	-
Hardness (mg $CaCO_3$)	-	Report p	113 c	193 c	197 c
Toxicity (Chronic Definitive, NOEC, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*- survival and reproduction	-	100	NCR 4125**	-	-
Bioassay - Fish *(Pimephales promelas)*- survival and growth	-	100	100	-	-
Microbiology (Number of colony forming units/100ml)					
Enterococci¥	-	≤35†	2 UV	10 B	8 BV
Fecal Coliforms ¥	≤ 400s #	≤ 86 s	1 U	21 B	18 B

Value exceeds the Class III Water Quality Criteria or permit limits

a -3 month average daily flow
c - Value is calculated
p - 24 hour flow proportioned composite
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
V - Analyte was detected in both sample and method blank
£ - measurement taken in the FDEP laboratory
NOEC-No Observed Effect Concentration
** - NCR 4125 was issued for the *Ceriodaphnia dubia* bioassay. See the Toxicity Whole Effluent Test results section in this report.
¥ - Microbiology analysis performed by the University of West Florida, Pensacola-Wetlands Research 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.)
†-geometric mean of 5 samples/month
§- See the Physical and Chemical Parameters results section of this report for further conductivity explanation.

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.

Milton WWTF	Effluent Class III Criteria	Effluent Limits	Effluent	Station #1 Class III Criteria	Station #1	Station #2 Class III Criteria	Station #2
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	28 A	-	87	-	102
Arsenic	≤ 50	-	0.26 I	≤ 50	0.25 U	≤ 50	0.25 U
Cadmium	≤ 0.30 b	-	0.094 I	≤ 0.44 b	0.05 U	≤ 0.45 b	0.05 U
Calcium (mg/L)	-	-	40 A	-	13.1	-	13.4
Chromium-III	≤ 95 b	-	0.3 U	≤ 148 b	0.3 U	≤ 150 b	0.3 U
Copper	≤ 10 b	≤ 10 b	7.6 A	≤ 16.4 b	0.5 U	≤ 16.6 b	0.5 U
Iron	≤ 1,000	-	34 I	≤ 1,000	281	≤ 1,000	280
Lead	≤ 3.7 b	≤ 3.7 b	0.24 I	≤ 7.34 b	0.2 U	≤ 7.52 b	0.2 U
Magnesium (mg/L)	-	-	3.11 A	-	38.9	-	39.6
Nickel	≤ 58 b	-	6.76 A	≤ 90.9 b	0.3 I	≤ 92.4 b	0.31 I
Selenium	≤ 5.0	-	0.2 U	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Sodium (mg/L)	-	-	38.2 A	-	350	-	356
Silver	≤ 0.07	-	0.032 I	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 130 b	≤ 130 b	50 A	≤ 209 b	5 U	≤ 212 b	5 U

See Table 1 for calculated hardness.

b - Value is calculated based on hardness

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

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

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

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

Milton WWTF							
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	217.0	164.0 ± 32.8		194.9 ± 39.0		0.7	0.8
Station #1	23.7		3.9 ± 0.8		11.6 ± 2.3	52.2	25.9
Station #2	23.4		3.0 ± 0.6		10.8 ± 2.2	64.3	28.4

Table 4. Sediment Data for Milton WWTF

Milton WWTF	Sediment Quality TEL	Sediment Quality PEL	Station #1	Station #2
Particle Size Distribution (percent volume < 2mm)				
< 0.063 mm	-	-	4.65	2.26 AJ
0.063 - 0.125 mm	-	-	0.63	0.29 A
0.125 - 0.25 mm	-	-	2.48	2.02 A
0.25 - 0.5 mm	-	-	21	17 A
0.5 - 2.0 mm	-	-	71.3	78.4 A
> 2.0 mm (percent dry weight)	-	-	3	2.4 A
Organic Content				
Organic Content (percent dry weight)	-	-	1 K	1 K
Organic Constituents (ug/kg)				
Benzo(a)anthracene	74.8	693	8.7 I	8.3 U
Benzo(a)pyrene	88.8	763	9.1 I	8.3 U
Benzo(b)fluoranthene	-	-	16 I	8.3 U
Benzo(g,h,i)perylene	-	-	9.1 I	8.3 U
Chrysene	108	846	14 I	8.3 U
Fluoranthene	113	1494	15 I	8.3 U
Pyrene	153	1398	16 I	8.3 U
Metals (mg/kg)				
Cadmium	0.676	4.21	0.041 U	0.043 U
Copper	18.7	108	0.46 I	0.33 I
Lead	30.2	112	1.6	1.3 I
Nickel	15.9	42.8	0.2 U	0.22 U
Silver	0.733	1.77	0.01 U	0.011 U
Zinc	124	271	1.6 U	1.7 U

Sediment Quality Assessment Guidlines (MacDonald 1994): TEL = Threshold Effects Level; PEL = Probable Effects Level

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

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

J - Estimated value

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

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

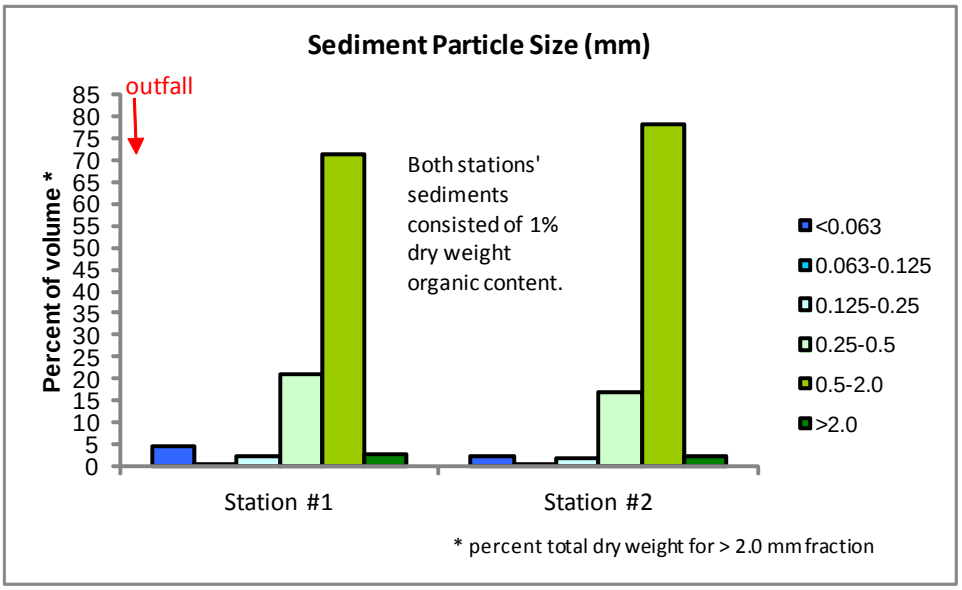


Figure 1. Sediment particle size for two sampling sites at Milton WWTF, April 26, 2012.

Table 5. Phytoplankton Composition

Milton WWTF	Station #1	Station #2
Number of Taxa	12	8
Number of Wet Algal Units Identified	300	300
Algal Density (number/mL)	493	440
Percent Dominant Wet Taxon	65.2	54.1
Dominant Wet Taxon Name	*Cryptomonas* sp. (Cryptophyceae)	*Cryptomonas* sp. (Cryptophyceae)
Number of Diatom Taxa	63	66
Number of Diatom Valves Identified	500	501
Percent Dominant Diatom Taxon	10.8	14.8
Dominant Diatom Taxon Name	*Stephanodiscus* sp.	*Stephanodiscus* sp.
Percentage Composition of Wet Algae		
Blue-green algae	7.1	7.7
Green algae	7.3	10.0
Diatoms	45.0	50.7
Cryptophytes	35.5	26.6
Pyrrophytes	4.7	5.0

Table 6. Macroinvertebrate Petite Ponar Samples - Quantitative.

Milton WWTF	Station #1	Station #2
Summary Statistics		
Shannon-Weaver Diversity	¥	¥
Number of Taxa	5	4
Percent Dominant Taxon	56.9	46.4
Dominant Taxon Name	*Streblospio* sp. (Polychaeta)	Ampharetidae (Polychaeta)
Number of samples/site	3	3
Total Number of Individuals (counted)	14*	15*
Taxa List		
Annelida		
Polychaeta		
Ampharetidae	1	7
Hobsonia florida	1	-
Mediomastus ambiseta	1	-
Mediomastus sp.	-	3
Orbiniidae	1	-
Streblospio sp.	8	-
Arthropoda		
Crustacea		
Isopoda		
Edotea triloba	-	1
Insecta		
Diptera		
Chironomus sp.	-	4
Nemertea		
Undetermined Nemertea	2	-

¥-Insufficient organisms were collected for the Shannon Weaver Diversity calculation to be appropriate.

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

Appendix A
Milton WWTF

Fifth Year Bioassessment Sampling Locations





Appendix B

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen	**Contact Number:** 595-0553
Facility Name (as it appears on permit): Milton WWTF	**Former Names:**
NPDES Permit Number: FL0021903	**Permit Expiration Date:** 6/13/2013
Physical Address: 6903 Municipal Drive	
District: NWD	**County:** Santa Rosa
Function of Facility: Municipal WWTF	
Facility Type: DW	**Permitted Capacity (MGD):** 2.5 mgd
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 1.410 mgd (rolling qtrly avg); 1.423 mgd monthly avg; (4/1/11 – 3/31/12)	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

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

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I. A. 1. and as described below:

Monitoring Location Site Number	Description of Monitoring Location
CAL-01	Calculated Value
EFA-01	Post Disinfection Point, first step of cascade at top of cascade
EFD-01	Post Dechlorination Point Prior to Discharge Pipe, at bottom of cascade aeration
EFF-01	Effluent Point, Prior to Discharge Pipe, at bottom of cascade aeration, after dechlorination
EFF-02	First step of cascade at top of cascade.
FLW-01	Ultrasonic flow meter between the Secondary Clarifiers and Disk Filters.
FLW-02	Flow meter between Reject Pump Station and Reject Storage Tank
FLW-03	Flow meter between Onsite Reuse Pump and Hydropneumatic Reuse Storage Tank

Description of Permitted Outfall(s):

Discharge Location (D-001) is approximately 20 feet in length and discharges at a depth of approximately 1 feet.The point of discharge is located approximately at latitude 30 o 37' 04" N, longitude 87 o 02' 02" W.

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

A 2.5 MGD three month average daily flow activated sludge wastewater treatment facility providing Class I Reliability. The extended aeration treatment system consists of an influent pump station, pretreatment with flow equalization, an anoxic basin, internal recycle pump station, a carousel oxidation ditch, three secondary clarifiers, two disk filters, four chlorine contact chambers, onsite reuse pump station, reject pump station with a 3.0 MG reject water storage tank, and cascade aeration after dechlorination prior to discharge to surface waters. Effluent is discharged into the Blackwater River via a submerged outfall. Residuals are treated in three aerobic digesters and dewatered in a centrifuge system; air drying beds are available as needed for contingencies. Residuals are landapplied at various agricultural sites in Walton County or disposed of at a Class I or II solid waste landfill. The facility is permitted as a residuals management facility and may receive residuals or septage from other sources.

PART I: Continued

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

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Blackwater River to Blackwater Bay and to Industrial Reuse R-001 at the Plant Site. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.9:

			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 D-001 (See Note 1) (Flow to Blackwater River)	MGD	Maximum	-	2.5 (3-Mo.Avg.)	-	-	Daily	Calculated	CAL-01	See Cond.I.A.6
Flow (Flow including recirculated reject and reuse water)	MGD	Maximum	-	Report	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.8
Flow (Flow to Reject Water Storage)	MGD	Maximum	-	Report	-	-	Daily	Meter	FLW-02	
Flow R-001 (Flow to On-Site Reuse)	MGD	Maximum	-	Report	-	-	Daily	Meter	FLW-03	
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	8.0	8.0	12.0	16.0	Weekly	24-hour flow proportioned composite	EFF-01	
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	Weekly	24-hour flow proportioned composite	EFF-01	
pH	SU	Range	-	-	-	6.0 to 8.5	Continuous	Meter	EFF-02	See Cond.I.A.7, 9
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.10.				Weekly	Grab	EFF-01	
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	Continuous	Meter	EFA-01	See Cond.I.A.7, 11
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Daily	Grab	EFD-01	
Nitrogen, Total (as N)	MG/L	Maximum	-	Report	-	Report	Weekly	24-hour flow proportioned composite	EFF-01	
Nitrogen, Kjeldahl, Total (as N)	MG/L	Maximum	4.0	4.0	6.0	8.0	Weekly	24-hour flow proportioned composite	EFD-01	
Nitrogen, Ammonia, Total (as N)	MG/L	Maximum	-	Report	-	Report	Weekly	Grab	EFF-01	See Cond.I.A.9
Nitrite plus Nitrate, Total 1 det. (as N)	MG/L	Maximum	-	Report	-	Report	Weekly	24-hour flow proportioned composite	EFF-01	
Ammonia, Unionized (as NH3)	MG/L	Maximum	-	Report	-	0.02	Weekly	Calculated	CAL-01	See Cond.I.A.9
Phosphorus, Total (as P)	MG/L	Maximum	-	Report	-	Report	Weekly	24-hour flow proportioned composite	EFF-01	

Temperature (F), Water	DEG F	Maximum	-	-	-	Report	Weekly	Grab	EFF-01	See Cond I.A.9
Copper, Total Recoverable	UG/L	Maximum	-	-	-	See Cond. I.A.3	Monthly	24-hour flow proportioned composite	EFF-01	
Lead, Total Recoverable	UG/L	Maximum	-	-	-	See Cond. I.A.4	Monthly	24-hour flow proportioned composite	EFF-01	
Zinc, Total Recoverable	UG/L	Maximum	-	-	-	See Cond. I.A.5	Monthly	24-hour flow proportioned composite	EFF-01	
Hardness, Total (as CaCO3)	MG/L	Maximum	-	-	-	Report	Monthly	24-hour flow proportioned composite	EFF-01	
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	6.5	Daily	Grab	EFF-01	
Enterococci	#/100ML	Maximum	-	35 (Geo. Mean)	-	-	5/Month	Grab	EFF-01	See Cond.I.A.12
Whole Effluent Toxicity (Chronic)	See Permit Condition I.A.13								EFF-01	

PART I: Continued

Receiving Waters:	**Classification (indicate whether fresh or marine):**
Blackwater River	Class Fresh Water and Outstanding Florida Water, a tributary to Blackwater Bay, a Class II Shellfish Propagation or Harvesting Water

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

a. Effluent Limitation

(1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. *[Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]*
(2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. *[Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]*

b. Monitoring Frequency

(1) Routine toxicity tests shall be conducted semi-annually; twice per year, the first starting within 180 days of the date of last test and lasting for the duration of this permit.

c. Sampling Requirements

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

d. Test Requirements
(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.
(2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.
(3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

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

AO056NW was issued with the permit on 6/11/08 to give the facility time to comply with the new enterococci requirement. The AO was closed 10/30/09.

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
3/11	Total Kjeldahl Nitrogen Unionized Ammonia	8.0 mg/L (max) 0.02 mg/L (max)	9.11 mg/L (max) 0.04 mg/L (max)

Describe previous FYI and WQBEL study:

The previous FYI report was conducted in October 2003.

From the Fact Sheet issued with the Draft Permit 3/14/08:

A Level II WQBEL study was conducted pursuant to Rule 62-650, Florida Administrative Code (FAC) and as a requirement of the current permit to evaluate the impact of the facility's discharge on the following parameters in the Blackwater River: Coliforms, Biochemical Oxygen Demand, Dissolved Oxygen, Nutrients, and Turbidity.

The Final Level II WQBEL Study Report proposed two tiers of limits based on the existing end of pipe configuration and for the installation of a diffuser at the end of pipe. The WQBEL proposed the following monthly/annual average limits for a 2.5 MGD TMADF:

Parameter Existing Configuration With Diffuser
CBOD5 8 mg/L 15 mg/L
TKN 4 mg/L 6 mg/L
Copper Monitor Monitor
Lead Monitor Monitor
Zinc Monitor Monitor

The Level II WQBEL Study provided reasonable assurance that the travel time from the Outfall to the boundary of the Class II waters in Blackwater Bay is between 24 and 72 hours. Thus the requirements for intermediate disinfection and effluent storage requirements pursuant to Rule 62-600.510(5), FAC, apply and were incorporated into the existing permit by a previous revision.

The Department has determined that monitoring for total nitrogen (TN) and limits for dissolved oxygen (DO) should also be included based on the information presented in Level II WQBEL report and associated documents. Existing effluent limits are based on a Level I WQBEL that was conducted during the previous permit renewal. This renewal permit substantially carries over the current effluent limitations, with the changes based on the results of the Level II WQBEL Study. The Applicant has elected not to install the diffuser at the end of pipe and to comply with the associated more stringent effluent limits for CBOD5 and TKN.

The limits based on the Level II WQBEL Study are noted below (monthly/annual average values):
Parameter Proposed Limit
CBOD5 8.0 mg/L
TKN 4.0 mg/L
Copper WQL ug/L (Water Quality Hardness-Based Limit)
Lead WQL ug/L (Water Quality Hardness-Based Limit)
Zinc WQL ug/L (Water Quality Hardness-Based Limit)
DO (min) 6.5 mg/L (Single Sample) (Based on DO used in WQBEL Study Modeling)

Effluent limitations are based on a Level II WQBEL titled "Final Report Level II Water Quality-based Effluent Limitation Study for the City of Milton Wastewater Treatment Facility" which was finalized by CH2M Hill on August 16, 2007.

Describe previous or current Enforcement Actions (including WLs):

Warning Letter NW DW 57-1800 was issued 4/30/12 for sanitary sewer overflows from their collection system.

Describe any violations or problems noted in previous inspection:

The previous inspection was performed on 5/10/11. An overall rating of "Out of Compliance" was giving for the effluent quality violations in the table below.

Date	Parameters	Permit Limit	Analytical Value
March 2011	Total Kjeldahl Nitrogen	8.0 – Max	9.11 mg/L
March 2011	Unionized Ammonia	0.02 – Max	0.04 mg/L

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: 4/16/12	Sampler(s): Nathan Mulkey, Mike King
Temperature (Deg C): 25.04	pH (SU): 6.86
Dissolved Oxygen (mg/L): 8.40	Conductivity (umhos/cm): 413
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):
1.28

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

(4) Bacteriological Testing

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

(5) Algal Growth Potential (AGP)

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

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

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

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

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

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

(7) Sediment Sampling

Sediments were collected using a petite ponar dredge at all sampling stations. Sediment samples were analyzed for metals, organic constituents, pesticides, organic content and sediment grain size. The results from these analyses were compared with sediment quality assessment guidelines applicable to Florida coastal waters (Table 4. in MacDonald 1994). The range of sediment contaminant concentrations that fall below the threshold effects level (TEL) are not likely to be associated with adverse biological effects on aquatic organisms. The range of sediment contaminant concentrations that fall above the probable effects level (PEL) are usually or always associated with adverse biological effects. Within the range of concentrations delineated by the TEL (lower limit) and the PEL (upper limit), adverse biological effects are possible but it is difficult to predict the occurrence, nature, and/or severity of these effects (MacDonald 1994).

(8) Benthic Macroinvertebrate Assemblages

Benthic macroinvertebrates were collected using a petite ponar dredge at all sampling stations. Three replicate ponar samples were collected at each station and sieved through a 500 μm mesh. 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. 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 (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.). 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 samples at test and control sites constitutes exceedences of 62-302.530(10), F.A.C.

Appendix D

Chain of Custody

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-04-16-04
FYI5 Milton WWTF Sampling Inspection

Requester: Michelle Fish
Field Report Prepared By: N. Mulkey
Collected By: Nathan Mulkey / Mike King
Send Final Report To: Toni Edwards
Sampling Agency: FDEP

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

Lab ID *	Location / Field ID / Matrix / Temp (C) / pH / Latitude / Longitude	Collection (comp begin or grab) Eastern / Tot Res Chlorine (mg/L) / Diss Oxygen (mg/L) / Sample Depth / Salinity (PPTh) / Sp Conductance (umho/cm) / Comments	Composite end Eastern / Storet Station Number / NPDES Number	Bottle Group(s)**
	Milton WWTF Effluent - EFF-01 Fresh 25.04 6.86 30.61815 87.03388	Grab Date 4/16/12 Time 0930 Central Diss Oxygen 8.40 Sample Depth .15 m 413 Sp Conductance Flow at time of sampling 1.28 MGD		A
	Milton WWTF TOX-1 Fresh 30.61815 87.03388	Comp Date 4/15/12 Time 0743 Central Composite end Date 4/16/12 Time 0743 Central		A
	Blackwater River near Milton outfall Station #1 Fresh 22.93 7.09 30.61822 87.03252	Grab Date 4/16/12 Time 1140 Central Diss Oxygen 8.04 Sample Depth .15 m 1819 Sp Conductance ~5m downstream of Milton outfall		B+C
	Blackwater River 100m downstream Station #2 Fresh 22.84 6.91 30.61740 87.03222	Grab Date 4/16/12 Time 1100 Central Diss Oxygen 8.02 Sample Depth .15 m 1869 Sp Conductance 100m downstream of station #1 (near outfall)		B+C

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
	4/16/12	Fed Ex					CRL	4/17/12 955

* Shaded Areas for Lab use only.

last revised October 1, 2003

2 bioassay Recd in lab by J.D. 10:19 4.17.12

** Please see reverse side for Bottle Group information.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2012-04-16-04
FYI5 Milton WWTF Sampling Inspection

Requester: Michelle Fish
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: Milton WWTF			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Central — Date: 4/16/12 Time: 1000	Composite end Eastern Central — Date Time	Bottle Group(s)**
	Field ID: Field Blank				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	D
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments				
Lab ID *	Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Eastern Central — Date Time	Composite 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 (comp begin or grab) Eastern Central — Date Time	Composite 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 (comp begin or grab) Eastern Central — Date Time	Composite 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				

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
							CM	4/17/12 955

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

SAMPLE TRANSMITTAL FORM
Document Reference # 05.1.0

Project: FDEP

Laboratory: Wetlands Research Laboratory

Sampler's intials : NM

Method of transport: _____ on ice by automobile

Page 1 of 1

Samples delivered by: [signature] FDEP

Date/Time: 4/16/12 1305

Sample received by: [signature] of WRL

Date/Time: 4/16/12 1305

Instructions: Fill in all fields except "Lab ID" on sample transport form completely. Each sample container must use a separate line. Place this form in a waterproof bag and place it with the samples for transport. If a field log or other chain of custody is attached, that information may be referenced on this form and the log or COC attached.

CST

ID- Lab ID	Sample ID	Matrix[1]	Type[2]	Container Type	Analyses Requested	Preservative	Sample (°C)[3]	Sampling Date/Time
35207	Milton WWTF Effluent EFF-01	SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3	5.6	4/16/12 0930
35208	Station 1 Blackwater River	SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3	3.6	1140
35209	Station 2 Blackwater River	SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3	4.8	1100
		SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3		
		SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3		
		SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3		
		SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3		
		SW	G	Sterile plastic	Enterococcus/Fecal Coliform MF	ice/Na2S2O3		

Comments ____sample container lot# __11045

RQ-2012-04-16-04

Contact organization _____FDEP

Contact name _____

Phone: (850) 595-8300

Address _160 Governmental Center, suite 308, Pensacola, FL 32502

Sampler's name: _____Nathan Mulkey

[1]Matrix: SW = surface water, PW = pore water, GW = ground water, S = soil/sediment, X = _____

[2]Type codes: G = grab, C = composite, X = _____

[3] Recorded using IRT-2

Wetlands Research Laboratory

University of West Florida D:\Watershed\FORMS\UWFLabSubmittalForms\Sample transmittal form_Blank_Lot#

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

04-16-04
2012-[redacted]

Request Number: RQ-[redacted]

Event ID *

[redacted] Milton WWTF FYI

Requester: [redacted]

Field Report Prepared By: N. Milke

Customer: NW-DIST

Project ID: [redacted] FYIS

Collected By: Nathan Milke

Send Final Report To: [redacted] Toni Edmonds

PMAS: [redacted] 1143

Sampling Agency: FDEP

Lab ID *	Location			☑ Comp ☐ Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
	Milton WWTF				4/17/12 0750 (Central)	4/18/12 0750 Central	A
	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: 2 gallon amber jugs			

Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	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	Collection (end) Date Time Eastern	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	Collection (end) Date Time Eastern	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			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[redacted]	4/18/12	Fed Ex	[redacted]	4-19-12 10:35	2 bags Reid in tox by J.D.	10:53 4.19.12		

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2012-04-16-04

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-~~2011-11-14-17~~

FYI5 ~~Town of Century WWTF Sampling Inspection~~ Milton WWTF

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

Requester: Michelle Fish
Collected By: Nathan Melby
Sampling Agency: FDEP

Field Report Prepared By: N. Melby
Send Final Report To: Toni Edwards

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern	Collection (end) Date Time Eastern	Bottle Group(s)**
	Milton WWTF	☑ Comp ☐ Grab	Date 4/16/12 Time 0930 (Central)	Date 4/20/12 Time 0930 (Central)	A
	Field ID: TOX3	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	Collection (end) Date Time Eastern	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	Collection (end) Date Time Eastern	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	Collection (end) Date Time Eastern	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		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	4/20/12	Fed Ex	McFarland	4-21-12 0900				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

→ 2 coolers 1.2°C (1) 2.2°C (2)

ABP 04/24/12 09:45

Appendix E

Physical/Chemical and Habitat Assessment field sheets

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FD9000-26 MARINE PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (4/25/00)

LAT/LONGS:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
30.61822/87.03252		4/16/12	1030	Escambia Bay

REMARKS:	COUNTY:	SITE LOCATION:	FIELD ID/NAME:
1/4 below Milton outfall	Santa Rosa	Blackwater River 1/40 samples	Station #1

RIPARIAN ZONE/INSTREAM FEATURES

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

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

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

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

Width of riparian vegetation (m) on least buffered side:

Draw aerial view sketch of sampling area including habitats and community types

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

Artificially Impounded ☐ yes

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

Tide Types and Times

High 1:40 (PM) AM PM : AM PM

: AM PM : AM PM

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

SEDIMENT/SUBSTRATE

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

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

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

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Seagrass				Sand	50	3	PONAR
Rock or Shell Rubble				Mud/Muck/Silt	50		
Aquatic Vegetation				Other:			

Community Types

Mangroves ☐ Oyster bars ☐ Reef ☐ Natural beach ☐ Other: ☒ Shell/Organics

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	Sal		Secchi (m):
Top	0.216	22.93	7.09	8.04/94.2	1819	0.92		
Mid-depth	1.688	22.48	7.18	7.33/85.3	2600	1.36		
Bottom	3.360	23.04	6.86	1.42/17.32	13280	7.65		

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

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

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

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

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

Weather Conditions/Notes:
12ft depth

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Nathan Mulky / Mike King		4/16/12

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FD 9000-30 MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: FDEP	STORET STATION NUMBER:	DATE (M/D/Y): 4/16/12	RECEIVING BODY OF WATER: Escambia Bay

REMARKS: West below WWTF Outfall	LOCATION: Blackwater River	FIELD ID/NAME: Station #1

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations 4	None—Unaltered shoreline. **9-10 points**	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points**
Community Types Observed 15	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation 3	>0.75 m. **4-5 points**	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations 7	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining large tracts of land. **0-2 points**
Flow and Wave Action 10	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type 9	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated mud only. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 48

COMMENTS:

ANALYSIS DATE: 4/16/12	ANALYST: Heather Malloy	SIGNATURE: Heather Malloy

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FD9000-26 MARINE PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (4/25/00)

LAT/LONGS:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
30.61740 87.03222		4/16/12	1100	Escambia Bay

REMARKS:	COUNTY:	SITE LOCATION:	FIELD ID/NAME:
~100m downstream St#1	Santa Rosa	Blackwater River	Station #2

RIPARIAN ZONE/INSTREAM FEATURES

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

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

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

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

Width of riparian vegetation (m) on least buffered side:

Draw aerial view sketch of sampling area including habitats and community types

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

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

Tide Types and Times

High	1:40 AM (PM)	: AM PM	: AM PM
: AM PM		: AM PM	

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

SEDIMENT/SUBSTRATE

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

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

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

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Seagrass				Sand	50	3	PONAR
Rock or Shell Rubble				Mud/Muck/Silt	50		
Aquatic Vegetation				Other:			

Community Types

Mangroves ☐ Oyster bars ☐ Reef ☐ Natural beach ☐ Other: ☐ _____

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l): Sat	Cond. (µmho/cm) or Salinity (ppt):	Sal		Secchi (m):
Top	0.195	22.84	6.91	8.02/93.7	1969	1.00		
Mid-depth	1.517	22.65	6.95	7.86/91.7%	2250	1.17		
Bottom	3.639	22.82	6.74	4.07/48.8%	9043	5.06		

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

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

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

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

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

Weather Conditions/Notes:
10.4 ft
100m downstream of Station 2

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Michael King / Nathan Mulkey		4/16/12

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FD 9000-30 MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: FDEP	STORET STATION NUMBER:	DATE (M/D/Y): 4/16/12	RECEIVING BODY OF WATER: Escambia Bay

REMARKS:	LOCATION: Blackwater River	FIELD ID/NAME: Station #2

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations 9	None—Unaltered shoreline. **9-10 points**	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points**
Community Types Observed 20	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation 3	>0.75 m. **4-5 points**	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations 7	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining large tracts of land. **0-2 points**
Flow and Wave Action 10	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type 10	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated mud only. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 59

COMMENTS:

ANALYSIS DATE: 4/16/12	ANALYST: Nathan Maltby	SIGNATURE: Nathan Maltby

Appendix F
Chemical analysis of effluent and receiving water

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 10:30	Effluent	AGP/LN	Algal Growth Potential	217		mg DryWt/L	0.3	0.9
4/16/2012 10:30	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.21	I	mg/L	0.2	2
4/16/2012 10:30	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
4/16/2012 10:30	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
4/16/2012 10:30	Effluent	Field Parameter	Dissolved Oxygen	8.4		mg/L		
4/16/2012 10:30	Effluent	Field Parameter	pH	6.86				
4/16/2012 10:30	Effluent	Field Parameter	Sample Depth	0.15		m		
4/16/2012 10:30	Effluent	Field Parameter	Specific Conductance	413		umhos/cm		
4/16/2012 10:30	Effluent	Field Parameter	Temperature	25.04		C		
4/16/2012 10:30	Effluent	Metals	Aluminum	28	A	ug/L	5	20
4/16/2012 10:30	Effluent	Metals	Arsenic	0.26	I	ug/L	0.25	1
4/16/2012 10:30	Effluent	Metals	Cadmium	0.094	I	ug/L	0.05	0.2
4/16/2012 10:30	Effluent	Metals	Calcium	40	A	mg/L	0.075	0.3
4/16/2012 10:30	Effluent	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/16/2012 10:30	Effluent	Metals	Copper	7.6	A	ug/L	0.5	1
4/16/2012 10:30	Effluent	Metals	Iron	34	I	ug/L	30	120
4/16/2012 10:30	Effluent	Metals	Lead	0.24	I	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Metals	Magnesium	3.11	A	mg/L	0.04	0.16
4/16/2012 10:30	Effluent	Metals	Nickel	6.76	A	ug/L	0.25	1
4/16/2012 10:30	Effluent	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Metals	Silver	0.032	I	ug/L	0.025	0.1
4/16/2012 10:30	Effluent	Metals	Sodium	38.2	A	mg/L	0.5	2
4/16/2012 10:30	Effluent	Metals	Zinc	50	A	ug/L	5	20
4/16/2012 10:30	Effluent	Nutrients	Alkalinity	98	A	mg CaCO3/L	0.65	2.5
4/16/2012 10:30	Effluent	Nutrients	Ammonia-N	0.017	I	mg N/L	0.01	0.02
4/16/2012 10:30	Effluent	Nutrients	Chloride	49		mg Cl/L	0.2	0.5
4/16/2012 10:30	Effluent	Nutrients	Color (true)	2.6	I	PCU	2.5	6
4/16/2012 10:30	Effluent	Nutrients	Fluoride	0.47		mg F/L	0.035	0.1
4/16/2012 10:30	Effluent	Nutrients	Kjeldahl Nitrogen	0.83		mg N/L	0.08	0.2
4/16/2012 10:30	Effluent	Nutrients	NO2NO3-N	4.3		mg N/L	0.04	0.1
4/16/2012 10:30	Effluent	Nutrients	O-Phosphate-P	6		mg P/L	0.4	1
4/16/2012 10:30	Effluent	Nutrients	Organic Carbon	5.1		mg C/L	1	5
4/16/2012 10:30	Effluent	Nutrients	Sulfate	13		mg SO4/L	0.2	0.5
4/16/2012 10:30	Effluent	Nutrients	Total-P	6.6		mg P/L	0.2	0.5

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 10:30	Effluent	Nutrients	TSS	2	U	mg/L	2	10
4/16/2012 10:30	Effluent	Nutrients	Turbidity	1.8	A	NTU	0.1	0.1
4/16/2012 10:30	Effluent	Overflow	Enterococci-Membrane Filter	2	UV	cfu/100 mL	2	2
4/16/2012 10:30	Effluent	Overflow	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL	1	1
4/16/2012 10:30	Effluent	Pesticides	Alachlor	0.62	U	ug/L	0.62	2.5
4/16/2012 10:30	Effluent	Pesticides	Ametryn	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Atrazine	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Azinphos Methyl	0.21	U	ug/L	0.21	0.82
4/16/2012 10:30	Effluent	Pesticides	Bromacil	0.21	U	ug/L	0.21	0.82
4/16/2012 10:30	Effluent	Pesticides	Butylate	0.21	U	ug/L	0.21	0.82
4/16/2012 10:30	Effluent	Pesticides	Chlorpyrifos Ethyl	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Diazinon	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Ethion	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Fenamiphos	0.21	U	ug/L	0.21	0.82
4/16/2012 10:30	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.62
4/16/2012 10:30	Effluent	Pesticides	Metalaxyl	0.26	U	ug/L	0.26	1
4/16/2012 10:30	Effluent	Pesticides	Metolachlor	0.52	U	ug/L	0.52	2.1
4/16/2012 10:30	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Mevinphos	0.21	U	ug/L	0.21	0.82
4/16/2012 10:30	Effluent	Pesticides	Naled	0.82	U	ug/L	0.82	3.3
4/16/2012 10:30	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.62
4/16/2012 10:30	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.62
4/16/2012 10:30	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.41
4/16/2012 10:30	Effluent	Pesticides	Phorate	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.62
4/16/2012 10:30	Effluent	Pesticides	Simazine	0.052	U	ug/L	0.052	0.21
4/16/2012 10:30	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
4/16/2012 10:30	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	UJ	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	5	UJ	ug/L	5	20
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Fluorene	0.2	UJ	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	UJ	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.8
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
4/16/2012 10:30	Effluent	Priority Organic Pollutants	Pyrene	0.2	UJ	ug/L	0.2	0.8
4/16/2012 8:43	Effluent	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	No Result	O	IC25		
4/16/2012 8:43	Effluent	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	No Result	O	NOEC		
4/16/2012 8:43	Effluent	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	L	IC25		
4/16/2012 8:43	Effluent	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100		NOEC		
4/16/2012 12:40	Station #1	AGP/LN	Algal Growth Potential	23.7		mg DryWt/L	0.3	0.9
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.46	I	mg/L	0.2	2
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2.4		ug/L	0.55	1.7
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.45	I	ug/L	0.4	1.2
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment % Organic	1	K	% dry wt		
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, <0.063 mm	4.65		% vol <2mm	0	0.01
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, >2.0 mm	3		%totdrywt	0	1
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.063-0.125mm	0.63		% vol <2mm	0	0.01
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.125-0.25 mm	2.48		% vol <2mm	0	0.01
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.25-0.5 mm	21		% vol <2mm	0	0.01
4/16/2012 12:40	Station #1	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.5-2.0 mm	71.3		% vol <2mm	0	0.01
4/16/2012 12:40	Station #1	Field Parameter	Dissolved Oxygen	8.04		mg/L		
4/16/2012 12:40	Station #1	Field Parameter	pH	7.09				
4/16/2012 12:40	Station #1	Field Parameter	Sample Depth	0.15		m		
4/16/2012 12:40	Station #1	Field Parameter	Specific Conductance	1819		umhos/cm		
4/16/2012 12:40	Station #1	Field Parameter	Temperature	22.93		C		
4/16/2012 12:40	Station #1	Metals	Aluminum	87		ug/L	5	20
4/16/2012 12:40	Station #1	Metals	Arsenic	0.25	U	ug/L	0.25	1
4/16/2012 12:40	Station #1	Metals	Cadmium	0.041	U	mg/Kg	0.041	0.16
4/16/2012 12:40	Station #1	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
4/16/2012 12:40	Station #1	Metals	Calcium	13.1		mg/L	0.075	0.3

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:40	Station #1	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/16/2012 12:40	Station #1	Metals	Copper	0.46	I	mg/Kg	0.2	0.81
4/16/2012 12:40	Station #1	Metals	Copper	0.5	U	ug/L	0.5	1
4/16/2012 12:40	Station #1	Metals	Iron	281		ug/L	30	120
4/16/2012 12:40	Station #1	Metals	Lead	1.6		mg/Kg	0.31	1.2
4/16/2012 12:40	Station #1	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/16/2012 12:40	Station #1	Metals	Magnesium	38.9		mg/L	0.04	0.16
4/16/2012 12:40	Station #1	Metals	Nickel	0.3	I	ug/L	0.25	1
4/16/2012 12:40	Station #1	Metals	Nickel	0.2	U	mg/Kg	0.2	0.81
4/16/2012 12:40	Station #1	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/16/2012 12:40	Station #1	Metals	Silver	0.01	U	mg/Kg	0.01	0.041
4/16/2012 12:40	Station #1	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/16/2012 12:40	Station #1	Metals	Sodium	350		mg/L	2.5	10
4/16/2012 12:40	Station #1	Metals	Zinc	1.6	U	mg/Kg	1.6	6.5
4/16/2012 12:40	Station #1	Metals	Zinc	5	U	ug/L	5	20
4/16/2012 12:40	Station #1	Nutrients	% Solid	84.2	A	%	1	1
4/16/2012 12:40	Station #1	Nutrients	Alkalinity	5.7		mg CaCO3/L	0.65	2.5
4/16/2012 12:40	Station #1	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
4/16/2012 12:40	Station #1	Nutrients	Chloride	560		mg Cl/L	2	5
4/16/2012 12:40	Station #1	Nutrients	Color (true)	13	A	PCU	2.5	6
4/16/2012 12:40	Station #1	Nutrients	Fluoride	0.054	I	mg F/L	0.035	0.1
4/16/2012 12:40	Station #1	Nutrients	Kjeldahl Nitrogen	0.24		mg N/L	0.08	0.2
4/16/2012 12:40	Station #1	Nutrients	NO2NO3-N	0.46		mg N/L	0.004	0.01
4/16/2012 12:40	Station #1	Nutrients	O-Phosphate-P	0.009	I	mg P/L	0.004	0.01
4/16/2012 12:40	Station #1	Nutrients	Organic Carbon	2.1	I	mg C/L	1	5
4/16/2012 12:40	Station #1	Nutrients	Sulfate	77		mg SO4/L	2	5
4/16/2012 12:40	Station #1	Nutrients	Total-P	0.027		mg P/L	0.004	0.01
4/16/2012 12:40	Station #1	Nutrients	TSS	3	I	mg/L	2	10
4/16/2012 12:40	Station #1	Nutrients	Turbidity	2.7		NTU	0.1	0.1
4/16/2012 12:40	Station #1	Overflow	Enterococci-Membrane Filter	10	B	cfu/100 mL	2	2
4/16/2012 12:40	Station #1	Overflow	Fecal Coliforms-Membrane Filter	21	B	cfu/100 mL	1	1
4/16/2012 12:40	Station #1	Overflow	Macroinvert-Marine-Quan-NatSubstr-# Taxa	5		# Taxa		
4/16/2012 12:40	Station #1	Priority Organic Pollutants	1,2,4-Trichlorobenzene	210	U	ug/kg	210	850
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,4,6-Trichlorophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,4-Dichlorophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,4-Dimethylphenol	430	U	ug/kg	430	1700

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,4-Dinitrophenol	430	U	ug/kg	430	1700
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,4-Dinitrotoluene	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2,6-Dinitrotoluene	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2-Chloronaphthalene	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2-Chlorophenol	210	U	ug/kg	210	850
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	2-Nitrophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	3,3'-Dichlorobenzidine	4300	UJ	ug/kg	4300	17000
4/16/2012 12:40	Station #1	Priority Organic Pollutants	4-Bromophenyl phenyl ether	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	4-Chloro-3-methylphenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	4-Nitrophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Acenaphthene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Acenaphthylene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Anthracene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzidine	1500	UJ	ug/kg	1500	6200
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzo(a)anthracene	8.7	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzo(a)pyrene	9.1	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzo(b)fluoranthene	16	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzo(g,h,i)perylene	9.1	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Benzo(k)fluoranthene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Bis(2-chloroethyl)ether	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	430	U	ug/kg	430	1700
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Butyl benzyl phthalate	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Chrysene	14	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Dibenzo(a,h)anthracene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Diethyl phthalate	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Dimethyl phthalate	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Di-n-butyl phthalate	430	U	ug/kg	430	1700
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Di-n-octyl phthalate	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Fluoranthene	15	I	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Fluorene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Hexachlorobenzene	71	U	ug/kg	71	280

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Hexachlorobutadiene	210	U	ug/kg	210	850
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Hexachlorocyclopentadiene	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Hexachloroethane	210	U	ug/kg	210	850
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Isophorone	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Naphthalene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Nitrobenzene	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	N-Nitrosodimethylamine	430	U	ug/kg	430	1700
4/16/2012 12:40	Station #1	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	71	UJ	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Pentachlorophenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Phenanthrene	7.9	U	ug/kg	7.9	32
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Phenol	71	U	ug/kg	71	280
4/16/2012 12:40	Station #1	Priority Organic Pollutants	Pyrene	16	I	ug/kg	7.9	32
4/16/2012 12:00	Station #2	AGP/LN	Algal Growth Potential	23.4		mg DryWt/L	0.3	0.9
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1	I	mg/L	0.2	2
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	3.9		ug/L	0.55	1.7
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.43	I	ug/L	0.4	1.2
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment % Organic	1	K	% dry wt		
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, <0.063 mm	2.26	AJ	% vol <2mm	0	0.01
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, >2.0 mm	2.4	A	%totdrywt	0	1
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.063-0.125mm	0.29	A	% vol <2mm	0	0.01
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.125-0.25 mm	2.02	A	% vol <2mm	0	0.01
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.25-0.5 mm	17	A	% vol <2mm	0	0.01
4/16/2012 12:00	Station #2	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.5-2.0 mm	78.4	A	% vol <2mm	0	0.01
4/16/2012 12:00	Station #2	Field Parameter	Dissolved Oxygen	8.02		mg/L		
4/16/2012 12:00	Station #2	Field Parameter	pH	6.91				
4/16/2012 12:00	Station #2	Field Parameter	Sample Depth	0.15		m		
4/16/2012 12:00	Station #2	Field Parameter	Specific Conductance	1969		umhos/cm		
4/16/2012 12:00	Station #2	Field Parameter	Temperature	22.84		C		
4/16/2012 12:00	Station #2	Metals	Aluminum	102		ug/L	5	20
4/16/2012 12:00	Station #2	Metals	Arsenic	0.25	U	ug/L	0.25	1
4/16/2012 12:00	Station #2	Metals	Cadmium	0.043	U	mg/Kg	0.043	0.17
4/16/2012 12:00	Station #2	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
4/16/2012 12:00	Station #2	Metals	Calcium	13.4		mg/L	0.075	0.3
4/16/2012 12:00	Station #2	Metals	Chromium	0.3	U	ug/L	0.3	1.2

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:00	Station #2	Metals	Copper	0.5	U	ug/L	0.5	1
4/16/2012 12:00	Station #2	Metals	Copper	0.33	I	mg/Kg	0.22	0.87
4/16/2012 12:00	Station #2	Metals	Iron	280		ug/L	30	120
4/16/2012 12:00	Station #2	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/16/2012 12:00	Station #2	Metals	Lead	1.3	I	mg/Kg	0.33	1.3
4/16/2012 12:00	Station #2	Metals	Magnesium	39.6		mg/L	0.04	0.16
4/16/2012 12:00	Station #2	Metals	Nickel	0.31	I	ug/L	0.25	1
4/16/2012 12:00	Station #2	Metals	Nickel	0.22	U	mg/Kg	0.22	0.87
4/16/2012 12:00	Station #2	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/16/2012 12:00	Station #2	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/16/2012 12:00	Station #2	Metals	Silver	0.011	U	mg/Kg	0.011	0.043
4/16/2012 12:00	Station #2	Metals	Sodium	356		mg/L	2.5	10
4/16/2012 12:00	Station #2	Metals	Zinc	5	U	ug/L	5	20
4/16/2012 12:00	Station #2	Metals	Zinc	1.7	U	mg/Kg	1.7	7
4/16/2012 12:00	Station #2	Nutrients	% Solid	80.2		%		
4/16/2012 12:00	Station #2	Nutrients	Alkalinity	5.5		mg CaCO3/L	0.65	2.5
4/16/2012 12:00	Station #2	Nutrients	Ammonia-N	0.01	I	mg N/L	0.01	0.02
4/16/2012 12:00	Station #2	Nutrients	Chloride	580		mg Cl/L	2	5
4/16/2012 12:00	Station #2	Nutrients	Color (true)	12		PCU	2.5	6
4/16/2012 12:00	Station #2	Nutrients	Fluoride	0.053	I	mg F/L	0.035	0.1
4/16/2012 12:00	Station #2	Nutrients	Kjeldahl Nitrogen	0.27		mg N/L	0.08	0.2
4/16/2012 12:00	Station #2	Nutrients	NO2NO3-N	0.44		mg N/L	0.004	0.01
4/16/2012 12:00	Station #2	Nutrients	O-Phosphate-P	0.007	I	mg P/L	0.004	0.01
4/16/2012 12:00	Station #2	Nutrients	Organic Carbon	2	I	mg C/L	1	5
4/16/2012 12:00	Station #2	Nutrients	Sulfate	81		mg SO4/L	2	5
4/16/2012 12:00	Station #2	Nutrients	Total-P	0.025		mg P/L	0.004	0.01
4/16/2012 12:00	Station #2	Nutrients	TSS	5	I	mg/L	2	10
4/16/2012 12:00	Station #2	Nutrients	Turbidity	3		NTU	0.1	0.1
4/16/2012 12:00	Station #2	Overflow	Enterococci-Membrane Filter	8	BV	cfu/100 mL	2	2
4/16/2012 12:00	Station #2	Overflow	Fecal Coliforms-Membrane Filter	18	B	cfu/100 mL	1	1
4/16/2012 12:00	Station #2	Overflow	Macroinvert-Marine-Quan-NatSubstr-# Taxa	4		# Taxa		
4/16/2012 12:00	Station #2	Priority Organic Pollutants	1,2,4-Trichlorobenzene	220	UJ	ug/kg	220	900
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,4,6-Trichlorophenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,4-Dichlorophenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,4-Dimethylphenol	450	U	ug/kg	450	1800
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,4-Dinitrophenol	450	U	ug/kg	450	1800

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,4-Dinitrotoluene	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2,6-Dinitrotoluene	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2-Chloronaphthalene	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2-Chlorophenol	220	U	ug/kg	220	900
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	2-Nitrophenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	3,3'-Dichlorobenzidine	4500	UJ	ug/kg	4500	18000
4/16/2012 12:00	Station #2	Priority Organic Pollutants	4-Bromophenyl phenyl ether	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	4-Chloro-3-methylphenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	4-Nitrophenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Acenaphthene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Acenaphthylene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Anthracene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzidine	1600	UJ	ug/kg	1600	6500
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzo(a)anthracene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzo(a)pyrene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzo(b)fluoranthene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzo(g,h,i)perylene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Benzo(k)fluoranthene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Bis(2-chloroethyl)ether	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	75	UJ	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	450	U	ug/kg	450	1800
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Butyl benzyl phthalate	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Chrysene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Dibenzo(a,h)anthracene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Diethyl phthalate	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Dimethyl phthalate	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Di-n-butyl phthalate	450	U	ug/kg	450	1800
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Di-n-octyl phthalate	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Fluoranthene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Fluorene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Hexachlorobenzene	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Hexachlorobutadiene	220	UJ	ug/kg	220	900

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Hexachlorocyclopentadiene	75	UJ	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Hexachloroethane	220	UJ	ug/kg	220	900
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Isophorone	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Naphthalene	8.3	UJ	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Nitrobenzene	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	N-Nitrosodimethylamine	450	U	ug/kg	450	1800
4/16/2012 12:00	Station #2	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	75	UJ	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Pentachlorophenol	75	UJ	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Phenanthrene	8.3	U	ug/kg	8.3	33
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Phenol	75	U	ug/kg	75	300
4/16/2012 12:00	Station #2	Priority Organic Pollutants	Pyrene	8.3	U	ug/kg	8.3	33
4/16/2012 11:00	Field Blank	Metals	Aluminum	5	U	ug/L	5	20
4/16/2012 11:00	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
4/16/2012 11:00	Field Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
4/16/2012 11:00	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
4/16/2012 11:00	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
4/16/2012 11:00	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	1
4/16/2012 11:00	Field Blank	Metals	Iron	30	U	ug/L	30	120
4/16/2012 11:00	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/16/2012 11:00	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
4/16/2012 11:00	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
4/16/2012 11:00	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
4/16/2012 11:00	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/16/2012 11:00	Field Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
4/16/2012 11:00	Field Blank	Metals	Zinc	5	U	ug/L	5	20
4/16/2012 11:00	Field Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
4/16/2012 11:00	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
4/16/2012 11:00	Field Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
4/16/2012 11:00	Field Blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
4/16/2012 11:00	Field Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
4/16/2012 11:00	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
4/16/2012 11:00	Field Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
4/16/2012 11:00	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
4/16/2012 11:00	Field Blank	Nutrients	Organic Carbon	1	U	mg C/L	1	5

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 11:00	Field Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
4/16/2012 11:00	Field Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
4/16/2012 11:00	Field Blank	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
4/16/2012 11:00	Field Blank	Pesticides	Alachlor	0.71	U	ug/L	0.71	2.8
4/16/2012 11:00	Field Blank	Pesticides	Ametryn	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Atrazine	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Azinphos Methyl	0.24	U	ug/L	0.24	0.94
4/16/2012 11:00	Field Blank	Pesticides	Bromacil	0.24	U	ug/L	0.24	0.94
4/16/2012 11:00	Field Blank	Pesticides	Butylate	0.24	U	ug/L	0.24	0.94
4/16/2012 11:00	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Chlorpyrifos Methyl	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Diazinon	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Ethion	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Ethoprop	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Fenamiphos	0.24	U	ug/L	0.24	0.94
4/16/2012 11:00	Field Blank	Pesticides	Fonofos	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Hexazinone	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Malathion	0.18	U	ug/L	0.18	0.71
4/16/2012 11:00	Field Blank	Pesticides	Metalaxyl	0.29	U	ug/L	0.29	1.2
4/16/2012 11:00	Field Blank	Pesticides	Metolachlor	0.59	U	ug/L	0.59	2.4
4/16/2012 11:00	Field Blank	Pesticides	Metribuzin	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Mevinphos	0.24	U	ug/L	0.24	0.94
4/16/2012 11:00	Field Blank	Pesticides	Naled	0.94	U	ug/L	0.94	3.8
4/16/2012 11:00	Field Blank	Pesticides	Norflurazon	0.18	U	ug/L	0.18	0.71
4/16/2012 11:00	Field Blank	Pesticides	Parathion Ethyl	0.18	U	ug/L	0.18	0.71
4/16/2012 11:00	Field Blank	Pesticides	Parathion Methyl	0.12	U	ug/L	0.12	0.47
4/16/2012 11:00	Field Blank	Pesticides	Phorate	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Pesticides	Prometryn	0.18	U	ug/L	0.18	0.71
4/16/2012 11:00	Field Blank	Pesticides	Simazine	0.059	U	ug/L	0.059	0.24
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	12	U	ug/L	12	47
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	17	U	ug/L	17	70
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1.2	U	ug/L	1.2	4.7

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2-Chlorophenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	2-Nitrophenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	47	U	ug/L	47	190
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.3	U	ug/L	2.3	9.3
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	4-Nitrophenol	17	U	ug/L	17	70
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Acenaphthene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Anthracene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzidine	120	U	ug/L	120	470
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	17	U	ug/L	17	70
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	5.8	U	ug/L	5.8	23
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Chrysene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Diethyl phthalate	1.2	UJ	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	12	U	ug/L	12	47
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	5.8	UJ	ug/L	5.8	23
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Fluoranthene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Fluorene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Hexachloroethane	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.23	U	ug/L	0.23	0.93

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Isophorone	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Naphthalene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Nitrobenzene	2.3	U	ug/L	2.3	9.3
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.3	U	ug/L	2.3	9.3
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.3	U	ug/L	2.3	9.3
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Pentachlorophenol	3.5	U	ug/L	3.5	14
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Phenanthrene	0.23	U	ug/L	0.23	0.93
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Phenol	1.2	U	ug/L	1.2	4.7
4/16/2012 11:00	Field Blank	Priority Organic Pollutants	Pyrene	0.23	U	ug/L	0.23	0.93

Appendix G

Toxicological results

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia

Facility: Milton WWTF
Address: 6903 Municipal Drive, Milton
County: Santa Rosa 32572
NPDES Permit #: FL 0021903
Contact/District: Nathan Mulkey / Northwest
LIMS entry: ~~MAR~~ MF May 1, 2012 verified: May 1, 2012 SD
Diluent/ Batch: ~~20% DMW~~ SD MHW / 4-17-12 Test Days Used: 0-6
20% DMW /_____ Test Days Used: _____

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

Organism: *Ceriodaphnia dubia*
Organism Batch #: 4-17-12
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: ☒ YCT ☐ *P. subcapitata*
Food Batch: 1-20-12 2-17-12
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	LAB Sample #	LIMS JOB #	LIMS SAMPLE #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2012-04-17-50	1422305	4-16-12 0843	4-17-12 MF 1053 19
Test Day 2	2	TLH-2012-04-19-73	1423313	4-18-12 0850	4-19-12 1053
Test Day 4	3	TLH-2012-04-24-07	1424027	4-19-12 0830 20 em	4-21-12 0900 1030 em

Water Quality Parameters	Batch # ~~SDMHW 20% DMW~~	20% DMW	NA Sample 1	NA Sample 2	NA Sample 3	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	Not measured				—	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	<0.03	<0.03		AP	MF
Alkalinity (mg/L as $CaCO_3$):	78		97	114	111		AP	MF
Hardness (mg/L as $CaCO_3$):	93		106	124	120		AP	MF
Total Ammonia (mg/L as N):	<0.017		0.032	<0.017	<0.017		MF	AP
Conductivity: ~~umhos~~ mmhos:	328		447	454	434		MF	AP
Salinity (ppth):	—		—	—	—			

Test Incubated in: Incubator #: 2

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.5 max. 26.5 mean —
Room B246 min. 24.2 max. 25.2 mean —
Test min._____ max._____ mean_____

Loaded by: MF

Test Replicates	Loaded from culture vial
1	A5
2	A12
3	A26
4	A27
5	B4
6	B5
7	B7
8	B9
9	B11
10	B12

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

Investigators' signatures
Marshall Faircloth
Adrienne Pennington
James Daniel

Liz Miller
REVIEWER

Comments: Invalid test control mortality - MF ~~AP~~ See NCR #4125

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Milton WWTF

LIMS Sample #: 1422305 for lab sample #1

Start Date: 4-17-12 Time: 1040

End Date: 4-24-12 Time: 1300

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	3	4	0	0	0	0	7	10	0.7
	4	8	0	3	0	0	0	4	0	0	9	24	10	2.4
	5	0	3	6	X	5	0	3	5	2	0	24	9	2.4
	6	3	0	8	|	9	4	9	2	9	4	48	9	4.8
	7	X	X	X	|	0	5	X	X	0	X	5	2	0.5
	8				|								
	Total	11	3	17	0	17	13	16	7	11	13	108	2(10)	10.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
6.25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	3	0	0	0	0	0	0	0	0	3	10	0.3
	4	6	0	5	0	0	7	0	0	10	10	38	10	3.8
	5	7	3	4	2	2	0	2	6	0	0	26	10	2.6
	6	4	1	2	0	1	4	0	0	0	0	12	10	1.2
	7	0X	0X	0X	0X	0X	0X	4X	X0	0	4a	4	2	0.4
	8													
	Total	17	7	11	2	3	11	6	6	10	10	83	2(10)	8.3

Organisms loaded by: MF

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

Concentration	Mean neonates /adult	% survival
Control	10.8	20%
6.25%	8.3	10%
12.50%	6.9	20%
25%	9.7	20%
50%	14.4	50%
100%	16.3	90%

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

Comments: a = aborted - not counted in Totals MF 6-21-12

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

Test Page 2 of 6 PAGE

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: MILTON WWTF

LIMS Sample # : 14223015 for lab sample #1

Start Date: 4-17-12 Time: 1040

End Date: 4-24-12 Time: 1300

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
12.50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	8	0	0	X0	3 mf	9 mf	0	0	9	0	29	9	2.9
	5	0	3	4	|	15 mf	8 mf	3	0	0	0	15	9	1.5
	6	8	1	0	|	8	0	0	1	0	0	18	9	1.8
	7	X0	X0	X0	|	0	X0	X0	2	X5	X	7	2	0.7
	8													
	Total	16	4	4	0	14	19	3	3	14	0	69	2(10)	6.9

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	4	4	10	0.4
	4	0	0	0	X0	X0	0	4	2	7	0	17 mf	9	1.7
	5	0	10	1	|	5	2	4	7	0	6	35 mf 6	9	3.6
	6	0	0	5	|	8	3	8	10	0	16	34	9 mf	3.4
	7	0X	3	X0	|	X0	X0	0X	X0	X0	3	6	8.2	0.6
	8					17 mf								
	Total	0	13	6	10	20	5	16	19	7	14	~~97~~ 100 mf	2(10)	9.7

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	3	0	0	0	0	0	0	0	5	8 mf	10	0.8
	4	0	0	4	X0	4	0	5	3	0	0	~~16~~ 8	9	1.8
	5	3	10	2	|	8	4	7	6	8	11	~~57~~ 48	9	5.8
	6	16	10	1	|	9	2	8	10	3	0	43 mf	9	4.3
	7	0	(10)	X0	|	(6)	7X	0	0X	10	0	17	5	1.7
	8										6 mf			
	Total	4	23	7	0	21	13	20	19	21	17	144	5(10)	14.4

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*												10	
	1												10	
	2	0	0	0	0	0	X	0	0	0	0	0	9	0
	3	0	3	0	0	0	\	0	0	4	0	7	9	0.7
	4	7	6	0	0	4	|	1	0	0	0	18	9	1.8
	5	0	0	5	7	10	|	8	3	10	6	50	9	5.0
	6	11	10	12	mf 12	12	|	6	0	9	(9)	60	9	6.0
	7	0	(12)	8	12	(12)	|	(15)	5	(12)	3	28	9	2.8
	8													
	Total	18	19	25	19	26	0	15	8	23	10	163	9(10)	16.3

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Comments: (S) = split brood. mf 4-22-12

(#) = not counted 4th brood mf 6-21-12

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: MILTON SOP TA07_05

LIMS Sample #: 142305 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	sample	Control	M	7.8	24.2	7.8	328					
	1	6.25%	M	7.8	24.4	7.7	340					
	1	12.5%	M	7.8	24.6	7.8	347					
	1	25%	M	7.8	24.7	7.9	359					
	1	50%	M	7.7	24.7	8.1	385					
	1	100%	M	7.6	24.6	8.4	447					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	7.8	24.5	7.3	317	M	7.9	24.8	7.7	347
	1	6.25%	M	7.8	24.9	7.4	326	M	8.0	25.1	7.8	352
	1	12.5%	M	7.8	25.2	7.4	334	M	8.0	25.1	7.8	356
	1	25%	M	7.8	25.2	7.4	346	M	8.0	25.1	7.8	371
	1	50%	M	7.8	25.1	7.4	372	M	8.0	25.0	7.8	400
	1	100%	M	7.8	25.0	7.4	429	M	8.0	25.0	7.8	450
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 2	sample:	Control	M	7.8	24.7	7.8	328	M	8.0	25.1	8.1	340
	2	6.25%	M	7.8	25.0	7.8	332	M	8.0	25.0	8.1	355
	2	12.5%	M	7.8	25.2	7.7	339	M	8.0	25.0	8.0	364
	2	25%	M	7.8	25.3	7.8	353	M	8.0	25.1	7.9	364
	2	50%	M	7.8	25.6	7.8	385	M	8.0	25.2	8.0	388
	2	100%	M	7.8	25.7	7.8	454	M	8.0	25.1	8.0	448
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample:	Control	M	8.0	24.5	7.5	345	M	8.1	25.4	7.7	346
	2	6.25%	M	7.9	25.0	7.7	354	M	8.0	25.4	7.7	350
	2	12.5%	M	7.9	25.1	7.8	362	M	8.0	25.5	7.4	357
	2	25%	M	7.8	25.2	7.6	376	M	8.0	25.3	7.3	372
	2	50%	M	7.8	25.3	7.9	406	M	7.9	25.2	7.5	401
	2	100%	M	7.7	25.4	8.3	467	M	7.9	25.1	7.5	472
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

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

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Milton SOP TA07_05

LIMS Sample #: 1422305 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	8.0	25.4	7.8	343	M	7.9	24.4	8.0	360
	3	6.25%	M	8.0	25.6	7.7	354	M	7.9	24.5	7.9	362
	3	12.5%	M	8.0	25.8	7.6	357	M	7.9	24.8	7.8	390
	3	25%	M	8.0	25.8	7.6	370	M	7.9	25.1	7.9	400
	3	50%	M	8.0	25.7	7.6	391	M	7.9	25.3	7.9	422
	3	100%	M	7.9	25.8	7.6	443	M	7.9	25.1	7.9	502
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	8.1	25.2	7.3	333	M	8.1	25.7	7.9	361
	3	6.25%	M	8.1	25.4	7.4	340	M	8.1	25.7	7.9	367
	3	12.5%	M	8.1	25.4	7.4	346	M	8.1	25.6	7.7	374
	3	25%	M	8.0	25.2	7.4	358	M	8.1	25.8	7.7	388
	3	50%	M	8.0	25.2	7.4	382	M	8.0	25.9	7.8	407
	3	100%	M	8.0	25.1	7.5	434	M	8.0	25.7	7.7	457
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	sample:	Control	M	8.1	24.3	7.5	327	M	8.1	24.4	7.9	460
	3	6.25%	M	8.1	24.8	7.4	332	M	8.1	24.4	7.9	383
	3	12.5%	M	8.1	24.9	7.4	339	M	8.1	24.5	7.9	382
	3	25%	M	8.0	25.3	7.3	355	M	8.1	24.5	7.9	385
	3	50%	M	8.0	25.5	7.4	380	M	8.1	24.7	7.9	417
	3	100%	M	8.0	25.6	7.5	432	M	8.1	24.6	7.9	478
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 7	sample:	Control	M					M	8.3	23.9	8.2	350
	3	6.25%	M					M	8.3	24.0	8.3	346
	3	12.5%	M					M	8.2	24.2	8.5	353
	3	25%	M					M	8.2	24.5	8.3	372
	3	50%	M					M	8.2	24.6	8.5	399
	3	100%	M					M	8.0	24.3	8.5	445
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF

Comments:

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

Test ID: Milton WWTF Dates: April 17-24, 2012

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

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)

5-2-12 AP

V 1.1 9/21/10 MF/jd

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FDEP Biology ~~Laboratory~~ - Chronic Bioassay Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: Milton
Address: 6903 Municipal Dr, Milton
County: Santa Rosa 32572
NPDES Permit #: FL 0021903
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: 4.17.12 Time: 1:30 pm
End Date: 4.24.12 Time: 10:00 AM

Diluent/ Batch:
MHW / 4.10.12 Test Days Used: 0-7
MHW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____

Organism age : <24hrs ~~days~~ JD ~~24-48~~ 23613
Feeding Prior to Test and Daily
Artemia Lot # : 23613
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch # 1	
Day 0 54-12	Day 3 57-12
Day 1 55-12	Day 4 58-12
Day 2 56-12	Day 5 59-12
	Day 6 60-12

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2012-04-17-50	1422305	4-16-12 0843	4-17-12 10:19
Test Day 2	2	TLH-2012-04-19-73	1423313	4-18-12 0850	4-19-12 10:53
Test Day 4	3	TLH-2012-01-24-07	1424027	~~4-19-12 0930~~ 20 pm 10 pm	4-21-12 0900

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:				<0.03	<0.03	<0.03	97	114	111	106	124	120
Diluent/Control:				<0.03			41			88		
Method:				Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:				~~AP~~ JD	JD	KMS	AP	AP	KMS	AP	AP	KMS
Verified by:				AP	AP	AP	JD	JD	JD	JD	JD	JD

	Conductivity (circle one) (µmhos-cm / mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	445	453	460	0.0322	<0.017	<0.017	—	—	—
Diluent/Control:	336			<0.017			—		
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	JD	AP	MF	MF	MF			
Verified by:	AP	AP	JD	AP	AP	AP			

Lims entry: 5-1-12 MI
Verification: 5-1-12 JD

Statistics	
Growth NOEC:	100%
Growth LOEC:	>100%
Growth IC_{20}:	>100%
Growth IC_{25}:	>100%
Ctrl % CV:	15.8%
Dunnetts PMSD:	21.9
Survival NOEC:	100%
Survival LOEC:	>100%

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min 24.3 max 26.4 mean —
Water bath # ___ min.____ max.____ mean____
Room B246 min. 24.2 max 25.2 mean —

Investigators' signatures
Adrienne Pennington
Kim M Spencer
Bruce Aleks
Marshall Faircloth
James Daniels
Liz Miller
REVIEWER

Comments:

revised 08/24/06 MF/SP

Chronic Bioassay Survival Benchsheet

Facility: Milton

LIMS Sample Number: 1422305
(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	8 2D	8	8	8	8	8	8
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 6.25 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 12.5 %	A	10	10	10	9 1D	9	9	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	10	10	10	10
Sample 25 %	A	10	10	10	10	10	10	10	9 1D
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	9 1D	9	9	9	9	9	9
Sample 50 %	A	10	9 1D	9	9	9	9	8 1D	8
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 100 %	A	10	10	10	10	10	10	10	9 1D
	B	10	10	10	10	10	10	10	10
	C	10	9 1D	9	9	9	9	9	9
	D	10	10	10	10	10	10	10	10
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		AP	JD	JD	AP	AP	AP	AP
Verified by: AP									

Comments:

Chronic Bioassay Parameters Benchsheet

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

Sample Source: Milton — Start Date: 4.17.12 End Date: 4-24-12

LIMS Sample #: 1422305 (for Lab sample #1) — Start Time: 1:30 End Time: 1120

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

Test Day ↓			Before Renewal						After Renewal					
	sample:	Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Salinity ppth
Day 0	Control		A	8.0	24.7	7.4	336							
	1	6.25%	A	7.9	24.9	7.4	342							
	1	12.5%	A	7.9	24.9	7.6	349							
	1	25%	A	7.9	25.0	7.7	363							
	1	50%	A	7.9	25.0	7.8	386							
	1	100%	A	7.8	25.4	7.8	445							
	1		A											
	Measured by:			JD	JD	JD	JD							
	Recorded by:			JD	JD	JD	JD							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	7.9	26.3	7.4	342		B	8.0	24.8	7.6	327	
	1	6.25%	B	7.9	25.7	7.2	345		B	8.1	24.7	7.4	335	
	1	12.5%	B	7.9	25.7	7.2	351		B	7.9	24.7	7.3	338	
	1	25%	B	7.9	26.0	7.3	364		B	7.9	24.7	7.4	358	
	1	50%	B	7.8	25.6	7.3	387		B	7.8	24.8	7.4	375	
	1	100%	B	7.9	26.3	7.2	444		B	7.8	25.1	7.5	433	
	1		B						B					
	Measured by:			AP	AP	AP	AP			JD	JD	JD	JD	
	Recorded by:			AP	AP	AP	AP			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	8.2	25.8	7.0	337		C	7.5	24.6	7.6	332	
	2	6.25%	C	8.0	25.9	6.4	344		C	7.6	24.6	7.3	340	
	2	12.5%	C	8.0	25.9	6.5	349		C	7.6	24.6	7.3	346	
	2	25%	C	7.9	25.6	6.7	366		C	7.6	24.7	7.5	368	
	2	50%	C	7.8	25.6	6.8	386		C	7.7	24.8	7.6	394	
	2	100%	C	7.8	25.5	6.4	447		C	7.6	25.2	7.5	458	
	2		C						C					
	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 3	sample:	Control	D	8.1	24.3	5.5	343		D	7.3	24.5	6.6	328	
	2	6.25%	D	7.9	24.5	6.1	343		D	7.4	24.6	6.9	337	
	2	12.5%	D	7.8	24.5	6.2	349		D	7.5	24.7	6.9	339	
	2	25%	D	7.8	24.4	6.3	360		D	7.5	24.7	6.9	354	
	2	50%	D	7.8	24.3	6.4	391		D	7.6	25.0	7.1	387	
	2	100%	D	7.8	24.3	6.1	453		D	7.6	25.3	7.0	451	
	2		D						D					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	

Comments:

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

Chronic Bioassay Parameters Benchsheet

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

Sample Source: Milton — Start Date: 4.17.12 — End Date: 4-24-12

LIMS Sample #: 1422305 (for Lab sample #1) — Start Time: 1:30 — End Time: 11:00

conc = concentration — rep = replicate

Test Day			Before Renewal						After Renewal					
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 4	sample:	Control	A	7.2	25.8	5.6	386		A	7.6	24.6	6.4	335	
	3	6.25%	A	7.2	25.9	5.7	371		A	7.6	24.8	6.5	341	
	3	12.5%	A	7.2	25.8	6.2	369		A	7.6	24.9	6.5	348	
	3	25%	A	7.5	25.8	6.5	396		A	7.7	24.9	6.6	362	
	3	50%	A	7.6	25.6	6.4	428		A	7.7	25.0	6.7	384	
	3	100%	A	7.6	26.0	6.4	494		A	7.8	25.4	6.7	454	
	3		A						A					
	Measured by:			kmr	AP	kmr	kmr			AP	AP	AP	AP	
	Recorded by:			kmr	AP	kmr	kmr			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	7.7	25.3	6.6	348		B	7.7	24.4	7.1	328	
	3	6.25%	B	7.7	25.5	6.4	357		B	7.8	24.5	7.3	337	
	3	12.5%	B	7.6	26.2	5.7	367		B	7.8	24.5	7.2	345	
	3	25%	B	7.6	25.5	5.8	375		B	7.8	24.5	7.1	358	
	3	50%	B	7.6	25.7	5.9	406		B	7.8	24.4	7.1	383	
	3	100%	B	7.6	25.6	6.1	460		B	7.8	24.4	7.1	443	
	3		B						B					
	Measured by:			AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by:			AP	AP	AP	AP			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.7	24.3	7.1	346		C	7.7	23.4	7.4	329	
	3	6.25%	C	7.8	24.9	7.2	357		C	7.8	23.4	7.4	337	
	3	12.5%	C	7.7	24.7	7.0	366		C	7.7	23.4	7.2	347	
	3	25%	C	7.7	24.5	6.9	377		C	7.8	23.4	7.4	360	
	3	50%	C	7.7	24.8	7.0	407		C	7.7	23.8	7.5	387	
	3	100%	C	7.7	24.7	6.8	470		C	7.7	23.6	7.3	450	
	3		C						C					
	Measured by:			AP	AP	AP	AP			AP	AP	AP	AP	
	Recorded by:			AP	AP	AP	AP			AP	AP	AP	AP	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control	D	7.6	24.2	6.4	342		D					
	3	6.25%	D	7.6	25.2	6.7	355		D					
	3	12.5%	D	7.6	24.7	6.8	364		D					
	3	25%	D	7.6	24.5	6.7	376		D					
	3	50%	D	7.6	25.6	6.5	411		D					
	3	100%	D	7.6	24.6	6.3	465		D					
	3								D					
	Measured by:			BA	BA	BA	BA							
	Recorded by:			BA	BA	BA	BA							

Comments:

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

Chronic Bioassay Weighing Benchsheet

Facility: Milton

LIMS Sample Number: 1422305
(for Lab Sample # 1)

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

			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right					
Concentration	Replicate	Pan #	Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg	Avg.
Control	A	1	0.02237	0.02662	0.00425	10	0.425	
	B	2	0.02193	0.02510	0.00317	10	0.317	
	C	3	0.02271	0.02708	0.00437	10	0.437	0.411
	D	4	0.02355	0.02820	0.00465	10	0.465	
sample 6.25 %	A	5	0.02252	0.02640	0.00388	10	0.388	
	B	6	0.02338	0.02711	0.00373	10	0.373	
	C	7	0.02188	0.02530	0.00342	10	0.342	0.380
	D	8	0.02198	0.02615	0.00417	10	0.417	
sample 12.5 %	A	9	0.02277	0.02608	0.00331	10	0.331	
	B	10	0.02171	0.02510	0.00339	10	0.339	
	C	11	0.02385	0.02695	0.00310	10	0.310	0.3529
	D	12	0.02239	0.02670	0.00431	10	0.431	
sample 25 %	A	13	0.02201	0.02554	0.00353	10	0.353	
	B	14	0.02333	0.02688	0.00355	10	0.355	0.363
	C	15	0.02231	0.02610	0.00379	10	0.379	
	D	16	0.02399	0.02765	0.00366	10	0.366	
sample 50 %	A	17	0.02237	0.02550	0.00313	10	0.313	
	B	18	0.02233	0.02724	0.00491	10	0.491	
	C	19	0.02231	0.02653	0.00422	10	0.422	0.419
	D	20	0.02278	0.02728	0.00450	10	0.450	
sample 100 %	A	21	0.02452	0.02878	0.00426	10	0.426	
	B	22	0.02284	0.02811	0.00527	10	0.527	
	C	23	0.02279	0.02699	0.00420	10	0.420	0.4668
	D	24	0.02310	0.02804	0.00494	10	0.494	
sample %	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by initials:		AP	AP	revised 7/16/08 mf			

Comments:

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

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

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Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Milton

LIMS Sample Number: 1422305
(for Lab Sample # 1)

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

Drying Oven ID:	ER034000
Temperature °C:	100
Hours:	8

Tare weighed by: AP
Final weighed by: AP

Tare Weighing Date: 4.23.12 Final Weighing Date: 4.26.12

			Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02240	@ 0.02237	S-weights	@	0.01 g
Tare Pan 1 after Pan 10 (g)	0.02237	@ 0.02237	at tare	@	0.03 g
Tare Pan 1 after Pan 15 (g)	0.02238	@ 0.02237	S-weights	@	0.01 g
Tare Pan 1 after Pan 20 (g)	0.02239	@ 0.02237	at final	@	0.05 g
Tare Pan 1 after Pan 25 (g)	0.02236	@ 0.02237			
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)	0.02662	@ 0.02662			
Final Pan 1 after Pan 10 (g)	0.02659	@ 0.02662			
Final Pan 1 after Pan 15 (g)	0.02662	@ 0.02662			
Final Pan 1 after Pan 20 (g)	0.02661	@ 0.02662			
Final Pan 1 after Pan 25 (g)	0.02660	@ 0.02662			
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

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Test ID: Milton Dates: 4/17/12 - 4/24/12

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

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

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

4.26.12 AP

V 1.1 9/21/10 MF/jd

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Larval Fish Growth and Survival Test-7 Day Growth					
Start Date:	4/17/2012 13:30	Test ID:	milt41712	Sample ID:	Milton chronic pp April 17 2012
End Date:	4/24/2012 11:00	Lab ID:	FDEP Biology Toxicity Lab	Sample Type:	EFF1-POTW
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	Chronic P. promelas for City of Milton WWTP				

Conc-%	1	2	3	4
D-Control	0.4250	0.3170	0.4370	0.4650
6.25	0.3880	0.3730	0.3420	0.4170
12.5	0.3310	0.3390	0.3100	0.4310
25	0.3530	0.3550	0.3790	0.3660
50	0.3130	0.4910	0.4220	0.4500
100	0.4260	0.5270	0.4200	0.4940

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.4110	1.0000	0.4110	0.3170	0.4650	15.783	4	0.4110	1.0000
6.25	0.3800	0.9246	0.3800	0.3420	0.4170	8.219	4	0.3964	0.9644
12.5	0.3528	0.8583	0.3528	0.3100	0.4310	15.189	4	0.3964	0.9644
25	0.3633	0.8838	0.3633	0.3530	0.3790	3.291	4	0.3964	0.9644
50	0.4190	1.0195	0.4190	0.3130	0.4910	18.171	4	0.3964	0.9644
100	0.4668	1.1356	0.4668	0.4200	0.5270	11.214	4	0.3964	0.9644

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96858	0.884	-0.4583	0.2099
Bartlett's Test indicates equal variances (p = 0.18)	7.61573	15.0863		

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

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 4/16/12

Ship to: FDEP

P.O. No:

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina	250 ca	10 DAYS	SS120406	25	7.9	20
	150 ca	12 DAYS	SS120404	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas	250	<24 HRS	FM120415-1610	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes:

Thank you for your order.

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Appendix H

Standard Reference Toxicant Data

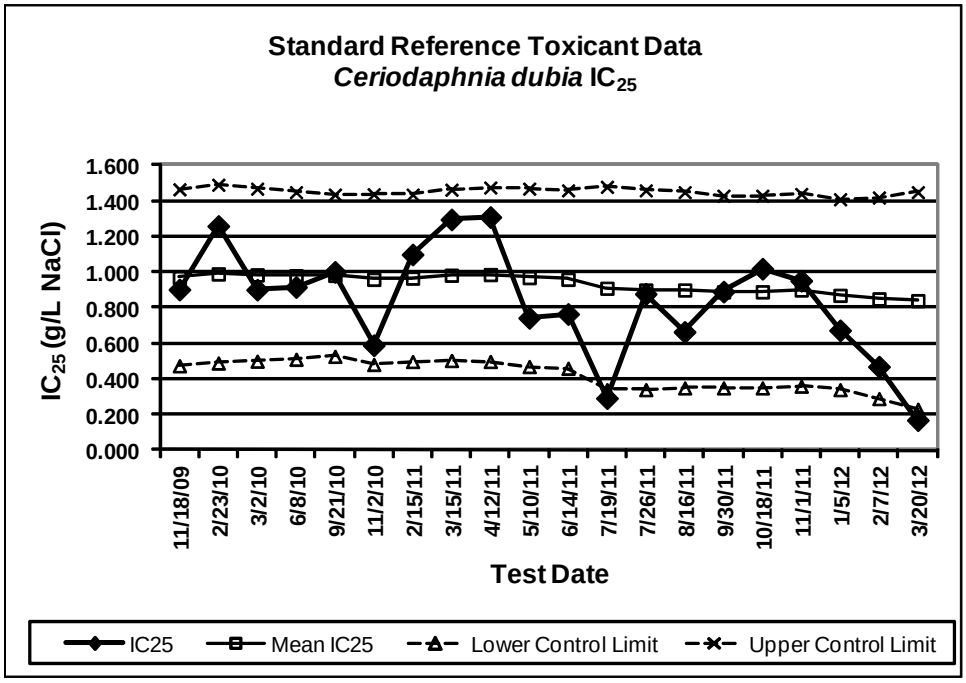
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
11/18/09	0.903	0.97	0.25	0.47	1.47
2/23/10	1.260	0.99	0.25	0.49	1.49
3/2/10	0.902	0.98	0.24	0.50	1.47
6/8/10	0.917	0.98	0.23	0.51	1.45
9/21/10	1.002	0.98	0.23	0.53	1.44
11/2/10	0.590	0.96	0.24	0.48	1.44
2/15/11	1.100	0.97	0.23	0.50	1.44
3/15/11	1.297	0.98	0.24	0.50	1.46
4/12/11	1.310	0.99	0.24	0.50	1.48
5/10/11	0.744	0.97	0.25	0.47	1.47
6/14/11	0.765	0.96	0.25	0.46	1.46
7/19/11	0.293	0.91	0.28	0.34	1.48
7/26/11	0.879	0.90	0.28	0.34	1.46
8/16/11	0.665	0.90	0.27	0.35	1.45
9/30/11	0.891	0.89	0.27	0.35	1.43
10/18/11	1.020	0.89	0.27	0.35	1.43
11/1/11	0.953	0.90	0.27	0.36	1.44
1/5/12	0.674	0.87	0.27	0.34	1.41
2/7/12	0.470	0.85	0.28	0.29	1.42
3/20/12	0.169	0.84	0.31	0.23	1.45

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

EPA 75th Percentile %CV for Reproduction **45%**
Last 20 - Lab %CV Reproduction 36.4%



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	3/20/2012 07:45	Test ID:	cdsrt32012	Sample ID:	C. dubic chron srt March 20 12
End Date:	3/26/2012 13:00	Lab ID:	FDEP Biology Toxicity Lab	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia

Comments: Ceriodaphnia dubia chronic SRT March 20, 2012

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	16.000	22.000	19.000	17.000	22.000	23.000	15.000	26.000	25.000	21.000
0.25	0.000	4.000	15.000	25.000	15.000	31.000	13.000	18.000	9.000	0.000
0.5	0.000	0.000	0.000	11.000	0.000	7.000	9.000	2.000	9.000	11.000
1	4.000	0.000	0.000	0.000	2.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	20.600	1.0000	20.600	15.000	26.000	18.192	10	20.600	1.0000
0.25	13.000	0.6311	13.000	0.000	31.000	78.446	10	13.000	0.6311
0.5	4.900	0.2379	4.900	0.000	11.000	100.187	10	4.900	0.2379
1	0.600	0.0291	0.600	0.000	4.000	224.983	10	0.600	0.0291
2	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000
4	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95042	0.919	0.36628	2.14816
Bartlett's Test indicates unequal variances (p = 3.50E-06)	28.0784	11.3449		

	Linear Interpolation (200 Resamples)				
Point	gm/L	SD	95% CL		Skew
IC05*	0.0339	0.0374	0.0188	0.1504	3.9407
IC10*	0.0678	0.0500	0.0377	0.2561	2.5028
IC15*	0.1016	0.0561	0.0565	0.2746	1.6755
IC20*	0.1355	0.0604	0.0754	0.2931	1.1288
IC25*	0.1694	0.0625	0.0942	0.3102	0.7511
IC40	0.2698	0.0647	0.1507	0.3678	0.0547
IC50	0.3333	0.0671	0.1884	0.4213	-0.3275

* indicates IC estimate less than the lowest concentration

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: MF ~~20% DMW~~ SDMHW / 3-14-12 Test Days Used: 0-5
20% DMW /_____ Test Days Used: _____

Toxicant/ Batch: NaCl / 3-19-12 4g/L

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 3-20-12 / <24 hr.
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 1-20-12 10-31-11
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 3-20-12 Time: 0745
End Date: 3-26-12 Time: 1300

Batch:	3-14-12				
Water Quality Parameters	SDMHW ~~20% DMW~~ JDM	20% DMW	Other	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03			AP	BA
Alkalinity (mg/L as $CaCO_3$):	68			AP	BA
Hardness (mg/L as $CaCO_3$):	85			AP	BA
Total Ammonia (mg/L as N):	<0.017			MF	AP
Conductivity (umhos-cm) mmhos-cm :	312			MF	BA

Results	
Control % CV:	18.2%
Dunnetts PMSD:	27.8%
Reproduction NOEC:	0.25 g/L
Reproduction LOEC:	0.5 g/L
Survival NOEC:	0.5 g/L
Survival LOEC:	1.0 g/L
ICP_{20}:	0.1350 g/L
ICP_{25}:	0.1694 g/L

Dunnetts ↓ <0.25 g/L 0.25 g/L

Loaded by: MF

Day	Concentrations prepared by	Counted by
0	MF	AP
1	MF	MF
2	AP/HW	MF
3	AP/HW	AP
4	AP/HW	MF
5	AP/HW	AP
6	NOT REQUIRED	MF
7		
8		

Test Replicate	Loaded from culture vial
1	B2
2	B5
3	B6
4	B10
5	B14
6	B29
7	A5
8	A6
9	A14
10	A24

Comments:

Investigators' signatures

Marshall Fairchild
Andrew Pennington
Amy Auburn
James Daniel

Liz Miller
REVIEWER

Test Incubated in: Incubator: # 4
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 4 min. 24.1 max. 25.9 mean —
Room B246 ____ min. 24.5 max. 25.2 mean —
Test min._____ max._____ mean_____

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Ceriodaphnia dubia Survival and Reproduction

Start Date: 3-20-12 Time: 0745 Loaded by: MF
End Date: 3-26-12 Time: 1300 Verified by: AP

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0											0	10	
	1											0	10	
	2	0	0	0	0	0	0	0	0	0	0	0 mf	10	0
	3	0	4	0	4	2	6	2	4	7	3	32 5 mf	10	3.2
	4	0	0	2	9	0	8	3 (S)	8	0	0	36 mf	10	3.6
	5	6	4	8 (A)	0	10	10	0	0	10	8	43	10	4.3
	6	10	9	9	4	10	8	10	14	8	10	92	10	9.2
	7													
	8													
	Total	16	22	19	17	22	23	15	26	25	21	206	10	20.6
0.25 ~~0.89~~ mf ppth	0											0	10	
	1											0	10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	4	4	3	0	5	0	4	3	0	23	10	2.3
	4	0	0	0	9	6	10	0	6	0	X	31	9	3.1
	5	0	0	4	0	0	mf 0	0	0	6		10	9	1.0
	6	0	0	7 (A)	13	9	16	13	8 (A)	0		~~5~~ mf 66	9	6.6
	7													
	8			15 mf										
	Total	0	4	9	25	15	31	13	mf 148	9		~~2~~ 170 (130)	9 (10)	13.0
0.5 mf ~~0.89~~ ppth	0											0	10	
	1											0	10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	X0	0	0	2	0	2	0	0	4	9	0.4
	4	0	0	|	5	0	5	1	0	4	0	15	9	1.5
	5	0	0	|	0	X0	0	0	0	0	4	4	8	0.4
	6	0	0	|	6	|	0	8	0	5	7	26	8	2.6
	7			|		|							
	8			|		|							
	Total	0	0	0	11	0	7	9	2	9	11	49	8 (10)	4.9

Comments: (S) split MF 3-24-12 A= aborted Do not count in total - MF 3-26-12
(#A) = aborted Live (counted in total) and aborted (NOT counted) MF 6-22-12

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FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult (original)
0 mf 1.8 ppth	0											0	10	
	1											0	10	
	2	0	0	0	0	0	0	0	0	0	0	0 im	10	0
	3	0	X0	X0	0	2	0	0	X0	0	0	2	7	0,2
	4	0	|	|	oX	0	0	X0	|	oX	0	0	4	0
	5	4	|	|	|	0	0	|	|	|	X	4	3	0,4
	6	X0	|	|	|	0	X0	|	|	|	|	0	1	0
	7	|	|	|	|	|	|	|	|	|	|			
	8	|	|	|	|	|	|	|	|	|	|			
	Total	4	0	0	0	2	0	0	0	0	0	6	1 (11)	0.6
2.0 ppth	0											0	10	
	1						oX					0	9	
	2	X0	0	0	0	X0	|	0	0	X0	0	0	6	0
	3	|	0	0	0	|	|	0	0	|	0	0	6	0
	4	|	0	0	0	|	|	0	0	|	0	0	6	0
	5	|	0	0	0	|	|	0	0	|	0	0	6	0
	6	|	0	0	0	|	|	0	0	|	0	0	6	0
	7	|	|	|	|	|	|	|	|	|	|			ø mf
	8	|	|	|	|	|	|	|	|	|	|			
	Total	0	0	0	0	0		0	0	0	0	0	6	0
4.0 ~~8.0~~ ppth mf	0												10	
	1	X	X	X	X	X	X	X	X	X	X	0	0	
	2	|	|	|	|	|	|	|	|	|	|	|	0	
	3	|	|	|	|	|	|	|	|	|	|	|	0	
	4	|	|	|	|	|	|	|	|	|	|	|	0	
	5	|	|	|	|	|	|	|	|	|	|	|	0	
	6	|	|	|	|	|	|	|	|	|	|	|	0	
	7	|	|	|	|	|	|	|	|	|	|	|	0	
	8	|	|	|	|	|	|	|	|	|	|	|	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

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FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	8.0	24.2	7.8	0.312					
	~~0.59~~ 0.25 mf ppth	M	8.0	24.3	7.7	0.818					
	~~0.89~~ 0.5 mf ppth	M	8.0	24.4	7.7	mf 1.310					
	~~1.3~~ 1.0 mf ppth	M	8.0	24.4	7.7	2.27					
	~~2.0~~ 2.0 mf ppth	M	8.0	24.6	7.6	4.17					
	~~3.0~~ 4.0 mf ppth	M	8.0	25.2	7.6	7.85					
	Measured by:		mf	mf	mf	mf					
	Recorded by:		mf	mf	mf	mf					
Day 1	Control	M	8.1	24.2	8.0	0.310	A	8.1	24.6	7.9	0.338
	~~0.59~~ 0.25 mf ppth	M	8.0	24.7	8.0	0.806	A	8.0	24.7	8.0	0.851
	~~0.89~~ 0.5 mf ppth	M	8.0	24.8	8.1	1.32	A	8.1	24.8	8.0	1.31
	~~1.3~~ 1.0 mf ppth	M	8.0	25.0	7.9	2.28	A	8.1	24.7	7.9	2.34
	2.0 ppth	M	8.0	25.2	7.8	4.14	A	8.1	24.6	7.9	4.23
	~~3.0~~ 4.0 mf ppth	M	8.0	25.6	7.9	7.74	A	8.1	24.5	7.9	7.87
	Measured by:		mf	mf	mf	mf		mf	mf	mf	mf
	Recorded by:		mf	mf	mf	mf		mf	mf	mf	mf
Day 2	Control	M	7.9	24.2	7.9	0.317	A	8.0	24.5	7.9	0.344
	~~0.59~~ 0.25 mf ppth	M	8.0	24.1	7.7	0.841	A	8.0	24.5	8.0	0.864
	~~0.89~~ 0.5 mf ppth	M	8.0	24.2	7.7	1.36	A	8.0	24.6	7.8	1.37
	~~1.3~~ 1.0 mf ppth	M	8.0	24.1	7.7	2.46	A	8.0	24.5	7.8	2.36
	2.0 ppth	M	8.0	24.1	7.7	4.21	A	8.0	24.5	7.9	4.27
	~~3.0~~ 4.0 mf ppth	M	—	—	—	—	—	—	—	—	—
	Measured by:		mf	mf	mf	mf		mf	mf	mf	mf
	Recorded by:		mf	mf	mf	mf		mf	mf	mf	mf
Day 3	Control	M	7.9	25.0	8.4	0.317	A	7.9	23.3	8.0	0.324
	~~0.59~~ 0.25 mf ppth	M	7.9	25.1	8.4	0841	A	7.9	23.2	7.8	0.834
	~~0.89~~ 0.5 mf ppth	M	7.9	25.5	8.5	1398	A	7.9	23.2	7.8	1.366
	~~1.3~~ 1.0 mf ppth	M	8.0	25.9	8.6	2540	A	7.9	23.2	7.8	2.48
	2.0 ppth	M	8.0	25.2	8.4	4.290	A	7.9	23.1	7.8	4.28
	~~3.0~~ 4.0 mf ppth	M									
	Measured by:		HW	HW	HW	HW		HW	HW	HW	HW
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	~~AP~~

Comments:

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

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FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	New Sample pH (su)	New Sample Temp (°C)	New Sample DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	Old Sample pH (su)	Old Sample Temp (°C)	Old Sample DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	7.9	24.8	7.8	0.317	A	8.1	~~24.0~~	24.0	7.9	0.339
	~~0.59~~ 0.25 mf ppth	M	7.9	25.6	7.8	0.834	A	8.0	~~23.7~~	23.7	7.9	0.865
	~~0.89~~ 0.5 mf ppth	M	7.9	25.7	7.9	1.36	A	8.0	24.2	7.9	1.42
	~~1.3~~ 1.0 mf ppth	M	7.9	25.4	7.9	2.46	A	8.0	24.3	7.9	2.56
	2.0 ppth	M	7.9	25.7	7.9	4.24	B	8.0	24.2	7.8	4.25
	~~3.0~~ 4 mf ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 5	Control	M	7.9	25.0	8.0	0.317	A	7.9	23.3	7.9	0.316
	~~0.59~~ 0.25 mf ppth	M	8.0	24.9	7.7	0.830	A	7.9	23.2	7.8	0.796
	~~0.89~~ 0.5 mf ppth	M	8.0	24.9	7.9	1.356	A	8.0	23.1	7.7	1.32
	~~1.3~~ 1.0 mf ppth	M	8.0	25.5	8.0	2.49	A	8.0	23.2	7.7	2.43
	2.0 ppth	M	8.0	25.0	7.7	4.22	B	8.0	23.1	7.7	4.19
	~~3.0~~ 4 mf ppth	M									
	Measured by:		AP	AP	AP	AP		AP	AP	AP	AP
	Recorded by:		AP	AP	AP	AP		AP	AP	AP	AP
Day 6	Control	M					A	8.1	24.1	7.8	0.333
	~~0.59~~ 0.25 mf ppth	M					A	8.0	24.2	7.8	0.859
	~~0.89~~ 0.5 mf ppth	M					A	8.1	24.2	7.6	1.37
	~~1.3~~ 1.0 mf ppth	M					A	8.1	24.3	7.5	2.40
	2.0 ppth	M					B	8.1	24.5	7.5	4.23
	~~3.0~~ 4 mf ppth	M									
	Measured by:							MF	MF	MF	MF
	Recorded by:							MF	MF	MF	MF
Day 7	Control	M									
	~~0.59~~ 0.25 mf ppth	M									
	~~0.89~~ 0.5 mf ppth	M									
	~~1.3~~ 1.0 mf ppth	M									
	2.0 ppth	M									
	~~3.0~~ 4 mf ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	~~0.59~~ 0.25 mf ppth	M									
	~~0.89~~ 0.5 mf ppth	M									
	~~1.3~~ 1.0 mf ppth	M									
	2.0 ppth	M									
	~~3.0~~ 4 ppth	M									
	Measured by:										
	Recorded by:										

Not Received MF 6-21-12

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

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FDEP Biology Laboratory - Bioassay Instrument Identification

Test ID: SRT (C.dubia) March 20-2012 Dates: March 20 - March 26, 2012

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	ec#5 ✓
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

SM-2530B modified to allow use 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: M, Faircloth 3-26-12

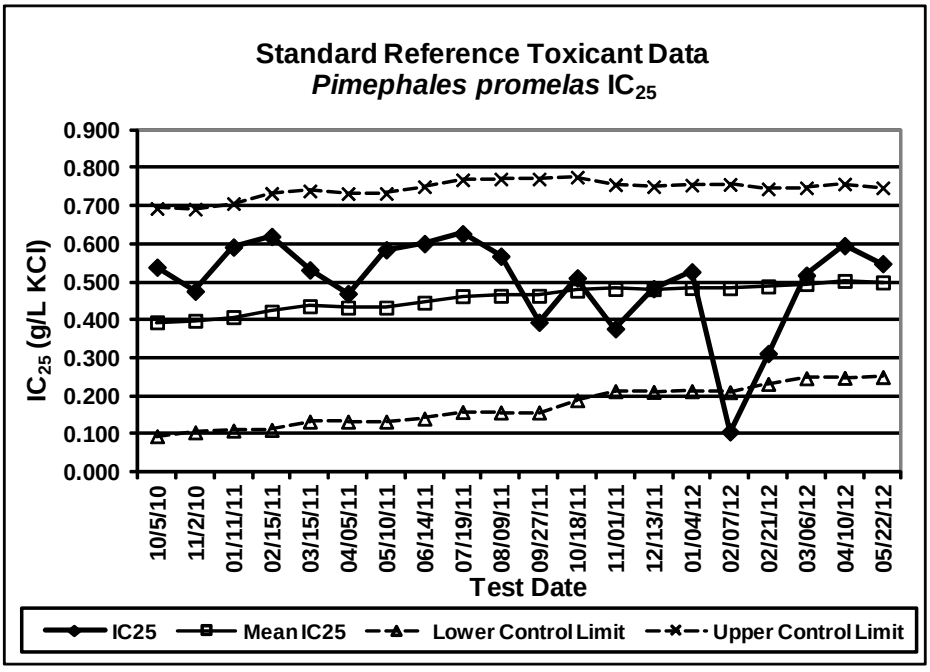
V 1.4 8/21/08 BA Pg 6 of 6

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
10/05/10	0.539	0.394	0.15	0.094	0.694
11/02/10	0.476	0.398	0.15	0.105	0.692
01/11/11	0.592	0.408	0.15	0.109	0.707
02/15/11	0.620	0.422	0.16	0.111	0.733
03/15/11	0.532	0.436	0.15	0.133	0.740
04/05/11	0.470	0.433	0.15	0.133	0.733
05/10/11	0.585	0.433	0.15	0.133	0.733
06/14/11	0.601	0.446	0.15	0.141	0.751
07/19/11	0.627	0.463	0.15	0.158	0.769
08/09/11	0.568	0.464	0.15	0.157	0.771
09/27/11	0.394	0.464	0.15	0.157	0.771
10/18/11	0.511	0.478	0.14	0.189	0.776
11/01/11	0.377	0.482	0.14	0.213	0.756
12/13/11	0.483	0.481	0.14	0.211	0.751
01/04/12	0.527	0.484	0.14	0.213	0.755
02/07/12	0.106	0.484	0.14	0.210	0.757
02/21/12	0.312	0.489	0.13	0.232	0.745
03/06/12	0.518	0.495	0.13	0.247	0.748
04/10/12	0.596	0.503	0.13	0.248	0.758
05/22/12	0.548	0.499	0.12	0.250	0.748

Means are from the last 20 SRTs.
Lower Confidence Limit = mean - 2 * Std Dev EPA 75th %CV: 38%
Upper Confidence Limit = mean + 2 * Std Dev lab % CV: 24.9%



Larval Fish Growth and Survival Test-7 Day Growth					
Start Date:	4/10/2012 13:00	Test ID:	ppchsrt412	Sample ID:	REF-Ref Toxicant
End Date:	4/17/2012 22:00	Lab ID:	FDEP Bio Toxicity Lab	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	P. promelas chronic SRT april 10, 2012				

Conc-gm/L	1	2	3	4
D-Control	0.5460	0.5540	0.6740	0.6230
0.125	0.5130	0.5060	0.5650	0.4540
0.25	0.5070	0.5670	0.4960	0.5840
0.5	0.5130	0.4580	0.5530	0.5670
1	0.1290	0.0000	0.2040	0.2290
2	0.0000	0.0000	0.0000	0.0000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.5993	1.0000	0.5993	0.5460	0.6740	10.121	4	0.5993	1.0000
0.125	0.5095	0.8502	0.5095	0.4540	0.5650	8.912	4	0.5240	0.8744
0.25	0.5385	0.8986	0.5385	0.4960	0.5840	8.081	4	0.5240	0.8744
0.5	0.5228	0.8723	0.5228	0.4580	0.5670	9.346	4	0.5228	0.8723
1	0.1405	0.2345	0.1405	0.0000	0.2290	73.206	4	0.1405	0.2345
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	4	0.0000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96247	0.868	-0.5634	0.29497
Bartlett's Test indicates equal variances (p = 0.53)	3.13889	13.2767		

			Linear Interpolation (200 Resamples)		
Point	gm/L	SD	95% CL(Exp)		Skew
IC05*	0.0498	0.1109	0.0221	0.7877	3.2938
IC10*	0.0995	0.1909	0.0441	0.8180	0.7780
IC15	0.5175	0.1774	0.0000	0.6274	-0.9402
IC20	0.5567	0.0726	0.3254	0.6620	-4.0784
IC25	0.5959	0.0342	0.4994	0.7014	0.1737
IC40	0.7135	0.0355	0.6172	0.8256	0.2941
IC50	0.7919	0.0399	0.6864	0.9200	0.2873

* indicates IC estimate less than the lowest concentration

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

P. promelas	SOP#: TA07_09	EPA-821-R-02-013	Method 1000.0
M. beryllina	SOP#: TA07_14	EPA-821-R-02-014	Method 1006.0

Diluent/ Batch: MHW Test Days Used: 4.10.12 0-7 Start Date: 4/19/12 Time: 1300

Diluent/ Batch: ~~NaCl~~ HP Test Days Used: _____ End Date: 4.17.12 Time: 1000

Toxicant/ Batch # : KCl / 4.9.12 Organism Batch #/ Age: 4.10.12 / <24 hrs

Artemia Lot # : 23613

Artemia Batch #	Day 2 4.9-12	Day 5 5.2-12
Day 0 4.7-12	Day 3 5.0-12	Day 6 5.3-12
Day1 4.8-12	Day 4 5.1-12	

Chamber size : 1000 ml

Test volume : 500 ml

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

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

Water Quality Parameters	Diluent	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		HACH	AP	JD
Alkalinity (mg/L as $CaCO_3$):	91		HACH	HW	JD
Hardness (mg/L as $CaCO_3$):	88		HACH	HW	JD
Total Ammonia (mg/L as N):	<0.017		DENVER	MF	JD
Conductivity µmhos-cm mmhos-cm:	320		METTLER	JD	MF

Statistics	
Growth NOEC:	0.5 g/L
Growth LOEC:	1 g/L
Growth IC_{20}:	0.5567 g/L
Growth IC_{25}:	0.5959 g/L
Ctrl % CV:	10.1 %
Dunnetts PMSD:	17.9 %
Survival NOEC:	0.5 g/L
Survival LOEC:	1 g/L

Test incubated in : ☒ Incubator # 2

☐ Waterbath #_____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 24.8 max. 26.5 mean –

Water bath # ____ min.____ max.____ mean____

Room B246 min. 24.6 max. 25.5 mean –

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

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

Investigators' signatures

Matthew Pennington

Hans Walker

James Daniels

Marshall Faircloth

Bruce Allen

Lizy Miller

REVIEWER

Comments:

revised 7/16/08 MF

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

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

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

Concentration	Replicate	Chamber	TEST DAY 0	1	2	3	4	5	6	7
Control	A	C1	10	10	10	10	10	10	10	10
	B	C2	10	10	10	10	10	10	10	10
	C	C3	10	10	10	10	10	10	10	10
	D	C4	10	10	10	10	10	10	10	10
0.125	A	C5	10	10	10	10	10	10	10	10
	B	C6	10	10	10	10	10	10	10	10
	C	C7	10	10	10	10	10	10	10	10
	D	C8	10	10	10	10	10	10	10	10
0.25	A	C9	10	10	10	9 1D	9	9	9	9
	B	C10	10	10	10	10	10	10	10	10
	C	C11	10	10	10	10	10	10	10	10
	D	C12	10	10	9 1D	9	9	9	9	9
0.5	A	C13	10	10	10	10	10	10	10	10
	B	C14	10	10	10	10	10	10	10	10
	C	C15	10	10	10	10	10	10	10	10
	D	C16	10	10	10	10	10	10	10	10
1.0	A	C17	10	4 6D	4	3 1D	3	3	3	3
	B	C18	10	2 8D	0 2D	—	—	—	—	—
	C	C19	10	4 6D	4	4	4	4	4	4
	D	C20	10	5 5D	4 1D	4	4	4	4	4
2.0	A	C21	10	0 10D						
	B	C22	10	0 10D						
	C	C23	10	0 10D						
	D	C24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by:		HW	JD	JD	JD	JD	JD	
Verified by (0 hr): HW										
Concentrations prepared by:				JD	JD	JD	JD	JD	JD	

Comments:

revised 7/16/08 MF

Chronic SRT Parameters Benchsheet

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

Start Date: 4/10/12 End Date: 4/17/12

Start Time: 1300 End Time: 1000

conc = concentration rep = replicate circle umhos or mmhos

Test Day / Conc.	Test Rep.	Before Renewal pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	Test Rep.	After Renewal pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0 ← Control	A	8.0	24.0	7.5	320							
0.125	A	8.0	24.0	7.6	568							
0.25	A	8.0	24.1	7.7	813							
0.5	A	8.0	24.7	7.8	1247							
1.0	A	8.1	25.9	8.2	2340							
2.0	A	8.2	25.9	8.1	4170							
	A											
Measured by		JD	JD	JD	JD							
Recorded by		JD	JD	JD	JD							
	Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1 Control	B	7.6	25.4	8.5	339		B	7.5	24.2	7.1	321	
.125	B	7.8	24.7	8.3	581		B	7.7	24.0	7.1	556	
.25	B	7.8	24.2	8.4	823		B	7.7	24.0	7.2	792	
.5	B	7.9	24.3	8.6	1251		B	7.8	24.1	7.4	1241	
1.0	B	7.9	25.1	8.8	2320		B	7.9	24.3	7.5	2210	
2.0	B	7.9	24.6	8.8	4130		B					
	B						B					
Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
	Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2 Control	C	7.7	24.6	6.6	321		C	7.8	24.0	7.5	353	
.125	C	7.8	25.0	6.7	558		C	7.9	24.0	7.2	552	
.25	C	7.7	24.8	6.7	794		C	7.9	24.0	7.3	828	
.5	C	7.8	24.8	6.8	1242		C	8.0	24.0	7.3	1327	
1	C	7.9	24.2	7.0	2220		C	8.1	24.1	7.4	2200	
	C						C					
	C						C					
Measured by		JD	JD	JD	JD			AP	JD	AP	AP	
Recorded by		JD	JD	JD	JD			AP	JD	AP	AP	
	Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3 Control	D	7.3	24.4	5.9	335		D	7.4	24.7	6.6	JD ~~329~~ 329	
.125	D	7.5	24.8	6.7	547		D	7.5	24.6	6.7	567	
.25	D	7.5	24.7	7.0	818		D	7.6	24.7	6.8	766	
.5	D	7.6	25.3	7.2	1324		D	7.7	24.8	7.0	1286	
1	D	7.6	24.7	7.0	2170		D	7.8	24.8	7.3	2190	
	D						D					
	D						D					
Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	

Comments:

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

Chronic SRT Parameters Benchsheet

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

Start Date: 4,10,12 End Date: 4/17/12

Start Time: 1300 End Time: 1000

conc = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 4	Control	A	7,8	25.0	5.7	356		A	7.6	24.7	7.0	332	
	.125	A	7.7	24.9	5.7	595		A	7.6	24.7	7.1	594	
	.25	A	7.8	24.6	6.1	812		A	7.6	24.7	7.2	733	
	.5	A	7.9	24.7	6.6	1336		A	7.7	25.0	7.3	1461	
	1	A	8.0	24.3	6.8	2260		A	7.8	24.8	7.5	2040	
		A						A					
		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	Control	B	7.1	25.5	5.7	345		B	7.7	25.2	7.1	328	
	.125	B	7.3	24.8	5.5	599		B	7.7	25.0	7.0	565	
	.25	B	7.3	25.0	5.5	671		B	7.7	25.1	7.0	789	
	.5	B	7.4	24.7	5.5	1472		B	7.8	25.1	7.1	1333	
	1	C,B JD	7.6	24.6	6.8	2040		C,B JD	7.9	25.2	7.3	2120	
		B			6.8			B					
		B						B					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	Control	C	7.2	24.8	5.1	340		C	7.6	24.9	7.2	323	
	.125	C	7.2	24.6	4.6	637		C	7.6	24.8	6.7	538	
	.25	C	7.2	24.4	4.7	858		C	7.7	24.8	7.0	797	
	.5	C	7.3	24.3	4.6	1378		C	7.7	25.0	6.9	1314	
	1	C	7.4	24.4	4.9	2180		C	7.8	24.9	6.8	2210	
		C						C					
		C						C					
	Measured by		JD	JD	JD	JD			AP	JD	AP	AP	
	Recorded by		JD	JD	JD	JD			AP	AP	AP	AP	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	Control	D	7.2	24.5	4.9	338		D					
	.125	D	7.2	25.0	5.0	565		D					
	.25	D	7.2	24.7	5.1	824		D					
	.5	D	7.3	24.9	5.4	1341		D					
	1	D	7.5	24.6	6.9	2270		D					
		D						D					
		D						D					
	Measured by		JD	JD	JD	JD							
	Recorded by		JD	JD	JD	JD							

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

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

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

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)	
Control	A	1	0.02398	0.02944	0.00549	10	.549	
	B	2	0.02262	0.02816	0.00554	10	.554	.600
	C	3	0.02370	0.03044	0.00674	10	.674	
	D	4	0.02285	0.02908	0.00623	10	.623	
.125	A	5	0.02390	0.02903	0.00513	10	.513	
	B	6	0.02303	0.02809	0.00506	10	.506	.509
	C	7	0.02275	0.02840	0.00565	10	.565	
	D	8	0.02239	0.02693	0.00454	10	.454	
.25	A	9	0.02265	0.02772	0.00507	10	.507	
	B	10	0.02278	0.02845	0.00567	10	.567	.539
	C	11	0.02355	0.02851	0.00496	10	.496	
	D	12	0.02114	0.02698	0.00584	10	.584	
.5	A	13	0.02262	0.02775	0.00513	10	.513	
	B	14	0.02206	0.02664	0.00458	10	.458	
	C	15	0.02386	0.02939	0.00553	10	.553	.523
	D	16	0.02374	0.02941	0.00567	10	.567	
1	A	17	0.02174	0.02303	0.00129	10	.129	
	B	—	—	—	—	10	—	.187
	C	18	0.02258	0.02462	0.00204	10	.204	
	D	19	0.02266	0.02495	0.00229	10	.229	
	A					10		
	B					10		
	C					10		
	D					10		
	A					10		
	B					10		
	C					10		
	D					10		
		Weighed by:	JD	JD				

Comments:

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

revised 8/24/06 MF/SP

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 4/16/12 Weighed by: JD

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.02396	@	0.02398
after Pan 10	0.02397	@	0.02398
after Pan 15	0.02393	@	0.02398
after Pan 20	0.02394	@	0.02398
after Pan 25		@	
after Pan 30		@	
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.0002g	@	0.01g
	0.02999g	@	0.03g

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 4/18/12 Weighed by: JD

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.02944	@	0.02944
after Pan 10	0.02945	@	0.02944
after Pan 15	0.02948	@	0.02944
after Pan 20	0.02945	@	0.02944
after Pan 25		@	
after Pan 30		@	
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.0002g	@	0.01g
	0.05006g	@	0.05g

Drying Oven ID: FR034000

Temperature °C: 100

Drying Hours: 8

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

Comments:

Appendix I-1

Wet Id taxa list and number of algal units per milliliter for quantitative phytoplankton samples collected from two stations in the Blackwater River downstream of Milton WWTF facility on 04/16/12.

	Station #1	Station #2
Bacillariophyta		
Bacillariophyta	222	223
Chlorophycota		
Ankistrodesmus falcatus	2	-
Chlorella sp.	20	31
Chlorococcum humicola	2	4
Chlamydomonas sp.	10	6
Selenastrum sp.	2	3
Chrysophyta		
Mallomonas sp.	2	-
Cryptophycophyta		
Cryptomonas sp.	175	117
Cyanophycota		
Jaaginema sp.	2	-
Jaaginema gracile	2	3
Pseudanabaena sp.	2	-
Synechocystis sp.	29	31
Pyrrophycophyta		
Glenodinium sp.	23	22

Appendix I-2

Diatom taxa list and number of valves counted to a target of 500 valves for quantitative phytoplankton collected from two stations in the Blackwater River downstream of Milton WWTF on 04/16/12.

	Station #1	Station #2
Bacillariophyta		
Bacillariophyceae		
Achnanthes amoena	2	1
Achnanthidium microcephalum	1	4
Achnanthidium minutissimum	19	25
Achnanthidium minutissimum scoticum	-	7
Amphora sp.	6	10
Bacillaria paxillifer	5	4
Brachysira brebissonii	5	4
Brachysira microcephala	17	6
Brachysira sp.	3	3
Brachysira vitrea	26	26
Capartogramma crucicula	-	1
Cavinula jaernefeltii	6	-
Cocconeis fluviatilis	10	4
Cocconeis placentula	48	11
Cocconeis sp.	1	4
Denticula sp.	1	2
Diadesmis contenta	-	1
Diploneis parma	2	2
Diploneis pseudovalis	1	-
Diploneis sp.	8	2
Encyonema silesiacum	3	4
Epithemia sp.	-	2
Eunotia bilunaris	2	6
Eunotia flexuosa	-	8
Eunotia meisteri	-	1
Eunotia naegelii	1	2
Eunotia paludosa	34	21
Eunotia pectinalis undulata	1	1
Eunotia praerupta	19	26
Eunotia sp.	24	22
Eunotia weissingii	-	5
Fallacia sp.	-	1
Frustulia pseudomagaliesmontana	1	4
Frustulia rhomboides	-	2
Frustulia saxonica	-	1
Geissleria acceptata	2	2

Appendix I-2 (continued)

Gomphonema gracile	4	6
Gomphonema sp.	2	8
Hantzschia amphioxys	2	-
Hippodonta hungarica	14	19
Karayevia clevei	1	-
Microcostatus polonarum	7	11
Navicula bouillantensis	1	-
Navicula cryptocephala	4	1
Navicula festiva	1	-
Navicula germainii	-	1
Navicula gregaria	4	-
Navicula longicephala	1	-
Navicula radiosa	-	2
Navicula sp.	29	16
Naviculaceae	4	5
Neidium alpinum quadripunctatum	6	1
Nitzschia amphibia	4	-
Nitzschia filiformis	2	-
Nitzschia nana	-	1
Nitzschia palea	4	6
Nitzschia sp.	53	32
Nitzschia subacicularis	-	1
Nupela neotropica	1	2
Pinnularia sp.	3	11
Planothidium frequentissimum	2	-
Planothidium rostratum	2	-
Planothidium sp.	4	-
Pleurosigma sp.	1	-
Psammothidium subatomoides	4	6
Rhopalodia sp.	1	-
Stauroneis phoenicenteron	-	1
Stauroneis sp.	-	1
Surirella delicatissima	-	9
Surirella sp.	-	4
Fragilariophyceae		
Ctenophora pulchella	-	2
Fragilariaceae	10	6
Fragilariforma sp.	2	7
Pseudostaurosira brevistriata	1	-
Staurosira elliptica	1	-
Staurosirella pinnata	8	18
Synedra nana	4	5
Tabellaria fenestrata	4	5

Appendix I-2 (continued)

Mediophyceae		
Cyclotella atomus	2	7
Cyclotella meneghiniana	-	2
Discostella glomerata	4	5
Stephanodiscus sp.	54	74
Thalassiosira sp.	-	1
Thalassiosira weissflogii	1	-

Appendix J-1

Benthic macroinvertebrates collected from ponar samples at two stations downstream the Milton Wastewater Treatment Facility's effluent discharge pipe (D-001). Taxa collected and density (average number of individuals/m^2) rounded to the nearest individual (n = 3 samples/station). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Station #1	Station #2
Annelida		
Polychaeta		
Ampharetidae	-	97
Hobsonia florida	28	-
Mediomastus ambiseta	14	-
Mediomastus sp.	-	42
Orbiniidae	14	-
Streblospio sp.	111	-
Arthropoda		
Crustacea		
Isopoda		
Edotea triloba	-	14
Insecta		
Diptera		
Chironomus sp.	-	56
Nemertea		
Undetermined Nemertea	28	-

Appendix J-2

Benthic macroinvertebrates collected in ponar samples at two stations downstream of the Milton Wastewater Treatment Facility's effluent discharge pipe (D-001). Taxa collected and total number of individuals counted (n = 3 samples/station).

	Station #1	Station #2
Annelida		
Polychaeta		
Ampharetidae	1	7
Hobsonia florida	1	-
Mediomastus ambiseta	1	-
Mediomastus sp.	-	3
Orbiniidae	1	-
Streblospio sp.	8	-
Arthropoda		
Crustacea		
Isopoda		
Edotea triloba	-	1
Insecta		
Diptera		
Chironomus sp.	-	4
Nemertea		
Undetermined Nemertea	2	-

The Bioassay of the Milton WWTF effluent sampled on April 16, 2012, NPDES #FL0021903

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 2 1 9 0 3 11	12 1 2 0 4 1 6	# B	# S	# 1

Remarks

#

The Priority Pollutants Analysis for Bioassay of the Milton WWTF effluent sampled on April 16, 2012 NPDES #FL0021903

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 2 1 9 0 3 11	12 1 2 0 4 1 6	# X	# S	# 1

Remarks

#

Biological Analyses of the Milton WWTF effluent sampled on April 16, 2012, NPDES #FL0021903

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 2 1 9 0 3 11	12 1 2 0 4 1 6	# S	# S	# 1

Remarks

#