

Biological Assessment of

Millville WWTF

Bay County

NPDES #FL0170909

Sampled September 21, 2009

September 2010

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

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EPA End Sheet

Fifth Year Inspection Summary

The Fifth Year Inspection of the Millville Wastewater Treatment Facility conducted on September 21, 2009 produced the following notable results. This report discusses results as they relate to the permit requirements in place at the time of sampling.

In the effluent, Control Site (across St. Andrew's Bay), and Test Site (270m from discharge D-001) water samples, no organic constituents were detected and detected metals complied with Class III Marine Water Quality Criteria (62-302.530 F.A.C.). In the Control Site sediment sample, bis(2-ethylhexyl)phthalate was detected at a level between the Method Detection Limit (MDL) and below the Practical Quantitation Limit (PQL); the level exceeded the Threshold Effects Level (TEL) but was below the Probable Effects Level (PEL) (MacDonald 1994). Detected sediment metal concentrations were below the TEL at both the Control and Test Site. Sediment metal concentrations were slightly higher at the Control Site than at the Test Site. Higher sediment metal levels at the Control Site may have occurred because of greater binding affinity of metals to smaller sediment particle sizes (Horowitz, 1985), which were in greater proportion at the Control Site compared to the Test Site. There may be other sources, in addition to the Millville effluent, of metals in the Bay that affect the sediments at the Control Site (see map, Appendix A).

The No Observed Effect Concentration (NOEC) for the invertebrate water flea, *Ceriodaphnia dubia*, during the chronic screening bioassay was less than 100% effluent, which exceeds the effluent permit limit and Class III Marine Quality Criterion (62-302.530(61) F.A.C.). The No Observed Effect Concentration (NOEC) for the fish, *Pimephales promelas*, during the chronic screening bioassay was 100% effluent, which complied with permit limits and Class III Marine Quality Criterion (62-302.530(61) F.A.C.). Follow-up may be required to determine the cause for the toxicity exceedence.

General physical-chemical and microbiological measurements complied with water quality criteria and effluent permit limits. The effluent appeared to be well diluted in the receiving water because, despite slightly elevated levels of nitrogen and phosphorus in the effluent, nutrient enrichment was not detected at the Test Site.

The Shannon-Weaver Diversity scores, derived from quantitative ponar samples taken at the Control and Test Sites, may be negatively biased due to calculation based on fewer than 300 individuals (Lande 1996). The Test Site diversity score was lower than that of the Control Site. The number of individuals and taxa collected at the Test Site was approximately half that of the Control Site which suggests a greater level of biological degradation at the Test Site compared to the Control Site. Differences may be related to effluent exposure, sediment particle sizes, shoreline alterations, or available habitat types.

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

Introduction

The Millville Wastewater Treatment Facility is a municipal domestic wastewater treatment facility. The effluent is discharged into St. Andrew's Bay, a Class III Marine Water, at discharge location (D-001) which is approximately 1610 feet long and discharges at a depth of approximately 20.6 to 22.0 feet MSL (see map Appendix A). The design flow of the wastewater facility is 5.0 million gallons per day (MGD) but the facility is currently limited to 4.0 MGD based on filtering and pumping capacity and UV system components. The annual average flow was 2.59 MGD for the period of 09/1/08 to 08/31/09 and the actual mean flow during this survey was 3.657 MGD (Northwest District sampling staff).

See the Facility Summary (Appendix B) for a description of the facility, a summary of permit limits, and Discharge Monitoring Report (DMR) information. Administrative Order #AO075NW was issued January 6, 2010, after this inspection's samples were taken. This AO adds a monitoring requirement for Enterococci and allows 1 year to demonstrate compliance with a Report requirement during this time.

Methods

The purpose of this investigation was to determine the discharger's effects on the biota of the receiving waters. Chemical and biological comparisons were made at a Test Site 270m southwest of Outfall D-001 and at a Control Site across St. Andrew's Bay from D-001. Sites were sampled on an outgoing tide (water flowing south). Effluent composite and grab samples were taken from monitoring location EFF-01.

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

The following were involved in this investigation: Rick Abad, Nathan Mulkey, and Michael King (DEP Northwest District), Mark Sumner (DEP Northwest District Branch Office), and DEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Michael Tanski, Cari Butler, and Nancy Ross).

Results and Discussion

Organic Constituents - Water (See Table 1 and Appendix E)

- No organic constituents were detected in the effluent, Control Site, and Test Site samples, or in the equipment blank.

Metals - Water (See Table 1 and Appendix E)

- All metals detected in the effluent, Control Site, and Test Site samples were present at levels that complied with Class III Marine Water Quality Criteria (62-302.530 F.A.C.).
- All metals detected at levels between the MDL and PQL in the effluent, Control Site, and Test Site samples were present at levels that complied with the water quality criteria.
- Metals were not detected in the equipment blank.

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

- Toxicity testing was conducted September 21 through 28, 2009.
- The No Observed Effect Concentration (NOEC) for the invertebrate water flea, *Ceriodaphnia dubia*, during the chronic screening bioassay was less than 100% effluent, which exceeds effluent permit limit and the Class III Marine Quality Criterion (62-302.530(61) F.A.C.).
- The No Observed Effect Concentration (NOEC) for the fish, *Pimephales promelas*, during the chronic screening bioassay was 100% effluent, which is in compliance with the effluent permit limit.

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

- The potential influence of anthropogenic stressors differed between the Control and Test Sites. The Control Site had unaltered shoreline and was affected by natural freshwater runoff whereas the Test Site littoral zone consisted mostly of rip rap and vertical seawalls making it prone to stormwater runoff. There were two communities present at the Control Site (sea grass bed and natural beach) compared to only natural beach at the Test Site.
- Dissolved oxygen (mg/L) and pH (Standard Units) of the effluent and the receiving water complied with Class III Marine Water Quality Criteria (62-302.530 F.A.C.) and effluent permit limits.
- Chlorophyll *a* content estimates algal biomass, and high algal biomass implies nutrient stress (Stevenson and Bahls, 1999). Chlorophyll *a* was detected in the effluent and receiving water at low levels.
- Total suspended solids (mg/L) and Carbonaceous Biological Oxygen Demand (CBOD; mg/L) of the effluent complied with permit limits.

Microbiology (See Table 1 and Appendix E)

- Microbiological analysis was performed by the University of West Florida in Pensacola, Florida.
- Fecal coliforms were detected in the effluent at levels that complied with Class III Marine Water Quality Criterion (62-302.530 F.A.C.) and effluent permit limits.
- Enterococci were detected in the effluent at a low level.

Nutrients (See Table 1 and Appendices E)

- Effluent total phosphorus and total nitrogen complied with effluent permit limits.
- Nitrogen and phosphorus levels in the effluent were higher than levels at the Control and Test Site. There was no detectable nutrient enrichment from the effluent in the receiving water, likely because of dilution.
- Nutrients were not detected in the equipment blank.

Algal Growth Potential (See Table 2a and 2b and Appendix E)

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller et al. 1978). Raschke and Schultz (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 of the freshwater effluent was 33.5 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. The ratio of total nitrogen to total phosphorus suggests that the effluent is nitrogen limited.
- Raschke and Shultz (1987) determined that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment. The AGP of the salinity adjusted effluent and the marine receiving water was below detection for the saltwater species *Dunaliella tertiolecta*. The ratio of total nitrogen to total phosphorus suggests that the effluent is nitrogen limited and the receiving water is phosphorus limited. One potential reason for the lack of growth in the salinity-adjusted effluent sample is precipitation of enough orthophosphate by the added salts that the sample became extremely phosphorus-limited (Manahan 1994).

Sediments (See Table 3, Figures 1 and 2, and Appendix E)

- Sediment at the Control Site consisted of silt, clay, and fine sand particle sizes compared to that at the Test Site which was 70% coarse sand. Sediment percent organic content was approximately the same at the Control and Test Site.
- Bis(2-ethylhexyl)phthalate was detected at the Control Site at a level between the MDL and PQL but not detected at the Test Site.

- Sediment metals detected at both sites were below the Threshold Effects Level (TEL) for sediment metals (MacDonald 1994). Higher sediment metal levels at the Control Site may be due to greater binding affinity of metals to smaller sediment particle sizes (Horowitz, 1985), which were in greater proportion at the Control Site compared to the Test Site. There may be other sources, in addition to the Millville effluent, of metals in the Bay that affect the sediments at the Control Site (see map Appendix A).

Bioassessment - Macroinvertebrates (See Table 4 and Appendices H-1 and H-2)

- The Shannon-Weaver Diversity scores derived from quantitative ponar samples, may be negatively biased due to calculation based on fewer than 300 individuals (Lande 1996). The diversity score was lower at the Test Site than at the Control Site. Although the macroinvertebrate communities at both Sites appeared to have degraded biological condition, the Test Site community was less diverse and more depauperate compared to the Control Site community. The Test Site sample contained approximately half as many individuals and taxa as the Control Site sample. The biological condition may be related to differences in effluent exposure, sediment particle sizes, shoreline alterations, or available habitat. The Test Site has an increased probability of anthropogenic sources of freshwater input and lacks seagrass habitat (see first bullet of Physical and Chemical Parameters).
- The Test Site sample contained 19% *Branchiostoma* sp., a filter feeding cephalochordate that burrows into current-swept sand. *Branchiostoma* sp. was not found at the Control Site. The Control Site had a higher percentage of amphipods, bivalves and gastropods than the Test Site. The differences in community composition may be related to the differences in sediment particle size and available habitats.

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

Table 1. Effluent limits, Class III Criteria for predominantly marine waters and chemical, microbiological and toxicological data.

Millville WWTF	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected		
Metals (µg/L unless otherwise noted)					
Aluminum	≤ 1500	-	60 U	180 U	180 U
Arsenic	≤ 50	-	0.58 I	1.4 I	1.5 I
Cadmium	≤ 8.8	-	0.03 U	0.09 U	0.09 U
Calcium (mg/L)	-	-	37.3	277	261
Chromium-III	-	-	0.38 I	0.96 I	0.94 I
Copper	≤ 3.7	-	0.59	1.5 U	1.5 U
Iron	≤ 300	-	36 I	90 U	90 U
Lead	≤ 8.5	-	0.2 U	0.6 U	0.6 U
Magnesium (mg/L)	-	-	39.8	918	859
Nickel	≤ 8.3	-	1.48	0.75 U	0.75 U
Selenium	≤ 71	-	0.23 I	0.6 U	0.6 U
Silver	≤ 2.3	-	0.025 U	0.075 U	0.075 U
Zinc	≤ 86	-	28	17 I	16 I
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.15	0.008 U	0.008 U
Total Phosphorus	-	≤ 4.0 s,p	0.17	0.013 I	0.014 I
Total Ammonia	-	-	0.062	0.01 U	0.01 U
Un-ionized Ammonia	-	-	-	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	0.6	0.24	0.22
Total Kjeldahl Nitrogen	-	-	0.71	0.38 I	0.4
Organic Nitrogen	-	-	0.648 c	0.375 c	0.395 c
Total Nitrogen	-	≤ 16.0 s,p	1.31 c	0.62 c	0.62 c
General Physical and Chemical Parameters					
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 6.0 s	8.2	6.7	7.0
pH (SU)	6.5 - 8.5	6.5 - 8.5	7.2	7.6	7.7
Conductivity (µmhos/cm)	-	-	2040 £	38256	36038
Temperature (°C)	-	-	-	29.2	29.7
Salinity	-	-	-	22.2 c	20.6 c
Sample Depth (m)	-	-	-	0.15	0.15
Chlorophyll *a* (µg/L) - Corrected	-	-	4.6 A	4.6	6.4
Phaeophytin (µg/L)	-	-	0.4 U	0.4 U	0.4 U
Total Suspended Solids (mg/L)	-	≤ 20.0 s,p	4 U	11 I	11 I
Turbidity (NTU)	< 29 t	-	0.6	1	0.85
CBOD, 5 day (mg/L), N - inhibited	-	≤ 20.0 s,p	1.2 IJ	1 IJ	6 J
Flow (MGD)	-	4.0 *	3.567	-	-
Hardness (mg $CaCO_3$)	-	-	257.03 c	4471.99 c	4189.08 c
Toxicity (96 hour chronic screen, NOEC, % effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*	-	100	< 100	-	-
Bioassay - Fish *(Pimephales promelas)*	-	100	100	-	-
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms ¥	≤ 400s #	-	82	-	-
Enterococci ¥	-	Report **	22 B	-	-

Value exceeds the Class III Water Quality Criteria or permit limits

* - Facility is designed to treat 5.0 MGD but is currently limited to 4.0 MGD based on filtering and pumping capacity and UV system components

** - Administrative Order # AO075NW, issued after sampling 1/6/2010

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

J - Estimated value

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

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

¥ - Microbiology analysis performed by Univeristy of West Florida, Pensacola lab

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

£ - Measured in the laboratory toxicology sample

Table 2a. Measured algal growth potential (AGP; mg dry weight/L) of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

Millville WWTF			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	33.5	4.4	7.7

Table 2b. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus.

Millville WWTF			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent *	3.0 U	4.4	7.7
Control Site	3.0 U	31.3	47.7
Test Site	3.0 AU	28.8	44.3

* - sample salinity adjusted to 7ppt

Table 3. Sediment Data for Millville WWTF

Millville WWTF	Sediment Quality Assessment Guidelines		Control Site	Test Site
	TEL	PEL		
Particle Size Distribution (percent volume < 2mm)				
< 0.063 mm	-	-	18.6	0.645 A
0.063 - 0.125 mm	-	-	3.34	0.44 A
0.125 - 0.25 mm	-	-	23.2	5.25 A
0.25 - 0.5 mm	-	-	40.5	23.4 A
0.5 - 2.0 mm	-	-	14.4	70.3 A
> 2.0 mm (percent dry weight)	-	-	1	1.2 A
Organic Content				
Organic Content (percent dry weight)	-	-	1.4	1 K
Organic Constituents (µg/kg)				
Bis(2-ethylhexyl)phthalate	182	2647	960 I *	460 U
Metals (mg/kg)				
Chromium III	52.3	160	4.73	0.76 A
Nickel	15.9	42.8	1.3	0.27 I
Zinc	124	271	6	1.5 U

Sediment Quality Assessment Guidlines (MacDonald 1994): TEL = Threshold Effects Level; PEL = Probable Effects Level
* Exceeds the threshold effects level from Sediment Quality Assessment Guidlines (MacDonald 1994)
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
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

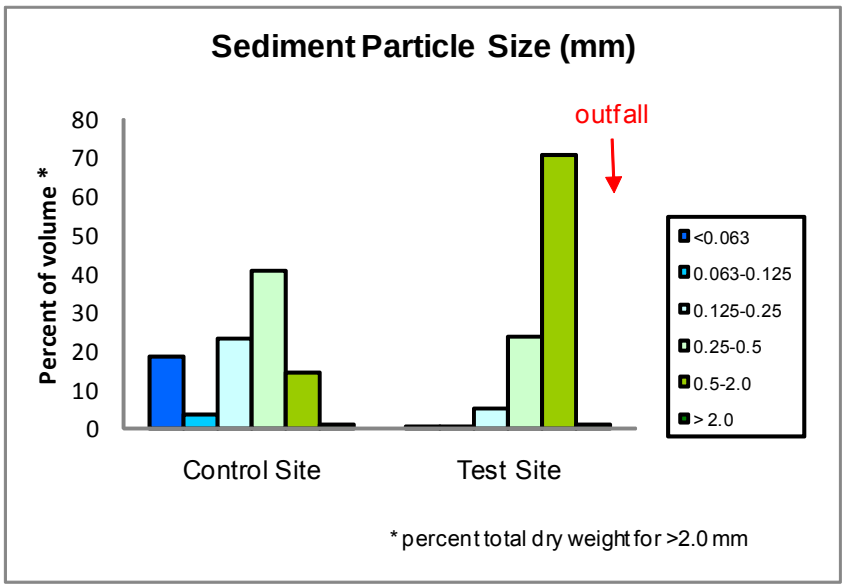


Figure 1. Sediment particle size for 2 sampling sites at Millville WWTF, September 21, 2009.

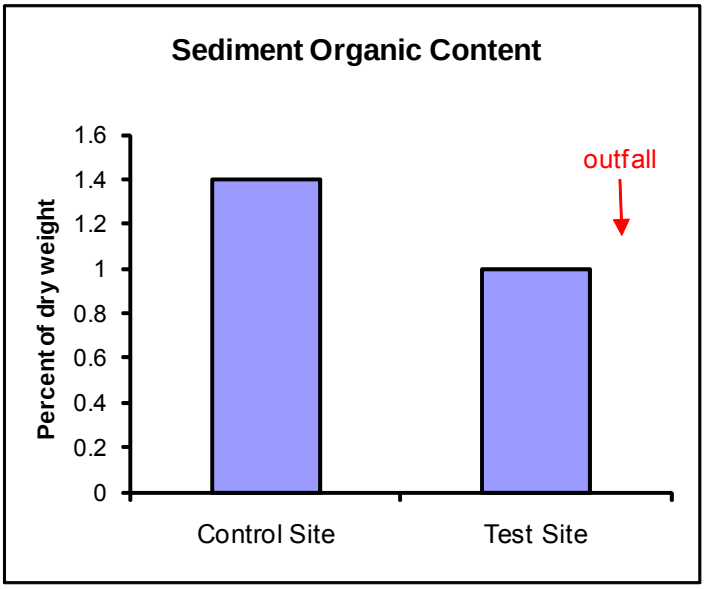


Figure 2. Sediment organic content for 2 sampling sites at Millville WWTF, September 21, 2009.

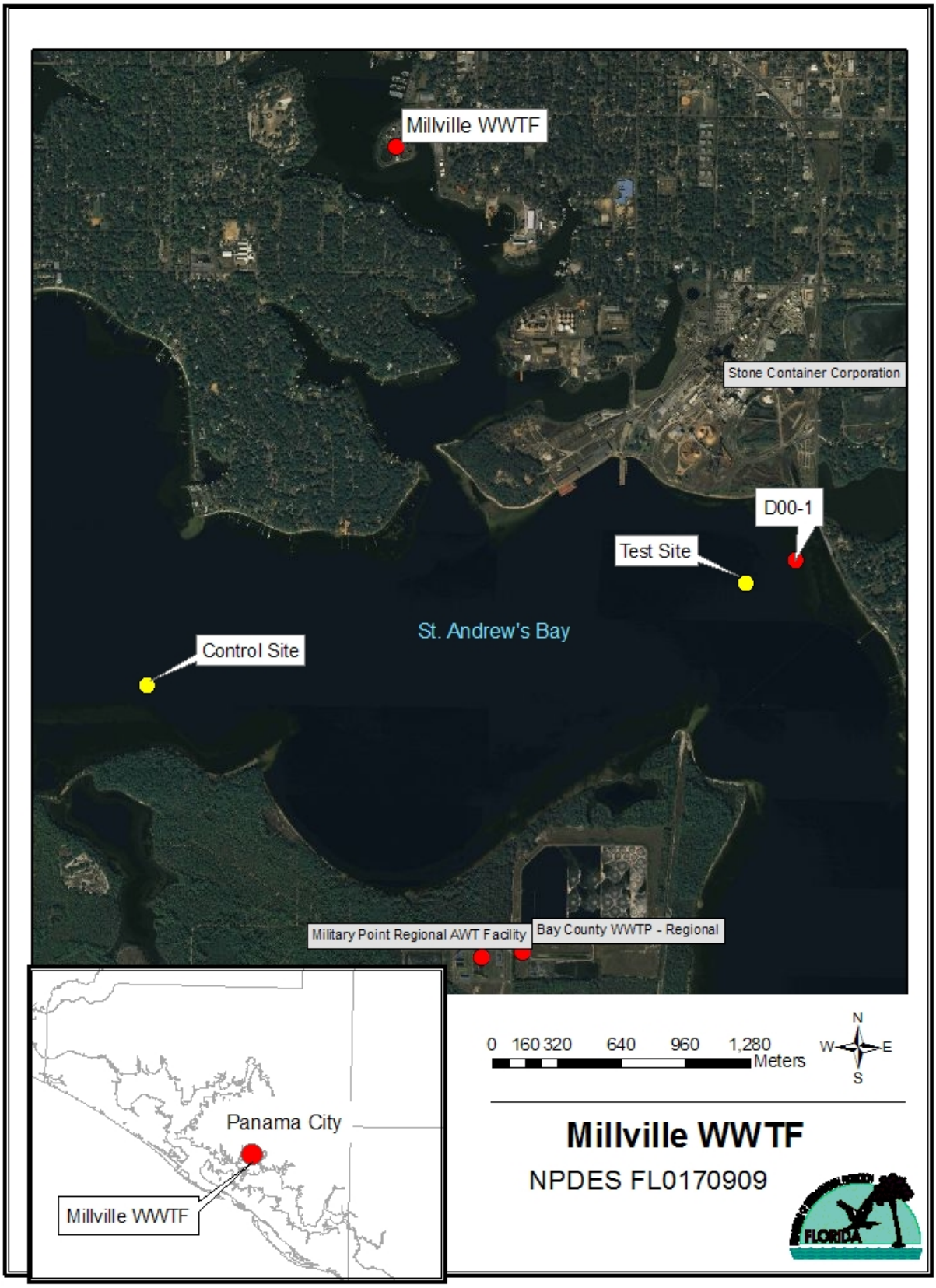
Table 4. Macroinvertebrate Petite Ponar Samples - Quantitative.

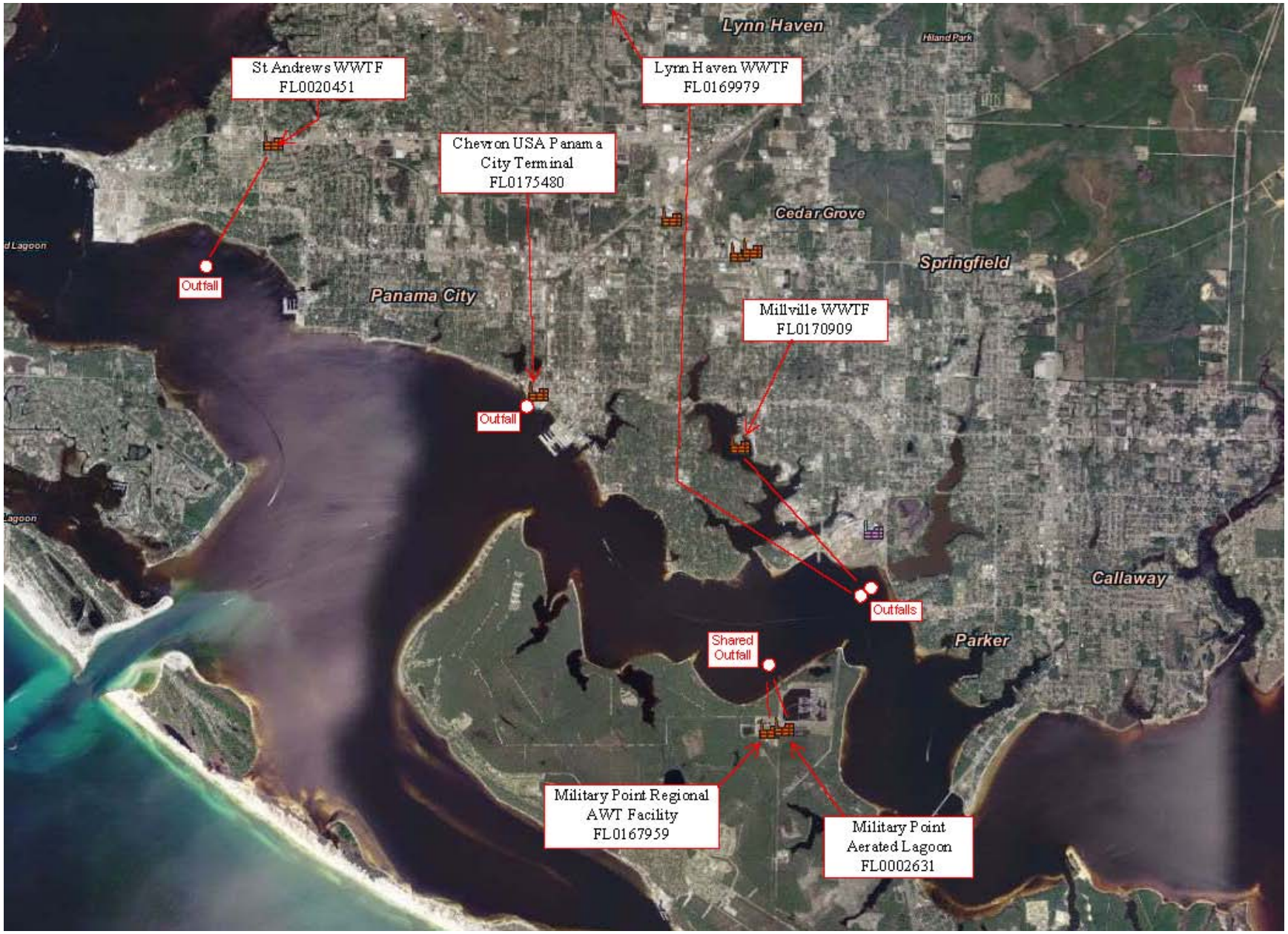
Millville WWTF	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	5.05 *	4.15 *
Number of Taxa	59	35
Percent Dominant Taxon	9.7	19.0
Dominant Taxon Name	*Scoletoma* sp. (Polychaeta)	*Branchiostoma* sp. (Cephalochordata)
Number of samples/site	5	5
Total Number of Individuals (counted)	257	168
Community Composition: Percent of total		
Amphipoda	11.3	4.2
Bivalvia	14.8	3.0
Cephalochordata	0.4	19.0
Decapoda	5.1	8.3
Diptera	0.0	0.0
Gastropoda	2.3	0.0
Isopoda	0.8	1.8
Nemertea	8.6	1.8
Oligochaeta	0.0	0.0
Polychaeta	45.9	53.0
Sipuncula	0.4	1.2
Tanaidacea	9.7	7.1
Other	0.7	0.6
Functional Feeding Groups: Percent of total		
Browser-Grazers	3.7	5.7
Burrowing Deposit Feeders	6.6	9.5
Piercers	0.0	0.0
Predators	28.8	15.1
Scavengers	4.0	6.3
Scrapers	2.3	0.0
Shredders	0.0	0.0
Surface Deposit Feeders	8.5	10.2
Suspension Feeders	18.8	43.5
Unknown	27.2	9.6

* - 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

Map of Facility




St Andrews WWTF
FL0020451
Lynn Haven WWTF
FL0169979
Chevron USA Panama
City Terminal
FL0175480
Outfall
Outfall
Millville WWTF
FL0170909
Outfalls
Shared
Outfall
Military Point Regional
AWT Facility
FL0167959
Military Point
Aerated Lagoon
FL0002631
Lynn Haven
Panama City
Cedar Grove
Springfield
Callaway
Parker

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:** 595-8300 ext. 1191
Facility Name (as it appears on permit): Millville WWT Facility, The City of Panama City	**Former Names:** ---
NPDES Permit Number: FL0170909	**Permit Expiration Date:** 10/17/09
Physical Address: 1800 East Third Street, Panama City, FL 32401	
District: NWD	**County:** Bay
Function of Facility: Municipal domestic wastewater treatment facility	
Facility Type: DW	**Permitted Capacity (MGD):** 5.0 MGD annual avg daily flow (currently limited to 4.0 mgd)
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 2.59 mgd Annual Average (09/1/08 – 08/31/09)	
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):

Effluent Sampling Locations:

Monitoring Location Site Number	Description of Monitoring Location
EFF-01	Sampler at Discharge Weir at UV Basin
EFF-02	Tap on Effluent Discharge Line at Effluent Pump Station
EFF-03	Meter at Discharge Weir at Reaeration Basin
FLW-01	In-Line Flow Meter on Effluent Discharge Line at Effluent Pump Station
OTH-01	Calculated Value
PPI-01	UV System Monitoring

Ambient Sampling Locations:

Monitoring Location Site Number	Description of Monitoring Location
INF-01	Tap on Headworks Influent Piping Before Influent Screens, Grit Collectors and Plant Process Returns
OTH-01	Calculated Value
SWA-04	Off Smurfit Stone Seawall (approximate coordinates: lat. 30^0 8' 0.5" N / long. 85^0 37' 32" W)
SWA-05	Entrance to Parker Bayou (approximate coordinates: lat. 30^0 7' 28" N / long. 85^0 36' 09" W)
SWA-06	Entrance to Pitts Bayou (approximate coordinates: lat. 30^0 7' 02" N / long. 85^0 36' 08" W)

Description of Permitted Outfall(s): Surface Water Discharge:

An existing 5.0 MGD annual average daily flow (AADF) permitted discharge to St. Andrew Bay (Class III Marine) at Discharge Location (D-001) which is approximately 1610 feet in length and discharges at a depth of approximately 20.6 to -22.0 feet MSL. The point of discharge is located approximately at latitude 30° 08' 00" N, longitude 85° 37' 00" W.

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

An existing 5.0 MGD annual average daily flow, activated sludge, secondary wastewater treatment facility. The facility consists of influent screening, grit removal, three (3) sequential batch reactors (SBRs), post equalization, filtration, reaeration, and ultraviolet disinfection. Residuals are aerobically digested, dewatered using a belt filter press, and then transported by trucks to a land application agricultural facility. The facility is currently limited to 4.0 MGD. The facility and process have been designed to adequately treat 5.0 MGD. Additional filtering and pumping capability and UV system components are required to handle 5.0 MGD. Installation of the required effluent filters, pumps, and the complete set of UV modules will be deferred until the demand approaches 5.0 MGD.

PART I: Continued										
List <u>current</u> 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)										
			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

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 St. Andrew Bay (Class III Marine). Such discharge shall be limited and monitored by the permittee as specified below:

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow, in conduit or thru treatment plant	MGD	Maximum	4.0 / 5.0*	-	-	-	Continuous	Recording flow meters and totalizers	FLW-01	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	10.0	10.0	15.0	20.0	1/Week @ 4.0 MGD 5/Week @ 5.0 MGD	24-hour flow proportioned composite	EFF-01	
Solids, Total Suspended	MG/L	Maximum	10.0	10.0	15.0	20.0	1/Week @ 4.0 MGD 5/Week @ 5.0 MGD	24-hour flow proportioned composite	EFF-01	
Nitrogen, Total	MG/L	Maximum	8.0	8.0	12.0	16.0	1/Week @ 4.0 MGD 5/Week @ 5.0 MGD	24-hour flow proportioned composite	EFF-01	
Phosphorus, Total (as P)	MG/L	Maximum	2.0	2.0	3.0	4.0	1/Week @ 4.0 MGD 5/Week @ 5.0 MGD	24-hour flow proportioned composite	EFF-01	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Automatic Sampler	EFF-02	See Cond.I.A.3
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				1/Week @ 4.0 MGD 5/Week @ 5.0 MGD	Grab	EFF-01	
Whole Effluent Toxicity	See Permit Condition I.A.6								EFF-01	
Oxygen, Dissolved (DO) by probe	MG/L	Minimum	-	-	-	6.0	Continuous	Probe	EFF-03	

* The facility is currently limited to 4.0 MGD. The facility and process have been designed to adequately treat 5.0 MGD. Additional filtering and pumping capability and UV system components are required to handle 5.0 MGD. Installation of the required effluent filters, pumps, and the complete set of UV modules will be deferred until the demand approaches 5.0 MGD.

			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
Ultraviolet Light Dosage	MW-S/CM2	Minimum	-	-	-	42.7	Continuous	Meter	OTH-01	See I.A.10. & I.A.18
Ultraviolet Light Transmittance	PERCENT	Minimum	-	-	-	Report	Continuous	Meter	PPI-01	See I.A.10. & I.A.17
Ultraviolet Light Intensity (Net Average Intensity)	UW/CM2	Minimum	-	-	-	Report	Continuous	Calculated	PPI-01	See I.A.10. & I.A.16
Turbidity	NTU	Maximum	See Permit Condition I.A.11.				Continuous	Meter	EFF-02	See I.A.9. & I.A.12
Water Level in Reactors	INCHES	Maximum - Minimum	See Permit Condition I.A.13. & Report				Continuous	Meter	PPI-01	See I.A.9. & I.A.14

Ambient Sampling Requirements:

During the period beginning upon the date of permit issuance* and lasting through the expiration date of t
permittee shall monitor ambient bay water quality as specified below:

		Monitoring Requirements (as Report for Each Site)			
Parameter	Units	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Elevation
Carbonaceous Biochemical Oxygen Demand (5 day)	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Total Suspended Solids	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Total Kjeldahl Nitrogen TKN	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Total Nitrogen	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Total Phosphorous	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Nitrate-Nitrite	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Dissolved Oxygen	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Chlorophyll a	MG/L	Quarterly	Grab	SWA-04 SWA-05 SWA-06	Surface & Bottom
Limiting Nutrients	-	Every Two Years*	Grab	SWA-04 SWA-06	Surface & Bottom
Algal Growth Potential (cell/ml)	MG/L	Every Two Years*	Grab	SWA-04 SWA-06	Surface & Bottom

* For Limiting Nutrients and Algal Growth Potential - Within two years of the most recent test.

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
St. Andrew Bay	Class III Marine

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

The permittee is required to conduct semi-annual daphnid, **Ceriodaphnia dubia**, Survival and Reproduction test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test using a control (0% effluent) and one test concentration of **100%** effluent. For each set of tests conducted, a flow proportional 24 hr. composite sample of final effluent is required to be collected and used per the sampling schedule discussed in EPA-821-R-02-013, Section 8.3, or the most current edition. Two additional composite samples are required to be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

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

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
11/08	Toxicity (ceriodaphnia dubia)	NOEC 100	NOEC<100

Describe previous FYI and WQBEL study:
FYI3 in 1/02:
The FDEP Biology Section performed two 48-hour static acute screening toxicity bioassays on a sample of effluent collected from this facility. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity to either test species within 48 hours (Table 1).
Total residual chlorine in the sample was measured to be 0.06 mg/L in the field, and 0.05 mg/L in the laboratory. This is likely due to interference within the sample, because the effluent is not chlorinated. Total and unionized ammonia were not detected in the sample. Further chemical analyses were performed on the sample, and several metals were identified (Table 2).

Describe previous or current Enforcement Actions (including WLs):

Describe any violations or problems noted in previous inspection:

1/08 inspection report noted Total Phosphorus violations in 4/07 and 5/07.
4/07 reported 2.3 mg/l monthly average (limit 2.0) and 3.6 weekly average (limit 3.0 mg/L)
5/07 reported 2.6 mg/l monthly average (limit 2.0) and 3.5 weekly average (limit 3.0 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: **9/21/09**	**Sampler(s):** **Mark Sumner**
Temperature (Deg C):	**pH (SU):** **7.18**
Dissolved Oxygen (mg/L): **8.20**	**Conductivity (umhos/cm):**
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): **3567**	
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

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

(3) Toxicity Bioassays

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

(4) Bacteriological Testing

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

(5) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and 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..

(6) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 10.0 mg dry weight/L represents a “problem” threshold for marine receiving waters, implying nutrient enrichment. High AGP values may constitute exceedences of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..f

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP in a low salinity sample under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller et al. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N:P) is less than 10:1, nitrogen limitation of algal production is likely. When the N:P ratio is 20:1 or greater, phosphorus limitation is likely (EPA-822-B-00-002). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedence of 62-302.530(61) F.A.C.. Expected AGP is not calculated for marine samples incubated with *Dunaliella*.

(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. Five 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-2009-09-21-22
Millville

Requester: Jennifer Paris
Field Report Prepared By: N. Mulloy

Customer: NW-DIST
Collected By: Nathan Mulloy / Mike King
Send Final Report To David Morres

Project ID: FYI5
Sampling Agency: NWFDEP

PMAS: 1143

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comp / Grab	Collection (begin) Date	Time	Eastern Central	Collection (end) Date	Time	Eastern Central	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Bottle Group(s)**	Comments
	Millville	Millville Control	Salt, Fresh, etc	29.15	7.60	o ' "	o ' "	Comp / ☑ Grab	9/21/09	1045	Central					6.68	32030M14	0.15 m / ☐ ft	38256 Sp Conductance		B,C,E	Sediment + Macro Invert samples added
	Millville	Millville Test	Salt, Fresh, etc	29.65	7.69	o ' "	o ' "	☐ Comp / ☑ Grab	9/21/09	1255	Central					7.02		0.15 m / ☐ ft	36038 Sp Conductance		B,C,E	Sediment + Macro Invert samples added
	Millville	NA				o ' "	o ' "	☐ Comp / ☑ Grab			Central							☐ m / ☐ ft	☐ Salinity (PPTh) / ☐ Sp Conductance (umho/cm)			
	Millville	NA				o ' "	o ' "	☐ Comp / ☑ Grab			Central							☐ m / ☐ ft	☐ Salinity (PPTh) / ☐ Sp Conductance (umho/cm)			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	9/21/09	Fed Ex	ABJ	9/22/09 0910				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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* Macro-Invert samples not received. ABJ 9/22/09.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-09-21-22
Millville

Requester: Jennifer Paris

Field Report Prepared By:

Customer: NW-DIST

Collected By: Mark Sumner / Jennifer Clayton

Send Final Report To David Morres

Project ID: FYI5

Sampling Agency: NWFDEP

PMAS: 1143

Lab ID *	Location					Bottle Group(s)**
	Millville WWTP	☒ Comp ☐ Grab	Collection (begin) Date 9/21/09 Time 1115 Eastern Central	Collection (end) Date 9/21/09 Time 1118 Eastern Central		A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 8.2	Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH 7.18	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments			

Lab ID *	Location					Bottle Group(s)**
	Millville WWTP	☐ Comp ☒ Grab	Collection (begin) Date 9/21/09 Time 1131 Eastern Central	Collection (end) Date Time Eastern Central		A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 8.2	Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH 7.18	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments			

Lab ID *	Location					Bottle Group(s)**
	Millville WWTP	☐ Comp ☐ Grab	Collection (begin) Date 9/21/09 Time 1140 Eastern Central	Collection (end) Date Time Eastern Central		D
	Field ID Eq Blank	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments			

Lab ID *	Location					Bottle Group(s)**
		☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude o ' "	Longitude o ' "	Comments 2 biomass Relinq for by JD 10:08 9.22.09			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
JC	9/21/09	Fed Ex	[illegible]	9/22/09 09:10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2009-09-21-22

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-~~2007~~- WBID Millville

Event ID *

Requester: William Chandler

Field Report Prepared By: N. Maltby

Collected By: Nathan Maltby / Mike King

Send Final Report To ~~Bill Chandler~~

Sampling Agency: NWFDEP

Customer: NW-DIST

Project ID: ~~SMP~~ FYI

PMAS: 1306

Lab ID *	Location			Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Millville WWTF				Date 9/21/09 Time 1255 (Central)		
	Field ID: Millville Test Rep-1			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	C
	Matrix (Include type e.g. Salt, Fresh, etc): Macro Invert	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "		Comments: * Rep-2, Rep-3, Rep-4, Rep-5			

Lab ID *	Location			Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Millville WWTF				Date 9/21/09 Time 1045 (Central)		
	Field ID: Millville Control - Rep-1			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	C
	Matrix (Include type e.g. Salt, Fresh, etc): Macro Invert	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "		Comments: * Rep-2, Rep-3, [illegible], Rep-5. ABJ			

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

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/22/09	Fed Ex	ABJ	9/23/09 0910				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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* Filled by Amanda Smith 09/23/09

SAMPLE TRANSMITTAL FORM

Document Reference # 05.1.0

Project: 5th Year Inspection Millville WWTF Laboratory: Wetlands Research Laboratory Sampler's intials : _ JC

Method of transport: Drop off by Jennifer Claypool Page _1__ of __1

Samples delivered by: Jennifer Claypool of DEP Date/Time: 9/21/09 /1450

Sample received by: of WRL Date/Time: 09/21/09 1450

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.

Lab ID		Sample ID	Matrix[1]	Type[2]	Container Type	Analyses Requested	Preservative	Sample (°C)[3]	Sampling Date/Time
28648		Millville	SW	G	Sterile plastic	Enterococcus/Fecal coliforms	ice/Na2S2O3	2.9	9/21/09/1131
~~28649~~ 9/21/09		Mill DUP			Sterile plastic	Duplicate	ice/Na2S2O4	3.1	↓

Comments ___ RQ-2009 -09-21-22 _____ Lot# L08305

Contact organization DEP Contact name Nathan Mulkey Phone: 850-595-8300 x1123

Address Sampler's name:

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

[2]Type codes: G = grab, C = composite, X = G [3] Recorded using IRT-2

Appendix E

Chemical analysis of effluent and receiving water

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 12:18	MILLVILLE EFFLUENT	AGP/LN	Algal Growth Potential	33.5		mg DryWt/L	0.3	0.9
9/21/2009 12:18	MILLVILLE EFFLUENT	AGP/LN	Algal Growth Potential-Salinity Adjusted	3	U	mg DryWt/L	3	3
9/21/2009 12:18	MILLVILLE EFFLUENT	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
9/21/2009 12:18	MILLVILLE EFFLUENT	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.2	IJ	mg/L	0.2	2
9/21/2009 12:18	MILLVILLE EFFLUENT	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	4.6	A	ug/L	0.56	1.7
9/21/2009 12:31	MILLVILLE EFFLUENT	Overflow	Enterococci-Membrane Filter	22	B	#/100 mL	2	2
9/21/2009 12:31	MILLVILLE EFFLUENT	Overflow	Fecal Coliforms-Membrane Filter	82		#/100 mL	1	1
9/21/2009 12:18	MILLVILLE EFFLUENT	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100		NOEC		
9/21/2009 12:18	MILLVILLE EFFLUENT	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100	K	NOEC		
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Chromium	0.38	I	ug/L	0.3	1.2
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Silver	0.025	U	ug/L	0.025	0.1
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Nickel	1.48		ug/L	0.25	1
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Copper	0.59		ug/L	0.5	0.5
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Calcium	37.3		mg/L	0.075	0.3
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Iron	36	I	ug/L	30	120
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Lead	0.2	U	ug/L	0.2	0.8
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Aluminum	60	U	ug/L	60	240
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Zinc	28		ug/L	5	20
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Selenium	0.23	I	ug/L	0.2	0.8
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Magnesium	39.8		mg/L	0.04	0.16
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
9/21/2009 12:18	MILLVILLE EFFLUENT	Metals	Arsenic	0.58	I	ug/L	0.25	1
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	Kjeldahl Nitrogen	0.71		mg N/L	0.08	0.2
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	Ammonia-N	0.062		mg N/L	0.01	0.02
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	NO2NO3-N	0.6		mg N/L	0.04	0.1
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	O-Phosphate-P	0.15		mg P/L	0.008	0.02
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	TSS	4	U	mg/L	4	16
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	Turbidity	0.6		NTU	0.1	0.1
9/21/2009 12:18	MILLVILLE EFFLUENT	Nutrients	Total-P	0.17		mg P/L	0.02	0.05
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Ametryn	0.054	U	ug/L	0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Metalaxyl	0.27	UJ	ug/L	0.27	1.1
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Metolachlor	0.54	U	ug/L	0.54	2.2
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Endosulfan I	0.021	U	ug/L	0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Endosulfan II	0.021	U	ug/L	0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Bromacil	0.21	U	ug/L	0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Diazinon	0.054	U	ug/L	0.054	0.22

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Hexazinone	0.11	U	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Beta-BHC	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	DDE-p,p'	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Azinphos Methyl	0.21	UJ	ug/L		0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Fonofos	0.11	U	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Heptachlor Epoxide	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Atrazine	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Parathion Methyl	0.11	U	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Aldrin	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	DDD-p,p'	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Delta-BHC	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Endosulfan Sulfate	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Alachlor	0.64	U	ug/L		0.64	2.6
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Naled	0.86	UJ	ug/L		0.86	3.4
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Norflurazon	0.16	U	ug/L		0.16	0.64
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Alpha-BHC	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	DDT-p,p'	0.032	UJ	ug/L		0.032	0.13
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Butylate	0.21	U	ug/L		0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Chlorpyrifos Ethyl	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Prometryn	0.16	U	ug/L		0.16	0.64
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Gamma-BHC	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Heptachlor	0.011	U	ug/L		0.011	0.044
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Chlorpyrifos Methyl	0.11	U	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Ethion	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Ethoprop	0.11	UJ	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Fenamiphos	0.21	U	ug/L		0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Malathion	0.16	U	ug/L		0.16	0.64
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Simazine	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Metribuzin	0.11	U	ug/L		0.11	0.44
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Mevinphos	0.21	UJ	ug/L		0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Parathion Ethyl	0.16	U	ug/L		0.16	0.64
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Phorate	0.054	UJ	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Chlordane	0.21	U	ug/L		0.21	0.84
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Dieldrin	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Endrin	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Endrin Aldehyde	0.021	U	ug/L		0.021	0.084
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Methoxychlor	0.054	U	ug/L		0.054	0.22
9/21/2009 12:18	MILLVILLE EFFLUENT	Pesticides	Toxaphene	0.81	U	ug/L		0.81	3.2
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Chrysene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L		0.97	3.9

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Naphthalene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Acenaphthylene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Anthracene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzo(k)fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Fluorene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L		1.9	7.7
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Phenanthrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L		9.7	39
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzidine	97	U	ug/L		97	390
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzo(a)pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzo(b)fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L		2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L		9.7	39
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L		39	150
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L		1.9	7.7
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Acenaphthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Isophorone	0.97	U	ug/L		0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Phenol	0.97	U	ug/L		0.97	3.9

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Benzo(a)anthracene	0.97	U	ug/L	0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	UJ	ug/L	2.9	12
9/21/2009 12:18	MILLVILLE EFFLUENT	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
9/21/2009 12:18	MILLVILLE EFFLUENT	Field Parameter	pH	7.18				
9/21/2009 12:18	MILLVILLE EFFLUENT	Field Parameter	Dissolved Oxygen	8.2		mg/L		
9/23/2009 11:55	MILLVILLE TOX	Field Parameter	pH	7.69				
9/23/2009 11:55	MILLVILLE TOX	Field Parameter	Dissolved Oxygen	8.2		mg/L		
9/25/2009 11:12	MILLVILLE TOX	Field Parameter	pH	7.5				
9/25/2009 11:12	MILLVILLE TOX	Field Parameter	Dissolved Oxygen	8		mg/L		
9/21/2009 11:45	MILLVILLE CONTROL	AGP/LN	Algal Growth Potential	3	U	mg DryWt/L	3	3
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.063-0.125mm	3.34		% vol <2mm	0	0.01
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.125-0.25 mm	23.2		% vol <2mm	0	0.01
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment % Organic	1.4		% dry wt		
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.25-0.5 mm	40.5		% vol <2mm	0	0.01
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1	IJ	mg/L	0.2	2
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, <0.063 mm	18.6		% vol <2mm	0	0.01
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.5-2.0 mm	14.4		% vol <2mm	0	0.01
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, >2.0 mm	1		%totdrywt	0	1
9/21/2009 11:45	MILLVILLE CONTROL	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	4.6		ug/L	0.55	1.7
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Lead	0.6	U	ug/L	0.6	2.4
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Zinc	6		mg/Kg	1.5	5.9
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Chromium	4.73		mg/Kg	0.074	0.3
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Copper	1.5	U	ug/L	1.5	1.5
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Chromium	0.96	I	ug/L	0.9	3.6
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Nickel	0.75	U	ug/L	0.75	3
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Cadmium	0.09	U	ug/L	0.09	0.36
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Iron	90	U	ug/L	90	360
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Nickel	1.3		mg/Kg	0.11	0.44
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Arsenic	1.4	I	ug/L	0.75	3
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Magnesium	918		mg/L	2	8
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Silver	0.075	U	ug/L	0.075	0.3
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Zinc	17	I	ug/L	15	60
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Aluminum	180	U	ug/L	180	720
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Selenium	0.6	U	ug/L	0.6	2.4
9/21/2009 11:45	MILLVILLE CONTROL	Metals	Calcium	277		mg/L	0.22	0.9
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	O-Phosphate-P	0.008	U	mg P/L	0.008	0.02
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	NO2NO3-N	0.24		mg N/L	0.004	0.01

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	Kjeldahl Nitrogen	0.38	I	mg N/L	0.16	0.4
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	TSS	11	I	mg/L	4	16
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	Turbidity	1		NTU	0.1	0.1
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	Total-P	0.013	I	mg P/L	0.008	0.02
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4,6-Trichlorophenol	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dimethylphenol	510	U	ug/kg	510	2000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Chlorophenol	250	U	ug/kg	250	1000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	85	UJ	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Di-n-butyl phthalate	510	U	ug/kg	510	2000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Fluorene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Nitrophenol	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Acenaphthene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Butyl benzyl phthalate	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorobenzene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Nitrobenzene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.7
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	1,2,4-Trichlorobenzene	250	U	ug/kg	250	1000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dinitrotoluene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Chloronaphthalene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Nitrophenol	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,6-Dinitrotoluene	85	U	ug/kg	85	340

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(a)pyrene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(g,h,i)perylene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorocyclopentadiene	85	UJ	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Phenol	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L		9.6	39
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Dimethyl phthalate	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Fluoranthene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Naphthalene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Pyrene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Chloro-3-methylphenol	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Anthracene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(b)fluoranthene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(k)fluoranthene	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-chloroethyl)ether	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	960	I	ug/kg		510	2000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Diethyl phthalate	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachloroethane	250	U	ug/kg		250	1000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	N-Nitrosodimethylamine	510	U	ug/kg		510	2000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzidine	96	U	ug/L		96	390
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L		9.6	39
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L		2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Pyrene	0.96	U	ug/L		0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dichlorophenol	85	U	ug/kg		85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dinitrophenol	510	U	ug/kg		510	2000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	3,3'-Dichlorobenzidine	5100	UJ	ug/kg		5100	20000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Bromophenyl phenyl ether	85	U	ug/kg		85	340

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzidine	1800	U	ug/kg	1800	7400
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(a)anthracene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Chrysene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Di-n-octyl phthalate	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Dibenzo(a,h)anthracene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L	39	150
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	58
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.7
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Acenaphthylene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorobutadiene	250	U	ug/kg	250	1000
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Isophorone	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Pentachlorophenol	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Phenanthrene	85	U	ug/kg	85	340
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	58
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.7
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	58
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.9
9/21/2009 11:45	MILLVILLE CONTROL	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	UJ	ug/L	2.9	12
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Sample Depth	0.15		m		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Dissolved Oxygen	6.68		mg/L		
9/21/2009 11:45	MILLVILLE CONTROL	Nutrients	% Solid	70.8	A	%	1	1
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Dissolved Oxygen	6.68		mg/L		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Specific Conductance	38256		umhos/cm		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	pH	7.6				
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Specific Conductance	38256		umhos/cm		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Temperature	29.15		C		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	pH	7.6				
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Temperature	29.15		C		
9/21/2009 11:45	MILLVILLE CONTROL	Field Parameter	Sample Depth	0.15		m		
9/21/2009 13:55	MILLVILLE TEST	AGP/LN	Algal Growth Potential	3	AU	mg DryWt/L	3	3
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment % Organic	1	K	% dry wt		
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.5-2.0 mm	70.3	A	% vol <2mm	0	0.01

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	6.4		ug/L	0.55	1.7
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.063-0.125mm	0.44	A	% vol <2mm	0	0.01
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	6	J	mg/L	0.2	2
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, >2.0 mm	1.2	A	%totdrywt	0	1
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.125-0.25 mm	5.25	A	% vol <2mm	0	0.01
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, <0.063 mm	0.645	A	% vol <2mm	0	0.01
9/21/2009 13:55	MILLVILLE TEST	Chlorophyll/Grain Size/BOD	Sediment Particle Size, %, 0.25-0.5 mm	23.4	A	% vol <2mm	0	0.01
9/21/2009 13:55	MILLVILLE TEST	Metals	Calcium	261		mg/L	0.22	0.9
9/21/2009 13:55	MILLVILLE TEST	Metals	Nickel	0.75	U	ug/L	0.75	3
9/21/2009 13:55	MILLVILLE TEST	Metals	Cadmium	0.09	U	ug/L	0.09	0.36
9/21/2009 13:55	MILLVILLE TEST	Metals	Copper	1.5	U	ug/L	1.5	1.5
9/21/2009 13:55	MILLVILLE TEST	Metals	Zinc	16	I	ug/L	15	60
9/21/2009 13:55	MILLVILLE TEST	Metals	Magnesium	859		mg/L	2	8
9/21/2009 13:55	MILLVILLE TEST	Metals	Iron	90	U	ug/L	90	360
9/21/2009 13:55	MILLVILLE TEST	Metals	Selenium	0.6	U	ug/L	0.6	2.4
9/21/2009 13:55	MILLVILLE TEST	Metals	Arsenic	1.5	I	ug/L	0.75	3
9/21/2009 13:55	MILLVILLE TEST	Metals	Lead	0.6	U	ug/L	0.6	2.4
9/21/2009 13:55	MILLVILLE TEST	Metals	Silver	0.075	U	ug/L	0.075	0.3
9/21/2009 13:55	MILLVILLE TEST	Metals	Chromium	0.76	A	mg/Kg	0.073	0.29
9/21/2009 13:55	MILLVILLE TEST	Metals	Zinc	1.5	U	mg/Kg	1.5	5.8
9/21/2009 13:55	MILLVILLE TEST	Metals	Nickel	0.27	I	mg/Kg	0.11	0.44
9/21/2009 13:55	MILLVILLE TEST	Metals	Chromium	0.94	I	ug/L	0.9	3.6
9/21/2009 13:55	MILLVILLE TEST	Metals	Aluminum	180	U	ug/L	180	720
9/21/2009 13:55	MILLVILLE TEST	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
9/21/2009 13:55	MILLVILLE TEST	Nutrients	Turbidity	0.85		NTU	0.1	0.1
9/21/2009 13:55	MILLVILLE TEST	Nutrients	Kjeldahl Nitrogen	0.4		mg N/L	0.16	0.4
9/21/2009 13:55	MILLVILLE TEST	Nutrients	NO2NO3-N	0.22		mg N/L	0.004	0.01
9/21/2009 13:55	MILLVILLE TEST	Nutrients	O-Phosphate-P	0.008	U	mg P/L	0.008	0.02
9/21/2009 13:55	MILLVILLE TEST	Nutrients	TSS	11	I	mg/L	4	16
9/21/2009 13:55	MILLVILLE TEST	Nutrients	Total-P	0.014	I	mg P/L	0.008	0.02
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dichlorophenol	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Chloronaphthalene	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Nitrophenol	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Nitrophenol	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Anthracene	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(a)pyrene	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(b)fluoranthene	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	460	U	ug/kg	460	1900
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Di-n-butyl phthalate	460	U	ug/kg	460	1900
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Fluorene	77	U	ug/kg	77	310

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachloroethane	230	U	ug/kg		230	930
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Nitrobenzene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Pentachlorophenol	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L		39	150
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L		1.9	7.7
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L		14	58
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dimethylphenol	460	UJ	ug/kg		460	1900
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dinitrophenol	460	U	ug/kg		460	1900
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(a)anthracene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorobutadiene	230	U	ug/kg		230	930
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Phenol	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Pyrene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Fluorene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	UJ	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Chlorophenol	230	U	ug/kg		230	930
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzidine	1700	U	ug/kg		1700	6700
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(k)fluoranthene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroethyl)ether	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Chrysene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorocyclopentadiene	77	UJ	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Phenanthrene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Acenaphthylene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(g,h,i)perylene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	77	UJ	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Butyl benzyl phthalate	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Diethyl phthalate	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Isophorone	77	U	ug/kg		77	310

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Anthracene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Phenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,6-Dinitrotoluene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Chloro-3-methylphenol	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Acenaphthene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Dibenzo(a,h)anthracene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Fluoranthene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Naphthalene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L		14	58
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	3,3'-Dichlorobenzidine	4600	UJ	ug/kg		4600	19000
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Di-n-octyl phthalate	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Dimethyl phthalate	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L		14	58
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Chrysene	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Isophorone	0.96	U	ug/L		0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L		1.9	7.7
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	1,2,4-Trichlorobenzene	230	U	ug/kg		230	930
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Azobenzene/1,2-Diphenylhydrazine	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Hexachlorobenzene	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	77	U	ug/kg		77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	N-Nitrosodimethylamine	460	U	ug/kg		460	1900
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L		2.9	12
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L		9.6	39

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4,6-Trichlorophenol	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dinitrotoluene	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	4-Bromophenyl phenyl ether	77	U	ug/kg	77	310
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	39
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	390
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.9
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Sample Depth	0.15		m		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Temperature	29.65		C		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Dissolved Oxygen	7.02		mg/L		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Specific Conductance	36038		umhos/cm		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	pH	7.69				
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Temperature	29.65		C		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Specific Conductance	36038		umhos/cm		
9/21/2009 13:55	MILLVILLE TEST	Nutrients	% Solid	77.8		%		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Dissolved Oxygen	7.02		mg/L		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	Sample Depth	0.15		m		
9/21/2009 13:55	MILLVILLE TEST	Field Parameter	pH	7.69				
9/21/2009 12:40	EQ BLANK	Metals	Zinc	5	U	ug/L	5	20
9/21/2009 12:40	EQ BLANK	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
9/21/2009 12:40	EQ BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
9/21/2009 12:40	EQ BLANK	Metals	Copper	0.5	U	ug/L	0.5	0.5
9/21/2009 12:40	EQ BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
9/21/2009 12:40	EQ BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
9/21/2009 12:40	EQ BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
9/21/2009 12:40	EQ BLANK	Metals	Aluminum	60	U	ug/L	60	240
9/21/2009 12:40	EQ BLANK	Metals	Iron	30	U	ug/L	30	120
9/21/2009 12:40	EQ BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
9/21/2009 12:40	EQ BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
9/21/2009 12:40	EQ BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
9/21/2009 12:40	EQ BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
9/21/2009 12:40	EQ BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
9/21/2009 12:40	EQ BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
9/21/2009 12:40	EQ BLANK	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
9/21/2009 12:40	EQ BLANK	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
9/21/2009 12:40	EQ BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
9/21/2009 12:40	EQ BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 12:40	EQ BLANK	Pesticides	Ametryn	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Mevinphos	0.19	UJ	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	DDT-p,p'	0.029	UJ	ug/L		0.029	0.12
9/21/2009 12:40	EQ BLANK	Pesticides	Delta-BHC	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	Bromacil	0.19	U	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	Metolachlor	0.48	U	ug/L		0.48	1.9
9/21/2009 12:40	EQ BLANK	Pesticides	Alpha-BHC	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	Beta-BHC	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	Atrazine	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Butylate	0.19	U	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	Norflurazon	0.14	U	ug/L		0.14	0.56
9/21/2009 12:40	EQ BLANK	Pesticides	Prometryn	0.14	U	ug/L		0.14	0.56
9/21/2009 12:40	EQ BLANK	Pesticides	Endrin Aldehyde	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Methoxychlor	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Alachlor	0.57	U	ug/L		0.57	2.3
9/21/2009 12:40	EQ BLANK	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Chlordane	0.19	U	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	Endosulfan I	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Endrin	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Gamma-BHC	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	Heptachlor Epoxide	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Ethion	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Fonofos	0.095	U	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Malathion	0.14	U	ug/L		0.14	0.56
9/21/2009 12:40	EQ BLANK	Pesticides	Metribuzin	0.095	U	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Fenamiphos	0.19	U	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	Metalaxyl	0.24	UJ	ug/L		0.24	0.96
9/21/2009 12:40	EQ BLANK	Pesticides	Naled	0.76	UJ	ug/L		0.76	3
9/21/2009 12:40	EQ BLANK	Pesticides	Parathion Methyl	0.095	U	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Simazine	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	DDE-p,p'	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Endosulfan Sulfate	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Azinphos Methyl	0.19	UJ	ug/L		0.19	0.76
9/21/2009 12:40	EQ BLANK	Pesticides	Diazinon	0.048	U	ug/L		0.048	0.19
9/21/2009 12:40	EQ BLANK	Pesticides	Hexazinone	0.095	U	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Parathion Ethyl	0.14	U	ug/L		0.14	0.56
9/21/2009 12:40	EQ BLANK	Pesticides	Aldrin	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	DDD-p,p'	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Dieldrin	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Ethoprop	0.095	UJ	ug/L		0.095	0.38
9/21/2009 12:40	EQ BLANK	Pesticides	Phorate	0.048	UJ	ug/L		0.048	0.19

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 12:40	EQ BLANK	Pesticides	Endosulfan II	0.019	U	ug/L		0.019	0.076
9/21/2009 12:40	EQ BLANK	Pesticides	Heptachlor	0.0095	U	ug/L		0.0095	0.038
9/21/2009 12:40	EQ BLANK	Pesticides	Toxaphene	0.71	U	ug/L		0.71	2.8
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Chrysene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzidine	97	U	ug/L		97	390
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	UJ	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Isophorone	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L		39	150
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Acenaphthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Acenaphthylene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L		15	58
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Phenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L		1.9	7.7
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Anthracene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L		15	58
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L		9.7	39
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L		1.9	7.7
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L		4.8	19
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Fluorene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L		1.9	7.7

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units	Word_Result	MDL	PQL
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Naphthalene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L		9.7	39
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Fluoranthene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L		2.9	12
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L		1.9	7.7
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	Phenanthrene	0.97	U	ug/L		0.97	3.9
9/21/2009 12:40	EQ BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L		15	58

Appendix F

Toxicological results

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia

Facility: Milville
Address: 1800 East third Street, Panama City, FL. 32401
County: BAY
NPDES Permit #: FL 0170909
Contact/District: Attn Nathan Mulkey / Northwest MF
LIMS entry: 10.16.09 MK Verified: 10-16-09 JD

Diluent/ Batch: 20% DMW / 9.14.09 Test Days Used: 0-7 MF 10
20% DMW /_____ Test Days Used: _____

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

Start Date: 9.22.09 Time: 12:00
End Date: 9-29-09 Time: 10:45

Organism: *Ceriodaphnia dubia*
Organism Batch #: 34.09
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 7.15.09 7.23.09
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-2009-09-22-15	1216334	21 Sept 09 1218	9.22.09 10.08
Test Day 2	2	TLH-2009-09-24-29	1217151	23Sept 09 1155	9.24.09 10.00
Test Day 4	3	TLH-2009-09-28-12	1217413	25Sept09 1112	9.28.09 0900

9.26.09 BA

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	not measured	not measured	not measured	<0.03	<0.03	<0.03	83	83	94
Diluent/Control:				<0.03	<0.03	<0.03	75	75	75
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	—	—	JD	JD/CF	JD/BA	BA	BA	BA
Verified by:	BA	JD	BA	BA	BA	CF	JD	JD	JD
	Conductivity (circle one) (µmhos-cm) (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	2.04	2.30	2.35	<0.017	<0.017	<0.017	266	256	271
Diluent/Control:	0.174	0.174	0.178	<0.017	<0.017	<0.017	84	84	84
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	BA	BA	MF	MF	MF	MF	BA	BA	BA
Verified by:	JD	JD	BA	BA	BA	BA	JD	JD	JD

Temperature Shipped ≤6° C (all samples) (yes) no
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.1 max. 26.1 mean 25.6
Room B246 min. 25.2 max. 25.8 mean 25.5

Test Replicate	Loaded from culture vial
1	B19
2	B25
3	A16
4	A18
5	B9
6	B24
7	A27
8	B16
9	A15
10	A4

Statistics	
Control % CV:	17.7
Dunnetts PMSD:	12.6
Reproduction NOEC:	<100%
Survival NOEC:	100%
T-test value	4.08441
T- table value:	1.734
df:	18

LOEC = 100%

Investigators' signatures
Bree Absher
Marshall Faircloth
Jana Daniels
Chelsea French

Loretta C. Wolfe
REVIEWER

Comments:

Test Page 1 of 3

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revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: millville

LIMS Sample # 1216334 for lab sample 1

Start Date: 9.22.09 Time: 12:00

End Date: 9-29-09 Time: 10:45

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												BA 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	3	0	2	2	2	2	3	2	1	3	20	10	2.0
	5	0	4	0	0	0	0	0	4	6	6	20	10	2.0
	6 Ⓐ	4	MF 6	6	4	0	5	15 Ⓢ	0	0		25	10	2.5
	7	12	8	11	10	11	12	12	9	11	3	00	10	10
	8													
	Total	19	12	19	18	17	14	20	16	18	12	165	10	16.5

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100% sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	3	0	0	0	0	2	0	0	3	0	8	10	0.8
	5	0	3	4	0	0	5	3	3	0	3	MF 10 21	10	2.1
	6	4	0	0	5	4	0	0	0	6	0	19	10	1.9
	7	7	8	7	9	9	8	6	5	0	9	68	10	6.8
	8													
	Total	14	11	11	14	13	15	9	8	9	12	116	10	11.6

Organisms loaded by: BA

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

Concentration	Mean neonates /adult	% survival
Control	16.5	100%
100%	11.6	100%

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

Comments: Ⓐ Day 6 Rep 2 control = Ø MF 9-28-09
Ⓢ Day 6 Rep 8 eyelet brood – MF 9-28-09

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

000056

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Millville

LIMS Sample # : 121634 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	New Sample: pH (su)	New Sample: Temp (°C)	New Sample: DO (mg/L)	New Sample: Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	Old Sample: pH (su)	Old Sample: Temp (°C)	Old Sample: DO (mg/L)	Old Sample: Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample: Control		M	8.0	24.0	7.8	0.174					
	1	100%	M	7.8	24.0	7.9	2.04					
	Measured by:			BA	BA	BA	BA					
	Recorded by:			BA	BA	BA	BA					
Day 1	sample: Control		M	8.1	24.0	7.6	0.181	M	7.8	24.0	7.3	0.192
	1	100%	M	8.1	24.1	7.3	2.05	M	7.7	24.0	6.9	2.23
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample: Control		M	7.9	24.0	6.9	0.171	M	7.8	24.0	6.9	0.188
	2	100%	M	7.7	24.0	7.5	2.26	M	8.0	24.0	7.3	2.02
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 3	sample: Control		M	7.9	24.0	7.4	0.184	M	7.8	24.0	7.5	0.204
	2	100%	M	7.5	24.0	7.9	2.30	M	7.9	24.0	7.3	2.65
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 4	sample: Control		M	8.2 (B) 24.3		7.6	0.178	M	7.9	24.2	7.3	0.180
	3	100%	M	8.2	24.5	7.6	2.35	M	8.0	24.2	7.4	2.35
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample: Control		M	7.8	24.5	7.7	0.175	M	7.9	24.2	7.2	0.182
	3	100%	M	7.8	24.7	7.4	2.44	M	7.8	24.1	7.3	2.53
	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	8.0	24.1	7.8	0.175	M	8.0	24.4	7.5	0.189
	3	100%	M	7.9	24.9	7.4	2.43	M	7.9	24.4	7.6	2.44
	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	7.9	24.3	7.6	0.181
	3	100%	M					M	7.8	24.1	7.3	2.46
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF
Day 8	sample: Control							M				
	3							M				
	Measured by:											
	Recorded by:											

Comments: (A) 24.3°C MF IFM-09

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

Test Page 3 of 3

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revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: milville
Address: 1800 E. 3RD St, Panama City, Fl. 32401
County: Bay
NPDES Permit #: FL 0170909
Contact/District: Nathan Mulkey /NWD

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: 9.22.09 Time: 1300
End Date: 9.29.09 Time: 1215

Diluent/ Batch:
MHW / 9.21.09 Test Days Used: 0-7/6 MF for SD
MHW / Test Days Used:
ASW / Test Days Used:
ASW / Test Days Used:

Organism Batch # : 9.22.09
Feeding Prior to Test and Daily
Artemia Lot # : 38438
Chamber size : 1000 ml
Test volume : 500 ml

Organism age : <48 hrs ~~days~~

Artemia Batch #		Day 3	126-09
Day 0	123-09	Day 4	127-09
Day 1	124-09	Day 5	128-09
Day 2	125-09	Day 6	129-09

LIMS:	Date	Initials
Entry:	10-16-09	MF
Verification:	10.16.09	

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2009.09.22.15	121634	9/21/09 12:18	9/22/09 10:08
Test Day 2	2	TLH-2009.09.24.29	121715	9/23/09 11:55	9/24/09 10:00
Test Day 4	3	TLH-2009.09.28.12	121713	9/25/09 11:12	9/26/09 9:00

Water Quality Parameters	Batch # 9.21.09 ☑ MHW ☐ ASW	☐ MHW ☐ ASW	Sample 1 NA	Sample 2 NA	Sample 3 NA	Other:	Measured by:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	Not Measured				—	BA
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	<0.03	<0.03		CF	BA
Alkalinity (mg/L as $CaCO_3$):	87		83	83	94		BA	MF
Hardness (mg/L as $CaCO_3$):	101		246	256	271		BA	MF
Total Ammonia (mg/L as N):	<0.017		<0.017	<0.017	<0.017		MF	BA
Conductivity: µmhos mmhos:	343		1995	2280	2380		CF/BA	
Salinity (ppth):	—		—	—	—		—	—

Temperature Shipped ≤6° C (all samples) yes no
Holding Time ≤36 hours yes no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark

Temperature Range °C: (if used)
Incubator # 2 min. 25.1 max. 26.1 mean 25.6
Water bath # ____ min. ____ max. ____ mean ____
Room B246 min. 25.2 max. 25.8 mean 25.5

Test Incubated in: ☒ Incubator #: 2
☐ Waterbath #: ____

Investigators' signatures
Anna Dimich
~~Ryan Abraham~~ BA
Marshall Faircloth
Chelsea Freed
Bruce Alexander

REVIEWER Loretta Culotta

Statistics	
Control %cv:	21.9%
~~Dunnetts~~ MF PMSD:	23.3%
Survival NOEC:	100%
Survival LOEC:	NA
Growth NOEC:	100%
Growth LOEC:	NA

Comments:

revised 7/15/08 MF

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: Millville

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

LIMS Sample Number: 1216334 for lab sample #1

Start Date: 9.22.09 Time: 1300

End Date: 9.29.09 Time: 1215

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

Comments:

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

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

Sample Source: Millville

LIMS Sample #: 1216334 (for Lab sample #1)

Test Day ↓		Conc.	Old Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth	New Sample: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Cond (µmhos/cm) (mmhos/cm)	Salinity ppth
Day 0	sample:	Control							A	8.1	24.5	7.6	343	0.09
	1	100%							A	7.3	24.4	8.0	1995	0.98
	Measured by:									cf	cf	cf	cf	cf
	Recorded by:									cf	cf	cf	cf	cf
Day 1	sample:	Control	B	7.8	24.0	7.7	350	0.10	B	7.8	24.0	7.7	382	0.11
	1	100%	B	7.7	24.1	7.7	2030	0.99	B	7.8	24.7	7.0	2020	0.99
	Measured by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
	Recorded by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
Day 2	sample:	Control	C	7.9	25.5	6.4	347	0.09	C	7.8	24.2	7.5	331	0.10
	2	100%	C	7.7	25.6	6.1	2070	1.02	C	7.7	24.5	7.3	2220	1.11
	Measured by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
	Recorded by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
Day 3	sample:	Control	D	7.6	25.5	6.7	334	0.09	D	7.9	24.1	7.3	333	0.09
	2	100%	D	7.4	25.4	5.9	2240	1.12	D	7.6	24.3	7.2	2280	1.14
	Measured by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
	Recorded by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
Day 4	sample:	Control	A	7.7	24.7	6.4	2341	0.09	A	8.0	24.0	6.9	367	0.1
	3	100%	A	7.6	24.8	6.4	2132	1.16	A	8.0	24.0	7.0	2380	1.19
	Measured by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
Day 5	sample:	Control	B	7.5	24.1	5.8	370	0.10	B	7.7	24.0	7.1	364	0.1
	3	100%	B	7.4	24.0	4.1	2000	0.97	B	7.6	25.1	7.1	2370	1.14
	Measured by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
	Recorded by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
Day 6	sample:	Control	C	7.4	25.0	5.1	374	0.11	C	8.0	24.1	6.8	358	0.10
	3	100%	C	7.3	25.2	5.3	2400	1.21	(A) C	7.9	25.9	6.7	2320	1.15
	Measured by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
	Recorded by:			cf	cf	cf	cf	cf		cf	cf	cf	cf	cf
Day 7	sample:	Control	D	7.7	24.4	5.0	355	0.10						
	3	100%	D	7.5	24.5	5.8	2340	1.17						
	Measured by:			cf	cf	cf	cf	cf						
	Recorded by:			cf	cf	cf	cf	cf						

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

Comments: (A) CF initials for change inserted by MF 11-17-09

revised 7/15/08 mf

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: Millville

LIMS Sample Number: 1216334 for lab sample #1

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # Fish	Mean wt. (mg)
			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control	A	9	0.02160	0.02985	0.00825	10	.825
	B	10	0.02053	0.02659	0.00606	10	.606
	C	11	0.02018	0.02833	0.00815	10	.815
	D	12	0.01976	0.03024	0.010748 SD	10	1.048
100 % sample	A	13	0.01954	0.02728	0.00774	10	.774
	B	14	0.01821	0.02599	0.00778	10	.778
	C	15	0.02428	0.03093	0.00665	10	.665
	D	16	0.02160	0.02776	0.00616	10	.616
Control	A					10	
	B					10	
	C					10	
	D					10	
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		CF	JD			

CYL avg wt. 0.824
100% avg wt 0.708

Growth	%CV	PMSD
Control	21.9%	23.3 %

ENVID: 34000

Growth	Table	Calculated	dF
T-test	1.94300	1.16544	6
Survival	1.94300	0.65465	6

Drying	
Temperature °C:	95
Hours:	8

S-weight ID: BIO-S-WEIGHTS-01

Balance ID: OHAUS 250D SER. 1125481084

Tare Weighing Date:	Final Weighing Date:	Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02161 @ 0.02160	S-weights	0.00999	@ 0.01
Tare Pan 1 after Pan 8 (g)	0.02160 @ 0.02160	at tare	0.03001	@ 0.03
Final Pan 1 after Pan 5 (g)	0.02987 @ 0.02985	S-weights	0.00997	@ 0.01
Final Pan 1 after Pan 8 (g)	0.02985 @ 0.02985	at final	0.05002	@ 0.05

Comments:

Bioassay Instrument ID

Test ID: Millwill WWTF Dates: 9-22-29-2009

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

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)

entred by M. Fairclath 10-14-09

V 1.1 6/12/08 MF

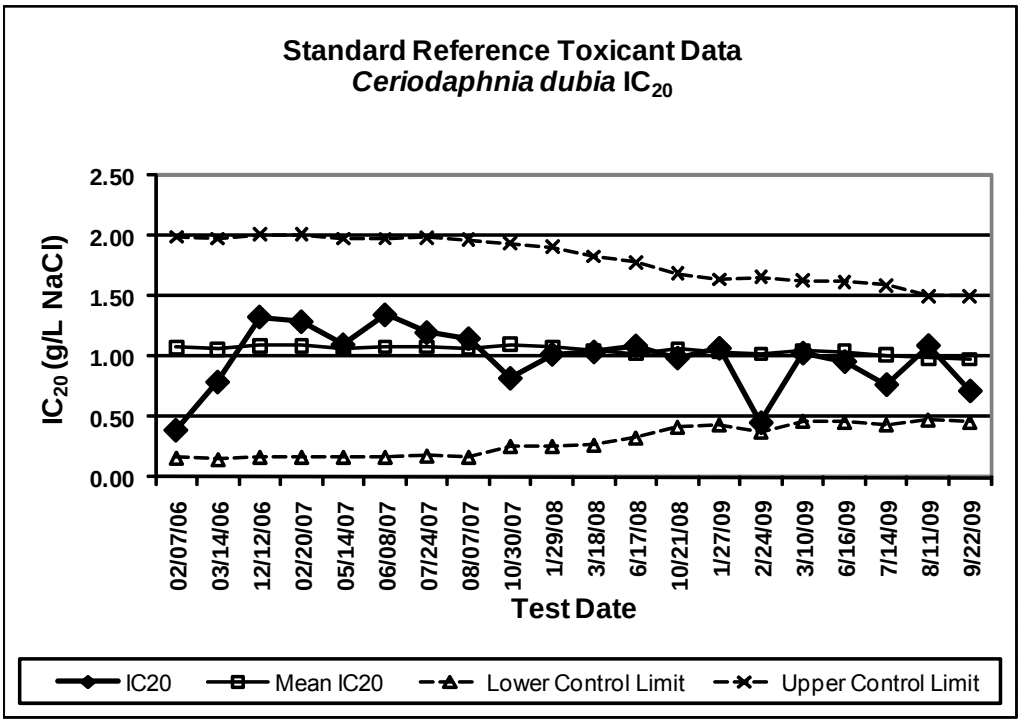
Appendix G

Standard Reference Toxicant Data

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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
02/07/06	0.39	1.08	0.46	0.16	1.99
03/14/06	0.79	1.06	0.46	0.15	1.98
12/12/06	1.33	1.09	0.46	0.17	2.01
02/20/07	1.29	1.09	0.46	0.17	2.01
05/14/07	1.10	1.07	0.45	0.17	1.98
06/08/07	1.35	1.08	0.45	0.17	1.98
07/24/07	1.20	1.08	0.45	0.18	1.99
08/07/07	1.15	1.07	0.45	0.17	1.97
10/30/07	0.82	1.10	0.42	0.26	1.94
1/29/08	1.02	1.08	0.41	0.26	1.91
3/18/08	1.04	1.05	0.39	0.27	1.83
6/17/08	1.09	1.02	0.36	0.33	1.78
10/21/08	0.99	1.06	0.32	0.42	1.69
1/27/09	1.07	1.04	0.30	0.44	1.64
2/24/09	0.45	1.02	0.32	0.38	1.66
3/10/09	1.03	1.05	0.29	0.47	1.63
6/16/09	0.96	1.04	0.29	0.46	1.62
7/14/09	0.77	1.01	0.29	0.44	1.59
8/11/09	1.09	0.99	0.26	0.48	1.50
9/22/09	0.72	0.98	0.26	0.46	1.50

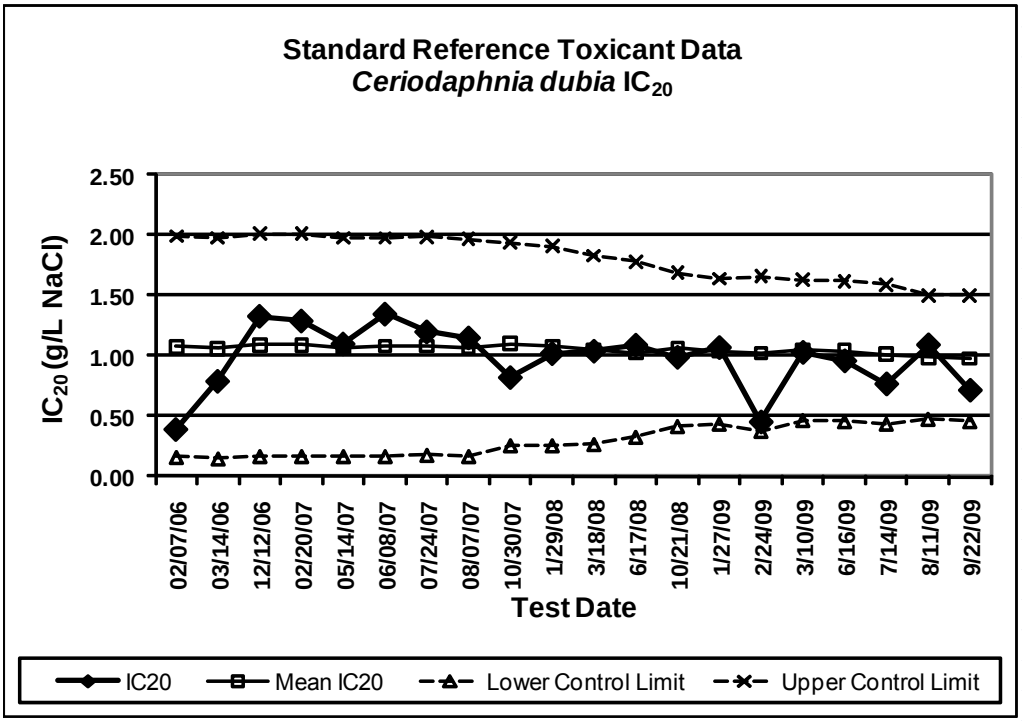
Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev



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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
02/07/06	0.39	1.08	0.46	0.16	1.99
03/14/06	0.79	1.06	0.46	0.15	1.98
12/12/06	1.33	1.09	0.46	0.17	2.01
02/20/07	1.29	1.09	0.46	0.17	2.01
05/14/07	1.10	1.07	0.45	0.17	1.98
06/08/07	1.35	1.08	0.45	0.17	1.98
07/24/07	1.20	1.08	0.45	0.18	1.99
08/07/07	1.15	1.07	0.45	0.17	1.97
10/30/07	0.82	1.10	0.42	0.26	1.94
1/29/08	1.02	1.08	0.41	0.26	1.91
3/18/08	1.04	1.05	0.39	0.27	1.83
6/17/08	1.09	1.02	0.36	0.33	1.78
10/21/08	0.99	1.06	0.32	0.42	1.69
1/27/09	1.07	1.04	0.30	0.44	1.64
2/24/09	0.45	1.02	0.32	0.38	1.66
3/10/09	1.03	1.05	0.29	0.47	1.63
6/16/09	0.96	1.04	0.29	0.46	1.62
7/14/09	0.77	1.01	0.29	0.44	1.59
8/11/09	1.09	0.99	0.26	0.48	1.50
9/22/09	0.72	0.98	0.26	0.46	1.50

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



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 8.14.09 (MF) Test Days Used: 0-4 (BA)
20% DMW / 9-21-09 Test Days Used: 5-6
Toxicant/ Batch: NaCl / 9.21.09

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 34.09 / <24 hr.
Feeding: Prior to Test and Daily
Food: ☐ YCT ☑ *P. subcapitata*
Food Batch: 7.15.09 7.23.09
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 9.22.09 Time: 11:20
End Date: 9-29-09 Time: 1100

Batch:	20% DMW (BA) 8.14.09	20% DMW (BA) 9.21.09

Water Quality Parameters	20% DMW	20% DMW	Other	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03		JD	BA
Alkalinity (mg/L as $CaCO_3$):	75	81		BA	MF
Hardness (mg/L as $CaCO_3$):	84	86		BA	MF
Total Ammonia (mg/L as N):	<0.017	<0.017		MF	BA
Conductivity µmhos-cm (mmhos-cm)	0.173	0.182		BA	MF

Results	
Control % CV:	11.5%
Dunnetts PMSD:	27.5%
Reproduction NOEC:	0.89 g/L
Reproduction LOEC:	1.3 g/L
Survival NOEC:	1.3 g/L
Survival LOEC:	2 g/L
ICP_{20}:	0.7160 g/L
ICP_{25}:	0.9105 g/L

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

Loaded by:

Test Replicate	Loaded from culture vial
1	B19
2	B25
3	A16
4	A18
5	B9
6	B24
7	A27
8	B16
9	A15
10	A4

Comments:

Investigators' signatures

Bree Almeda
Marshall Faircloth
James Daniels

Loretta C. Wolfe
REVIEWER

Test Incubated in: Incubator: # 2
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.2 max. 25.8 mean 25.3
Room B246 ____ min. 24.8 max. 25.8 mean 25.3
Test min. 24.0 max. 24.8 mean NA

000025

Ceriodaphnia dubia Survival and Reproduction

Start Date: 9.27.09 Time: 11:20 Loaded by: BA
End Date: 9-29-09 Time: 1100 Verified by: MF

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	3	2	3	3	3	2	2	0	2	1	21	10	2.1
	5	0	0	0	0	0	5	0	0	3	6	14	10	1.4
	6	3	7	5	4	5	0	5	5	9	10	53	10	5.3
	7	7	9	10	9	10	7	10	11	0	0	73	10	7.3
	8													
	Total	13	18	18	16	18	14	17	16	14	17	161	10	16.1
0.59 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	0	0	2	0	0	2	2	0	2	2	10	10	1
	5	0	1	0	0	0	6	0	7	6	6	26	10	2.6
	6	4	6	6	6	1	0	6	0	2 (S)	10	41	10	4.1
	7 (A)	0	11 ~~11~~	9 ~~9~~	10	0	8	10	9	0	0	57	10	5.7
	8													
	Total	4	18	17	16	1	16	18	15	18 MF 0	18	133	10	13.3
0.89 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	3	0	0	2	0	0	0	1	3	1	10	10	1.0
	5	0	0	0	0	0	2	7	6	8	6	29	10	2.9
	6	0	1	7	1	5	0	0	0	0	0	14	10	1.4
	7	0	12	11	1	6	8	10	4	10	8	70	10	7.0
	8													
	Total	3	13	18	4	11	10	17	11	21	15	123	10	12.3

Comments: (S) rep 9 DAY 6 0.59ppth – split brood MF 9-28-09
(A) wrote 0.89 on 0.59 ppth – MF 9-29-09

000026

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
1.3 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	mf~~0~~	10	0
	4	0	0	0	0	0	0	0	0	1	0	mf~~0~~ 1	10	0.1
	5	4	0	0	0	4	5	0	0	0	0	13	10	1.3
	6	2	3	5	3	0	0	1	6	7	0	27	10	2.7
	7	0	8	6	0	3	5	8	7	0	0	37	10	3.7
	8													
	Total	6	11	11	3	7	10	9	13	8	0	78	10	7.8
2.0 ppth	0												10	
	1												10	
	2	0	X	0	0	0	X	X	0	0	0	0	7	0
	3	0		0	0	X			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	0		0	0				0	1	0	1	6	0.1 mf ~~0.167~~
	8													
	Total	0		0	0				0	1	0	1	6(10)	1 mf ~~0.167~~
3.0 ppth	0												10	
	1	X	X							X			7	
	2			X	X	X	X	X	X		X			
	3													
	4													
	5													
	6													
	7													
	8													
	Total													

Comments:

000027

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day		New Sample				Conductivity	Old Sample				Conductivity
↓	Conc.	Replicate	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)	Replicate	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)
Day 0	Control	M	7.9	24.0	7.7	0.173					
	0.59 ppth	M	7.9	24.0	7.6	1.29					
	0.89 ppth	M	7.9	24.0	7.6	1.86					
	1.3ppth	M	7.9	24.0	7.7	2.64					
	2.0 ppth	M	7.9	24.0	7.6	3.83					
	3.0 ppth	M	8.0	24.0	7.7	5.58					
	Measured by:		BA	BA	BA	BA					
	Recorded by:		BA	BA	BA	BA					
Day 1	Control	M	7.9	24.0	7.3	0.186	1	7.9	24.0	7.2	0.205
	0.59 ppth	M	7.8	24.0	7.3	1.29	1	7.8	24.0	7.3	1.35
	0.89 ppth	M	7.9	24.0	7.3	1.84	1	7.8	24.0	7.2	1.94
	1.3ppth	M	7.9	24.0	7.3	2.64	1	7.8	24.0	7.1	2.72
	2.0 ppth	M	7.9	24.0	7.3	3.78	1	7.8	24.0	7.2	3.99
	3.0 ppth	M	7.9	24.0	7.2	5.59	1	7.8	24.0	7.2	5.68
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 2	Control	M	7.8	24.0	7.4	0.172	1	7.8	24.0	7.4	0.177
	0.59 ppth	M	7.8	24.0	7.3	1.28	1	7.8	24.0	7.3	1.34
	0.89 ppth	M	7.9	24.0	7.3	1.81	1	7.8	24.0	7.2	1.88
	1.3ppth	M	7.9	24.0	7.4	2.62	1	7.8	24.0	7.2	2.77
	2.0 ppth	M	7.9	24.0	7.4	3.79	1	7.8	24.0	7.2	3.86
	3.0 ppth	M	7.9	24.0	7.5	5.48	1	7.8	24.0	7.3	5.66
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 3	Control	M	7.9	24.2	7.3	0.173	1	7.8	24.0	7.0	0.181
	0.59 ppth	M	7.8	24.0	7.4	1.27	1	7.8	24.0	6.9	1.31
	0.89 ppth	M	7.9	24.0	7.4	1.84	1	7.8	24.0	7.0	1.96
	1.3ppth	M	7.9	24.0	7.4	2.71	1	7.8	24.0	7.2	2.71
	2.0 ppth	M	7.9	24.0	7.3	3.82	1	7.8	24.0	7.2	3.87
	3.0 ppth	M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA

Comments:

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

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	8.2	24.6	7.6	0.179	A	7.9	24.4	7.6	0.182
	0.59 ppth	M	8.2	24.5	7.6	1.29	A	7.8	24.2	7.4	1.40
	0.89 ppth	M	8.1	24.7	7.5	1.87	A	7.8	24.2	7.4	1.95
	1.3ppth	M	8.1	24.6	7.5	2.67	A	7.8	24.2	7.4	2.87
	2.0 ppth	M	8.1	24.6	7.5	3.84	A	7.8	24.3	7.3	3.89
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 5	Control	M	7.8	24.5	7.7	0.173	A	7.9	24.6	7.3	0.179
	0.59 ppth	M	7.9	24.4	7.6	1.29	A	8.0	24.4	7.2	1.31
	0.89 ppth	M	7.9	24.5	7.8	1.85	A	7.9	24.4	7.2	1.92
	1.3ppth	M	7.9	24.5	7.7	2.68	A	7.9	24.3	7.3	2.69
	2.0 ppth	M	7.9	24.5	7.8	3.84	A	7.9	24.4	7.3	3.82
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 6	Control	M	8.0	24.2	7.8	0.175	A	8.1	24.7	7.6	0.150
	0.59 ppth	M	8.2	24.1	7.8	MF 1.28	A	8.0	24.6	7.4	1.37
	0.89 ppth	M	8.2	24.2	7.7	1.83	A	8.0	24.6	7.4	1.91
	1.3ppth	M	8.1	24.3	7.8	2.65	A	8.0	24.6	7.2	2.90
	2.0 ppth	M	8.1	24.3	7.7	3.80	A	8.0	24.4	7.3	3.85
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 7	Control	M					A	8.0	24.8	7.2	0.178
	0.59 ppth	M					A	7.9	24.7	7.2	1.31
	0.89 ppth	M					A	7.9	24.4	7.1	1.96
	1.3ppth	M					A	7.9	24.3	7.0	2.72
	2.0 ppth	M					A	7.9	24.3	7.1	3.81
	3.0 ppth	M									
	Measured by:							MF	MF	MF	MF
	Recorded by:							MF	MF	MF	MF
Day 8	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										

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

Bioassay Instrument ID

Test ID: SRT (c. dubia) Dates: 9-22-29-09

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

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

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

entered by M. Feinbott MF 10-14-09

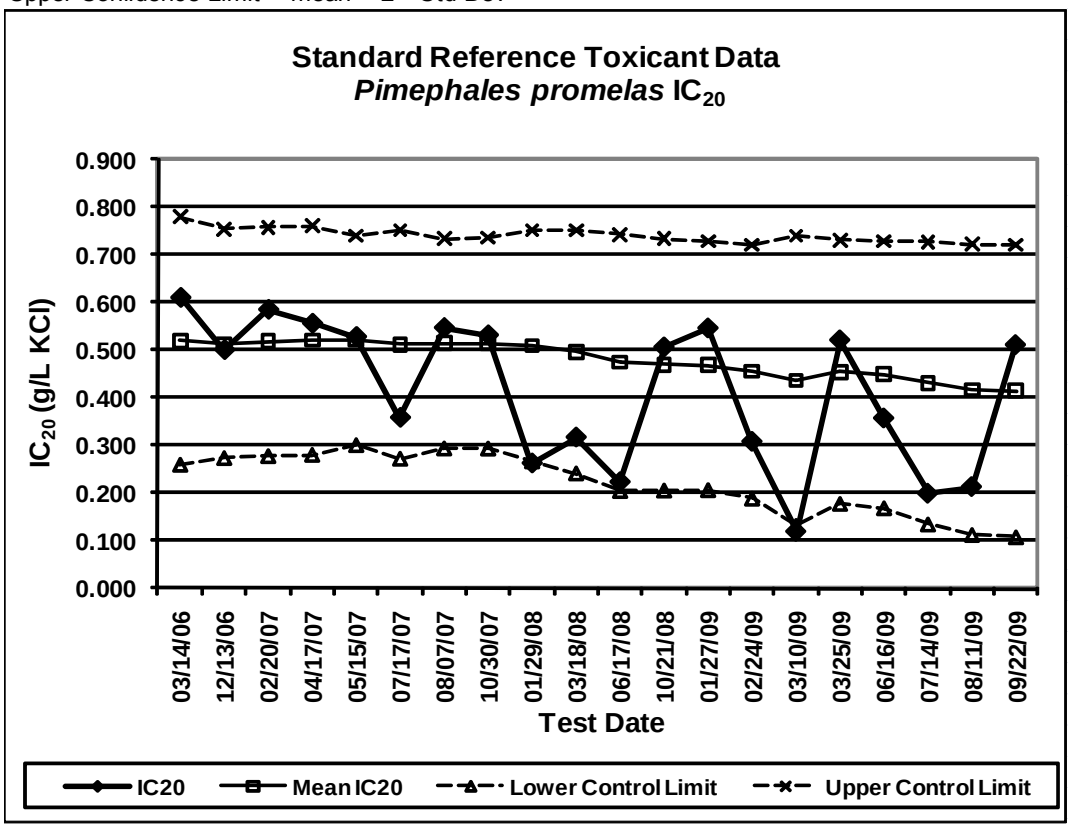
V 1.1 6/12/08 MF

Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
03/14/06	0.610	0.520	0.13	0.260	0.780
12/13/06	0.501	0.514	0.12	0.274	0.754
02/20/07	0.585	0.518	0.12	0.278	0.758
04/17/07	0.556	0.521	0.12	0.281	0.761
05/15/07	0.528	0.521	0.11	0.301	0.741
07/17/07	0.358	0.513	0.12	0.273	0.753
08/07/07	0.547	0.514	0.11	0.294	0.734
10/30/07	0.531	0.515	0.11	0.294	0.736
01/29/08	0.263	0.509	0.12	0.267	0.752
03/18/08	0.317	0.497	0.13	0.242	0.752
06/17/08	0.223	0.474	0.13	0.205	0.743
10/21/08	0.506	0.470	0.13	0.206	0.734
01/27/09	0.546	0.468	0.13	0.207	0.729
02/24/09	0.308	0.455	0.13	0.189	0.721
03/10/09	0.119	0.437	0.15	0.132	0.741
03/25/09	0.521	0.455	0.14	0.178	0.731
06/16/09	0.357	0.449	0.14	0.169	0.729
07/14/09	0.199	0.432	0.15	0.135	0.728
08/11/09	0.213	0.417	0.15	0.113	0.722
09/22/09	0.511	0.415	0.15	0.108	0.721

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



FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

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

Diluent/ Batch: MHW/9.21.09 Test Days Used: 0-96 mf/an 5D/125-09 Start Date: 9.22.09 Time: 1200

Diluent/ Batch: _____ Test Days Used: _____ End Date: 9.29.09 Time: 1200

Toxicant/ Batch # : KCl/9.21.09 Organism Batch #/ Age: 9.22.09/ 24hrs

Artemia Lot # : 384338

Artemia Batch #	Day 2 -125-09	Day 5 125-09	Chamber size : 1000 ml
Day 0 123-09	Day 3 126-09	Day 6 129-09	Test volume : 500 ml
Day1 124-09	Day 4 127-09		

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	CF	BA
Alkalinity (mg/L as $CaCO_3$):	97		HACH	BA	25
Hardness (mg/L as $CaCO_3$):	101		HACH	BA	25
Total Ammonia (mg/L as N):	<0.017		DENVER	MF	BA
Conductivity (mmhos-cm) mmhos-cm:	369		METTLER	CF	BA

Statistics	
Growth NOEC:	0.5 g/L
Growth LOEC:	1.0 g/L
Growth IC_{20}:	0.511 g/L
Growth IC_{25}:	0.5435 g/L
Ctrl % CV:	17.1%
Dunnetts PMSD:	20.5%
Survival NOEC:	0.5 g/L
Survival LOEC:	1.0 g/L

Test incubated in : [X] Incubator # 2

[ ] Waterbath #_____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 25.1 max. 26.1 mean 25.6

Water bath # ____ min.____ max.____ mean____

Room B246 min. 25.2 max. 25.8 mean 25.5

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

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

Investigators' signatures

James Daniels

Renee Sleeth

Marshall Faircloth

Chris Evans

Loretta C. Wolfe

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	F1	10	9[10]	9	9	9	9	9	9
	B	F2	10	10	10	10	10	10	10	10
	C	F3	10	10	10	10	10	10	10	10
	D	F4	10	10	10	10	10	10	10	10
.125	A	F5	10	10	10	10	10	10	10	10
	B	F6	10	10	10	10	10	10	10	10
	C	F7	10	9[10]	9	9	9	9	9	9
	D	F8	10	10	10	10	10	10	10	10
.25	A	F9	10	10	10	10	10	10	10	10
	B	F10	10	9[10]	9	9	9	9	9	9
	C	F11	10	10	10	10	10	10	10	10
	D	F12	10	10	10	10	10	10	10	10
.5	A	F13	10	8[2D]	8	8	8	8	8	8
	B	F14	10	10	10	10	10	10	10	10
	C	F15	10	8[2D]	8	8	8	8	8	8
	D	F16	10	10	10	10	10	10	10	10
1.0	A	F17	10	2[3D]	1[1D]	1	0[4D]	—	—	—
	B	F18	10	3[3D]	1[2D]	1	1	1	1	1[4D]
	C	F19	10	1[3D]	1	1	1	1	1	1
	D	F20	10	1[3D]	0[1D]	—	—	—	—	—
2.0	A	F4	10	0[1D]	—	—	—			
	B	F22	10	0[1D]	—	—	—			
	C	F23	10	0[1D]	—	—	—			
	D	F24	10	0[1D]	—	—	—			
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): BA		Checked by:					BA			
Verified by (0 hr):										
Concentrations prepared by:										—

Comments:

revised 7/16/08 MF

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 9-22-09 Time: 1200

End Date: 9.29.09 Time: 1200

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

Concentration: µg/L mg/L (circle one)

circle µmhos or mmhos

Test Day		Before Renewal					Test Start and After Renewal				
↓	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos) mmhos	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos) mmhos
Day 0	Control						A	8.1	24.6	7.7	369
	0.125						A	8.1	24.3	7.7	566
	0.25						A	8.1	24.2	7.4	836
	.5						A	8.2	24.0	7.3	1242
	1.0						A	8.2	24.0	7.8	2180
	2.0						A	8.2	24.0	8.0	3560
							A				
	Measured by:							CB	CB	CB	CB
	Recorded by:							CB	CB	CB	CB
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 1	Control	B	8.0	24.0	7.5	337	B	8.0	24.1	7.8	377
	0.125	B	8.0	24.0	7.6	572	B	8.0	24.1	7.7	567
	0.25	B	8.0	24.0	7.6	845	B	8.0	24.0	7.6	806
	0.5	B	8.0	24.0	7.6	1299	B	8.0	24.1	7.6	1268
	1.0	B	8.0	24.0	7.6	2240	B	8.0	24.0	7.7	2190
	2.0	B	8.1	24.0	7.6	4000	B				
		B					B				
	Measured by:		CB	CB	CB	CB		CB	CB	CB	CB
	Recorded by:		CB	CB	CB	CB		CB	CB	CB	CB
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 2	Control	C	7.8	25.4	6.7	347	C	7.7	24.1	7.6	365
	0.125	C	7.8	25.3	6.5	571	C	7.8	24.0	7.5	548
	0.25	C	7.9	25.2	6.3	818	C	7.8	24.0	7.5	799
	0.5	C	7.8	25.8	6.3	1288	C	7.9	24.0	7.5	1219
	1.0	C	7.8	25.7	6.4	2210	C	7.9	24.0	7.5	2090
		C					C				
		C					C				
	Measured by:		CB	CB	CB	CB		CB	CB	CB	CB
	Recorded by:		CB	CB	CB	CB		CB	CB	CB	CB
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 3	Control	D	7.5	25.1	7.2	358	D	7.8	24.5	7.2	333
	0.125	D	7.5	25.1	6.3	571	D	7.8	24.4	7.1	566
	0.25	D	7.5	25.1	6.3	806	D	7.8	24.4	7.1	~~1268~~ 822 CB
	.5	D	7.5	24.8	6.3	1262	D	7.9	24.3	7.1	1268
	1.0	DA	7.6	25.3	6.7	2160	A-D	7.9	24.2	7.3	2240
		D					D				
		D					D				
	Measured by:		CB	CB	CB	CB		CB	CB	CB	CB
	Recorded by:		CB	CB	CB	CB		CB	CB	CB	CB

Comments:

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

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

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

circle µmhos or mmhos

Test Day		Before Renewal					After Renewal					
↓	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	
Day 4	Control	A	7.5	25.1	6.2	343	A	7.7	24.0	7.2	334	
	0.125	A	7.5	24.9	6.1	583	A	7.7	24.0	7.1	538	
	0.25	A	7.5	25.0	6.2	843	A	7.7	24.0	7.0	788	
	0.5	A	7.5	24.8	6.1	1,285	A	7.7	24.0	7.0	1,257	
	1.0	A	7.5	24.6	6.0	2,290	A	7.8	24.0	6.9	2,140	
		A					A					
		A					A					
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA	
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA	
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity	
Day 5	Control	B	7.5	24.0	6.4	342	B	7.8	24.0	6.7	339	
	.125	B	7.6	24.0	6.5	541	B	7.8	24.0	7.0	529	
	.25	B	7.5	24.0	6.5	805	B	7.9	24.0	7.2	780	
	.5	B	7.6	24.0	6.5	1270	B	7.9	24.0	7.3	1254	
	1.0	B	7.6	24.0	6.6	2260	B	7.9	24.0	7.4	2210	
		B					B					
		B					B					
	Measured by:		~~BA~~	~~BA~~	~~BA~~	~~BA~~		~~BA~~	~~BA~~	~~BA~~	~~BA~~	
	Recorded by:		~~BA~~	~~BA~~	~~BA~~	~~BA~~		~~BA~~	~~BA~~	~~BA~~	~~BA~~	
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity	
Day 6	Control	C	7.5	24.9	5.7	348	C	7.5	24.2	7.0	327	
	.125	C	7.4	25.0	5.4	538	C	7.7	24.2	7.1	540	
	.25	C	7.5	25.3	5.2	783	C	7.8	24.1	6.9	798	
	.5	C	7.5	25.3	5.6	1263	C	7.8	24.0	7.1	1278	
	1.0	A-D	7.5	25.1	6.4	2180	A-D	7.8	24.1	7.2	1846	
		10 by MF 11-17-09 C					C					
		C					C					
	Measured by:		~~BA~~	~~BA~~	~~BA~~	~~BA~~		~~BA~~	~~BA~~	~~BA~~	~~BA~~	
	Recorded by:		~~BA~~	~~BA~~	~~BA~~	~~BA~~		~~BA~~	~~BA~~	~~BA~~	~~BA~~	
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity	
Day 7	Control	D	6.7	24.6	6.0	358	D					
	0.125	D	7.2	24.3	6.0	569	D					
	0.25	D	7.3	24.3	6.4	815	D					
	0.5	D	7.4	24.1	6.0	1303	D					
	1.0	B-D	7.5	24.2	6.2	1898	B-D					
		D					D					
		D					D					
	Measured by:		BA	BA	BA	BA						
	Recorded by:		BA	BA	BA	BA						

Comments:

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

Concentration: µg/L ~~mD~~ (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	17	0.02245	0.03080	0.00835	10	.835
	B	18	0.02242	0.03115	0.00873	10	.873
	C	19	0.02492	0.03155	0.00663	10	.663
	D	20	0.02451	0.03466	0.01015	10	1.015
0.175	A	21	0.02373	0.03304	0.00931	10	.931
	B	22	0.02540	0.03416	0.00876	10	.876
	C	23	0.02168	0.03018	0.00850	10	.850
	D	24	0.02173	0.03281	0.01108	10	1.108
0.25	A	25	0.02287	0.03059	0.00772	10	0.772
	B	26	0.02252	0.02967	0.00715	10	.715
	C	27	0.02232	0.03080	0.00848	10	.848
	D	28	0.02175	0.02859	0.00684	10	.684
.5	A	29	0.02476	0.03041	0.00565	10	.565
	B	30	0.02231	0.03037	0.00806	10	.806
	C	31	0.02267	0.03039	0.00772	10	.772
	D	32	0.02166	0.02946	0.00780	10	.780
1.0	A	—	~~0.02272~~ 72	—	—	10	—
	B	33	0.02227	0.02298	0.00026	10	.026
	C	34	0.02222	0.02316	0.00094	10	.094
	D	—		—	—	10	—
	A					10	
	B					10	
	C					10	
	D					10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	CF	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: 9.28.09 Weighed by: CF

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02245	@ 0.02245
after Pan 10	0.02245	@ 0.02245
after Pan 15	0.02245	@ 0.02245
after Pan 20	0.02245	@ 0.02245
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	0.00999 g	@ 0.01 g
	0.03001 g	@ 0.03 g

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 10.2.09 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.03083	@ 0.03080
after Pan 10	0.03083	@ 0.03080
after Pan 15	0.03083	@ 0.03080
after Pan 20	0.03082	@ 0.03080
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	0.00997	@ 0.01
	0.05002	@ 0.05

Drying Oven ID: ER034000

Temperature °C: 95

Drying Hours: 8

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

Comments:

revised 7/16/08 MF

Bioassay Instrument ID

Test ID: P. promelas SRT Sept 22, '09 Dates: 9-22-09 —— 9-29-01

METER / DEVICE	ID	SOP	Parameter	Method	√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	SM 2510 B	✓
			Salinity	SM 2520 B	
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Thermometer (DO probe)	YSI 5750 SN 05J1720	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	✓
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	✓
Drying oven	ERO 34000	—	—	—	✓

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

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

entered by M. Faircloth 10-2-09

V 1.1 6/12/08 MF

Appendix H

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 07 34.8 / 85 38 57.7 (Actual 30 07 33.4 / 85 39 00.5)	32030M14	9/21/09	1045	St. Andrews Bay

REMARKS:	COUNTY:	SITE LOCATION:	FIELD ID/NAME:
Control Site	Bay	Palmetto Point	Millville Control

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)
X							

Local Watershed Erosion (check box): None [X] Slight [ ] Moderate [ ] Heavy [ ]

Local Watershed NPS Pollution (check box): No evidence [X] 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 [X] 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

AM / PM :		High	1000 : AM / PM
AM / PM :		Low	0800 : AM / PM

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

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [X] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [ ] Other: [ ] ____

Sediment Oils: Absent: [X] 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		5	PONAR
Rock or Shell Rubble				Mud/Muck/Silt			
Aquatic Vegetation				Other:			

Community Types

Mangroves [ ] Oyster bars [ ] Reef [ ] Natural beach [X] Other: [ ] ____

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	Salinity	DO %	Secchi (m):
Top	0.360	29.15	7.100	6.68	38.256	24.20	99.7	2.2
Mid-depth	3.502	28.57	7.59	85.63	44913	28.69	85.6	
Bottom	6.839	28.35	7.54	5.22	47324	30.69	79.3	

System Type : Stream: [ ] (1st - 2nd order / 3rd - 4th order / 5th - 6th order / 7th order or greater) Estuary: [ ] Other: [X] Bay

Water Odors (check box): Normal: [X] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Other: [ ] ____

Water Surface Oils (check box): None: [X] Sheen: [ ] Globs: [ ] Slick: [ ]

Clarity (check box): Clear: [X] Slightly turbid: [ ] Turbid: [ ] Opaque: [ ]

Color (check box): Tannic: [ ] Green (algae): [ ] Clear: [X] Other: [ ] ____

Weather Conditions/Notes:

Humid / 2+ wind
partly cloudy

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[ ]	[ ]	[ ]	[ ]
Fish	[ ]	[ ]	[ ]	[ ]
Aquatic Macrophytes	[ ]	[ ]	[ ]	[ ]
Iron/sulfur Bacteria	[ ]	[ ]	[ ]	[ ]

SAMPLING TEAM:	SIGNATURE:	DATE:
Mike King, Nathan Mulleary	Nathan Mulleary	9/21/09

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FD 9000-30 MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: DEP	STORET STATION NUMBER: 32030M14	DATE (M/D/Y): 9/21/09	RECEIVING BODY OF WATER: St. Andrews Bay

REMARKS:	LOCATION:	FIELD ID/NAME:
	Millville Control off Palmetto Pt.	Millville Control

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 30	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 9	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 9	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 13	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 73

COMMENTS:

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/21/09	Nathan Malloy	Nathan 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 07.56.3 85 37 09.1		9/21/09	1255	St. Andrews Bay

REMARKS:	COUNTY:	SITE LOCATION:	FIELD ID/NAME:
	Bay	Millville WWTP Outfall	Millville Test

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

AM / PM		High	1000 AM / PM
AM / PM		Low	0800 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		5	PONAR
Rock or Shell Rubble				Mud/Muck/Silt			
Aquatic Vegetation				Other:			

Community Types

Mangroves ☐ Oyster bars ☐ Reef ☐ Natural beach ☒ Other: ☐ ____

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	Sal	DO%	Secchi (m):
Top	0.145	29.16	7.69	7.02	36038	22.64	103.9	1.8
Mid-depth	2.692	28.66	7.70	6.02	43236	27.85	92.1	
Bottom	5.631	28.29	7.68	4.71	46950	30.42	71.6	

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

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:

Rain showers
Thunderstorms intermittent
Hot, humid partly cloudy

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Nathan Malby / Mike King		9/21/09

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FD 9000-30 MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: DEP SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 09/21/09	RECEIVING BODY OF WATER: St. Andrews Bay

REMARKS:	LOCATION:	FIELD ID/NAME:
	Millville WWTP Outfall	Millville Test

Habitat Parameter score	Excellent	Good	Fair	Poor
Littoral Alterations 5	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 3	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 9	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 14	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 49

COMMENTS:

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/21/09	Nathan Milley	Nathan Milley

Appendix I-1

Benthic macroinvertebrates collected from ponar samples at a Test Site near the Millville WWTF's effluent discharge pipe (D-001) and at a Control Site. Taxa collected and density (average number of individuals/m^2) rounded to the nearest individual (n = 5 samples/site). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Aglaophamus sp.	33	-
Aphelochaeta sp.	11	-
Aricidea taylori	-	8
Armandia maculata	8	17
Branchiosyllis exilis	-	8
Chrysopetalum heteropalea	67	-
Eteone heteropoda	8	-
Euclymene sp.	-	8
Eupolymnia sp.	25	-
Exogone sp.	33	8
Fabricinuda trilobata	110	18
Glycera sp.	-	75
Goniada littorea	17	-
Goniadides carolinae	-	58
Grubeosyllis clavata	-	8
Isolda pulchella	33	17
Lumbrineris sp.	8	-
Magelona sp.	8	-
Maldanidae	50	-
Mediomastus ambiseta	67	-
Mediomastus californiensis	-	75
Megalomma pigmentum	28	-
Melinna sp.	8	-
Microspio pigmentata	-	53
Nephtys picta	17	-
Nereis micromma	17	-
Notomastus lobatus	-	8
Owenia fusiformis	17	-
Paradialychone sp.	46	240
Phyllodoce sp.	17	8
Podarkeopsis levifuscina	8	-
Poecilochaetus johnsoni	8	8
Polycirrus sp.	8	-
Prionospio cristata	33	114
Prionospio steenstrupi	25	-
Scoletoma sp.	208	8
Sigambra tentaculata	8	-
Terebellides stroemi	34	-
Tharyx sp.	22	-
Arthropoda		
Amphipoda		
Ampelisca sp.	-	8
Ampelisca sp. D	173	-
Aoridae	17	25
Ericthonius sp.	9	-
Liljeborgiidae	9	-
Oedicerotidae	-	8

Appendix I-1 (continued)

	Control Site	Test Site
Photis sp.	35	-
Phoxocephalidae	-	17
Brachyura		
Undetermined Brachyura	17	-
Decapoda		
Automate sp.	24	-
Leptochela sp.	24	15
Paguristes sp.	-	44
Panopeus sp.	-	15
Penaeidae	12	-
Pinnixa sp.	12	-
Portunidae	12	-
Processa sp.	12	44
Sicyonia sp.	12	-
Isopoda		
Amakusanthura sp.	-	25
Xenanthura brevitelson	17	-
Tanaidacea		
Alokalliapseudes macsweenyi	200	92
Apseudes sp.	8	-
Leptochelia sp.	-	8
Chordata		
Cephalochordata		
Branchiostoma sp.	8	267
Echinodermata		
Ophiuroidea	-	8
Mollusca		
Bivalvia		
Anadara sp.	19	-
Chione elevata	48	-
Crassinella mactracea	48	-
Lucinidae	125	-
Macrocallista maculata	-	32
Nuculana acuta	48	-
Tellidora cristata	10	-
Tellina versicolor	19	11
Gastropoda		
Neritina sp.	10	-
Parvanachis obesa	20	-
Turbonilla conradi	20	-
Nemertea		
Undetermined Nemertea	183	25
Sipuncula		
Phascolion sp.	8	-
Undetermined Sipuncula	-	17

Appendix I-2

Benthic macroinvertebrates collected in ponar samples at a Test Site near the Millville WWTF's effluent discharge pipe (D-001) and at a Control Site. Taxa collected and total number of individuals counted (n = 5 samples/site).

		Control Site	Test Site
Annelida			
	Aglaophamus sp.	4	-
	Aphelochaeta sp.	1	-
	Aricidea taylori	-	1
	Armandia maculata	1	2
	Branchiosyllis exilis	-	1
	Chrysopetalum heteropalea	8	-
	Cirratulidae	1	-
	Eteone heteropoda	1	-
	Euclymene sp.	-	1
	Eupolymnia sp.	3	-
	Exogone sp.	4	1
	Fabricinuda trilobata	12	2
	Glycera sp.	-	9
	Goniada littorea	2	-
	Goniadides carolinae	-	7
	Grubeosyllis clavata	-	1
	Isolda pulchella	4	2
	Lumbrineris sp.	1	-
	Magelona sp.	1	-
	Maldanidae	6	-
	Mediomastus sp.	7	3
	Mediomastus ambiseta	1	-
	Mediomastus californiensis	-	6
	Megalomma pigmentum	3	-
	Melinna sp.	1	-
	Microspio pigmentata	-	6
	Nephtys picta	2	-
	Nereididae	1	-
	Nereis micromma	1	-
	Notomastus lobatus	-	1
	Owenia fusiformis	1	-
	Oweniidae	1	-
	Paradialychone sp.	5	26
	Phyllodoce sp.	2	1
	Podarkeopsis levifuscina	1	-
	Poecilochaetus johnsoni	1	1
	Polycirrus sp.	1	-
	Prionospio sp.	-	6
	Prionospio cristata	4	7
	Prionospio steenstrupi	3	-
	Sabellidae	2	3
	Scoletoma sp.	25	1
	Sigambra tentaculata	1	-
	Spionidae	-	1
	Terebellides stroemi	4	-
	Tharyx sp.	2	-

Appendix I-2 (continued)

	Control Site	Test Site
Arthropoda		
Amphipoda		
Ampelisca sp.	18	1
Ampelisca sp. D	2	-
Aoridae	2	3
Ericthonius sp.	1	-
Isaeidae	1	-
Liljeborgiidae	1	-
Oedicerotidae	-	1
Photis sp.	3	-
Phoxocephalidae	-	2
Undetermined Amphipoda	1	-
Brachyura		
Undetermined Brachyura	2	-
Decapoda		
Automate sp.	2	-
Leptochela sp.	2	1
Paguristes sp.	-	3
Panopeus sp.	-	1
Penaeidae	1	-
Pinnixa sp.	1	-
Portunidae	1	-
Processa sp.	1	3
Sicyonia sp.	1	-
Undetermined Decapoda	4	6
Isopoda		
Amakusanthura sp.	-	3
Xenanthura brevitelson	2	-
Tanaidacea		
Alokalliapseudes macsweenyi	24	11
Apseudes sp.	1	-
Leptochelia sp.	-	1
Chordata		
Cephalochordata		
Branchiostoma sp.	1	32
Echinodermata		
Ophiuroidea	-	1
Mollusca		
Bivalvia		
Anadara sp.	2	-
Chione elevata	1	-
Crassinella mactracea	5	-
Lucinidae	13	-
Macrocallista maculata	-	3
Nuculana acuta	5	-
Tellidora cristata	1	-
Tellina versicolor	2	1
Undetermined Bivalvia	5	1
Veneridae	4	-
Gastropoda		
Neritina sp.	1	-
Parvanachis obesa	2	-
Turbonilla conradi	2	-
Undetermined Gastropoda	1	-

Appendix I-2 (continued)

		Control Site	Test Site
Nemertea			
	Undetermined Nemertea	22	3
Sipuncula			
	Phascolion sp.	1	-
	Undetermined Sipuncula	-	2

The Bioassay of the Millville Wastewater Treatment Facility effluent sampled on September 21, 2010, NPDES #FL0170909

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 FL 0170909 11 12	09 09 21	# B	# S	# 1

Remarks

#

The Priority Pollutants Analysis for Bioassay of the Millville Wastewater Treatment Facility effluent sampled on September 21, 2010, NPDES #FL0170909

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 FL 0170909 11 12	09 09 21	# X	# S	# 1

Remarks

#

Biological Analyses of the Millville Wastewater Treatment Facility effluent sampled on September 21, 2010, NPDES #FL0170909

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 FL 0170909 11 12	09 09 21	# I	# S	# 1

Remarks

#