

Biological Assessment of

US Agri-Chemicals Corporation – Fort Meade Chemical Complex

Polk County

NPDES #FL0001902

Sampled April 7, 2008

December 2008

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	US Agri-Chemical Corporation – Fort Meade Chemical Complex
Physical Address:	3225 State Road 630 West, Fort Meade, FL 33841
County:	Polk
NPDES Number:	FL0001902
Permit Expiration:	January 25, 2009

Toxics Sampling Inspection **(XSI)**

Date Sampled: April 7, 2008

Results: Arsenic, iron and nickel were detected in the effluent at levels that comply with Class III Water Quality Criteria (62-302 F.A.C.) and facility permit limits. Cadmium, chromium–III, copper, lead, and selenium were detected in the effluent at levels between the method detection limit (MDL) and the practical quantitation limit (PQL) which comply with Class III Water Quality Criteria. Metals at the Control and Test Sites complied with Class III Water Quality Criteria. Iron at the Test Site was three times the level measured in the effluent, but below the Class III Water Quality Criterion. Aluminum at the Test Site was twice the level measured in the effluent, but there is no Water Quality Criterion for aluminum. No organic pollutants were detected in the effluent, Control or Test Sites.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: April 7, 2008

Results: The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during the 96-hour acute static renewal bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: April 7, 2008

Results: Specific conductance of the effluent (1677 µmhos/cm) complied with the 2500 µmhos/cm limit allowed by the Consent Order for this facility. The Test Site (1354 µmhos/cm) exceeded the Class III Water Quality Criteria (1275 µmhos/cm, 62-302.530(22) F.A.C.). Specific conductance at the Test Site was 3.5 times greater than at the Control Site (392 µmhos/cm) due to high specific conductance of the effluent. Dissolved oxygen and pH in the effluent, Control and Test Sites complied with Class III Water Quality Criteria and facility permit limits. Levels of total ammonia, nitrate and nitrite, total nitrogen, ortho-phosphate and total phosphorus in the effluent appear to be contributing to elevated levels at the Test Site when compared to the Control Site. Levels of total phosphorus and total alpha and radium 226+228 in the effluent, along with turbidity and fluoride in the effluent and receiving waters, comply with Water Quality Criteria and facility permit limits. The influence of sulfate in the effluent can be seen in the higher levels measured at the Test Site compared to the Control Site. The effluent algal growth potential (AGP) value (177 mg dry wt/L) was twice as high as at the Test Site (81.2 mg dry wt/L) and an order of magnitude higher than at the Control Site (11.2 mg dry wt/L); all AGP values exceeded the “problem” threshold of 5 mg dry wt/L for fresh waters.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: April 7, 2008

Results: Effluent samples contained less chlorophyll-*a* and phaeophytin, had a lower algal density, and lower number of taxa (diversity) than Control and Test Site samples. The shading and high velocity flow of this facility's effluent appears to be preventing the export of heavy nutrient load in the form of phytoplankton growth that might be expected from a retained, slow flowing effluent. The effluent phytoplankton community was dominated by diatoms. Ambient water samples, dominated by blue-green algae, had similar community measures. Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers were similar for the Control and Test Sites. The greater number of individuals and a community dominated by the trichopteran, *Cheumatopsyche* sp. at the Test Site, is likely the result of high nutrients. Habitat assessment scores of 147 for the Control Site and 139 for the Test Site placed both in the optimal category; the Test Site lost points for smothering. Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples resulted in a Stream Condition Index (SCI) score of 25A for the Control Site placing it in Category 3, and a SCI score of 35A for the Test Site placing it just over the change point of 34 to score in Category 2. The Test Site had higher SCI metrics for number of Trichoptera, clinger, long-lived and sensitive taxa, percent suspension feeders and filterers, and percent very tolerant individuals. Differences in community composition may be attributed to habitat and influence of drought conditions. Annual assessments performed by the Bureau of Mining and Minerals Regulation in 2006 and 2007, combined with this 2008 inspection, indicate consistently lower SCI scores at the Control Site. Comparison between 2007 and 2008 SCI scores indicates decreasing biological condition at both sites; conclusive evaluation cannot be made between effluent effects and more general habitat or regional effects.

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 U.S. Agri-Chemicals Corporation – Fort Meade Chemical Complex is located in Polk County, Florida (Appendix A). This facility is a phosphate fertilizer and chemical manufacturing plant. Formerly, activities at this facility included manufacturing of sulfuric acid, phosphoric acid, mono-ammonium phosphate, diammonium phosphate and fluorosilicic acid. The facility is undergoing closure of the phosphogypsum stack system. The facility is no longer active and most of the plant has been dismantled. Process water is treated by two stage lime treatment and spray aeration. Process water is treated with lime and allowed to settle in Stage 1. The decant is routed to Stage 2 where it is lime treated again and aerated. Adjustments to pH are made as needed (see Facility Summary in Appendix B). The effluent is then discharged through Outfall D-004 into the Class III fresh water of McCullough Creek, a tributary of Whidden Creek which enters the Peace River. The annual average flow of the wastewater system from March 2007 to February 2008 was 10.51 million gallons per day (MGD). The instantaneous flow measurement during effluent sampling was 13.9 MGD (see Facility Summary in Appendix B).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. The facility is currently discharging under a consent order (CO) issued in October 2006, renewed in October 2007 and which expires in November 2008, to expedite the closure of the facility. Under the consent order, a specific conductance limit of 2500 µmhos/cm is currently allowed to be discharged through Outfall D-004. According to the facility's monthly discharge monitoring reports, the plant has had no permit limit violations in the last year (Appendix B) and according to the CO inspection data, the plant has no violations of the CO since issued in October 2006 (Jacki Champion, FDEP Bureau of Mining and Minerals Regulation Phosphate Management, Southwest District). In January 2003, a bioassessment and effluent sampling of Outfall D-004 showed an increase in phosphorus and chlorophyll-*a* at the downstream Test Site compared to the upstream Control Site due to the effluent. In addition, quantitative macroinvertebrate samples indicated impairment in the Test Site compared to the Control Site.

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the biota of the receiving waters. On April 7, 2008, chemical and biological comparisons were made between a Control Site (located in Whidden Creek, approximately a half-mile upstream of the McCullough Creek tributary) and a Test Site (located in McCullough Creek approximately 100 meters downstream of the discharge). The Whidden Creek Control Site was chosen because McCullough Creek, upstream of the discharge, was inaccessible due to fallen trees and overgrowth. Detailed methods and their relationship to Florida Administrative Code are given in Appendix C.

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

The following were involved in this investigation: Jacki Champion and Scott Rose (FDEP Bureau of Mining and Minerals Regulation Phosphate Management, Southwest District) and FDEP Central Laboratory in Tallahassee. See Appendix D for the chain of custody form (sample submittal form). The report was reviewed by District representatives and the Point Source Studies Review Committee (Nancy Ross, Jennifer Paris, and Michael Tanski).

Results and Discussion

- Specific chemical results are reported in Tables 1 and 2, and a complete list of chemical analytes can be reviewed in Appendix E. No organic pollutants were detected in the effluent, Control or Test Sites. Diethyl phthalate was detected in the blank at a level between the method detection limit (MDL) and the practical quantitation limit (PQL). For effluent permit limits that required 24-hour composite samples (Table 1), grab samples were taken instead. If this inspection resulted in detectable amounts of organic constituents, chemical parameters or any exceedence of permit limits or water quality criteria, the effluent would have been resampled according to permit requirements.
- Nutrient levels of ortho-phosphate (4.9 mg/L) and total phosphorus (5.4 mg/L) in the effluent appear to be contributing to the higher level of nutrients at the Test Site (3.1 and 3.7 mg/L, respectively) (Table 1). Test Site levels of ortho-phosphate and total phosphorus were two times greater than at the Control Site (1.4 and 1.8mg/L, respectively). The amount of total ammonia (0.31 mg/L), nitrate and nitrite (2mg/L), and total nitrogen (2.68 mg/L) in the effluent appears to be contributing to higher levels measured at the Test Site compared to the Control Site. There seems to be a source of nutrient input at the Control Site in Whidden Creek, which is not directly affected by the effluent, as levels of total kjeldahl nitrogen (1.2 mg/L) and organic nitrogen (1.182 mg/L) were approximately 2 times greater at the Control Site than levels measured at the Test Site. Levels of total phosphorus and total alpha and radium 226+228 in the effluent, along with turbidity and fluoride in the effluent and receiving waters, comply with Water Quality Criteria and facility permit limits. The influence of

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

USAC Ft. Meade	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected		
Nutrients (mg/L)					
Ortho-phosphate	-	Report	4.9	1.4	3.1
Total Phosphorus	-	≤ 35.0 p	5.4	1.8	3.7
Total Organic Carbon	-	-	7.1	-	-
Total Ammonia	-	Report	0.31	0.018 I	0.074
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	2	0.026	1.2
Total Kjeldahl Nitrogen	-	-	0.68	1.2	0.77
Organic Nitrogen	-	-	0.37 c	1.182 c	0.696 c
Total Nitrogen	-	Report	2.68 c	1.226 c	1.97 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	147	139
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 5.0	6.1	7.5	7.2
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.6	7.7	7.5
Conductivity (µmhos/cm)	≤ 1,275	≤ 1,275 *	1677 **	392	1354
Temperature (°C)	-	Report	22.8	24.5	22.4
Sample Depth (m)	-	-	0	0.3	0.3
Total Residual Chlorine (mg/L)	≤ 0.01	-	≤ 0.03 r U	-	-
Chlorophyll a (µg/L) - Corrected	-	-	2	25	27
Phaeophytin (µg/L)	-	-	0.8	4.5	5
Total Suspended Solids (mg/L)	-	-	6 I	-	-
Turbidity (NTU)	< 29 t	< 29 t	5.9	6.2	14
CBOD, 5 day (mg/L), N - inhibited	-	-	0.68 I	-	-
Oils and Greases (mg/L)	≤ 5.0	-	1.7 U	-	-
Fluoride (mg/L)	≤ 10.0	≤ 10.0 p	2.2	1.8	2
Sulfate (mg/L)	-	Report	720	39	450
Alpha, Total (pCi/L)	≤ 15	≤ 15 p	1.9 U	-	-
Alpha-Counting Error (pCi/L)	-	-	1.3	-	-
Radium 226 (pCi/L)	-	-	1.3	-	-
Radium 226-Counting Error (pCi/L)	-	-	0.2	-	-
Radium 228 (pCi/L)	-	-	1 U	-	-
Radium 228-Counting Error (pCi/L)	-	-	0.6	-	-
Radium 226 + 228 (pCi/L)	≤ 5	≤ 5 p	1.3 c	-	-
Flow (MGD)	-	Report	13.9	-	-
Hardness (mg $CaCO_3$)	-	-	238.63 c	173.76 c	202.68 c
Toxicity (96-hour acute screening bioassay, percent mortality in 100% effluent)					
Bioassay - Water flea *(Ceriodaphnia dubia)*	-	≤ 50	0	-	-
Bioassay - Fish *(Cyprinella leedsi)*	-	≤ 50	0	-	-

Value exceeds the Class III Water Quality Criteria.

* Effluent limit of ≤ 2,500 µmhos/cm allowed by a Consent Order for this facility.

** Value exceeds the Class III Water Quality Criteria and original permit limit of ≤ 1,275 µmhos/cm but complies with the Consent Order for this facility.

c - Value is calculated

p - 24-hour composite sample

r - measurement read in the lab

t - Shall not exceed 29 NTUs above background

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

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

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

USAC Ft. Meade	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	490	-	240 I	-	970
Arsenic	≤ 50	-	28	≤ 50	4.1 A	≤ 50	17.5
Cadmium	≤ 0.5 b	-	0.056 I	≤ 0.41 b	0.046 I	≤ 0.46 b	0.055 I
Calcium (mg/L)	-	-	67.2	-	33.8 A	-	53.3
Chromium-III	≤ 175.7 b	-	1.1 I	≤ 135.49 b	1 U	≤ 153.71 b	2 I
Copper	≤ 19.6 b	-	0.86 I	≤ 14.96 b	0.5 U	≤ 17.06 b	0.5 U
Iron	≤ 1,000	-	210	≤ 1,000	290 A	≤ 1,000	660
Lead	≤ 9.6 b	-	0.39 I	≤ 6.43 b	0.2 U	≤ 7.82 b	0.9 A
Magnesium (mg/L)	-	-	17.2	-	21.7 A	-	16.9
Nickel	≤ 108.9 b	-	4.48	≤ 83.25 b	1.09 A	≤ 94.83 b	3.1
Selenium	≤ 5.0	-	0.55 I	≤ 5.0	0.5 U	≤ 5.0	0.5 U
Silver	≤ 0.07	-	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 250.4 b	-	5 U	≤ 191.35 b	5 U	≤ 218.01 b	5 U

b - Value is calculated based on hardness
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit

sulfate in the effluent can be seen in the higher levels measured at the Test Site compared to the Control Site.

- Effluent specific conductance (1677 µmhos/cm), although exceeding the Class III Water Quality Criteria (1275 µmhos/cm, 62-302.530(22) F.A.C.), complied with the 2500 µmhos/cm limit allowed by the Consent Order (issued in October 2006, renewed in October 2007 and expires November 2008). Specific conductance at the Test Site (1354 µmhos/cm) was 3.5 times greater than at the Control Site (392 µmhos/cm) due to high specific conductance of the effluent. Dissolved oxygen and pH in the effluent, Control and Test Sites complied with Class III Water Quality Criteria and facility permit limits (Table 1).
- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during 96-hour acute static renewal screening bioassays (See Table 1 for percent mortality, Appendix F for bioassay bench sheets, and Appendix G for supporting standard reference toxicant data).
- Effluent metals complied with Class III Water Quality Criteria (62-302.530 F.A.C.) and facility permit limits (Table 2). Arsenic, iron and nickel were detected in the effluent at levels that comply with Class III Water Quality Criteria and facility permit limits. Cadmium, chromium–III, copper, lead, and selenium were detected in the effluent at levels between the method detection limit (MDL) and the practical quantitation limit (PQL), which complies with Class III Water Quality Criteria. Metals at the Control and Test Sites complied with Class III Water Quality Criteria. Iron at the Test Site was three times the level measured in the effluent, suggesting either variable effluent iron levels or a metal source unrelated to the effluent. Aluminum at the Test Site was twice the level measured in the effluent, but there is no Water Quality Criterion for aluminum.
- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al.* 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying

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

USAC Ft. Meade					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	177.0	87.8 ± 17.6	101.8 ± 20.4	0.5	0.5
Control Site	11.2	1.7 ± 0.3	46.6 ± 9.3	0.0	0.7
Test Site	81.2	48.4 ± 9.7	74.9 ± 15.0	0.4	0.5

Table 4. Phytoplankton Composition.

USAC Ft. Meade	Effluent	Control Site	Test Site
Number of Taxa	23	40	43
Number of Wet Algal Units Identified	301	305	305
Algal Density (number/mL)	956	23,101	30,276
Percent Dominant Wet Taxon	27.6	35.7	16.9
Dominant Wet Taxon Name	*Jaaginema* sp. (Blue-green)	*Rhabdogloea* sp. (Blue-green)	*Synechocystis* sp. (Blue-green)
Was sample dominated by diatoms?	yes	no	no
Number of Diatom Taxa	51	24	34
Number of Diatom Valves Identified	501	500	501
Percent Dominant Diatom Taxon	24.8	69.8	46.9
Dominant Diatom Taxon Name	*Nitzschia* sp.	*Cyclostephanos invisitatus*	*Cyclostephanos invisitatus*
Chlorophyll a (µg/L) - Corrected	2.0	25.0	27.0
Phaeophytin (µg/L)	0.8	4.5	5.0
Percentage Composition			
Blue-green algae	17.3	37.7	50.8
Green algae	6.5	36.4	34.8
Diatoms	75.0	18.4	10.5
Cryptophytes	0.6	0.0	0.0
Euglenophytes	0.6	3.9	3.3
Pyrrophytes	0.0	3.6	0.7

nutrient enrichment. Effluent AGP (177 mg dry wt/L) was twice as high as the Test Site (81.2 mg dry wt/L) and an order of magnitude higher than at the Control Site (11.2 mg dry wt/L) (Table 3). All AGP values were above the "problem" threshold. These values indicate there is nutrient enrichment related to the US Agriculture-Fort Meade discharge in this portion of the McCullough Creek and an additional source of lesser degree affecting Whidden Creek. The analytical chemistry suggests that the effluent is nitrogen-limited. There was no evidence of growth inhibition in AGP data (Table 2).

- Chlorophyll-*a* was detected in water samples of the effluent and from the Control and Test Sites (Table 1). Nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. pH, shading, turbidity).
- Habitat assessment scores were 147 at the Control Site and 139 at the Test Site placing both in the optimal category (Table 1, data sheets in Appendix H are evaluations made during Hester Dendy deployment). Habitat smothering was greater at the Test Site, which lowered the habitat assessment score of that site.
- Algal community composition for the effluent, Control and Test Sites is presented in Table 4 and Appendix I. The shading and high velocity flow of this facility's effluent appears to be preventing the export of heavy nutrient load in the form of phytoplankton growth that might be expected from a retained, slow flowing effluent. Effluent chlorophyll-*a* and phaeophytin values were much lower and the algal density was 23-30 times less than at the Control and Test Sites; number of taxa was half that found in the Control and Test Site samples. Blue-green algae comprised 17.3% of the phytoplankton community in the effluent and the community was dominated by diatoms (75%). Ambient water phytoplankton samples were dominated by blue-green algae, followed by green algae, then diatoms. There were slightly more blue-green algae at the Test Site (50.8%) compared to the Control Site (37.7%).
- Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers were similar for the Control and Test Sites (Table 5, Appendix J). The greater number of individuals and a community dominated by the trichopteran, *Cheumatopsyche* sp. (56%) at the Test Site, is likely the result of high nutrients. The Control Site community was dominated by Gastropods (39.9%). The 2003 inspection found a reduction of greater than 25% diversity between an upstream Control Site and a downstream Test Site. The current 2008 inspection is not able to re-assess this result due to upstream inaccessibility and the resulting change of Control Site location to a different creek.
- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Table 6 and in Appendix K. The Control Site Stream Condition Index (SCI) score of 25A placed this site in Category 3 and the Test Site SCI score of 35A placed this site just over the change point of 34 to score in Category 2. The higher SCI score for the Test Site can be attributed to higher SCI metrics for number of Trichoptera, clinger, long-lived and sensitive taxa, percent suspension feeders and filterers, and percent very tolerant individuals. The macroinvertebrate community composition at the Test Site had approximately 20% fewer Gastropods and 30% more Trichoptera than that of the Control Site. Although each site had four productive habitats (snags, vegetation rock/shell rubble and roots), percent vegetation was lower and percent rock/shell rubble was greater at the

Control Site than at the Test Site, which could account for some differences in community composition. The Control Site is more heavily influenced by drought conditions. No SCI dipnet sweeps were conducted in the 2003 inspection. It is important to note that SCIs conducted by the Bureau of Mining and Minerals Regulation on an annual basis for two years prior to this inspection show the same trend in SCI score at the same locations as in this current 2008 inspection. In March 2007, the Control Site scored 45A and the Test Site scored 57A (SCI 2007 Index); in July 2006, the Control Site scored 19 and the Test Site scored 47 (using the SCI 2004 Index). The decline seen in the past year in the quality of the macroinvertebrate community, as indicated by the SCI scores at the downstream Test Site, may be indicative of a negative effect from the effluent; however, the similar decline at the Control Site in Whidden Creek suggests the possibility of a regional effect, such as drought or land based mining activities. The consistently lower SCI scores at the Control Site compared to the Test Site suggest that Whidden Creek, despite similar habitat, may not be an appropriate control for comparative studies.

Table 5. Macroinvertebrate Hester-Dendy Samples - Quantitative.

USAC Ft. Meade	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	3.25	3.17
Number of Taxa	30	39
Number of EPT Taxa	5	9
Percent Dominant Taxon	36.9	41.1
Dominant Taxon Name	*Amnicola dalli johnsoni* (Gastropoda)	*Cheumatopsyche* sp. (Trichoptera)
Total Number of Individuals (counted)	708	1,228
Total Number of Individuals (#/m^2)	1,876	3,250
Community Composition: Percent of total		
Amphipoda	6.5	0.8
Coleoptera	8.1	14.0
Diptera	24.5	21.7
Ephemeroptera	1.1	0.8
Gastropoda	39.9	5.8
Odonata	0.7	0.1
Plecoptera	0.0	0.0
Trichoptera	18.0	56.1
Other	1.1	0.7
Functional Feeding Groups: Percent of total		
Piercers	0.1	8.5
Predators	6.5	13.0
Scavengers	0.2	0.0
Scrapers	7.3	13.6
Shredders	5.3	2.1
Surface Deposit Feeders	17.8	16.5
Suspension Feeders	24.8	46.3
Unknown	37.2	0.0

Summary

Specific conductance of the effluent (1677 µmhos/cm) complied with the 2500 µmhos/cm limit allowed by the Consent Order for this facility. The Test Site (1354 µmhos/cm) exceeded the Class III Water Quality Criteria (1275 µmhos/cm, 62-302.530 F.A.C.). The effluent is contributing to the higher levels of nitrogen and phosphorus as measured at the downstream Test Site compared to the Control Site. The effluent's influence can also be seen in the elevated sulfate at the Test Site. AGP values for the effluent and two ambient sites exceeded the "problem" threshold of 5 mg dry wt/L for fresh waters indicating nutrient enrichment. Quantitative Hester Dendy samplers showed little difference in macroinvertebrate community composition; more individuals and a community dominated by the trichoptern, *Cheumatopsyche* sp. at the Test Site, may be the result of nutrient enrichment. The results of qualitative sampling produced a lower Stream Condition Index (SCI) score at the Control Site than at the Test Site; differences in community composition might be attributed to habitat and influence of drought conditions. Annual assessments performed by the Bureau of Mining and Minerals Regulation in 2006 and 2007, combined with this 2008 inspection, indicate consistently lower SCI scores at the Control Site. Comparison between 2007 and 2008 SCI scores indicates a decreasing trend in biological condition at both the Control and Test site. Therefore, negative effects from the effluent on macroinvertebrates cannot be separated from possible regional effects, such as drought or land based mining activities. The Consent Order for specific conductance is set to expire in November 2008. Future annual biological assessments should be made to monitor any possible stream recovery after the stream's specific conductance returns to a more natural level. In addition, it would be desirable to find an alternative and/or additional control site that would better represent background conditions for biological comparative studies.

Literature Cited

Fore, L. et. al. 2007. Development and Testing of Biomonitoring Tools for Macroinvertebrates in Florida Streams.

Karr, J.R. & E.W. Chu. 1998. Restoring life in running waters: Better biological monitoring. Island Press. Covelo, California. 200 p.

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

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

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

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

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

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

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

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

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

USEPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. 5th Edition. EPA-821-R-02-012.

Table 6. Macroinvertebrate Dipnet Samples - Qualitative.

USAC Ft. Meade	Control Site		Test Site	
Summary Statistics				
Stream Condition Index 2007 (value)	25 A		35 A	
Stream Condition Index 2007 (category) *	Category 3		Category 2	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	19	26	25	21
Number of Ephemeroptera Taxa	2	3	0	1
Number of Trichoptera Taxa	2	4	7	6
Number of Clinger Taxa	2	3	6	5
Number of Long-lived Taxa	0	0	2	1
Number of Sensitive Taxa	0	1	2	2
Percent of Dominant Taxon	51.0	40.0	42.0	45.4
Percent Suspension Feeders and Filterers	4.7	4.0	9.3	10.9
Percent of Tanytarsini Individuals	0.0	1.3	0.0	0.0
Percent of Very Tolerant Individuals	15.4	18.7	48.0	48.7
Total Number of Individuals	149	150	150	152
Community Composition: Percent of total				
Dominant Taxon Name	*Amnicola* sp. (Gastropoda)	*Amnicola* sp. (Gastropoda)	*Pyrgophorus platyrachis* (Gastropoda)	*Pyrgophorus platyrachis* (Gastropoda)
Amphipoda	0.0	8.0	3.3	6.6
Bivalvia	2.7	1.3	0.7	3.3
Coleoptera	14.8	16.0	14.0	17.1
Decapoda	0.0	0.0	0.7	0.0
Diptera	1.3	4.7	5.3	0.7
Ephemeroptera	3.4	2.0	0.0	0.7
Gastropoda	65.8	59.3	43.3	46.1
Odonata	0.0	1.3	0.0	0.7
Oligochaeta	4.0	2.0	6.7	4.0
Plecoptera	0.0	0.0	0.0	0.0
Trichoptera	6.0	4.7	24.0	19.1
Other	2.01	0.7	2.0	2.0
Functional Feeding Groups: Percent of total				
Burrowing Deposit Feeders	4.0	2.0	6.7	4.0
Piercers	0.0	0.0	8.7	5.9
Predators	4.7	4.0	6.0	2.3
Scavengers	0.0	0.0	0.3	0.0
Scrapers	74.8	68.7	52.3	58.6
Shredders	2.4	5.7	2.7	3.6
Surface Deposit Feeders	9.4	15.7	12.7	13.5
Suspension Feeders	4.7	4.0	9.3	10.9
Unknown	0.0	0.0	1.3	0.0

A - Value reported is the mean of two determinations

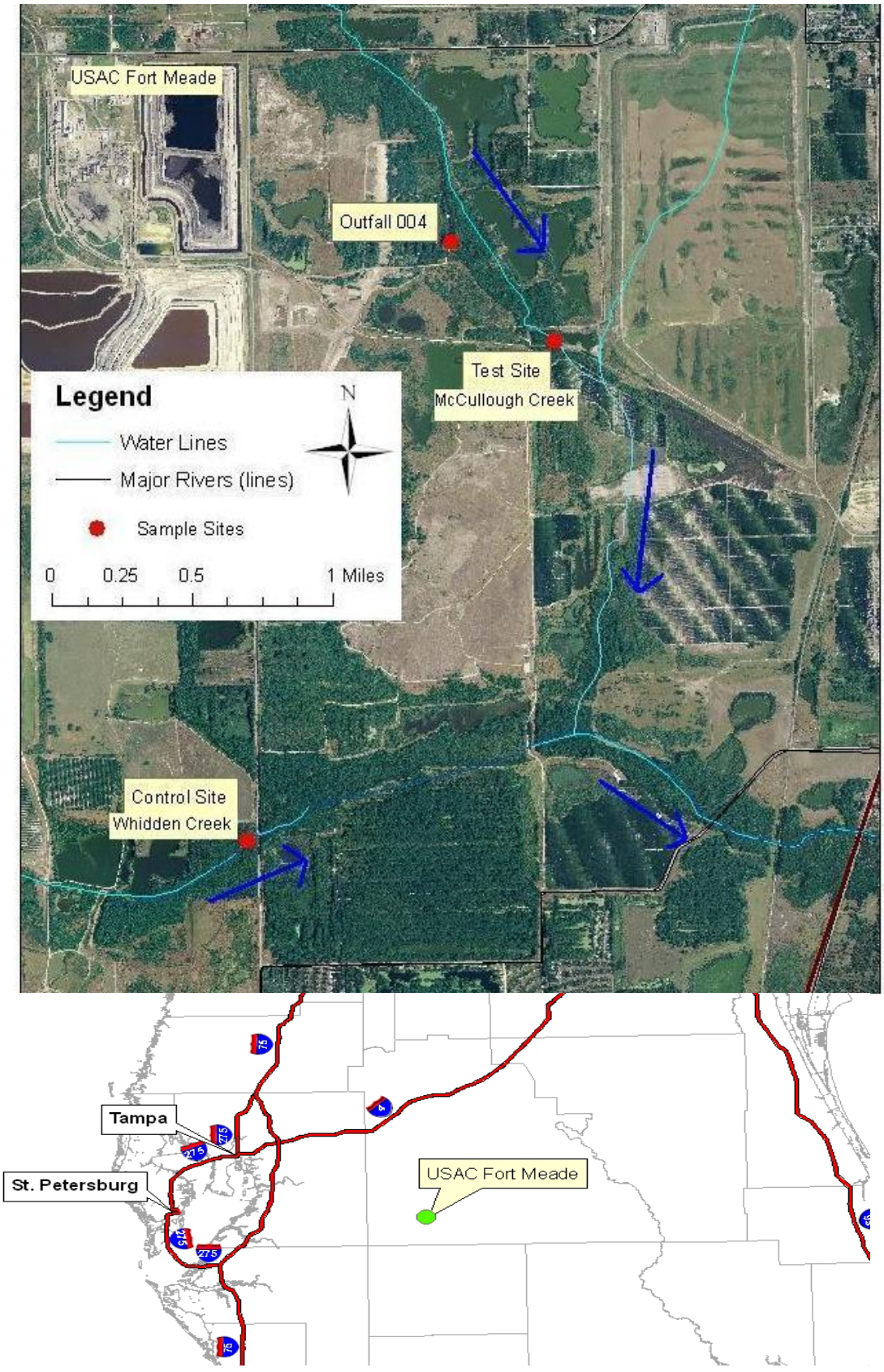
* SCI_2007 categories from Table LT 7200-2 of Draft DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.), September 17, 2007: Values 0 ≤ 34 are Category 3; Values 35 < 67 are Category 2; Values 68 ≤ 100 are Category 1.

Appendices

- Appendix A. Map of facility
- Appendix B. Facility summary
- Appendix C. Explanation of measurements
- Appendix D. Chain of Custody form
- Appendix E. Chemical analyses of effluent and receiving water.
- Appendix F. Additional physical, chemical, toxicological and microbiological results
- Appendix G. Standard Reference Toxicant test data
- Appendix H. Habitat Assessment field sheets
- Appendix I-1. Phytoplankton: Taxa list and density (number of individuals per mL)
- Appendix I-2. Phytoplankton: Taxa list and number of individuals counted
- Appendix I-3. Phytoplankton: Diatom taxa list and number of individuals counted
- Appendix J-1. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix J-2. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted
- Appendix K-1. Dipnet samples: Taxa list and number of macroinvertebrates counted (collapsed)
- Appendix K-2. Dipnet samples: Taxa list and number of macroinvertebrates counted

Appendix A

Map of Facility



Appendix B

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

Facility Name (as it appears on permit): U.S. Agri-Chemicals Corporation-Fort Meade Chemical Complex		**Former Names:**
Physical Address: 3225 State Road 630 West Fort Meade, FL 33841	**NPDES Permit No.:** FL0001902 **Expiration Date:** 1/25/09	**Prepared By:** Jacki Champion
County: Polk	**District:** FDEP BMR-Phosphate Management	**Facility Type:** Fertilizer Chemical Plant; Phosphogypsum Stack
Function of Facility: Formerly manufactured sulfuric acid, phosphoric acid, mono-ammonium phosphate, diammonium phosphate and fluorosilicic acid. The facility is undergoing closure of the phosphogypsum stack system. The facility is no longer active and most of the plant has been dismantled.		
Sampling Location (actual permit designation of permitted sampling point): EFF-02, EFF-03, EFF-04 (only EFF-04 sampled during this event)		
Description of permitted outfall: Outfall D-004 is a rectangular weir at a drop inlet culvert system		
Description of treatment process (if multiple discharge points, include a map or diagram of facility): Process water is treated by two stage lime treatment and spray aeration. Process water is treated with lime and allowed to settle in Stage 1. The decant is routed to Stage 2 where it is lime treated again and aerated. pH adjustments are made as needed before discharge.		
Receiving Waters: Outfall 004 discharges to McCullough Creek a tributary of Whidden Creek which enters the Peace River. (Outfall 002 and 003 discharge to Mill Branch, also a tributary of Whidden Creek)	**Classification (indicate whether fresh or marine):** Class III Freshwaters	
Temperature (C): 22.82	**Design Flow:** na	
pH (SU): 7.55	**Mean Flow (for previous 12 months):** 10.51 MGD (3/07 to 2/08)	
Conductivity (umhos/cm): 1677	**Flow During Survey:** 13.9 MGD	
Method of Chlorination na	**Method of Dechlorination** na	
Dissolved Oxygen (mg/L): 6.05	**Total Residual Chlorine (mg/L) (after disinfection):**na	
Discharge is: Continuous X Intermittent Seasonal X Rainfall Dependent Other		
Toxicity Test Requirements (routine and/or additional test language test species, salinity adjustment, etc.): See Below		
Administrative or Consent Orders: This facility is currently discharging under a consent order to expedite the closure of the facility. A specific conductance limit of 2500 umhos/cm is currently allowed under the CO.		
Facility Mixing Zone Details: None		
List permit violations (DMR data) and plant upsets that occurred at the plant within the last year: None		
Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions: In January 2003 a bioassessment and effluent sampling of Outfall D-004 resulted in an increase in Phosphorous and Chlorophyll-a at the test site compared to the control site due to the effluent. Quantitative macroinvertebrate samples indicated impairment in the test site compared to the control site.		

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

List Effluent Limits (include additional sheets as necessary):

TABLE 2.

Parameters (units)	Discharge Limitations			Monitoring Requirements		
	Daily Minimum	Daily Maximum	Monthly Average	Monitoring Frequency	Sample Type	Sample Point
Flow (MGD)	N/A	Report	Report	Continuous	Recorder	EFFs in Table 3
pH (SU) (See Condition I.A.9.)	6.0	8.5	Report	Continuous	Recorder	EFFs in Table 3
Nitrogen, Ammonia, Total (as N) (MG/L) (See Condition I.A.9.)	N/A	Report	Report	Weekly	Grab	EFFs in Table 3
Ammonia, Unionized (MG/L) (See Condition I.A.9.)	N/A	0.02	Report	Weekly	Calculated	EFFs in Table 3
Oxygen, Dissolved (DO) (MG/L)	5.0	N/A	Report	Weekly	Grab	EFFs in Table 3
Phosphate, Ortho (as P) (MG/L)	N/A	Report	Report	Weekly*	Grab	EFFs in Table 3
Specific Conductance (UMHOS/CM)	N/A	1275 (See Condition I.A.3.)	Report	Weekly	Grab	EFFs in Table 3
Turbidity (NTU)	N/A	29 (See Condition I.A.4.)	Report	Weekly	Grab	EFFs in Table 3
Fluoride, Total (as F) (MG/L)	N/A	10.0	Report	Weekly	24-hour composite	EFFs in Table 3
Temperature (C), Water (DEG.C) (See Condition I.A.9.)	N/A	Report	Report	Weekly	Grab	EFFs in Table 3
Sulfate, Total (MG/L)	N/A	Report	Report	Weekly	24-hour composite	EFFs in Table 3
Phosphorus, Total (as P) (MG/L)	N/A	35.0	15.0	Weekly	24-hour composite	EFFs in Table 3
Phosphorus, Total (as P) (LBS/DAY) (See Conditions I.A.6. & I.A.7.)	N/A	Report	Report	Weekly	Calculated	EFFs in Table 3
Nitrogen, Total (MG/L) ***	N/A	Report	Report	Weekly	24-hour composite	EFFs in Table 3
Nitrogen, Total (LBS/DAY) (See Conditions I.A.6. & I.A.7.)	N/A	Report	Report	Weekly	Calculated	EFFs in Table 3
Alpha, Gross Particle Activity (PCI/L) (See Condition I.A.10.)	N/A	15.0	N/A	**	24-hour composite	EFFs in Table 3
Radium 226 + Radium 228, Total (PCI/L) (See Condition I.A.10.)	N/A	5.0	N/A	**	24-hour composite	EFFs in Table 3
Acute Whole Effluent Toxicity	See Conditions I.A.5.					EFFs in Table 3

Ortho-Phosphate should be analyzed for only if Total P exceeds 35.0 mg/l for the purpose of determining the source of any excess nutrient.

* Gross Alpha and total Radium will be sampled monthly at Outfall D-002 and quarterly at Outfalls D-003 & D-004.

** The total nitrogen concentration values shall be for monitoring and reporting purposes only.

5. The permittee shall initiate the series of tests described below beginning within 60 days of the issuance of the permit to evaluate whole effluent toxicity of the discharge from Outfalls D-002, D-003 and D-004. All test species, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA/600/4-90/027F, or the most current edition. The control water and dilution water used will be moderately hard water as described in EPA/600/4-90/027F, Table 6, or the most current edition. A standard reference toxicant (SRT) quality assurance (QA) acute toxicity test shall be conducted concurrently or no greater than 30 days before the date of the "routine" test, with each species used in the toxicity tests. The results of all toxicity tests shall be submitted with the discharge monitoring report (DMR). Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.

   a. (1) The permittee shall conduct 96-hour acute static renewal toxicity tests using the daphnid, **Ceriodaphnia dubia**, and the bannerfin shiner, **Cyprinella leedsi**. All tests will be conducted on four separate grab samples collected at evenly-spaced (6-hr) intervals over a 24-hour period and composited into a single sample of 100% effluent in order to catch any peaks of toxicity and to account for daily variations in effluent quality.

   (2) If control mortality exceeds 10% for either species in any test, the test for that species (including the control) shall be repeated. A test will be considered valid only if control mortality does not exceed 10% for either species. If, in any separate grab sample test, 100% mortality occurs prior to the end of the test, and control mortality is less than 10% at that time, that test (including the control) shall be terminated with the conclusion that the sample demonstrates unacceptable acute toxicity.

   b. (1) The toxicity tests specified above shall be conducted annually. These tests are referred to as "routine" tests.

   (2) Results from "routine" tests shall be reported according to EPA/600/4-90/027F, Section 12, Report Preparation (or the most current edition), and shall be submitted to:

   Florida Department of Environmental Protection
   Bureau of Mine Reclamation District Office
   Phosphate Management
   8407 Laurel Fair Circle
   Tampa, Florida 33610-7355

(3) Results from "routine" tests shall be reported on the Discharge Monitoring Report (DMR) as follows:

i. If greater than 50% mortality occurs in any of the four separate grab sample tests for the test species, "<100" (less than 100% effluent) should be entered on the DMR for that test species.

ii. If 50% or less mortality occurs in all four separate grab sample tests for the test species, ">100" (greater than 100% effluent) should be entered on the DMR for that test species.

iii. For each of the additional tests required, the calculated LC50 value should be entered on the DMR for that test species.

c. (1) All "routine" tests shall be conducted using a control (0% effluent) and test concentration of 100% final effluent.

(2) Mortalities of greater than 50% in a 100% effluent in any "routine" sample or an LC50 of less than 100% effluent in any additional definitive test will constitute a violation of these permit conditions, and Rule 62-302.200(1), Rule 62-302.500(1)(a)4. and Rule 62-4.244(3)(a), F. A. C.

d. (1) If unacceptable acute toxicity (greater than 20% mortality of either test species in any of the separate grab sample tests of 100% effluent) is found in a "routine" test, the permittee shall conduct three additional definitive tests on each species indicating unacceptable toxicity. The first additional test will include four grab samples taken as described in a. and run as a definitive analyses. The second and third additional definitive tests will be run on a single grab sample collected when the greatest toxicity was identified in the "routine" test. Results for each additional test will include the determination of LC50 values with 95% confidence limits.

(2) The first additional test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5% and 6.25% effluent and a control (0% effluent). The dilution series may be modified in the second and third test to more accurately identify the toxicity, such that at least two dilutions above and two dilutions below the target toxicity and a control (0% effluent) are run.

(3) For each additional test, the sample collection requirements and the test acceptability criteria specified in section a. above must be met for the test to be considered valid. The first test shall begin within two weeks of the end of the "routine" tests, and shall be conducted weekly thereafter until *three* additional, valid tests are completed. The additional tests will be used to determine if the toxicity found in the "routine" test is still present.

(4) Results from additional tests, required due to unacceptable acute toxicity in the "routine" tests, shall be submitted in a single report prepared according to EPA/600/4-90/027F, Section 12, or the most current edition and submitted within 45 days of completion of the third additional, valid test. If the additional test(s) demonstrate unacceptable acute toxicity, the permittee will meet with the Department within 30 days of the report submittal to identify corrective actions necessary to remedy the unacceptable acute toxicity.

Appendix C

Explanation of Measurements

(1) Quality Assurance and Quality Control

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

(2) Chemical Analyses of the Effluent

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

(3) Toxicity Bioassays

Acute screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* following FDEP SOPs TA07_01 and TA07_02. Failure of toxicity testing may constitute a violation of 62-302.520(20), 62-302.530(61) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

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

(5) Habitat Assessment

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

(6) Algal Growth Potential (AGP)

The effluent and water from control and test sites are autoclaved, filtered (0.45μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum,* USEPA 2002*),* and incubated for 14 days (FDEP SOP TA08_05). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute one line of evidence for violation of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

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

(7) Algal Phytoplankton and Periphyton Assemblages

Methods: Qualitative periphyton were sampled at both control and test sites by taking subsamples of algae from natural substrates throughout the sample reach (QA Rule FS7220). Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100). Periphyton were subsampled and identified to the lowest practical level, usually species (FDEP SOPs AB03, AB03_1 and AB05). Wet taxa and diatoms are identified separately. In the wet taxa analysis, soft algae are identified to the lowest practical level, and diatoms are identified only to order level (diatom). In the diatom analysis, diatoms are identified to the lowest practical level.

Chlorophyll *a* Content: Chlorophyll *a* content is measured in phytoplankton samples to estimate algal biomass (FDEP SOP BB05). High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be a violation of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

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

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

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

(8) Benthic Macroinvertebrate Assemblages

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

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

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

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitutes a violation of 62-302.530(10) F.A.C..

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

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

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida (Fore et. al. 2007). This Index was revised in 2007 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned according to in which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists -and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa,

number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. Scores are broken into three categories (I, II, and III). SCI 2007 categories are from Table LT 7200-2 of Draft DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160 F.A.C.), September 17, 2007. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score in Category I, if it is shown to be related to a facility's effluent, may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

(9) Statistical Comparisons

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2008-04-07-27
US Agri-Chemicals Corporation: Fort Meade Chemical Plant

Requester: Jennifer Paris
Field Report Prepared By: Jackie Champion

Customer: BMR-TAMPA
Collected By: Jackie Champion / Scott Rose
Send Final Report To Vishwas Sathe

Project ID: FYI5
Sampling Agency: FDEP

PMAS: 1163

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	USAC - Fort Meade	☐ Comp ☒ Grab Date 4/7/08 Time 10:00 Eastern/Central	Date — Time — Eastern/Central	A
	Field ID: Outfall 004	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 6.05	Storet Station Number:
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water; Temp (C): 22.82; pH: 7.55	Sample Depth ☐ m ☐ ft:	1677 ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number: FL0001902
	Latitude o ' "	Longitude o ' "	Comments:	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	USAC - Fort Meade	☐ Comp ☒ Grab Date 4/7/08 Time Eastern/Central	Date — Time — Eastern/Central	A
	Field ID: Outfall 004 (bioassay)	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 6.05	Storet Station Number:
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water; Temp (C): 22.82; pH: 7.55	Sample Depth ☐ m ☐ ft:	1677 ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number: FL0001902
	Latitude o ' "	Longitude o ' "	Comments: Toxicity Samples	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Whidden Creek @ Peeples Road	☐ Comp ☒ Grab Date 4/7/08 Time 1:40 Eastern/Central	Date — Time — Eastern/Central	B/C
	Field ID: Control Site	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 7.54	Storet Station Number:
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water; Temp (C): 24.46; pH: 7.73	Sample Depth ☒ m ☐ ft: 0.3	392 ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number:
	Latitude o ' "	Longitude o ' "	Comments: Macrosweeps + H_2O	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Whidden Creek @ Peeples Road	☒ Comp ☐ Grab Date 3/10/08 Time 12:15 Eastern/Central	Date 4/7/08 Time 1:40 Eastern/Central	C
	Field ID: Control Site	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:
	Matrix (Include type e.g. Salt, Fresh, etc): Inverts - Fresh; Temp (C): ; pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number:
	Latitude o ' "	Longitude o ' "	Comments: Hester-Dendy 1 Dilution Water 1100 49.0% in tray 32.	

Relinquished By	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
JWC	4/7/08 1345	DHL	ABJ	4-8-08 0910				

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2008-04-07-27
US Agri-Chemicals Corporation: Fort Meade Chemical Plant

Requester: Jennifer Paris

Field Report Prepared By: Jackie Champion

Customer: BMR-TAMPA

Collected By: Jackie Champion / Scott Rose

Send Final Report To Vishwas Sathe

Project ID: FYI5

Sampling Agency: FDEP

PMAS: 1163

Lab ID *: | Location: Whidden Creek @ Peeples Road | Field ID: Control Site | Matrix (Include type e.g. Salt, Fresh, etc): Inverts-Fresh | Temp (C): | pH: | Latitude o ' " . | Longitude o ' " .

☒ Comp ☐ Grab | Collection (begin) Eastern Date 3/10/08 Time 12:15 Central | Collection (end) Eastern Date 4/7/08 Time 1:40 Central | Bottle Group(s)**: C

Tot Res Chlorine (mg/L): | Diss Oxygen (mg/L): | Storet Station Number:

Sample Depth ☐ m ☐ ft | ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) | NPDES Number:

Comments: Hester - Dendy 2

Lab ID *: | Location: Whidden Creek @ Peeples Road | Field ID: Control Site | Matrix (Include type e.g. Salt, Fresh, etc): Inverts - Fresh | Temp (C): | pH: | Latitude o ' " . | Longitude o ' " .

☒ Comp ☐ Grab | Collection (begin) Eastern Date 3/10/08 Time 12:15 Central | Collection (end) Eastern Date 4/7/08 Time 1:40 Central | Bottle Group(s)**: C

Tot Res Chlorine (mg/L): | Diss Oxygen (mg/L): | Storet Station Number:

Sample Depth ☐ m ☐ ft | ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) | NPDES Number:

Comments: Hester - Dendy 3

Lab ID *: | Location: ~~Whit~~ McCullough Creek | Field ID: Test Site | Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water | Temp (C): 22.38 | pH: 7.47 | Latitude o ' " . | Longitude o ' " .

☐ Comp ☒ Grab | Collection (begin) Eastern Date 4/7/08 Time 11:25 Central | Collection (end) Eastern Date Time Central | Bottle Group(s)**: B/C

Tot Res Chlorine (mg/L): | Diss Oxygen (mg/L): 7.15 | Storet Station Number:

Sample Depth ☒ m ☐ ft: 0.3 | ☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm): 1351 | NPDES Number:

Comments: Macro Sweeps + H2O

Lab ID *: | Location: McCullough Creek | Field ID: Test Site | Matrix (Include type e.g. Salt, Fresh, etc): Inverts Fresh | Temp (C): | pH: | Latitude o ' " . | Longitude o ' " .

☒ Comp ☐ Grab | Collection (begin) Eastern Date 3/10/08 Time 10:00 Central | Collection (end) Eastern Date 4/7/08 Time 11:25 Central | Bottle Group(s)**: C

Tot Res Chlorine (mg/L): | Diss Oxygen (mg/L): | Storet Station Number:

Sample Depth ☐ m ☐ ft | ☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) | NPDES Number:

Comments: Hester - Dendy 1

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
DMC	4/7/08 3:45	DHL	ATJ	4-8-08 9:10				

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2008-04-07-27
US Agri-Chemicals Corporation: Fort Meade Chemical Plant

Requester: Jennifer Paris

Field Report Prepared By: Jacki Champion

Customer: BMR-TAMPA

Collected By: Jacki Champion / Scott Rose

Send Final Report To Vishwas Sathe

Project ID: FYI5

Sampling Agency: FDEP

PMAS: 1163

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	McCullough Creek	☒ Comp ☐ Grab	Date 3/10/08 Time 10:00	Date 4/7/08 Time 11:35	C
	Field ID: Test Site	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Inverts- Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments: Hester-Dendy 2		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	McCullough Creek	☒ Comp ☐ Grab	Date 3/10/08 Time 10:00	Date 4/7/08 Time 11:35	C
	Field ID: Test Site	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Inverts- Fresh	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments: Hester-Dendy 3		

Lab ID *	Location	Comp / Grab	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	USAC-Fort Meade	☐ Comp ☒ Grab	Date 4/7/08 Time 10:30	Date Time	D
	Field ID: Blanks	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number FL0001902
	Latitude o ' "	Longitude o ' "	Comments		

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
JMC	4/7/08 3:45	DHL	ABJ	4-8-08 09:10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix E

Chemical analysis of effluent and receiving water

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:00	OUTFALL 004	AGP/LN	Algal Growth Potential	177		mg DryWt/L	0.3	0.9
4/7/2008 10:00	OUTFALL 004	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.68	I	mg/L	0.2	2
4/7/2008 10:00	OUTFALL 004	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	2		ug/L	0.55	1.7
4/7/2008 10:00	OUTFALL 004	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.8		ug/L	0.24	0.71
4/7/2008 10:00	OUTFALL 004	Field Parameter	Dissolved Oxygen	6.05		mg/L		
4/7/2008 10:00	OUTFALL 004	Field Parameter	pH	7.55				
4/7/2008 10:00	OUTFALL 004	Field Parameter	Specific Conductance	1677		umhos/cm		
4/7/2008 10:00	OUTFALL 004	Field Parameter	Temperature	22.82		C		
4/7/2008 10:00	OUTFALL 004	Metals	Aluminum	490		ug/L	60	240
4/7/2008 10:00	OUTFALL 004	Metals	Arsenic	28		ug/L	0.5	2
4/7/2008 10:00	OUTFALL 004	Metals	Cadmium	0.056	I	ug/L	0.02	0.08
4/7/2008 10:00	OUTFALL 004	Metals	Calcium	67.2		mg/L	0.075	0.3
4/7/2008 10:00	OUTFALL 004	Metals	Chromium	1.1	I	ug/L	1	4
4/7/2008 10:00	OUTFALL 004	Metals	Copper	0.86	I	ug/L	0.5	2
4/7/2008 10:00	OUTFALL 004	Metals	Iron	210		ug/L	30	120
4/7/2008 10:00	OUTFALL 004	Metals	Lead	0.39	I	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Metals	Magnesium	17.2		mg/L	0.04	0.16
4/7/2008 10:00	OUTFALL 004	Metals	Nickel	4.48		ug/L	0.25	1
4/7/2008 10:00	OUTFALL 004	Metals	Selenium	0.55	I	ug/L	0.5	2
4/7/2008 10:00	OUTFALL 004	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/7/2008 10:00	OUTFALL 004	Metals	Zinc	5	U	ug/L	5	20
4/7/2008 10:00	OUTFALL 004	Nutrients	Ammonia-N	0.31		mg N/L	0.01	0.02
4/7/2008 10:00	OUTFALL 004	Nutrients	Fluoride	2.2		mg F/L	0.05	0.1
4/7/2008 10:00	OUTFALL 004	Nutrients	Kjeldahl Nitrogen	0.68		mg N/L	0.08	0.2
4/7/2008 10:00	OUTFALL 004	Nutrients	NO2NO3-N	2		mg N/L	0.04	0.1
4/7/2008 10:00	OUTFALL 004	Nutrients	O-Phosphate-P	4.9		mg P/L	0.08	0.2
4/7/2008 10:00	OUTFALL 004	Nutrients	Organic Carbon	7.1		mg C/L	1	5
4/7/2008 10:00	OUTFALL 004	Nutrients	Sulfate	720		mg SO4/L	2	5
4/7/2008 10:00	OUTFALL 004	Nutrients	Total-P	5.4		mg P/L	0.2	0.6
4/7/2008 10:00	OUTFALL 004	Nutrients	TSS	6	I	mg/L	4	16
4/7/2008 10:00	OUTFALL 004	Nutrients	Turbidity	5.9		NTU	0.1	0.1
4/7/2008 10:00	OUTFALL 004	Overflow	Alpha, Total	1.9	U	pCi/L		
4/7/2008 10:00	OUTFALL 004	Overflow	Alpha-Counting Error	1.3		pCi/L		
4/7/2008 10:00	OUTFALL 004	Overflow	Oil and Grease	1.7	U	mg/L	1.7	5
4/7/2008 10:00	OUTFALL 004	Overflow	Radium 226	1.3		pCi/L		
4/7/2008 10:00	OUTFALL 004	Overflow	Radium 226-Counting Error	0.2		pCi/L		
4/7/2008 10:00	OUTFALL 004	Overflow	Radium 228	1	U	pCi/L		
4/7/2008 10:00	OUTFALL 004	Overflow	Radium 228-Counting Error	0.6		pCi/L		

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:00	OUTFALL 004	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Hexazinone	0.1	UJ	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
4/7/2008 10:00	OUTFALL 004	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
4/7/2008 10:00	OUTFALL 004	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
4/7/2008 10:00	OUTFALL 004	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
4/7/2008 10:00	OUTFALL 004	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Norflurazon	0.15	UJ	ug/L	0.15	0.6
4/7/2008 10:00	OUTFALL 004	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
4/7/2008 10:00	OUTFALL 004	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
4/7/2008 10:00	OUTFALL 004	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
4/7/2008 10:00	OUTFALL 004	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	UJ	ug/L	41	160
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.2
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	41
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Endosulfan I	4.1	U	ug/L	4.1	16
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Endosulfan II	4.1	U	ug/L	4.1	16
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Endrin	1.5	UJ	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Endrin aldehyde	4.1	U	ug/L	4.1	16
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Fluoranthene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.2
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.2
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.2
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Pentachlorophenol	3.1	U	ug/L	3.1	12
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4.1
4/7/2008 10:00	OUTFALL 004	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	L	LC50		
4/7/2008 10:00	OUTFALL 004	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	L	LC50		
4/7/2008 13:40	CONTROL SITE	AGP/LN	Algal Growth Potential	11.2		mg DryWt/L	0.3	0.9
4/7/2008 13:40	CONTROL SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	25		ug/L	0.55	1.7
4/7/2008 13:40	CONTROL SITE	Chlorophyll/Grain Size/BOD	Phaeophytin-a	4.5		ug/L	0.24	0.71
4/7/2008 13:40	CONTROL SITE	Field Parameter	Dissolved Oxygen	7.54		mg/L		
4/7/2008 13:40	CONTROL SITE	Field Parameter	pH	7.73				
4/7/2008 13:40	CONTROL SITE	Field Parameter	Sample Depth	0.3		m		
4/7/2008 13:40	CONTROL SITE	Field Parameter	Specific Conductance	392		umhos/cm		
4/7/2008 13:40	CONTROL SITE	Field Parameter	Temperature	24.46		C		
4/7/2008 13:40	CONTROL SITE	Metals	Aluminum	240	I	ug/L	60	240
4/7/2008 13:40	CONTROL SITE	Metals	Arsenic	4.1	A	ug/L	0.5	2
4/7/2008 13:40	CONTROL SITE	Metals	Cadmium	0.046	I	ug/L	0.02	0.08
4/7/2008 13:40	CONTROL SITE	Metals	Calcium	33.8	A	mg/L	0.075	0.3
4/7/2008 13:40	CONTROL SITE	Metals	Chromium	1	U	ug/L	1	4
4/7/2008 13:40	CONTROL SITE	Metals	Copper	0.5	U	ug/L	0.5	2
4/7/2008 13:40	CONTROL SITE	Metals	Iron	290	A	ug/L	30	120
4/7/2008 13:40	CONTROL SITE	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/7/2008 13:40	CONTROL SITE	Metals	Magnesium	21.7	A	mg/L	0.04	0.16
4/7/2008 13:40	CONTROL SITE	Metals	Nickel	1.09	A	ug/L	0.25	1
4/7/2008 13:40	CONTROL SITE	Metals	Selenium	0.5	U	ug/L	0.5	2
4/7/2008 13:40	CONTROL SITE	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/7/2008 13:40	CONTROL SITE	Metals	Zinc	5	U	ug/L	5	20
4/7/2008 13:40	CONTROL SITE	Nutrients	Ammonia-N	0.018	I	mg N/L	0.01	0.02
4/7/2008 13:40	CONTROL SITE	Nutrients	Fluoride	1.8		mg F/L	0.05	0.1
4/7/2008 13:40	CONTROL SITE	Nutrients	Kjeldahl Nitrogen	1.2		mg N/L	0.08	0.2
4/7/2008 13:40	CONTROL SITE	Nutrients	NO2NO3-N	0.026		mg N/L	0.004	0.01
4/7/2008 13:40	CONTROL SITE	Nutrients	O-Phosphate-P	1.4		mg P/L	0.08	0.2
4/7/2008 13:40	CONTROL SITE	Nutrients	Sulfate	39		mg SO4/L	0.2	0.5
4/7/2008 13:40	CONTROL SITE	Nutrients	Total-P	1.8		mg P/L	0.04	0.12
4/7/2008 13:40	CONTROL SITE	Nutrients	Turbidity	6.2		NTU	0.1	0.1
4/7/2008 11:25	TEST SITE	AGP/LN	Algal Growth Potential	81.2		mg DryWt/L	0.3	0.9
4/7/2008 11:25	TEST SITE	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	27		ug/L	0.85	2.6
4/7/2008 11:25	TEST SITE	Chlorophyll/Grain Size/BOD	Phaeophytin-a	5		ug/L	0.37	1.1

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 11:25	TEST SITE	Field Parameter	Dissolved Oxygen	7.15		mg/L		
4/7/2008 11:25	TEST SITE	Field Parameter	pH	7.47				
4/7/2008 11:25	TEST SITE	Field Parameter	Sample Depth	0.3		m		
4/7/2008 11:25	TEST SITE	Field Parameter	Specific Conductance	1354		umhos/cm		
4/7/2008 11:25	TEST SITE	Field Parameter	Temperature	22.38		C		
4/7/2008 11:25	TEST SITE	Metals	Aluminum	970		ug/L	60	240
4/7/2008 11:25	TEST SITE	Metals	Arsenic	17.5		ug/L	0.5	2
4/7/2008 11:25	TEST SITE	Metals	Cadmium	0.055	I	ug/L	0.02	0.08
4/7/2008 11:25	TEST SITE	Metals	Calcium	53.3		mg/L	0.075	0.3
4/7/2008 11:25	TEST SITE	Metals	Chromium	2	I	ug/L	1	4
4/7/2008 11:25	TEST SITE	Metals	Copper	0.5	U	ug/L	0.5	2
4/7/2008 11:25	TEST SITE	Metals	Iron	660		ug/L	30	120
4/7/2008 11:25	TEST SITE	Metals	Lead	0.9	A	ug/L	0.2	0.8
4/7/2008 11:25	TEST SITE	Metals	Magnesium	16.9		mg/L	0.04	0.16
4/7/2008 11:25	TEST SITE	Metals	Nickel	3.1		ug/L	0.25	1
4/7/2008 11:25	TEST SITE	Metals	Selenium	0.5	U	ug/L	0.5	2
4/7/2008 11:25	TEST SITE	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/7/2008 11:25	TEST SITE	Metals	Zinc	5	U	ug/L	5	20
4/7/2008 11:25	TEST SITE	Nutrients	Ammonia-N	0.074		mg N/L	0.01	0.02
4/7/2008 11:25	TEST SITE	Nutrients	Fluoride	2		mg F/L	0.05	0.1
4/7/2008 11:25	TEST SITE	Nutrients	Kjeldahl Nitrogen	0.77		mg N/L	0.08	0.2
4/7/2008 11:25	TEST SITE	Nutrients	NO2NO3-N	1.2		mg N/L	0.04	0.1
4/7/2008 11:25	TEST SITE	Nutrients	O-Phosphate-P	3.1		mg P/L	0.08	0.2
4/7/2008 11:25	TEST SITE	Nutrients	Sulfate	450		mg SO4/L	2	5
4/7/2008 11:25	TEST SITE	Nutrients	Total-P	3.7		mg P/L	0.1	0.3
4/7/2008 11:25	TEST SITE	Nutrients	Turbidity	14		NTU	0.1	0.1
4/7/2008 10:30	EQUIP. BLANK	Metals	Aluminum	60	U	ug/L	60	240
4/7/2008 10:30	EQUIP. BLANK	Metals	Arsenic	0.5	U	ug/L	0.5	2
4/7/2008 10:30	EQUIP. BLANK	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
4/7/2008 10:30	EQUIP. BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
4/7/2008 10:30	EQUIP. BLANK	Metals	Chromium	1	U	ug/L	1	4
4/7/2008 10:30	EQUIP. BLANK	Metals	Copper	0.5	U	ug/L	0.5	2
4/7/2008 10:30	EQUIP. BLANK	Metals	Iron	30	U	ug/L	30	120
4/7/2008 10:30	EQUIP. BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
4/7/2008 10:30	EQUIP. BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
4/7/2008 10:30	EQUIP. BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
4/7/2008 10:30	EQUIP. BLANK	Metals	Selenium	0.5	U	ug/L	0.5	2
4/7/2008 10:30	EQUIP. BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
4/7/2008 10:30	EQUIP. BLANK	Metals	Zinc	5	U	ug/L	5	20
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Fluoride	0.05	U	mg F/L	0.05	0.1
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
4/7/2008 10:30	EQUIP. BLANK	Nutrients	NO2NO3-N	0.005	I	mg N/L	0.004	0.01

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:30	EQUIP. BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Organic Carbon	1	U	mg C/L	1	5
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
4/7/2008 10:30	EQUIP. BLANK	Nutrients	TSS	4	U	mg/L	4	16
4/7/2008 10:30	EQUIP. BLANK	Nutrients	Turbidity	0.15		NTU	0.1	0.1
4/7/2008 10:30	EQUIP. BLANK	Overflow	Alpha, Total	0.4	U	pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Overflow	Alpha-Counting Error	0.3		pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Overflow	Oil and Grease	1.7	U	mg/L	1.7	5
4/7/2008 10:30	EQUIP. BLANK	Overflow	Radium 226	0.2	U	pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Overflow	Radium 226-Counting Error	0.1		pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Overflow	Radium 228	1	U	pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Overflow	Radium 228-Counting Error	0.6		pCi/L		
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Alachlor	0.62	U	ug/L	0.62	2.5
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Ametryn	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Atrazine	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Azinphos Methyl	0.21	UJ	ug/L	0.21	0.84
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Bromacil	0.21	UJ	ug/L	0.21	0.84
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Butylate	0.21	U	ug/L	0.21	0.84
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Chlorpyrifos Ethyl	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Diazinon	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Ethion	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Fenamiphos	0.21	U	ug/L	0.21	0.84
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Hexazinone	0.1	UJ	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Malathion	0.16	U	ug/L	0.16	0.64
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Metalaxyl	0.26	U	ug/L	0.26	1
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Metolachlor	0.52	U	ug/L	0.52	2.1
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Mevinphos	0.21	U	ug/L	0.21	0.84
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Naled	0.83	U	ug/L	0.83	3.3
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Norflurazon	0.16	UJ	ug/L	0.16	0.64
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Parathion Ethyl	0.16	U	ug/L	0.16	0.64
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Phorate	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Prometryn	0.16	U	ug/L	0.16	0.64
4/7/2008 10:30	EQUIP. BLANK	Pesticides	Simazine	0.052	U	ug/L	0.052	0.21
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L	39	160
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.8
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Acenaphthene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Acenaphthylene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Anthracene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzidine	98	U	ug/L	98	390
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	59
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	20
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Chrysene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Diethyl phthalate	1.1	I	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Dimethyl phthalate	9.8	U	ug/L	9.8	39
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	20
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Endosulfan I	3.9	U	ug/L	3.9	16
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Endosulfan II	3.9	U	ug/L	3.9	16
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	5.9

Date_Sampled	Field_Sample_ID	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Endrin	1.5	UJ	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Endrin aldehyde	3.9	U	ug/L	3.9	16
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Fluoranthene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Fluorene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	5.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Naphthalene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.8
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	7.8
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.8
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Phenanthrene	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
4/7/2008 10:30	EQUIP. BLANK	Priority Organic Pollutants	Pyrene	0.98	U	ug/L	0.98	3.9

FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: US. Agriculture - Ft. Meade Fort Meade chemical complex

Address: 3225 State Rd. 630 W.

City: Fort Meade County: Polk county

Contact/District: Jacki Champion / BMR-TAMPA

NPDES Permit #: FL 0001902

LIMS Job #: TLH-2008-04-08-10-01 LIMS Sample #: 1092784

Lims Data Entry: 4-21-08 MF Data Entry Verification: 4-21-08 BA

Sample Collection: Date: 4.7.08 Time: 10:00

Hold Time Start: Date: 4.7.08 Time: 10:00

Comments:
~~All test organisms in [illegible] sample died within 30 minutes of~~ JD

Test 1 LC50 = >100%, mortality = 0%

Test 2 LC50 = >100%, mortality = 0%

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: Screen

Static / Static Renewal / Flow-through

Test Duration: 48 (96) Hours.

Test 1 validation: Test 1: SOP TA 07_01

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2 validation: Test 2: SOP TA 07_02

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Initial sample handling:

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____

Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~ ____bubbles/min

Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: ~~yes~~ (no) 2.1 JD mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ~~0.05~~ JD

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No

Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 25.9 max. 26.7 mean 26.3

Incubator # ____ min. ____ max. ____ mean ____

Room B246 min. 24.5 max. 25.5 mean 25.0

Investigators' Signatures

James Dennis

Brian Adams

Marshall Faircloth

Loretta C. Wolfe

REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A		Not measured			MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	90	150				92	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	81	138				232	HACH	BA	JD
Total Ammonia (mg/L as N):	<0.017	<0.017				0.141	DENVER	MF	JD
Salinity (ppth):	<1	<1				<1	YSI (Mettler)	JD	MF

V 1.4 9/12/05

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FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1092784 Test #: 1/2 SOP#:TA 07 01 Test Started: Date 4-8-08 Time: 13:30
Organism/Batch/Age: C.dubia/13-08/<24hrs Test Ended: Date 4-12-08 Time: 1030
Chamber/Test Volume: 30 / 20 ml Diluent/ Batch: DMW 14-1-08
Food/Batch: YCT 7-26-07 P.sub 1-9-08 Artemia 0hr — 24hr — 48hr — 72hr — Artemia Lot# —
Feeding: (Prior to Test) (Prior to Renewal) Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Loaded/Verified by: BA / JD		Checked by:	JD	JD	BA	JD	JD	MF

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

Screening Tests: Report LC50 as >100%, =100%, or <100%.

% mortality in 100% sample: 0 % LC50: >100%

If Calculated: 95% CI ___ - ___ Method ___

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

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FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: K092784 Test #: 2/2 SOP#:TA 07 02 Test Started: Date 4808 Time: 1335

Organism/Batch/Age: C.dubia/4-8-08/12 days Test Ended: Date 4-12-08 Time: 1040

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: Well 14-7-08

Food/Batch: YCT — P.sub — Artemia 0hr 65-08 24hr — 48hr 67-08 72hr — Artemia Lot# 6SL-53690

Feeding: (Prior to Test) (Prior to Renewal) Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	D1	5	5	5	5	5	5
	B	D2	5	5	5	5	5	5
	C	D3	5	5	5	5	5	5
	D	D4	5	5	5	5	5	5
100%	A	D5	5	5	5	5	5	5
	B	D6	5	5	5	5	5	5
	C	D7	5	5	5	5	5	5
	D	D8	5	5	5	5	5	5
Loaded/Verified by: JD / BA		Checked by:	JD	JD	JD	JD	JD	MF

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

Screening Tests: Report LC50 as >100%, =100%, or <100%.

% mortality in 100% sample: 0 LC50: >100%

If Calculated: 95% CI ______ Method ______

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

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FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample #: 9 mf for BA 102784 **Test #:** 1 of 2

TEST SOP #: TA07_01 **Test Species:** (Ceriodaphnia dubia) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	8.2		8.1	8.1		8.1
Temperature °C	24.0		24.0	24.0		24.8
Dissolved Oxygen mg/L	8.2		8.2	8.2		7.8
Conductivity (µmhos) mmhos	174		186	173		187
(initials) Measured by:	BA		BA	BA		MF
(initials) Recorded by:	BA		BA	BA		MF

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	7.2		8.0	7.2		8.1
Temperature °C	24.0		24.1	24.4		25.0
Dissolved Oxygen mg/L	7.1		8.1	7.1		7.8
Conductivity (µmhos) mmhos	1654		1704	1667		1694
(initials) Measured by:	BA		BA	BA		MF
(initials) Recorded by:	BA		BA	BA		MF

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

000019

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1092784 **Test #:** 2 of 3

TEST SOP #: TA07_ 02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	7.9	8.1	8.2	8.1	8.1	8.2
Temperature °C	24.2	24.6	24.1	24.0	24.2	24.8
Dissolved Oxygen mg/L	8.0	7.1	7.6	8.3	7.2	7.1
Conductivity (µmhos) mmhos	272	281	285	274	276	287
(initials) Measured by:	JD	JD	JD	JD	JD	MF
(initials) Recorded by:	JD	JD	JD	JD	JD	MF

Comments:

Concentration 10096	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	7.2	7.6	7.7	7.2	7.5	7.7
Temperature °C	24.9	24.4	24.1	25.5	24.2	25.0
Dissolved Oxygen mg/L	6.7	7.0	7.5	6.6	6.6	6.8
Conductivity (µmhos) mmhos	1662	1689	1668	1700	1668	1711
(initials) Measured by:	JD	JD	JD	JD	JD	MF
(initials) Recorded by:	JD	JD	JD	JD	JD	MF

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Appendix G

Standard Reference Toxicant data

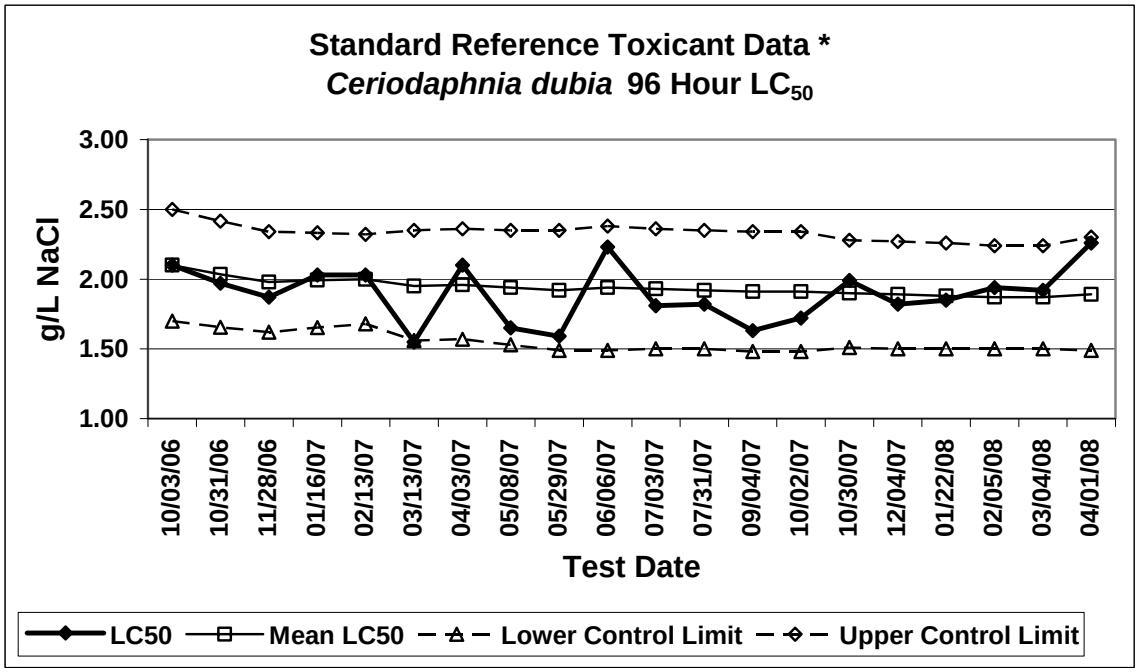
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
10/03/06	2.10	2.10	0.20	1.70	2.50
10/31/06	1.97	2.04	0.19	1.66	2.42
11/28/06	1.87	1.98	0.18	1.62	2.34
01/16/07	2.03	1.99	0.17	1.65	2.33
02/13/07	2.03	2.00	0.16	1.68	2.32
03/13/07	1.55	1.95	0.20	1.56	2.35
04/03/07	2.10	1.96	0.19	1.57	2.36
05/08/07	1.65	1.94	0.20	1.53	2.35
05/29/07	1.59	1.92	0.22	1.49	2.35
06/06/07	2.23	1.94	0.22	1.49	2.38
07/03/07	1.81	1.93	0.22	1.50	2.36
07/31/07	1.82	1.92	0.21	1.50	2.35
09/04/07	1.63	1.91	0.22	1.48	2.34
10/02/07	1.72	1.91	0.21	1.48	2.34
10/30/07	1.99	1.90	0.19	1.51	2.28
12/04/07	1.82	1.89	0.19	1.50	2.27
01/22/08	1.85	1.88	0.19	1.50	2.26
02/05/08	1.94	1.87	0.18	1.50	2.24
03/04/08	1.92	1.87	0.18	1.50	2.24
04/01/08	2.26	1.89	0.20	1.49	2.30

Lower Control Limit = mean - 2 * Std Dev
Upper Control Limit = mean + 2 * Std Dev

CV = 10.68
EPA reference 75th quartile CV = 29%



FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 | *Menidia beryllina* Method 2006.0 | *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 | *Cyprinella leedsi* Method 2000.0 | *Pimephales promelas* Method 2000.0 | Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal / (96) hour renewal
Test Page 1 of 2

Diluent/ Batch #: DMW / 4.1.08
Toxicant/ Batch#: NaCl 133409 4.1.08 JD

Test Beginning: Date: 4.1.08 Time: 13:15
Test Ending: Date: 4.5.08 Time: 11:30

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	90	Hach	BA
Hardness (mg.L as $CaCO_3$):	81	Hach	BA
Total Ammonia (mg/L as N):	<0.017	Denver	ME
Salinity (ppth):	<1	Mettler	BA

Organism Batch # / Age: 12-07 I <24hrs
Feeding: (Prior to test / Prior to renewal) Daily
Food: (YCT) (P.subcapitata) Artemia: Lot # —
Food Batch: 7-26-07 1-31-08 0hr — 24hr — 48hr — 72hr —
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. (%) µg/L mg/L	Rep.	Chamber #	Number Live 0 hr / ~~48 hr~~	24 hr / ~~72 hr~~	48 hr / ~~96 hr~~	pH (SU) 0 hr / ~~48 hr~~	24 hr / ~~72 hr~~	48 hr / ~~96 hr~~	Temperature (° C) 0 hr / ~~48 hr~~	24 hr / ~~72 hr~~	48 hr / ~~96 hr~~	D.O. (mg/L) 0 hr / ~~48 hr~~	24 hr / ~~72 hr~~	48 hr / ~~96 hr~~	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr / ~~48 hr~~	24 hr / ~~72 hr~~	48 hr / ~~96 hr~~
Control	A	A	5	5	5	7.9		8.0	24.0		24.0	7.8		7.0	0.172		0.183
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.0		7.9	24.0		24.0	7.8		7.1	2.11		3.07
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	5	8.1		7.9	24.0		24.0	7.5		7.0	3.86		4.02
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.5	A	A	5	5	2D	8.1		7.9	24.1		24.0	7.7		6.9	4.71		4.93
	B	B	5	5	3D												
	C	C	5	5	3D												
	D	D	5	4D	3D												
3.0	A	A	5	3D	0D	8.1		7.9	24.1		24.0	7.6		6.8	5.51		5.7
	B	B	5	4D	0D												
	C	C	5	3D	0D												
	D	D	5	4D	0D												
4.0	A	A	5	0SD	—	8.1	8.0	—	24.2	24.0	—	7.7	7.7	—	7.25	7.19	—
	B	B	5	0SD	—												
	C	C	5	0SD	—												
	D	D	5	0SD	—												
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
Recorded by:			BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA

Investigators' Signatures
Bruce Asch
James Daniel
Marshall Faircloth

Loretta C. Wolfe
REVIEWER

Concentrations prepared by: BA
Loading verified by: JD
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 26.1 max. 26.6 mean 26.4
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.6 max. 25.5 mean 25.0

000053

Comments:

Statistics: Method: Spearman-Karber
(48) / 96 hour LC_{50}: 2.5
95% Confidence Interval: lower 2.39 upper 2.62

PAGE

revised 08/24/06 SP

FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 | *Menidia beryllina* Method 2006.0 | *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia | ~~Method 2002.0~~ | *Cyprinella leedsi* Method 2000.0 | *Pimephales promelas* Method 2000.0 | Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal / (96) hour renewal
Test Page 2 of 2

Diluent/ Batch #: DMW / 4.1.08
Toxicant/ Batch#: NaCl / 4.1.08

Test Beginning: Date: 4-1-08 Time: 13:15
Test Ending: Date: 4.5.08 Time: 11:30

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	90	Hach	BA
Hardness (mg.L as $CaCO_3$):	81	Hach	BA
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	<1	Mettler	BA

Organism Batch #/ Age: 12-071 / 24 hrs
Feeding: Prior to test / Prior to renewal / Daily
Food: (YCT) (P.subcapitata) Artemia: Lot # —
Food Batch: 7-26-07 1-31-08 0hr — 24hr — 48hr — 72hr —
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. (g/L) µg/L mg/L	Rep.	Chamber #	Number Live 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr	pH (SU) 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr	Temperature (°C) 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr	D.O. (mg/L) 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr
Control	A	A	5	5	5	8.1		8.1	24.2		24.2	8.0		7.6	0.175		0.187
	B	B	5	5	5					~~24.2~~						0.184	
	C	C	5	5	5					JD						JD	
	D	D	5	5	5												
1.5	A	A	5	5	5	8.1		8.0	24.6		24.1	7.9		7.6	2.86		3.04
	B	B	5	5	5												
	C	C	5	5	4 ID												
	D	D	5	5	5												
2.0	A	A	5	5	5	8.1		8.1	24.7		24.1	7.7		7.6	3.78		3.89
	B	B	5	5	5												
	C	C	5	4 ID	4												
	D	D	5	5	5												
2.5	A	A	2	2	2	8.1		8.1	24.8		24.1	7.7		7.6	4.57		4.86
	B	B	3	1 ID	0 ID												
	C	C	3	2 ID	0 2 D												
	D	D	3	2 ID	0 2 D												
3.0	A	A	—	—	—	—		—	—		—	—		—	—		—
	B	B	—	—	—												
	C	C	—	—	—												
	D	D	—	—	—												
4.0	A	A	—	—	—	—		—	—		—	—		—	—		—
	B	B	—	—	—												
	C	C	—	—	—												
	D	D	—	—	—												
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD
Recorded by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD

Investigators' Signatures
Daniel Ate
Tonya Davis
Marshall Faircloth
Debra C Wolfe
REVIEWER

Concentrations prepared by: BA
Loading verified by: JD
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min 26.1 max 26.6 mean 26.4
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.6 max. 25.5 mean 25.0

Comments:

Statistics: Method: Spearman-Karber
48 / (96) hour LC_{50}: 2.26
95% Confidence Interval: lower 2.19 upper 2.32

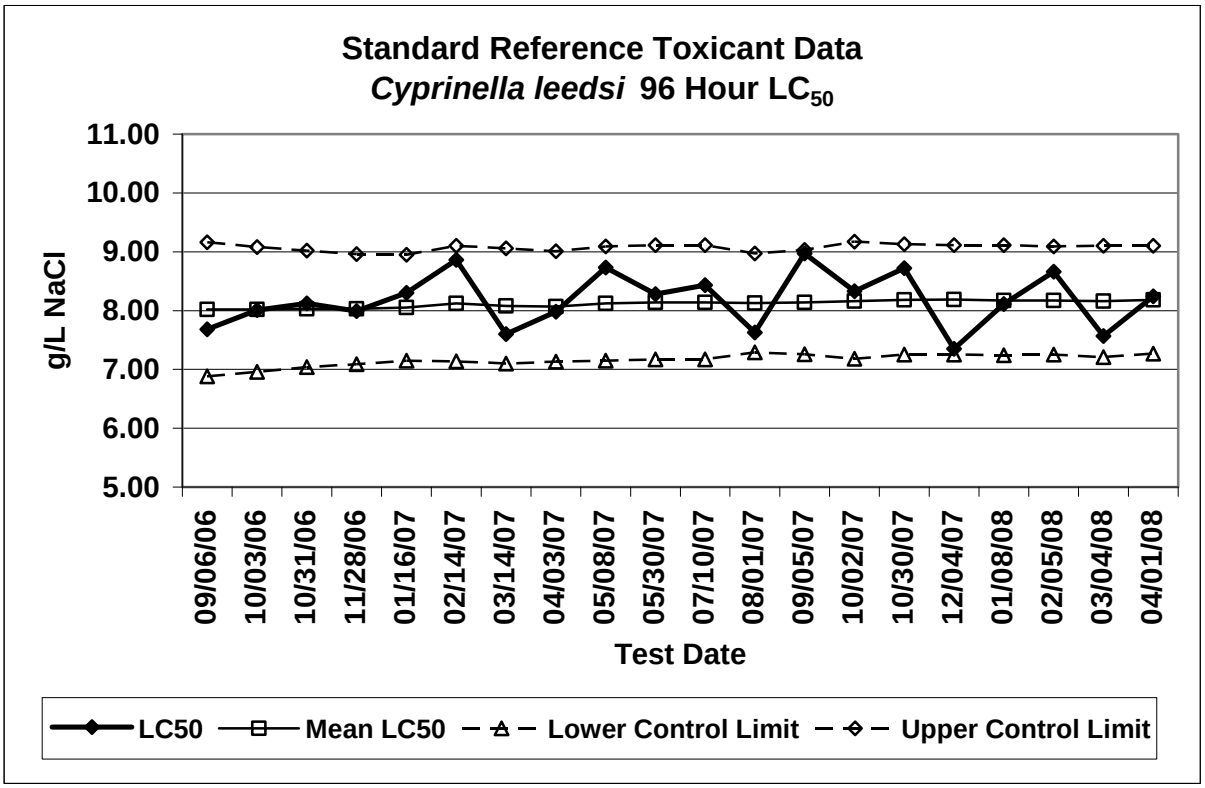
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
09/06/06	7.68	8.02	0.57	6.88	9.16
10/03/06	8.01	8.02	0.53	6.96	9.08
10/31/06	8.12	8.03	0.49	7.04	9.02
11/28/06	7.99	8.03	0.47	7.09	8.96
01/16/07	8.30	8.05	0.45	7.15	8.95
02/14/07	8.86	8.12	0.49	7.14	9.10
03/14/07	7.60	8.08	0.49	7.10	9.06
04/03/07	7.98	8.07	0.47	7.13	9.01
05/08/07	8.73	8.12	0.48	7.15	9.09
05/30/07	8.28	8.14	0.48	7.17	9.11
07/10/07	8.43	8.14	0.48	7.17	9.11
08/01/07	7.63	8.13	0.42	7.29	8.97
09/05/07	8.97	8.14	0.44	7.26	9.03
10/02/07	8.33	8.16	0.50	7.18	9.17
10/30/07	8.72	8.18	0.47	7.25	9.13
12/04/07	7.35	8.19	0.47	7.25	9.11
01/08/08	8.11	8.17	0.47	7.24	9.11
02/05/08	8.66	8.17	0.47	7.25	9.09
03/04/08	7.57	8.16	0.47	7.21	9.10
04/01/08	8.24	8.18	0.46	7.27	9.10

Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 5.61
EPA reference 75th quartile CV = 19%



FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 | *Menidia beryllina* Method 2006.0 | *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 | *Cyprinella leedsi* Method 2000.0 | *Pimephales promelas* Method 2000.0 | Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal / 96 hour renewal
Test Page 1 of 2

Diluent/ Batch #: Well H_2O / 3.31.08
Toxicant/ Batch#: NaCl / 3.31.08

Test Beginning: Date: 4.1.08 Time: 1500
Test Ending: Date: 4.5.08 Time: 1200

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	2003	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	149	Hach	BA
Hardness (mg.L as $CaCO_3$):	133	Hach	BA
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	< 1	Mettler	JD

Organism Batch #/ Age: 4.1.08 / 13 days
Feeding: (Prior to test / Prior to renewal) / Daily
Food: YCT *P.subcapitata* Artemia: Lot # GSL-536-90
Food Batch: — / — 0hr 51.08 24hr — 48hr 59.08 72hr —
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L mg/L	Rep.	Chamber #	Number Live 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	pH (SU) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	Temperature (°C) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	D.O. (mg/L) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr
Control	A	B1	10 / 10 / 10	8.0 / / 8.2	24.0 / / 24.7	7.7 / / 7.2	0.273 / / 0.282
	B	B2	10 / 10 / 10	/ 8.2 /	/ 24.3 /	/ 7.1 /	/ 0.278 /
	C						
	D						
6	A	B3	10 / 10 / 10	8.0 / / 8.1	24.0 / / 24.7	7.6 / / 6.9	11.6 / / 11.5
	B	B4	10 / 10 / 10	/ 8.1 /	/ 24.4 /	/ 7.0 /	/ 11.5 /
	C						
	D						
7	A	B5	10 / 10 / 10	8.0 / / 8.1	24.0 / / 24.7	7.6 / / 6.8	13.5 / / 13.3
	B	B6	10 / 10 / 9[10]	/ 8.0 /	/ 24.6 /	/ 6.5 /	/ 13.2 /
	C						
	D						
8	A	B7	10 / 7[30] / 7	8.0 / / 8.1	24.0 / / 24.9	7.6 / / 6.6	15.5 / / 15.2
	B	B8	10 / 6[40] / 6	/ 8.0 /	/ 24.4 /	/ 6.4 /	/ 15.0 /
	C						
	D						
9	A	B9	10 / 3[20] / 3	8.0 / / 8.1	24.0 / / 24.6	7.6 / / 6.6	16.8 / / 16.7
	B	B10	10 / 1[90] / 1	/ 8.0 /	/ 24.1 /	/ 6.5 /	/ 16.4 /
	C						
	D						
10	A	B11	10 / 0[100] / —	7.9 / /	24.0 / /	7.6 / /	18.7 / /
	B	B12	10 / 0[100] / —	/ 8.0 /	/ 24.5 /	/ 6.4 /	/ 18.3 /
	C						
	D						
	A						
	B						
	C						
	D						
Loaded / measured by:			BA / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD
Recorded by:			JD / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD

Investigators' Signatures
James Daniel
Brent Rees
Marshall Faircloth

Loretta C. Wolfe
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 26.1 max. 26.6 mean 26.4
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.6 max. 25.5 mean 25.0

55.

PAGE 000055

Comments:

Statistics: Method: Spearman-Karber
48/96 hour LC_{50}: 8.24
95% Confidence Interval: lower 7.95 upper 9.55

revised 08/24/06 SP

FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 | *Menidia beryllina* Method 2006.0 | *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 | *Cyprinella leedsi* ~~Method 2000.0~~ | *Pimephales promelas* Method 2000.0 | Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal (96 hour renewal)
Test Page 2 of 2

Diluent/ Batch #: Well H2O / 33108
Toxicant/ Batch#: NaCl / 13308

Test Beginning: Date: 9/1/08 Time: 1500
Test Ending: Date: 9.5.08 Time: 1300

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	~~90~~ 20	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	144	Hach	BA
Hardness (mg/L as $CaCO_3$):	133	Hach	BA
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	21	Mettler	JD

TAL JD 9/2/08

Organism Batch #/ Age: 41.08 / 13 days
Feeding: (Prior to test / Prior to renewal) Daily
Food: YCT P.subcapitata Artemia: Lot # 651-536-90
Food Batch: _____ _____ 0hr 57-08 24hr – 48hr 59-08 72hr –
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. g/L µg/L mg/L	Rep.	Chamber #	Number Live 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	pH (SU) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	Temperature (° C) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	D.O. (mg/L) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr / 24 hr / 48 hr / 48 hr / 72 hr / 96 hr
Control	A	B1	10 / 10 / 10 / 8.1 / / 8.0	24.0 / / 24.5	7.6 / / 6.8	0.277 / / 0.283
	B	B2	10 / 10 / 10 / / 8.0 /	/ 25.0 /	/ 6.1 /	/ 0.285 /
	C					
	D					
6	A	B3	10 / 10 / 10 / 8.0 / / 8.0	24.0 / / 24.6	7.6 / / 6.4	11.3 / / 11.4
	B	B4	10 / 10 / 10 / / 7.9 /	/ 24.7 /	/ 5.9 /	/ 11.6 /
	C					
	D					(35)
7	A	B5	10 / 10 / 10 / 8.0 / / 8.0	24.0 / / 24.8	7.4 / / 6.3	11.3/6 / / 13.3
	B	B6	9 / 9 / 9 / / 7.9 /	/ 24.8 /	/ 5.9 /	/ 13.2 /
	C					
	D					
8	A	B7	7 / 7 / 7 / 8.0 / / 7.9	24.0 / / 24.9	7.3 / / 6.2	14.8 / / 15.0
	B	B8	6 / 6 / 6 / / 7.9 /	/ 24.6 /	/ 5.9 /	/ 15.1 /
	C					
	D					
9	A	B9	3 / 3 / 3 / 8.0 / / 8.0	24.0 / / 24.9	7.3 / / 6.0	16.4 / / 16.6
	B	B10	1 / 1 / 1 / / 7.9 /	/ 24.6 /	/ 5.8 /	/ 16.7 /
	C					
	D					
10	A	B11	– / – / – / – / / –	– / / –	– / / –	– / / –
	B	B12	– / – / – / / – /	/ – /	/ – /	/ – /
	C					
	D					
	A					
	B					
	C					
	D					
Loaded / measured by:			JD / JD / JD / JD / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD
Recorded by:			JD / JD / JD / JD / JD / JD	JD / JD / JD	JD / JD / JD	JD / JD / JD

Investigators' Signatures
James Daniel
Buck Ard
Marshall Faircloth

Loretta C. Wolfe
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min 26.1 max 26.6 mean 26.4
Incubator # ___ min ___ max ___ mean ___
Room B246 min 24.6 max 25.5 mean 25.0

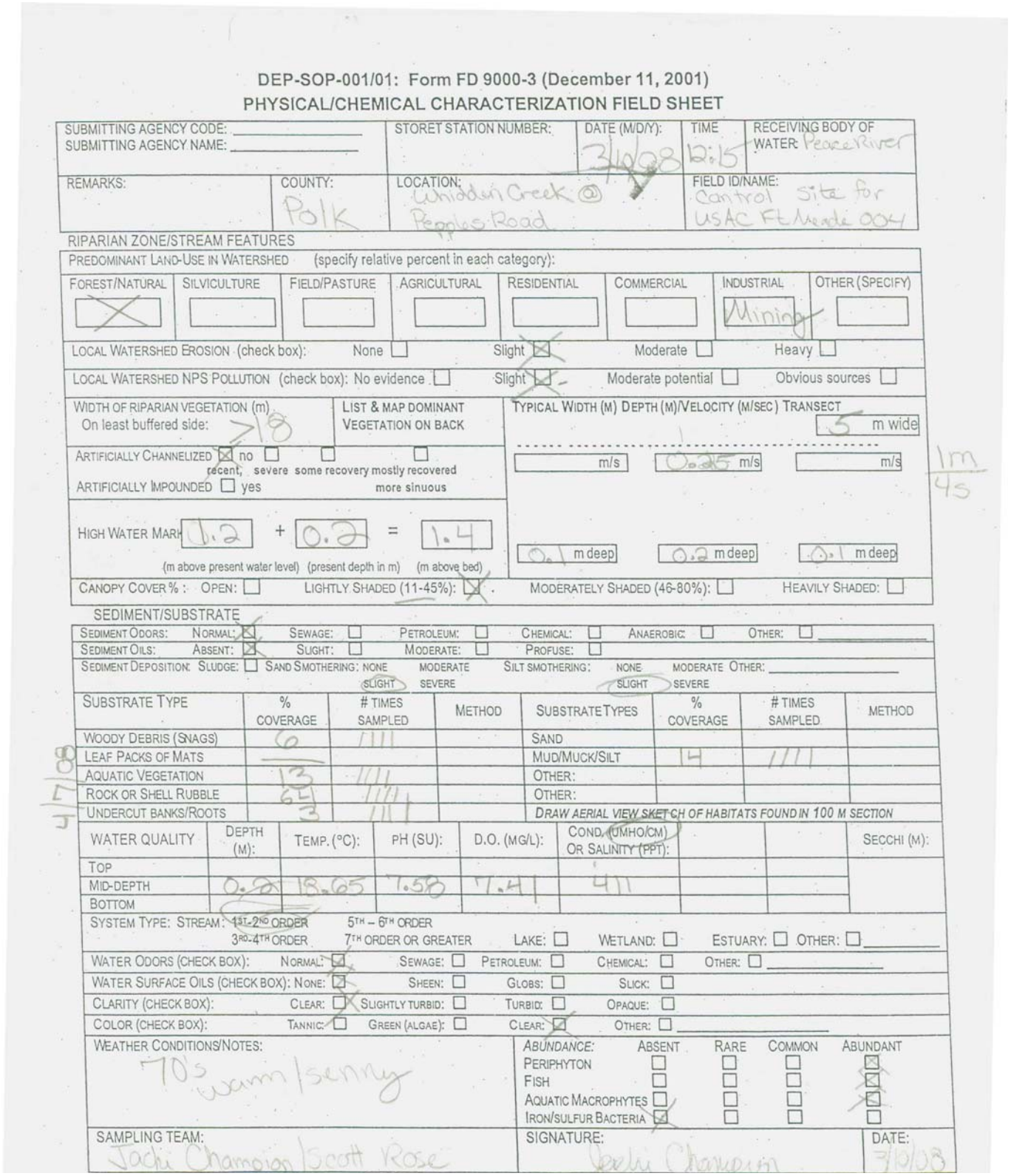
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Comments:

Statistics: Method: Spearman-Karber
48 / (96) hour LC_{50}: 8.24
95% Confidence Interval: lower 7.95 upper 8.55

Appendix H

Habitat Assessment Field Sheets



DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001)
PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: _____ SUBMITTING AGENCY NAME: _____	STORET STATION NUMBER:	DATE (M/D/Y): 3/10/03	TIME 12:15	RECEIVING BODY OF WATER: Peace River
REMARKS:	COUNTY: Polk	LOCATION: Whidden Creek @ Peeples Road	FIELD ID/NAME: Control Site for USAC Ft Meade 004	

RIPARIAN ZONE/STREAM FEATURES

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

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
X						Mining	

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: >18

LIST & MAP DOMINANT VEGETATION ON BACK

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

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

HIGH WATER MARK 1.2 + 0.2 = 1.4
(m above present water level) (present depth in m) (m above bed)

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT

3 m wide

m/s | 0.25 m/s | m/s

1m / 4s

0.1 m deep | 0.2 m deep | 0.1 m deep

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

SEDIMENT/SUBSTRATE

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

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

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

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	6	////		SAND			
LEAF PACKS OF MATS				MUD/MUCK/SILT	4	////	
AQUATIC VEGETATION	13	////		OTHER:			
ROCK OR SHELL RUBBLE	63	////		OTHER:			
UNDERCUT BANKS/ROOTS	3			DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
TOP								
MID-DEPTH	0.2	18.65	7.58	7.41	411			
BOTTOM								

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

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

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: 70's warm/sunny

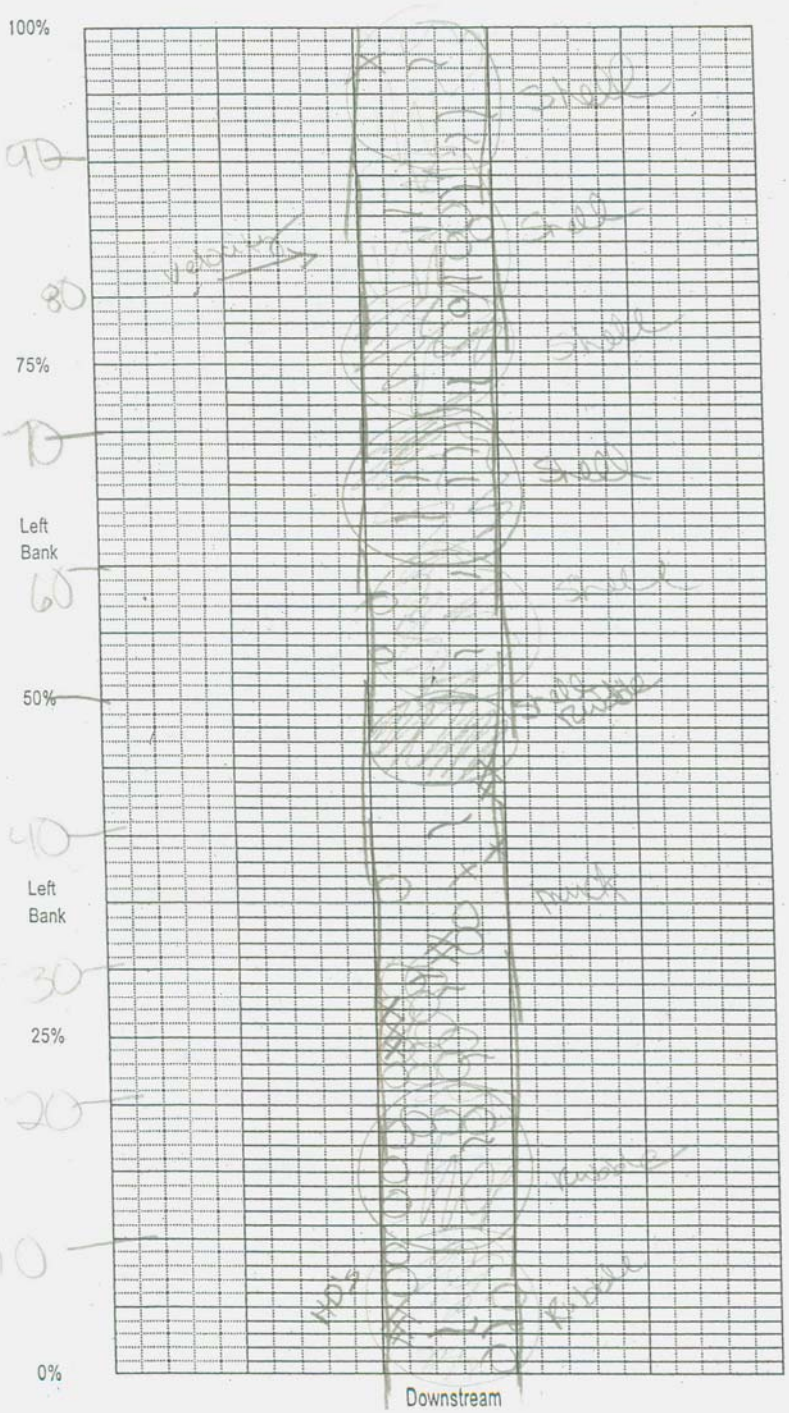
ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☐	☐	☒
FISH	☐	☐	☐	☒
AQUATIC MACROPHYTES	☐	☐	☐	☒
IRON/SULFUR BACTERIA	☒	☐	☐	☐

SAMPLING TEAM: Jacki Champion/Scott Rose

SIGNATURE: Jacki Champion

DATE: 3/10/03

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (December 11, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Substrates: Code key, draw proportionate habitat abundance.

- Snags
- Roots/undercut banks
- Leaf Packs (or mats)
- Macrophytes
- Shell/Rock/Rubble
- _____
- _____

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

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

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		3/10/08	Peace River

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Polk	Whidden Creek @ Pepplet Road	Control Site for USACE Ft Meade 004

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 16	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 20	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 16	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 15 Primary Score 67	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 80	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody machrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

147 **TOTAL SCORE**

ANALYSIS DATE:	ANALYST:	SIGNATURE:
3/10/08	Jacki Champion	Jacki Champion

DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001)
PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		3/10/08	10:00	Hooper Creek / Peace River

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Polk	McCullogh Creek @ RR trestle (old location)	Test Site for USAC Ft Meade 004

RIPARIAN ZONE/STREAM FEATURES

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

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
X		X				Phosphate Mining	

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: >20

LIST & MAP DOMINANT VEGETATION ON BACK

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

ARTIFICIALLY IMPOUNDED ☐ yes more sinuous

HIGH WATER MARK: 1.5 (m above present water level) + 0.5 (present depth in m) = 2.0 (m above bed)

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT

5 m wide		
m/s	0.33 m/s	m/s
0.3 m deep	0.5 m deep	0.3 m deep

1 m / 3/5

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 TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)	8	IIII		SAND			
LEAF PACKS OF MATS	1			MUD/MUCK/SILT	28	IIII	
AQUATIC VEGETATION	36	IIII		OTHER:			
ROCK OR SHELL RUBBLE	26	IIII		OTHER:			
UNDERCUT BANKS/ROOTS	2			DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

4/7/08

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
TOP								
MID-DEPTH	0.2	19.53	7.43	7.87	2301			
BOTTOM								

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

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

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

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

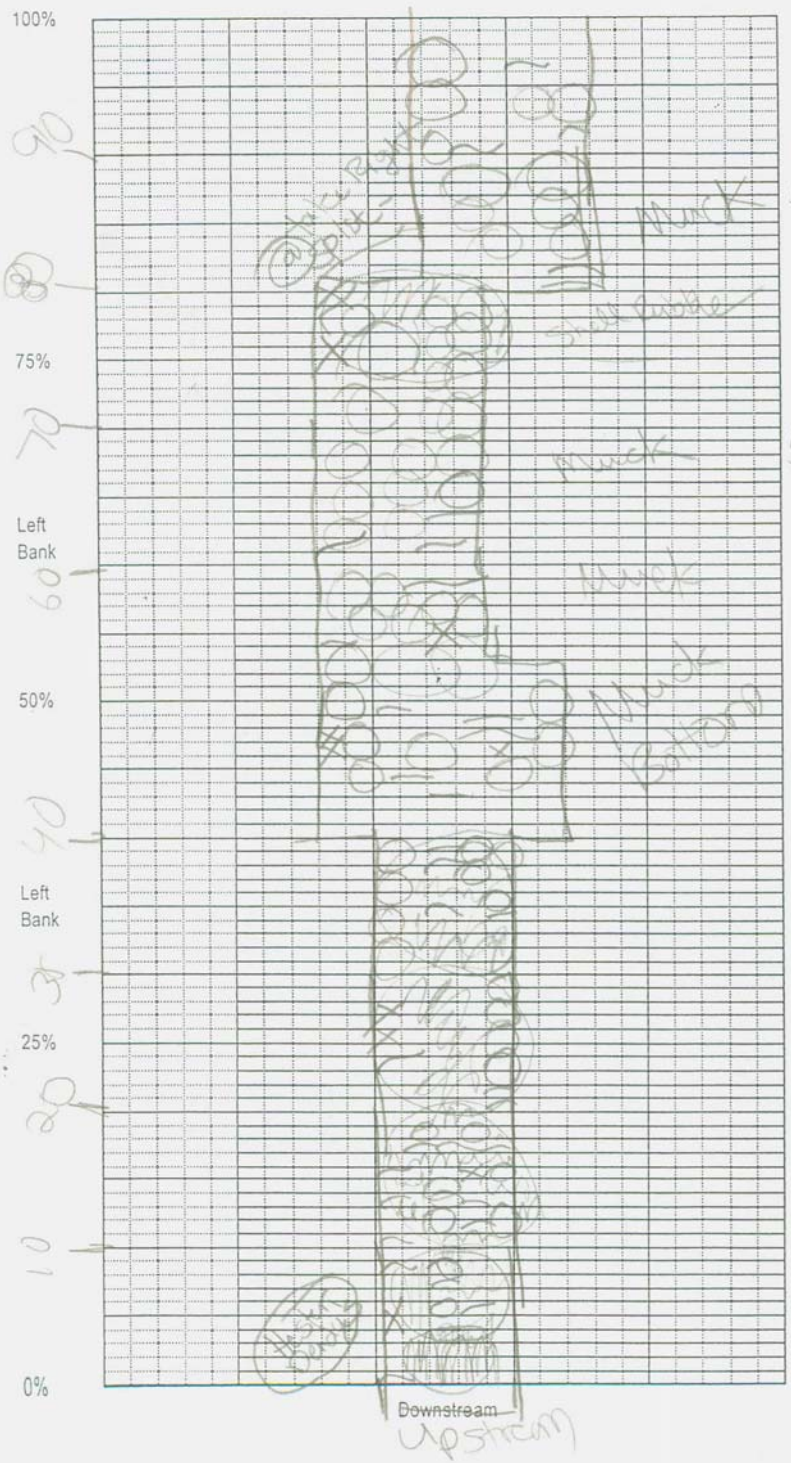
COLOR (CHECK BOX): TANNIC: ☐ GREEN (ALGAE): ☐ CLEAR: ☒ OTHER: ☐

WEATHER CONDITIONS/NOTES: 70s warm Sunny

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Jackie Champion / Scott Rose	Jackie Champion	3/10/08

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (December 11, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Substrates: Code key, draw proportionate habitat abundance.

- Snags 50
- Roots/undercut banks
- Leaf Packs (or mats)
- Macrophytes 217
- Shell Rubble 159
- _____
- _____

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

DEP-SOP-001/01: Form FD 9000-5 (December 11, 2001)

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

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
		3/10/08	Whidden Creek / Peace River

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Polk	McCullough Creek @ old RR trestle	FDEP SOP for USACE Ft Meade QA

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 16	Four or more productive habitats present [snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 (16)	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 20	Greater than 30% productive habitat present at site (20) 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 19	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 (18) 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 3 Primary Score 59	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20% -50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50% -80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent (5) 4 3 2 1
Secondary Habitat Components Artificial Channelization 20	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60% -80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12 to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 20	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of stream bank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less 3 2 1

139 **TOTAL SCORE**

ANALYSIS DATE:	ANALYST:	SIGNATURE:
3/10/08	Jackie Champion	Jackie Champion

Appendix I-1

Taxa list and density (number/mL) for phytoplankton collected from the effluent, a Control Site in Whidden Creek, and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility on 4/7/08.

	Effluent	Control Site	Test Site
Bacillariophyta			
Bacillariophyta	717	4,241	3,177
Chlorophycota			
Ankistrodesmus falcatus	3	606	397
Ankistrodesmus sp.	6	-	-
Chlamydomonas sp.	6	379	99
Chlorella sp.	19	682	893
Chlorococcum sp.	10	76	-
Closterium venus venus	-	-	99
Crucigenia crucifera	-	151	99
Crucigenia quadrata	-	76	-
Crucigenia tetrapedia	-	530	496
Dictyosphaerium pulchellum	-	530	596
Elakatothrix sp.	3	-	-
Elakatothrix viridis	-	76	-
Golenkinia radiata	-	227	298
Kirchneriella contorta	-	303	298
Oocystis sp.	-	76	199
Pediastrum duplex	-	76	99
Pediastrum obtusum	-	-	99
Scenedesmus abundans	-	227	298
Scenedesmus acuminatus	-	76	-
Scenedesmus bicaudatus	-	227	397
Scenedesmus bijuga	-	227	-
Scenedesmus denticulatus	-	76	99
Scenedesmus dimorphus	-	-	893
Scenedesmus quadricauda	6	1,515	1,191
Scenedesmus sp.	3	379	397
Schroederia setigera	-	-	99
Selenastrum minutum	-	76	-
Selenastrum sp.	6	984	2,581
Staurastrum taylorii	-	-	99
Tetraedron caudatum	-	76	-
Tetraedron minimum	-	530	596
Tetraedron muticum	-	76	-
Tetraedron trigonum	-	-	99
Tetrastrum heterocanthum	-	151	99
Cryptophycophyta			
Cryptomonas sp.	6	-	-
Cyanophycota			
Anabaena circinalis	-	-	298
Anabaena sp.	16	303	-
Anabaenopsis circularis	-	379	298
Aphanocapsa sp.	-	-	1,886
Cyanobium parvum	16	-	-
Geitlerinema acutissimum	3	-	-
Jaaginema sp.	67	227	496
Merismopedia tenuissima	-	-	397
Merismopedia warmingiana	-	76	3,276
Microcystis aeruginosa	-	-	496

Appendix I–1 (continued)

	Effluent	Control Site	Test Site
Microcystis sp.	-	76	993
Myxosarcina amethystina	-	76	-
Oscillatoria formosa	6	-	-
Oscillatoria sp.	3	-	-
Planktolyngbya sp.	10	-	-
Planktothrix sp.	3	-	-
Pseudanabaena mucicola	-	-	99
Pseudanabaena sp.	16	-	-
Rhabdogloea sp.	6	6,740	1,787
Romeria sp.	-	-	596
Snowella sp.	-	-	199
Synechocystis sp.	19	833	4,567
Euglenophycota			
Euglena sp.	-	151	-
Lepocinclis sp.	6	76	298
Phacus sp.	-	-	99
Trachelomonas sp.	-	682	596
Pyrrophycophyta			
Glenodinium sp.	-	682	99
Peridinium sp.	-	151	99

Appendix I-2

Taxa list and number of individuals counted for phytoplankton collected from the effluent, a Control Site in Whidden Creek, and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility on 4/7/08.

	Effluent	Control Site	Test Site
Bacillariophyta			
Bacillariophyta	225	56	32
Chlorophycota			
Ankistrodesmus falcatus	1	8	4
Ankistrodesmus sp.	2	-	-
Chlamydomonas sp.	2	5	1
Chlorella sp.	6	9	9
Chlorococcum sp.	3	1	-
Closterium venus venus	-	-	1
Crucigenia crucifera	-	2	1
Crucigenia quadrata	-	1	-
Crucigenia tetrapedia	-	7	5
Dictyosphaerium pulchellum	-	7	6
Elakatothrix sp.	1	-	-
Elakatothrix viridis	-	1	-
Golenkinia radiata	-	3	3
Kirchneriella contorta	-	4	3
Oocystis sp.	-	1	2
Pediastrum duplex	-	1	1
Pediastrum obtusum	-	-	1
Scenedesmus abundans	-	3	3
Scenedesmus acuminatus	-	1	-
Scenedesmus bicaudatus	-	3	4
Scenedesmus bijuga	-	3	-
Scenedesmus denticulatus	-	1	1
Scenedesmus dimorphus	-	-	9
Scenedesmus quadricauda	2	20	12
Scenedesmus sp.	1	5	4
Schroederia setigera	-	-	1
Selenastrum minutum	-	1	-
Selenastrum sp.	2	13	26
Staurastrum taylorii	-	-	1
Tetraedron caudatum	-	1	-
Tetraedron minimum	-	7	6
Tetraedron muticum	-	1	-
Tetraedron trigonum	-	-	1
Tetrastrum heterocanthum	-	2	1
Cryptophycophyta			
Cryptomonas sp.	2	-	-
Cyanophycota			
Anabaena circinalis	-	-	3
Anabaena sp.	5	4	-
Anabaenopsis circularis	-	5	3
Aphanocapsa sp.	-	-	19
Cyanobium parvum	5	-	-
Geitlerinema acutissimum	1	-	-
Jaaginema sp.	21	3	5
Merismopedia tenuissima	-	-	4
Merismopedia warmingiana	-	1	33
Microcystis aeruginosa	-	-	5
Microcystis sp.	-	1	10

Appendix I-2 (continued)

	Effluent	Control Site	Test Site
Myxosarcina amethystina	-	1	-
Oscillatoria formosa	2	-	-
Oscillatoria sp.	1	-	-
Planktolyngbya sp.	3	-	-
Planktothrix sp.	1	-	-
Pseudanabaena mucicola	-	-	1
Pseudanabaena sp.	5	-	-
Rhabdogloea sp.	2	89	18
Romeria sp.	-	-	6
Snowella sp.	-	-	2
Synechocystis sp.	6	11	46
Euglenophycota			
Euglena sp.	-	2	-
Lepocinclis sp.	2	1	3
Phacus sp.	-	-	1
Trachelomonas sp.	-	9	6
Pyrrophycophyta			
Glenodinium sp.	-	9	1
Peridinium sp.	-	2	1

Appendix I-3

Diatom taxa list and number of individuals counted to a target of 500 valves for phytoplankton collected from the effluent, a Control Site in Whidden Creek, and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility on 4/7/08.

	Effluent	Control Site	Test Site
Bacillariophyta			
Bacillariophyceae	2	-	2
Achnanthes exigua	10	2	2
Achnanthes hungarica	2	1	-
Achnanthes rupestoides	2	-	-
Achnanthes sp.	30	7	7
Achnanthidiaceae	-	-	2
Amphora sp.	-	-	7
Amphora veneta	7	-	-
Bacillaria paxillifer	12	4	-
Cocconeis fluviatilis	4	1	-
Cocconeis placentula	1	6	1
Craticula sp.	7	-	1
Cymbella sp.	22	-	-
Cymbellaceae	-	-	11
Diadesmis confervacea	6	-	1
Diadesmis contenta	30	-	-
Diploneis pseudovalis	16	-	-
Diploneis sp.	-	-	1
Eunotia sp.	1	-	-
Gomphonema gracile	1	-	-
Gomphonema grovei	2	-	1
Gomphonema parvulum	8	-	-
Gomphonema sp.	2	-	-
Gyrosigma sp.	2	-	2
Hantzschia amphioxys	1	-	-
Hippodonta hungarica	-	2	-
Hippodonta sp.	2	-	2
Karayevia clevei	-	1	-
Luticola mutica	2	-	-
Luticola sp.	1	-	-
Mastogloia sp.	2	-	-
Navicula cryptocephala	1	-	-
Navicula cryptotenella	-	1	-
Navicula kotschyi	10	-	-
Navicula lanceolata	14	-	-
Navicula minima	8	1	-
Navicula seminulum	15	-	-
Navicula sp.	30	11	2
Naviculaceae	9	-	1
Nitzschia acicularis	-	5	1
Nitzschia amphibia	32	-	-
Nitzschia clausii	2	-	-
Nitzschia dissipata	-	-	1
Nitzschia frustulum	3	-	-
Nitzschia liebethruthii	-	-	1
Nitzschia palea	9	-	-
Nitzschia pumila	1	-	-
Nitzschia reversa	-	-	1
Nitzschia sigma	1	-	-
Nitzschia sp.	124	24	112
Pinnularia sp.	1	-	4

Appendix I-3 (continued)

	Effluent	Control Site	Test Site
Planothidium lanceolatum	11	13	1
Rhoicosphenia sp.	-	2	-
Rhopalodia sp.	1	-	-
Stauroneis sp.	-	-	1
Tryblionella sp.	1	1	-
Coscinodiscophyceae			
Aulacoseira sp.	7	2	27
Cyclostephanos invisitatus	-	349	235
Cyclotella atomus	-	33	18
Cyclotella meneghiniana	8	8	12
Cyclotella pseudostelligera	2	-	6
Cyclotella sp.	-	10	14
Thalassiosira sp.	1	2	5
Fragilariophyceae			
Diatoma sp.	3	-	-
Fragilaria berolinensis	-	-	1
Fragilaria nanana	-	3	8
Fragilariaceae	2	11	9
Staurosira elliptica	27	-	1
Synedra fasciculata	3	-	-

Appendix J-1

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated in Whidden Creek (Control Site) and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility for 28 days and collected on 4/7/08. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Hirudinea		
Gloiobdella elongata	-	3
Helobdella stagnalis	9	-
Helobdella triserialis	12	-
Arthropoda		
Crustacea		
Amphipoda		
Hyalella azteca	122	26
Insecta		
Coleoptera		
Dineutus sp.	8	3
Dubiraphia vittata	8	3
Microcylloepus pusillus	5	170
Staphylinidae	-	8
Stenelmis sp.	130	272
Diptera		
Ablabesmyia (karelia) grp.	6	-
Ablabesmyia mallochi	20	-
Atrichopogon sp.	37	-
Corynoneura sp.	-	6
Cricotopus bicinctus	-	17
Glyptotendipes sp.	-	8
Goeldichironomus holoprasinus	-	3
Hemerodromia sp.	-	296
Nanocladius sp.	6	-
Pentaneura inconspicua	48	221
Pericoma sp.	-	3
Polypedilum beckae	-	11
Polypedilum fallax	-	3
Polypedilum flavum	67	71
Polypedilum scalaenum grp.	11	-
Rheotanytarsus exiguus grp.	20	-
Rheotanytarsus pellucidus	-	3
Stempellinella fimbriata	3	-
Stenochironomus sp.	-	8
Tanytarsus sp. A Epler	9	-
Tanytarsus sp. C Epler	36	3
Tanytarsus sp. L Epler	24	6
Tanytarsus sp. T Epler	149	3
Thienemanniella sp.	-	17
Tribelos fuscicornis	25	28
Ephemeroptera		
Baetis intercalaris	-	3
Caenis sp.	16	-
Callibaetis sp.	3	-
Heptageniidae	3	-
Tricorythodes albilineatus	-	24

Appendix J-1 (continued)

	Control Site	Test Site
Megaloptera		
Corydalus cornutus	-	21
Odonata		
Coenagrionidae	-	3
Enallagma sp.	13	-
Trichoptera		
Cernotina sp.	-	16
Cheumatopsyche sp.	336	1,334
Hydropsyche sp.	-	161
Hydroptila sp.	3	276
Nectopsyche sp.	-	3
Neotrichia sp.	-	30
Oxyethira sp.	-	3
Mollusca		
Gastropoda		
Amnicola dalli johnsoni	693	-
Ancylidae	-	3
Hebetancylus excentricus	45	-
Physa sp.	-	25
Physidae	11	-
Planorbella duryi	-	11
Pyrgophorus platyrachis	-	149

Appendix J-2

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples) incubated in Whidden Creek (Control Site) and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility for 28 days and collected on 4/7/08.

	Control Site	Test Site
Annelida		
Hirudinea		
Gloiobdella elongata	-	1
Helobdella sp.	1	-
Helobdella stagnalis	3	-
Helobdella triserialis	4	-
Arthropoda		
Crustacea		
Amphipoda		
Hyalella azteca	46	10
Insecta		
Coleoptera		
Dineutus sp.	3	1
Dubiraphia vittata	3	1
Elmidae	-	6
Microcylloepus pusillus	2	62
Staphylinidae	-	3
Stenelmis sp.	49	99
Diptera		
Ablabesmyia (karelia) grp.	2	-
Ablabesmyia mallochi	7	-
Atrichopogon sp.	9	-
Ceratopogonidae	5	-
Chironomidae	8	5
Corynoneura sp.	-	2
Cricotopus bicinctus	-	6
Empididae	-	1
Glyptotendipes sp.	-	3
Goeldichironomus holoprasinus	-	1
Hemerodromia sp.	-	111
Nanocladius sp.	2	-
Pentaneura inconspicua	17	81
Pericoma sp.	-	1
Polypedilum beckae	-	4
Polypedilum fallax	-	1
Polypedilum flavum	24	26
Polypedilum scalaenum grp.	4	-
Rheotanytarsus exiguus grp.	7	-
Rheotanytarsus pellucidus	-	1
Stempellinella fimbriata	1	-
Stenochironomus sp.	-	3
Tanytarsus sp.	5	-
Tanytarsus sp. A Epler	3	-
Tanytarsus sp. C Epler	12	1
Tanytarsus sp. L Epler	8	2
Tanytarsus sp. T Epler	50	1
Thienemanniella sp.	-	6
Tribelos fuscicornis	3	10
Tribelos sp.	6	-

Appendix J-2 (continued)

	Control Site	Test Site
Ephemeroptera		
Baetis intercalaris	-	1
Caenis sp.	6	-
Callibaetis sp.	1	-
Heptageniidae	1	-
Tricorythodes albilineatus	-	9
Megaloptera		
Corydalus cornutus	-	8
Odonata		
Coenagrionidae	4	1
Enallagma sp.	1	-
Trichoptera		
Cernotina sp.	-	4
Cheumatopsyche	127	274
Hydropsyche sp.	-	33
Hydropsychidae	-	246
Hydroptila sp.	1	102
Nectopsyche sp.	-	1
Neotrichia sp.	-	11
Oxyethira sp.	-	1
Polycentropodidae	-	2
Undetermined Trichoptera	-	15
Mollusca		
Gastropoda		
Amnicola dalli johnsoni	262	-
Ancylidae	11	1
Hebetancylus excentricus	6	-
Hydrobiidae	-	37
Physa sp.	-	9
Physidae	4	-
Planorbella duryi	-	1
Planorbella sp.	-	3
Pyrgophorus platyrachis	-	17
Undetermined Gastropoda	-	3

Appendix K-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted in Whidden Creek (Control Site) and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility on 4/7/08. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Hirudinea				
Helobdella stagnalis	3	1	-	-
Helobdella triserialis	-	-	-	2
Oligochaeta				
Aeolosoma sp.	-	-	2	1
Aulodrilus pigueti	3	2	-	-
Dero digitata complex	-	-	2	-
Dero flabelliger	3	1	-	-
Limnodrilus hoffmeisteri	-	-	5	2
Pristina sp.	-	-	1	3
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	-	12	5	10
Decapoda				
Procambarus sp.	-	-	1	-
Insecta				
Coleoptera				
Dubiraphia vittata	9	10	-	1
Microcylloepus pusillus	1	-	5	2
Stenelmis sp.	12	14	16	23
Diptera				
Ceratopogonidae	-	1	1	-
Cricotopus sp. or *Orthocladius* sp.	-	-	1	-
Endotribelos hesperium	-	-	2	-
Hemerodromia sp.	-	-	1	1
Labrundinia johannseni	1	-	-	-
Parachironomus sp.	-	-	3	-
Polypedilum halterale grp.	-	2	-	-
Polypedilum illinoense grp.	-	2	-	-
Stenochironomus sp.	1	-	-	-
Tanytarsus sp. L Epler	-	2	-	-
Ephemeroptera				
Caenis sp.	4	1	-	-
Pseudocloeon sp.	1	1	-	-
Tricorythodes albilineatus	-	1	-	1
Odonata				
Argia sp.	-	-	-	1
Argia sedula	-	1	-	-
Enallagma sp.	-	1	-	-
Trichoptera				
Cheumatopsyche sp.	3	3	9	11
Hydropsyche sp.	-	-	2	-
Hydroptila sp.	-	-	13	9
Nectopsyche sp.	-	-	2	1
Neotrichia sp.	-	1	3	6
Neureclipsis crepuscularis	-	-	4	1

Appendix K-1 (continued)

		Control Site		Test Site	
		Rep 1	Rep 2	Rep 1	Rep 2
	Oecetis inconspicua cmplx.	6	1	-	-
	Oecetis sp. E Floyd	-	2	3	-
	Oxyethira sp.	-	-	-	1
Mollusca					
Bivalvia					
	Corbicula fluminea	-	-	1	5
	Sphaeriidae	4	2	-	-
Gastropoda					
	Amnicola sp.	76	60	-	-
	Ferrissia sp.	2	3	-	-
	Laevapex sp.	1	1	-	-
	Physa sp.	2	3	-	-
	Planorbella sp.	-	1	2	1
	Pseudosuccinea columella	1	-	-	-
	Pyrgophorus platyrachis	16	21	63	69
Nemertea					
	Undetermined Nemertea	-	-	1	1
Platyhelminthes					
	Undetermined Platyhelminthes	-	-	2	-

Appendix K-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted in Whidden Creek (Control Site) and a Test Site in McCullough Creek downstream of the USAC Fort Meade facility on 4/7/08.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Hirudinea				
Helobdella stagnalis	3	1	-	-
Helobdella triserialis	-	-	-	2
Oligochaeta				
Aeolosoma sp.	-	-	2	1
Aulodrilus pigueti	2	1	-	-
Dero digitata complex	-	-	1	-
Dero flabelliger	3	1	-	-
Limnodrilus hoffmeisteri	-	-	2	1
Naididae	-	-	1	-
Pristina sp.	-	-	1	3
Tubificidae	1	1	3	1
Arthropoda				
Crustacea				
Amphipoda				
Hyalella azteca	-	12	5	10
Decapoda				
Procambarus sp.	-	-	1	-
Insecta				
Coleoptera				
Dubiraphia vittata	9	10	-	1
Elmidae	-	-	3	1
Microcylloepus pusillus	1	-	4	2
Stenelmis sp.	12	14	14	22
Diptera				
Ceratopogonidae	-	1	1	-
Chironomidae	-	2	2	-
Cricotopus sp. or *Orthocladius* sp.	-	-	1	-
Endotribelos hesperium	-	-	1	-
Hemerodromia sp.	-	-	1	1
Labrundinia johannseni	1	-	-	-
Parachironomus sp.	-	-	1	-
Polypedilum halterale grp.	-	1	-	-
Polypedilum illinoense grp.	-	2	-	-
Stenochironomus sp.	1	-	-	-
Tanytarsus sp. L Epler	-	1	-	-
Undetermined Diptera	-	-	1	-
Ephemeroptera				
Caenis sp.	4	1	-	-
Pseudocloeon sp.	1	1	-	-
Tricorythodes albilineatus	-	1	-	1
Odonata				
Argia sp.	-	-	-	1
Argia sedula	-	1	-	-
Enallagma sp.	-	1	-	-
Trichoptera				
Cheumatopsyche sp.	2	3	9	10
Hydropsyche sp.	-	-	2	-
Hydroptila sp.	-	-	12	8

Appendix K-2 (continued)

		Control Site		Test Site	
		Rep 1	Rep 2	Rep 1	Rep 2
	Nectopsyche sp.	-	-	2	1
	Neotrichia sp.	-	1	3	5
	Neureclipsis crepuscularis	-	-	3	1
	Oecetis inconspicua cmplx.	5	1	-	-
	Oecetis sp. E Floyd	-	2	3	-
	Oxyethira sp.	-	-	-	1
	Polycentropodidae	-	-	1	-
	Undetermined Trichoptera	2	-	-	-
Mollusca					
Bivalvia					
	Corbicula fluminea	-	-	1	5
	Sphaeriidae	4	2	-	-
Gastropoda					
	Amnicola sp.	76	60	-	-
	Ferrissia sp.	2	3	-	-
	Laevapex sp.	1	1	-	-
	Physa sp.	2	3	-	-
	Planorbella sp.	-	1	2	1
	Pseudosuccinea columella	1	-	-	-
	Pyrgophorus platyrachis	16	21	61	68
	Undetermined Gastropoda	-	-	2	1
Nemertea					
	Undetermined Nemertea	-	-	1	1
Platyhelminthes					
	Undetermined Platyhelminthes	-	-	2	-

The Bioassay of the US Agri-Chemicals Corporation- Fort Meade Chemical Complex effluent sampled on April 7, 2008, NPDES #FL0001902

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 9 0 2 11	12 0 8 0 4 0 7	18 **B**	19 **S**	20 2

Remarks

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The Priority Pollutants Analysis for Bioassay of the US Agri-Chemicals Corporation - Fort Meade Chemical Complex effluent sampled on April 7, 2008, NPDES #FL0001902

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 9 0 2 11	12 0 8 0 4 0 7	18 **X**	19 **S**	20 2

Remarks

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Biological Analyses of the US Agri-Chemicals Corporation - Fort Meade Chemical Complex effluent sampled on April 7, 2008, NPDES #FL0001902

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 9 0 2 11	12 0 8 0 4 0 7	18 **S**	19 **S**	20 2

Remarks

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