

Effluent Quality Assessment

Pilgrim's Pride Processing Plant

Suwannee County

NPDES #FL0001465

Sampled August 8, 10 and 12, 2011

February 2012

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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Pilgrim's Pride Processing Plant, 19470 US Hwy 90 West, Live Oak, Suwannee County, Florida, 32064. NPDES #FL0001465. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on August 8, 2011. Effluent composite samples for bioassay analyses were collected on August 8, 10 and 12, 2011.

Introduction

The Pilgrim's Pride Processing Plant facility processes live poultry into fresh and frozen chicken meat products, operates a broiler hatchery to produce chicks for distribution to growers, and processes poultry by-products into poultry meat, poultry fat and other animal feed products. The facility operates a 1.5 MGD monthly average daily flow permitted discharge wastewater treatment facility providing treatment for process wastewater, sanitation wastewater and stormwater. (See Appendix F for pages 1-9 of the facility's NPDES permit.)

Methods

Samples were collected from the EFF-1 NPDES sampling points (EFF-1 weir and EFF-1 manhole) for Outfall D-001 by Eesa Ali and Sharon Piltz (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/bars/sas/sop/index.htm.

See Appendix A for the completed chain of custody form.

The chronic toxicity tests and algal growth potential (AGP) test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Results and Discussion

- **Toxicity Test Results**
  Tests performed August 9 - 16, 2011.

  Ceriodaphnia dubia 7-day chronic definitive bioassay – reproduction IC25 = > 100%

  Pimephales promelas 7-day chronic definitive bioassay – growth IC25 = > 100%

  The bioassay samples were not toxic to the *Ceriodaphnia dubia* or to the *Pimephales promelas* test organisms.

  See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

- **Algal Growth Potential**
  The effluent Algal Growth Potential (AGP) was 136 A mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen limited. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test with associated nutrient chemistry should be performed (Miller et al. 1978).

  See Tables 1 for AGP results and qualifiers.

- **Chemistry Results**
  Total residual chlorine (TRC) was not detected in the bioassay samples in the bioassay laboratory. TRC was detected in the effluent samples collected from the EFF-I weir sampling point on August 8, 2011 (0.02 mg/L) and August 10, 2011 (0.05 mg/L), but was not detected in the effluent collected from the weir on August 12, 2011 (0.0 mg/L). TRC was not measured at the EFF-1 manhole sampling point (located downstream of the weir but prior to surface water discharge) on August 8, 2011, but did not exceed permitted limits (≤ 0.01 mg/L) or Class III freshwater criterion (≤ 0.01 mg/L) in the effluent collected from the EFF-1 manhole on August 10 (TRC 0.01 mg/L) and August 12, 2011 (TRC 0.01 mg/L).

  Total ammonia was not detected in the bioassay samples in the bioassay laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.086 mg N/L. The total ammonia concentration in the grab sample collected and preserved for chemical analysis was 0.056 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the unionized ammonia concentration in the composite sample and the grab sample was < 0.02 mg N/L.

  Arsenic, copper, nickel and zinc were detected in the effluent at levels that comply with Class III freshwater quality criteria (62-302.530, F.A.C.). Aluminum and iron were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Effluent total suspended solids, carbonaceous biochemical oxygen demand and total Kjeldahl nitrogen concentrations were in compliance with permitted limits.

  See Table 2 for results of analytes detected in the effluent, corresponding limits, and qualifiers. See Appendix E for a complete list of chemical analyses performed. See Appendix B for bioassay lab equipment.

Conclusion

The effluent samples collected from the EFF-1 NPDES sampling point for Outfall D-001 for this facility on August 8, 10 and 12, 2011, were not chronically toxic to the *Ceriodaphnia dubia* or the *Pimephales promelas* test organisms. The effluent AGP results were greater than the "problem" thresholds for fresh receiving waters suggesting that it is nutrient enriched.

Effluent water quality samples collected on August 8, 2011, did not exceed any applicable water quality standards or limits found in NPDES permit #FL0001465.

Literature Cited

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.

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.

Table 1. 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 for samples collected from the Pilgrim's Pride Processing Plant on August 8, 2011.

Pilgrim's Pride Processing Plant					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
EFF-1	136.0 A	249.1 ± 49.8	300.2 ± 60.0	1.1	1.2

Table 2. Effluent limits, Class III Freshwater Criteria and chemical, microbiological and field parameter data for samples collected from the Pilgrim's Pride Processing Plant on August 8, 10 and 12, 2011.

Pilgrim's Pride Processing Plant NPDES# FL0001465	Class III Criteria	Effluent Limits	EFF-1 Composite Samples collected 8/8/2011	EFF-1 Grab Samples collected 8/8/2011
Organic Constituents (µg/L) None Detected				
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	-	5.3 I
Arsenic	≤ 50	-	-	1.67
Cadmium	≤ 0.53 b	-	-	0.05 U
Calcium (mg/L)	-	-	-	57.2
Chromium-III	≤ 179.50 b	-	-	0.3 U
Copper	≤ 20.06 b	-	-	5.44
Iron	≤ 1,000	-	-	35 I
Lead	≤ 9.95 b	-	-	0.2 U
Magnesium (mg/L)	-	-	-	24.8
Nickel	≤ 111.31 b	-	-	1.92
Selenium	≤ 5.0	-	-	0.2 U
Silver	≤ 0.07	-	-	0.025 U
Zinc	≤ 255.97 b	-	-	62
Nutrients (mg/L)				
Ortho-phosphate	-	-	-	6.2
Total Phosphorus	-	Report	7.1	6.7
Total Ammonia	-	Report	0.086	0.056
Un-ionized Ammonia	≤ 0.02 s	-	-	≤ 0.02 c
Nitrate and Nitrite	-	Report	6.5	11
Total Kjeldahl Nitrogen	-	≤ 15.0 p	1.4	1.5
Organic Nitrogen	-	-	1.314 c	1.444 c
Total Nitrogen	-	Report	7.9 c	12.5 c

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

c - Value is calculated

p - 24 hour flow proportioned composite

s - Single sample

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

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

Table 2. continued

Pilgrim's Pride Processing Plant NPDES# FL0001465	Class III Criteria	Effluent Limits	EFF-1 Composite Samples collected 8/8/2011	EFF-1 Grab Samples collected 8/8/2011	EFF-1 collected 8/10/2011	EFF-1 collected 8/12/2011
General Physical and Chemical Parameters						
Dissolved Oxygen (mg/L)	≥ 5.0 s	≥ 5.0 s	-	5.2	5.3	6.0
pH (SU)	6.0 - 8.5 s	6.0 - 8.5 s	-	7.3	7.3	7.1
Conductivity (µmhos/cm)	≤ 1,275 s	≤ 1,275 p	-	1141	1013	1059
Temperature (°C)	-	Report	3.4	30.4	29.7	30.1
Sample Depth (m)	-	-	-	0.1	0.3	0.3
Total Residual Chlorine (mg/L)	≤ 0.01 s	≤ 0.01 s	-	0.02	0.01	0.01
Chlorophyll *a* (µg/L) - Corrected	-	-	-	4.4	-	-
Phaeophytin (µg/L)	-	-	-	3	-	-
Total Suspended Solids (mg/L)	-	≤ 46.2 p	6 I	-	-	-
CBOD, 5 day (mg/L), N - inhibited	-	≤ 24.3 p	15 Q	-	-	-
Oils and Greases (mg/L)	≤ 5.0 s	≤ 5.0 s	-	0.7 U	-	-
Chloride (mg/L)	-	-	110	-	-	-
Fluoride (mg/L)	≤ 10.0 s	-	0.035 U	-	-	-
Sulfate (mg/L)	-	-	60	-	-	-
Flow (MGD) (9/1/10 - 8/31/11)	-	≤ 1.5 MDAF	1.365 MDAF	-	-	-
Hardness (mg $CaCO_3$)	-	-	-	244.95 c	-	-
Microbiology (Number of colony forming units/100ml)						
Fecal Coliforms ¥	≤ 400 s #	≤ 200 s	-	6	-	-

Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated

MDAF - Monthly Daily Average Flow

p - 24 hour flow proportioned composite

s - Single sample

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

Q - Sample held beyond normal holding time

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

¥ - Fecal coliform analysis performed by Flowers Laboratory, Madison lab

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2011-08-08-25
FYI3 Sampling Inspection for Pilgrim's Pride Processing

Requester: Edward Smith
Field Report Prepared By: E. Ali
Collected By: E. Ali / S. Piltz
Send Final Report To: Tom Kallemeyn
Sampling Agency: DEP NED

Customer: NE-DIST
Project ID: FYI3
PMAS: 1143

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Pilgrim's Pride Eff-1 manhole	NR	8.8.11 944		C (6 bottles)
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 5.41	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) effluent	Temp (C) 30.27	pH 7.33	Sample Depth 0.1 ☑ m ☐ ft	Salinity (PPTh) ☐ Sp Conductance (umho/cm) 926	NPDES Number FL0001465
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments no samples		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Pilgrim's Pride Eff-1 weir	☐ Comp ☐ Grab	8.7.11 800	8.8.11 605	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C) 30.40C	pH	Sample Depth ☐ m ☐ ft	Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments Composite Tox, nutrients, BOD, TSS picked up @ 3.4°C		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Pilgrim's Pride Eff-1 weir	☐ Comp ☐ Grab	8.8.11 1015		A
	Field ID	Tot Res Chlorine (mg/L) 0.02	Diss Oxygen (mg/L) 5.21	Storet Station Number	
	effluent	Temp (C) 30.40	pH 7.29	Sample Depth 0.1 ☐ m ☐ ft	Salinity (PPTh) ☐ Sp Conductance (umho/cm) 1141	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments Grab metals, nutrients, phosphate BNA, PEST, O+Grease.		

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Blank	☐ Comp ☑ Grab	8.8.11 1000		B
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments 2 Dioxssay Rec'd in Tox by J.D. 2:19 8.8.11		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	8.8.11 1243	Self						8/8/11 1243

* Shaded Areas for Lab use only.

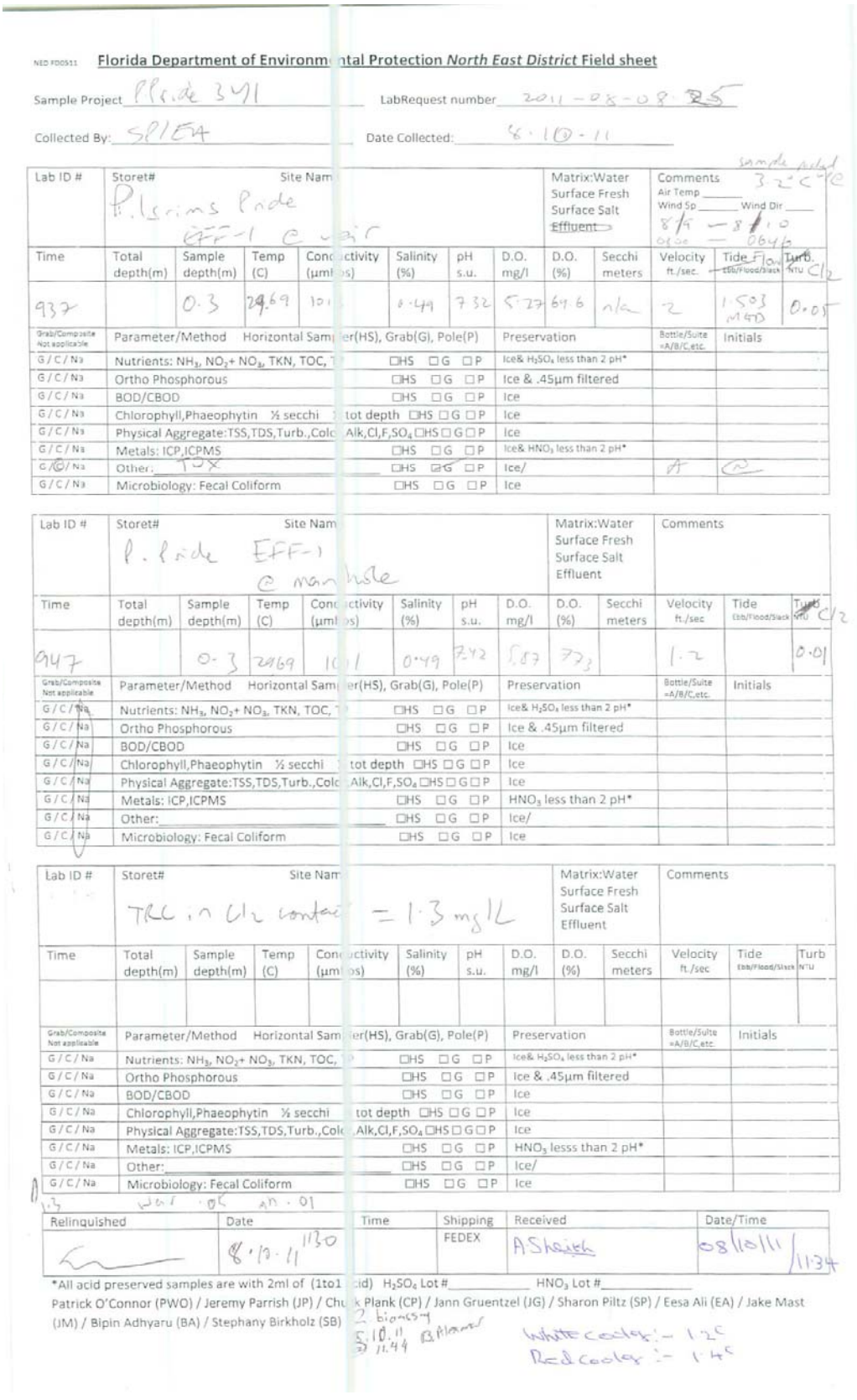
** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Page 1 of 3

Collection Date and time taken from bottle per FL0001465 P. Pride Eff 1

Appendix A. continued



NED FD0511 **Florida Department of Environmental Protection *North East District* Field sheet**

Sample Project Pilgrims Pride 341 LabRequest number 2011-08-08-RS

Collected By: SPIEA Date Collected: 8-10-11

Lab ID #	Storet# Site Nam									Matrix:Water Surface Fresh Surface Salt Effluent	Comments Air Temp ___ Wind Sp ___ Wind Dir ___ 8/5 — 8/10 0800 — 0645 sample pulled 3.2°C Cl2
	Pilgrims Pride EFF-1 @ weir										
Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec.	Tide Ebb/Flood/Slack	Turb. NTU
937		0.3	29.69	101	0.49	7.32	5.27	69.6	n/a	-2	1.503 MSD	0.05

Grab/Composite Not applicable	Parameter/Method Horizontal Sam	er(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC,	☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi	tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Colo	Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	Ice& HNO_3 less than 2 pH*		
G / C / Na	Other: TOX	☐HS ☑G ☐P	Ice/	A	CA
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

Lab ID #	Storet# Site Nam									Matrix:Water Surface Fresh Surface Salt Effluent	Comments
	P. Pride EFF-1 @ manhole										
Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb. NTU
947		0-3	29.69	101	0.49	7.42	5.87	77.3		1.2		0.01

Grab/Composite Not applicable	Parameter/Method Horizontal Sam	er(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC,	☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi	tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Colo	Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	HNO_3 less than 2 pH*		
G / C / Na	Other:	☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

Lab ID #	Storet# Site Nam									Matrix:Water Surface Fresh Surface Salt Effluent	Comments
	TRC in Cl2 contact = 1.3 mg/L										
Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb NTU

Grab/Composite Not applicable	Parameter/Method Horizontal Sam	er(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC,	☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous	☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD	☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi	tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Colo	Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS	☐HS ☐G ☐P	HNO_3 lesss than 2 pH*		
G / C / Na	Other:	☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform	☐HS ☐G ☐P	Ice		

1.3 wer .05 an .01

Relinquished	Date	Time	Shipping	Received	Date/Time
	8.10.11 1130		FEDEX	A Sheikh	08/10/11 1134

*All acid preserved samples are with 2ml of (1to1 id) H_2SO_4 Lot #_____ HNO_3 Lot #_____

Patrick O'Connor (PWO) / Jeremy Parrish (JP) / Chu k Plank (CP) / Jann Gruentzel (JG) / Sharon Piltz (SP) / Eesa Ali (EA) / Jake Mast (JM) / Bipin Adhyaru (BA) / Stephany Birkholz (SB)

2 biomass
5.10.11 B Adams
11.44

White cooler:- 1.2°C
Red cooler :- 1.4°C

Appendix A. continued

NED FD0511 **Florida Department of Environmental Protection *North East District* Field sheet**

Sample Project ~~Effluent~~ Pilgrims Pride 341 LabRequest number 2011-08-08-25

Collected By: _____ Date Collected: COMP: START 08-11-2011 08:00 COMP: END 08-12-2011 07:21

TRC in CC = 1.07

Lab ID #	Storet#	Site Name Pilgrims Pride @ EFF1 @ Weir	Matrix: Water / Surface Fresh / Surface Salt / ~~Effluent~~	Comments TRC = 0.0 Air Temp _____ Wind Sp _____ Wind Dir _____ 2.3 °C and 721 gpm

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec.	Tide Ebb/Flood/Slack	Turb. NTU
920		0.3	30.07	1059	0.52	7.14	5.95	78.7	—	—	—	—

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP ☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous ☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD ☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi ½ tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS ☐HS ☐G ☐P	Ice& HNO_3 less than 2 pH*		
G / C / Na	Other: TOC ☐HS ☑G ☐P	Ice/	A	
G / C / Na	Microbiology: Fecal Coliform ☐HS ☐G ☐P	Ice		

Lab ID #	Storet#	Site Name Pilgrims Pride EFF1 @ Manhole	Matrix: Water / Surface Fresh / Surface Salt / ~~Effluent~~	Comments TRC = 0.01

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb NTU
0940		0.3	30.08	1066	0.52	7.27	6.23	82.7	—	—	—	—

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP ☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous ☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD ☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi ½ tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS ☐HS ☐G ☐P	HNO_3 less than 2 pH*		
G / C / Na	Other: ☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform ☐HS ☐G ☐P	Ice		

Lab ID #	Storet#	Site Name	Matrix: Water / Surface Fresh / Surface Salt / Effluent	Comments

Time	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec	Tide Ebb/Flood/Slack	Turb NTU

Grab/Composite Not applicable	Parameter/Method Horizontal Sampler(HS), Grab(G), Pole(P)	Preservation	Bottle/Suite =A/B/C,etc.	Initials
G / C / Na	Nutrients: NH_3, NO_2+ NO_3, TKN, TOC, TP ☐HS ☐G ☐P	Ice& H_2SO_4 less than 2 pH*		
G / C / Na	Ortho Phosphorous ☐HS ☐G ☐P	Ice & .45µm filtered		
G / C / Na	BOD/CBOD ☐HS ☐G ☐P	Ice		
G / C / Na	Chlorophyll,Phaeophytin ½ secchi ½ tot depth ☐HS ☐G ☐P	Ice		
G / C / Na	Physical Aggregate:TSS,TDS,Turb.,Color,Alk,Cl,F,SO_4 ☐HS ☐G ☐P	Ice		
G / C / Na	Metals: ICP,ICPMS ☐HS ☐G ☐P	HNO_3 lesss than 2 pH*		
G / C / Na	Other: ☐HS ☐G ☐P	Ice/		
G / C / Na	Microbiology: Fecal Coliform ☐HS ☐G ☐P	Ice		

Relinquished	Date	Time	Shipping	Received	Date/Time
	8/12/11 HTF	1117	FEDEX	ADP	08/12/11 11:17

*All acid preserved samples are with 2ml of (1to1 acid) H_2SO_4 Lot #_____ HNO_3 Lot #_____ Temp. 1.2C 2-8C 3.1C

Patrick O'Connor (PWO) / Jeremy Parrish (JP) / Chuck Plank (CP) / Jann Gruentzel (JG) / Sharon Piltz (SP) / Eesa Ali (EA) / Jake Mast (JM) / Bipin Adhyaru (BA) / Stephany Birkholz (SB)

2.38 1545 SAR

Collection time from Sample container: AR 8-12-2011

Appendix B. Bench Sheets

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia

Facility: P. Lgnims Pride
Address: US Highway 90 West Live Oak
County: Suwannee
NPDES Permit #: FL 0001465
Contact/District: Essa Ali / Northeast

LIMS entry: 9-7-11 MF verified: 9.7.11. KC

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

Organism: *Ceriodaphnia dubia*
Organism Batch #: 8-9-11
Organism age : 24 hours
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 5-5-11 5-5-11
Chamber size : 30 ml
Sample volume : 20 ml

Diluent/ Batch: 20% DMW 7.29.11 Test Days Used: 0-1
20% DMW 8.6.11 Test Days Used: 1-6
20% DMW# 8.9.11 used 6-8 -KC-

Sample Received	LAB Sample #	LIMS JOB #	LIMS SAMPLE #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2011-08-08-03	1369511	8-8-11 / 0605	8-8-11 / 1419
Test Day 2	2	TLH-2011-08-10-47	1370098	8.10.11 / 0646	8.10.11 / 1134
Test Day 4	3	TLH-2011-08-12-41	1370755	8.12.11 / 0724	8.12.11 / 1117

Batch #	7.29.11	8.6.11	NA	NA	NA	8.9.11		
Water Quality Parameters	20% DMW	20% DMW	Sample 1	Sample 2	Sample 3	DMW ~~Other:~~ KC	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	not measured	0.05	0.00	NA	EA	KC
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	JD/KC	KC
Alkalinity (mg/L as $CaCO_3$):	78	84	175	189	272	82	KC	KC
Hardness (mg/L as $CaCO_3$):	81	86	223	282	336	83	KC	KC
Total Ammonia (mg/L as N):	<0.017	<0.017	0.055	<0.017	0.051	<0.017	BA/MF	KC
Conductivity: ~~µmhos~~ mmhos:	180	176	~~1045~~ (A)	935	1045	178	MF/KC	KC
Salinity (ppth):								~~KC~~ KC

Test Incubated in: Incubator #: 2

Temperature Shipped ≤ 6° C (all samples) (yes) no
Holding Time ≤ 36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.6 max. 27.5 mean —
Room B246 min. 24.4 max. 26.6 mean —
Test min. ____ max. ____ mean ____

Loaded by: BA

Test Replicates	Loaded from culture vial
1	B 8
2	A1
3	A 29
4	B 29
5	A 17
6	B2
7	A 6
8	A 25
9	B 18
10	A 16

Results	
Control % CV:	51.8%
Dunnetts PMSD:	51.18%
Reproduction NOEC:	100 %
Reproduction LOEC:	>100%
Survival NOEC:	100 %
Survival LOEC:	>100%
ICP_{20}:	>100%
ICP_{25}:	>100%

Investigators' signatures
Marshall Faircloth
Brian Hafer
KARA LOY
Jenna Davis
Elizabeth Miller
REVIEWER

Comments: (A) 897 -KC-
MF 9-1-11 incorrect interpretation of method.
~~Test invalid due to male (25%) in control~~ Facility Permitted for IC25
MF 9-7-11

Appendix B. continued

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: P. Lgnims Pnds

LIMS Sample #: 136951 for lab sample #1

Start Date: 8.9.11 Time: 8:55

End Date: 8.17.11 Time: 1000

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	–	10	0
	3	4	0	5	5	5	0	0	5	6	0	30	10	3.0
	4	7	0	7	0	0	0	0	7	7	0	28	10	2.8
	5	3	0	0	5	0	0	0	8	0	0	16	10	1.6
	6	0	2	4	0	0	0	0	0	8†	0	6	10	0.6
	7	6*	7	6*	4	0	0	0	17*	12	0	24	10	2.4
	8	13	10	0	0	5	0	0	11	11	mX	15	9	1.5
	Total	14	19	16	14	10	male	male	20	26	DX	119	9	11.9

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
6.25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	–	10	0
	3	4	0	3	3	0	0	3	6	1‡	4	23	10	2.3
	4	10	0	6	0	0	0	0	6	7	7	37	10	3.7
	5	4	0	0	0	0	0	0	10	0	0	14	10	1.4
	6	0	0	4	0	0	0	0	0	4	10	18	10	1.8
	7	13†	0	10*	0	0	0	0	14*	13	17*	13	10	1.3
	8	15	0	0	0	0	0	0	16	16	3	–	10	–
	Total	18	male	13	3	male	male	3	22	25	21	105	10	10.5

Organisms loaded by: BA

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

Surviving Adults

Concentration	Mean neonates /adult	% survival
Control	17	90%
6.25%	15	100%
12.50%	13.1	90%
25%	15.9	100%
50%	17.7	100%
100%	18.1	100%

Test acceptability	Surviving MF 8-18-11
Mean control reproduction 15/female	(yes) no
3rd brood in 60% of surviving females	(yes) no
Control survival ≥ 80%:	(yes) no

Comments: * 4th brood, not included (S) split brood

m – Control rep 10 day 8 missing MF 8-17-11 presumed dead.

9-28-11 4th Brood ~~lost~~ not counted in any concentrations MF

*Day 0 is test initiation day

X = Dead (original organism)

Test Page 2 of 6

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Appendix B. continued

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

Facility: Pilgrims Pride

LIMS Sample #: 136951I for lab sample #1

Start Date: 8-9-11 Time: 0855

End Date: 8.17.11 Time: 1000

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
12.50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	X	–	9	0
	3	6	9	6	4	5	5	4	2	5		41	9	4.1
	4	7	3	5	2	6	4	6	6	1		40	9	4.0
	5	8	0	11	1	10	10	5	0	0		45	9	4.5 ~~0.5~~ mF
	6	0	1	0	0	0	0	0	2	2		5	9	~~0.5~~
	7	11*	0	15*	3*	17*	19*	11*	0	0		–	9	–
	8	17	1	13	0	16	18	12	0	0		–	9	–
	Total	21	8	22	7	21	19	15	10	8	0	131	9	13.1

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	6	4	5	4	2	4	5	5	0	39	10	3.9
	4	7	8	8	3	5	4	8	10	7	0	60	10	6.0
	5	0	9	6	1	4	5	0	4	7	0	36	10	3.6
	6	4	0	0	0	0	0	0	0	0	0	4	10	0.4
	7	4*	3*	9*	0	0	5*	4	1*	9*	0	4	10	0.4
	8	2	5	17	2	2	14	8	9	13	0	–	10	mF –
	Total	15	23	18	9	13	11	16	19	19	male	143	10	~~14~~ 15.9

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*												10	
	1												10	
	2	0	0	0	0	0	0	2X 0	0	0	0	–	10	0
	3	5	5	5	6	0	5	5	0	3	X*	34	10	3.4
	4	10	4	7	5	5	11	8	0	11	1*	62	10	6.2
	5	9	0	11	0	3	9	8	0	0	1	41	10	4.1
	6	0	6	10	4	0	0	0	0	0	5	15	10	1.5
	7	1*	3*	1*	1*	2	4*	1*	0	5	8*	7	10	0.7
	8	15	11	16	0	7	19	15	0	4	X	–	9	–
	Total	24	15	23	15	10	25	21	male	19	7	159	9	17.7

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	–	10	0
	3	5	4	5	5	4	3	4	4	0	3	37	10	3.7
	4	10	8	8	1	9	6	9	10	1	10	72	10	7.2
	5	11	0	8	10	4	0	8	7	1	6	55 mF	10	5.5
	6	0	6	5*	0	0	3	0	0	8	1*	187	10	1.7
	7	9*	2*	–	1*	9*	3*	7*	5*	7*	9*	–	10	–
	8	24	0	21	0	12	8	20	0	0	11	–	10	–
	Total	26	18	21	16	17	12	21	21	10	19	181	10	18.1

Comments: * 4th brood, not counted 5th brood not counted

Day 8 fourth & fifth broods not counted MF 9-28-11

*Day 0 is test initiation day

X = Dead (original organism)

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revised 07/15/08 MF

Appendix B. continued

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Pilgrims Pride SOP TA07_05

LIMS Sample #: 1369511 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample	Control	M	8.1	24.5	7.8	180					
	1	6.25%	M	8.1	25.0	8.0	230					
	1	12.5%	M	8.0	25.3	8.1	275					
	1	25%	M	8.0	25.2	8.1	361					
	1	50%	M	7.8	25.0	8.1	534					
	1	100%	M	7.6	25.3	8.1	887					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	8.0	25.3	7.9	180	M	8.1	24.7	8.1	189
	1	6.25%	M	8.0	25.7	8.1	229	M	8.2	25.0	8.0	228
	1	12.5%	M	8.0	25.7	8.2	273	M	8.2	25.3	7.9	278
	1	25%	M	7.9	25.3	8.1	361	M	8.3	25.4	8.0	362
	1	50%	M	7.8	25.2	8.0	532	M	8.4	25.5	8.0	529
	1	100%	M	7.6	25.2	8.1	872	M	8.4	25.5	8.0	862
	Measured by:			MF	MF	MF	MF		KC	MF	KC	KC
	Recorded by:			KC	KC	KC	KC		KC	KC	KC	KC
Day 2	sample:	Control	M	7.9	24.6	7.7	176	M	8.0	24.6	7.6	190
	2	6.25%	M	7.9	24.8	7.8	231	M	8.0	25.1	7.9	233
	2	12.5%	M	7.9	24.7	7.7	281	M	8.1	25.2	7.9	280
	2	25%	M	7.9	24.6	7.6	376	M	8.1	25.1	7.7	368
	2	50%	M	7.8	24.2	7.6	564	M	8.1	24.8	7.4	540
	2	100%	M	7.6	24.0	7.6	935	M	8.2	24.4	7.3	895
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample:	Control	M	8.0	24.2	7.7	179	M	8.0	24.8	7.9	189
	2	6.25%	M	8.0	25.0	8.0	238	M	8.1	25.0	7.9	240
	2	12.5%	M	8.0	24.9	8.1	285	M	8.1	25.1	7.9	291
	2	25%	M	8.0	24.7	8.1	385	M	8.1	25.3	7.7	393
	2	50%	M	7.9	24.4	8.1	578	M	8.1	25.2	7.7	587
	2	100%	M	7.6	24.2	8.3	961	M	8.3	25.0	7.7	977
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF

Comments:

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

Test Page 4 of 6 PAGE 81 revised 07/15/08 MF

Appendix B. continued

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Pilgrims Pride SOP TA07_05

LIMS Sample #: 1369511 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	8.0	25.1	8.1	178	M	8.1	24.4	8.6	200
	3	6.25%	M	8.1	25.2	8.1	238	M	8.2	24.3	8.5	248
	3	12.5%	M	8.1	25.0	8.0	294	M	8.2	24.3	8.4	290
	3	25%	M	8.1	24.8	8.1	404	M	8.3	24.2	8.3	384
	3	50%	M	8.0	24.6	8.2	620	M	8.4	24.1	8.5	605
	3	100%	M	7.9	24.6	8.8	1045	M	8.4	24.0	8.7	1022
	Measured by:			KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:			KC	KC	KC	KC		KC	KC	KC	KC
Day 5	sample:	Control	M	8.0	25.6	8.4	180	M	8.2	24.0	8.7	175
	3	6.25%	M	8.1	25.4	8.3	241	M	8.3	24.0	8.6	241
	3	12.5%	M	8.1	25.1	8.2	298	M	8.4	24.0	8.6	293
	3	25%	M	8.1	24.8	8.2	408	M	8.4	24.0	8.7	411
	3	50%	M	8.0	24.5	8.3	621	M	8.5	24.0	8.6	611
	3	100%	M	7.9	24.3	8.8	1037	M	8.6	24.0	8.6	995
	Measured by:			KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:			KC	KC	KC	KC		KC	KC	KC	KC
Day 6	sample:	Control	M	8.0	24.2	8.3	177	M	8.0	24.0	8.0	188
	3	6.25%	M	8.1	24.1	8.2	236	M	8.2	24.0	8.1	244
	3	12.5%	M	8.2	24.0	8.5	293	M	8.2	24.0	8.1	297
	3	25%	M	8.1	24.0	8.5	411	M	8.3	24.0	8.2	412
	3	50%	M	8.1	24.0	8.4	620	M	8.4	24.0	8.2	634
	3	100%	M	7.9	24.0	8.5	1037	M	8.5	24.0	8.3	1056
	Measured by:			KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:			KC	KC	KC	KC		KC	KC	KC	KC
Day 7	sample:	Control	M	7.9	24.1	7.2	178	M	8.0	24.0	8.3	183
	3	6.25%	M	8.0	24.0	7.6	244	M	8.2	24.0	8.3	240
	3	12.5%	M	8.1	24.1	7.8	299	M	8.3	24.0	8.3	300
	3	25%	M	8.1	24.3	7.8	409	M	8.4	24.0	8.3	423
	3	50%	M	8.0	24.2	7.3	631	M	8.5	24.0	8.3	647
	3	100%	M	8.0	24.4	7.6	1067	M	8.6	24.0	8.4	1059
	Measured by:			BA	BA	BA	BA		KC	KC	KC	KC
	Recorded by:			BA	BA	BA	BA		KC	KC	KC	KC

Comments:

	pH	Temp	DO	Cond (µmhos)
ctl	8.0	24.4	8.4	196
6.25%	8.0	24.6	8.4	253
12.5%	8.1	24.1	8.5	302
25%	8.2	24.0	8.4	411
50%	8.3	24.2	8.5	650
100%	8.5	24.1	8.5	1092

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

Test Page 5 of 6

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revised 07/15/08 MF

Appendix B. continued

17 KC

Test ID: Pilgrinis Pride Dates: 8.9.11 – 8.16.11

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

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

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

entered by Kara Oop 8/16/11

V 1.1 9/21/10 MF/jd

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Appendix B. continued

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: Pilgrim's Pride
Address: US Highway 90 West, Live Oak
County: Suwannee
NPDES Permit #: FL 0001465
Contact/District: ~~Eeas~~ KC Eesa. Mi/Northeast

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

Start Date: 8.9.11 Time: 1300
End Date: 8.16.11 Time: 1030

Diluent/ Batch:
MHW / 8.8.11 Test Days Used: 0-7
MHW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____

Organism age : <24 hours ~~days~~ KC
Feeding Prior to Test and Daily
Artemia Lot # : 23613
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #		Day 3	138-11
Day 0	135-11	Day 4	139-11
Day 1	136-11	Day 5	140-11
Day 2	137-11	Day 6	141-11

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2011-08-0803	1369511	8.8.11/0605	8.8.11/1419
Test Day 2	2	TLH-2011-08-10-47	1370098	8.10.11/0646	8.10.11/1134
Test Day 4	3 *	~~TLH-2011-08-12-41~~ TLH-2011-08-12-50	~~1370755~~ 1370766	8.12.11/0721	8.12.11/1117

* Cancelled + relogged in MF 8-18-11

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	not measured	0.05	0.0	<0.03	<0.03	<0.03	175	189	272	223	282	336
Diluent/Control:				<0.03	<0.03	<0.03	76	76	76	91	91	91
Method:	n/a	n/a	n/a	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	EA	EA	JD/KC	JD/KC	KC	KC	KC	KC	KC	KC	KC
Verified by:	KC	KC	KC	KC	KC	KC	KC	KC	KC	KC	KC	KC

	Conductivity (circle one) (µmhos-cm) mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	868	927	1029	0.055	<0.017	0.051			
Diluent/Control:	328	326	333	<0.017	<0.017	<0.017			
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	JD	JD	BA	BA/MF	BA			
Verified by:	KC	KC	KC	KC	KC	KC			

Lims 8-18-11 MF
verified 8/31/11 KC

Statistics	
Growth NOEC:	100 %
Growth LOEC:	>100 %
Growth IC_{20}:	>100 %
Growth IC_{25}:	>100 %
Ctrl % CV:	16.1 %
Dunnetts PMSD:	21.3 %
Survival NOEC:	100 %
Survival LOEC:	>100 %

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 3 min. 24.7 max. 27.0 mean —
Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 24.4 max. 26.7 mean —

Investigators' signatures
Kara Cox
James Daniels
Marshall Faircloth
Brad Hess
Liz Mellen
REVIEWER

Comments:

revised 08/24/06 MF/SP

Appendix B. continued

Chronic Bioassay Survival Benchsheet

Facility: Pilgrims Pride

LIMS Sample Number: 13L0511
(for Lab Sample # 1)

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

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

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	9 ID	9	9	9	9	9	9
	D	10	9 ID	9	9	9	9	9	9
Sample 6.25 %	A	10	10	10	10	10	10	10	10
	B	10	10	9 ID	9	9	9 ~~10~~ ~~10~~ ~~10~~ ①	9 10 10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	9 ~~10~~	10	10
Sample 12.5 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 25 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 50 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 100 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD	JD
Verified by: KC									

Comments: ① Day 5 6.25% B – miscounted, FD.

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Appendix B. continued

Chronic Bioassay Parameters Benchsheet

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

Sample Source: Pilgrims Pride Start Date: 8.9.11 End Date: 8.16.11

LIMS Sample #: 1360911 (for Lab sample #1) Start Time: 1300 End Time: 1030

conc = concentration rep = replicate circle umhos or mmhos

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	sample:	Control	A	7.9	25.9	8.1	328							
	1	6.25%	A	7.9	25.9	7.6	354							
	1	12.5%	A	7.9	25.9	7.9	392							
	1	25%	A	7.8	25.7	7.8	459							
	1	50%	A	7.8	25.4	7.8	595							
	1	100%	A	7.6	25.2	7.8	868							
	1		A											
	Measured by:			JD	JD	JD	JD							
	Recorded by:			JD	JD	JD	JD							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	7.7	24.1	7.8	330		B	8.0	24.9	7.7	316	
	1	6.25%	B	7.7	24.0	7.6	352		B	8.0	25.0	7.6	339	
	1	12.5%	B	7.7	24.0	7.6	391		B	7.9	25.1	7.9	376	
	1	25%	B	7.8	24.0	7.6	457		B	7.9	25.6	7.7	440	
	1	50%	B	7.9	24.0	7.6	593		B	7.9	25.5	7.5	572	
	1	100%	B	8.1	24.0	7.5	873		B	7.8	25.6	7.6	846	
	1		B						B					
	Measured by:			JD	JD	JD	JD			KC	KC	KC	KC	
	Recorded by:			JD	JD	JD	JD			KC	KC	KC	KC	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	7.9	25.2	5.8	329		C	7.7	24.1	6.9	326	
	2	6.25%	C	7.8	25.1	5.8	359		C	7.7	24.4	7.0	349	
	2	12.5%	C	7.8	25.0	6.0	394		C	7.8	24.6	7.5	387	
	2	25%	C	7.8	25.0	5.8	463		C	7.8	24.4	7.2	469	
	2	50%	C	7.8	24.9	5.9	604		C	7.9	24.3	7.5	626	
	2	100%	C	7.8	24.9	5.5	879		C	7.7	24.3	7.2	927	
	2		C						C					
	Measured by:			JD	JD	JD	JD			KC	JD	KC	KC	
	Recorded by:			JD	JD	JD	JD			KC	JD	KC	KC	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.7	25.3	6.3	330		D	7.9	24.1	7.6	315	
	2	6.25%	D	7.6	25.3	5.3	358		D	7.8	24.1	7.1	344	
	2	12.5%	D	7.6	25.4	4.9	401		D	7.8	24.1	6.9	386	
	2	25%	D	7.7	25.4	6.3	482		D	7.8	24.1	7.2	477	
	2	50%	D	7.8	25.2	6.1	768		D	7.8	24.1	7.3	618	
	2	100%	D	7.9	24.9	6.0	940		D	7.7	24.4	7.9	944	
	2		D						D					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	

Comments:

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

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Appendix B. continued

Chronic Bioassay Parameters Benchsheet

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

Sample Source: P. Iggins Pride — Start Date: 8.9.11 — End Date: 8.16.11

LIMS Sample #: 13164511 (for Lab sample #1) — Start Time: 1300 — End Time: 1030

conc = concentration — rep = replicate

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos/mmhos	Salinity ppth
Day 4	sample:	Control	A	7.7	24.7	5.4	329		A	7.7	25.4	7.2	333	
	3	6.25%	A	7.7	25.0	5.5	357		A	7.8	25.6	6.9	367	
	3	12.5%	A	7.6	25.1	4.7	401		A	7.8	25.8	7.0	411	
	3	25%	A	7.8	25.2	5.6	487		A	7.9	25.7	7.0	499	
	3	50%	A	7.8	25.4	5.6	640		A	7.9	25.6	7.1	675	
	3	100%	A	8.0	25.5	5.6	960		A	7.8	25.9	8.0	1029	
	3		A						A					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	7.6	25.1	5.9	340		B	7.7	25.3	8.0	340	
	3	6.25%	B	7.7	25.1	6.0	377		B	7.9	25.3	7.8	376	
	3	12.5%	B	7.7	25.0	6.1	417		B	7.9	25.3	7.2	417	
	3	25%	B	7.7	24.5	6.0	512		B	8.0	25.3	7.4	504	
	3	50%	B	7.9	24.6	5.9	695		B	8.0	25.3	7.6	687	
	3	100%	B	8.1	25.7	6.0	1046		B	7.9	25.9	8.3	1064	
	3		B						B					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.6	25.3	7.0	340		C	7.8	24.6	7.9	328	
	3	6.25%	C	7.5	25.3	6.0	376		C	7.8	24.6	7.8	368	
	3	12.5%	C	7.5	25.2	5.2	423		C	7.9	24.9	7.9	406	
	3	25%	C	7.7	24.9	6.4	512		C	7.9	24.8	7.9	501	
	3	50%	C	7.9	25.1	6.4	699		C	8.0	24.9	8.3	676	
	3	100%	C	8.1	24.9	6.6	1047		C	7.9	25.4	8.7	1055	
	3		C						C					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control	D	7.6	25.7	6.4	345		D					
	3	6.25%	D	7.6	25.3	5.5	382		D					
	3	12.5%	D	7.6	25.3	5.4	422		D					
	3	25%	D	7.6	25.2	5.7	517		D					
	3	50%	D	7.9	24.9	5.7	688		D					
	3	100%	D	8.0	24.5	5.4	1039		D					
	3								D					
	Measured by:			JD	JD	JD	JD							
	Recorded by:			JD	JD	JD	JD							

Comments:

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

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Appendix B. continued

Chronic Bioassay Weighing Benchsheet

Facility: Pilgrim's Pride

LIMS Sample Number: 1369511 (for Lab Sample # 1)

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

			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right					
Concentration	Replicate	Pan #	Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg	
Control	A	56	0.02498	0.02989	0.00491	10	.491	
	B	57	0.02812	0.03486	0.00674	10	.674	
	C	58	0.02738	0.03225	0.00487	10	.487	.546
	D	59	0.02903	0.03433	0.00530	10	.530	
sample 6.25 %	A	60	0.02702	0.03306	0.00604	10	.604	
	B	61	0.02895	0.03488	0.00593	10	.593	
	C	62	0.02714	0.03192	0.00478	10	.478	.543
	D	63	0.02743	0.03238	0.00495	10	.495	
sample 12.5 %	A	64	0.02850	0.03423	0.00573	10	.573	
	B	65	0.02768	0.03469	0.00701	10	.701	
	C	66	0.02436	0.02978	0.00542	10	.542	.592
	D	67	0.02807	0.03358	0.00551	10	.551	
sample 25 %	A	68	0.02673	0.03271	0.00598	10	.598	
	B	69	0.02700	0.03291	0.00591	10	.591	
	C	70	0.02564	0.03160	0.00596	10	.596	.590
	D	71	0.02982	0.03557	0.00575	10	.575	
sample 50 %	A	72	0.02556	0.03054	0.00498	10	.498	
	B	73	0.02673	0.03275	0.00602	10	.602	.619
	C	74	0.02780	0.03423	0.00643	10	.643	
	D	75	0.02613	0.03344	0.00731	10	.731	
sample 100 %	A	76	0.02254	0.02810	0.00556	10	.556	
	B	77	0.02323	0.02923	0.00600	10	.600	.581
	C	78	0.02347	0.02900	0.00553	10	.553	
	D	79	0.02202	0.02816	0.00614	10	.614	
sample %	A					10		
	B					10		
	C					10		
	D					10		
	Weighed by initials:		JD	JD	revised 7/16/08 mf			

Comments:

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

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

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Appendix B. continued

Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Pilgrim's Pride

LIMS Sample Number: 1369511
(for Lab Sample # 1)

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

Drying Oven ID:	ERO 34000	Tare weighed by:	JD
Temperature °C:	100	Final weighed by:	JD
Hours:	8		
Tare Weighing Date:	8.15.11	Final Weighing Date:	8.17.11

				Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02500	@	0.02498	S-weights	0.01	@ 0.01
Tare Pan 1 after Pan 10 (g)	0.02497	@	0.02498	at tare	0.03003	@ 0.03
Tare Pan 1 after Pan 15 (g)	0.02498	@	0.02498	S-weights	0.00998	@ 0.01
Tare Pan 1 after Pan 20 (g)	0.02499	@	0.02498	at final	0.05005	@ 0.05
Tare Pan 1 after Pan 25 (g)	0.02500	@	0.02498			
Tare Pan 1 after Pan 30 (g)		@		Balance: Ohaus 250D Ser# 1125481084		
Tare Pan 1 after Pan 35 (g)		@		S-Weights: BIO-S-Weights-01		
Tare Pan 1 after Pan 40 (g)		@				
Tare Pan 1 after Pan 45 (g)		@				
Tare Pan 1 after Pan 48 (g)		@				
Final Pan 1 after Pan 5 (g)	0.02988	@	0.02989			
Final Pan 1 after Pan 10 (g)	0.02988	@	0.02989			
Final Pan 1 after Pan 15 (g)	0.02990	@	0.02989			
Final Pan 1 after Pan 20 (g)	0.02989	@	0.02989			
Final Pan 1 after Pan 25 (g)	0.02990	@	0.02989			
Final Pan 1 after Pan 30 (g)		@				
Final Pan 1 after Pan 35 (g)		@				
Final Pan 1 after Pan 40 (g)		@				
Final Pan 1 after Pan 45 (g)		@				
Final Pan 1 after Pan 48 (g)		@				

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

Comments:

revised 7/16/08 MF

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Appendix B. continued

Test ID: Pilgrim's Pride Dates: 8.9.11 – 8.16.11

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

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

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

info entered by Kara Cox 8.18.11

V 1.1 9/21/10 MF/jd

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Appendix C. SRT Bench Sheets and Statistical Analysis

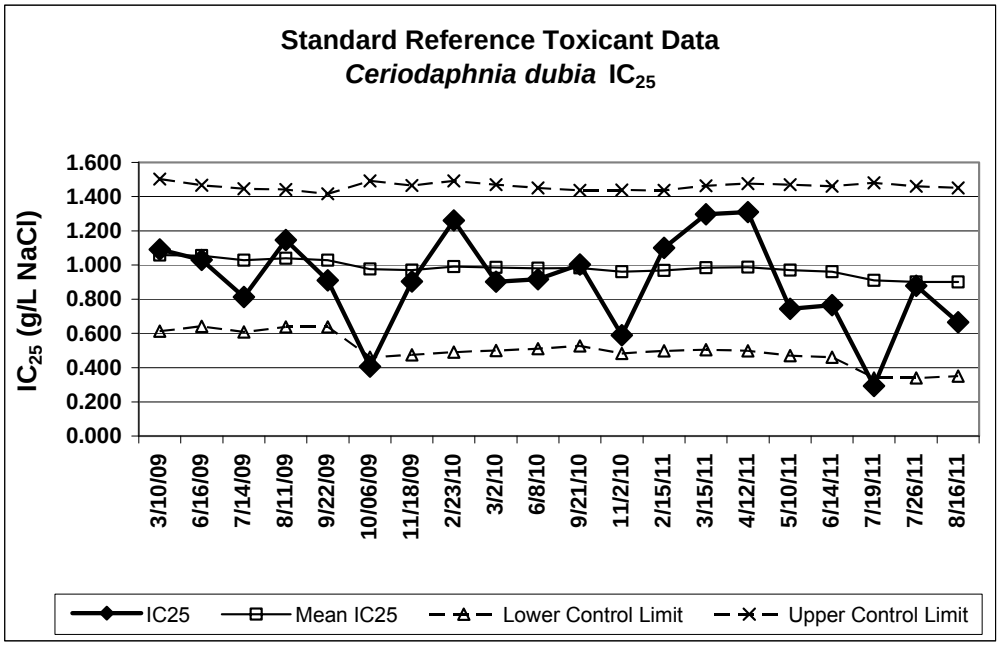
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
3/10/09	1.090	1.06	0.22	0.61	1.50
6/16/09	1.030	1.05	0.21	0.64	1.47
7/14/09	0.812	1.03	0.21	0.61	1.45
8/11/09	1.146	1.04	0.20	0.64	1.44
9/22/09	0.911	1.03	0.19	0.64	1.42
10/06/09	0.406	0.98	0.26	0.46	1.49
11/18/09	0.903	0.97	0.25	0.47	1.47
2/23/10	1.260	0.99	0.25	0.49	1.49
3/2/10	0.902	0.98	0.24	0.50	1.47
6/8/10	0.917	0.98	0.23	0.51	1.45
9/21/10	1.002	0.98	0.23	0.53	1.44
11/2/10	0.590	0.96	0.24	0.48	1.44
2/15/11	1.100	0.97	0.23	0.50	1.44
3/15/11	1.297	0.98	0.24	0.50	1.46
4/12/11	1.310	0.99	0.24	0.50	1.48
5/10/11	0.744	0.97	0.25	0.47	1.47
6/14/11	0.765	0.96	0.25	0.46	1.46
7/19/11	0.293	0.91	0.28	0.34	1.48
7/26/11	0.879	0.90	0.28	0.34	1.46
8/16/11	0.665	0.90	0.27	0.35	1.45

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

EPA 75th Percentile %CV for Reproduction **45%**
Lab %CV Reproduction **24** **30.50%**



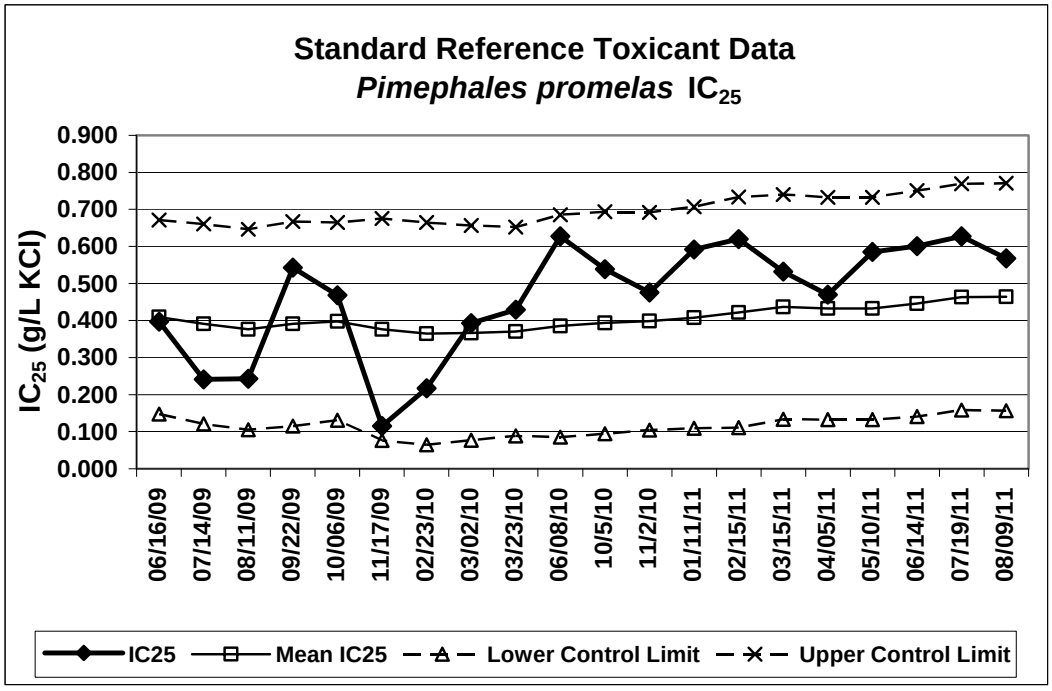
Appendix C. (continued)

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
06/16/09	0.397	0.410	0.13	0.148	0.671
07/14/09	0.241	0.391	0.13	0.121	0.660
08/11/09	0.243	0.376	0.14	0.105	0.647
09/22/09	0.543	0.391	0.14	0.115	0.667
10/06/09	0.468	0.398	0.13	0.131	0.664
11/17/09	0.115	0.376	0.15	0.076	0.676
02/23/10	0.217	0.365	0.15	0.064	0.665
03/02/10	0.393	0.366	0.14	0.077	0.656
03/23/10	0.429	0.370	0.14	0.089	0.652
06/08/10	0.628	0.385	0.15	0.086	0.685
10/05/10	0.539	0.394	0.15	0.094	0.694
11/02/10	0.476	0.398	0.15	0.105	0.692
01/11/11	0.592	0.408	0.15	0.109	0.707
02/15/11	0.620	0.422	0.16	0.111	0.733
03/15/11	0.532	0.436	0.15	0.133	0.740
04/05/11	0.470	0.433	0.15	0.133	0.733
05/10/11	0.585	0.433	0.15	0.133	0.733
06/14/11	0.601	0.446	0.15	0.141	0.751
07/19/11	0.627	0.463	0.15	0.158	0.769
08/09/11	0.568	0.464	0.15	0.157	0.771

Means are from the last 20 SRTs.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

IC25 CV 33.04%
EPA 75th percentile 38%



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 8.9.11 Test Days Used: D-6
20% DMW / _____ Test Days Used: _____
Toxicant/ Batch: NaCl / 8.16.11

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 8.16.11 / <24 hr.
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 5.5.11 KC51 5.5.11
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 8.16.11 Time: 12:30
End Date: 8.22.11 Time: 1430

Water Quality Parameters	Batch: 8.9.11		Other	Measured by:	Verified by:
	20% DMW	20% DMW			
Lab Total Residual Cl_2 (mg/L):	<0.03			KC	KC
Alkalinity (mg/L as $CaCO_3$):	82			KC	KC
Hardness (mg/L as $CaCO_3$):	83			KC	KC
Total Ammonia (mg/L as N):	<0.017			BA	KC
Conductivity ~~µmhos-cm~~ mmhos-cm :	176			BA	KC

Results	
Control % CV:	37.1%
Dunnetts PMSD:	36.1%
Reproduction NOEC:	0.59 g/L
Reproduction LOEC:	0.89 g/L
Survival NOEC:	1.3 g/L
Survival LOEC:	2 g/L
ICP_{20}:	0.628 g/L
ICP_{25}:	0.665 g/L

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

Loaded by: BA

Test Replicate	Loaded from culture vial
1	B24
2	A7
3	A4
4	A3
5	A1
6	A23
7	A22
8	A21
9	A7
10	A21

Comments:

Investigators' signatures

Bruce Dandy
Kara Cox
Marshall Faircloth
James Daniel
_____
_____
Kristy Miller
REVIEWER

Test Incubated in: Incubator: # 2
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 23.9 max. 27.4 mean –
Room B246 ____ min. 23.3 max. 25.0 mean –
Test min._____ max._____ mean_____

Appendix C. (continued)

Ceriodaphnia dubia Survival and Reproduction

Start Date: 8.16.11 Time: 12:30 Loaded by: BA
End Date: 8.22.11 Time: 14:30 Verified by: KCB MF

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	7	4	5	3	1	4	3	5	4	4	40	10	4.0
	4	0	5	0	0	0	8	0	0	0	0	13	10	1.3
	5	11	0	9	5	9	0	6	9	8	0	57	10	5.7
	6	5	5	9	3	10	8	4	7	6	0	58	10	5.8
	7													
	8													
	Total	24	14	23	11	20	20	13	21	18	4	168	10	16.8
0.59	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	10	4	4	0	4	4	4	5	4	3	38	10	3.8
	4	0	8	6	0	8	7	6	6	0	0	43	10	4.3
	5	8	1(5)	0	0	0	1(6)	0	7	0	0	15	10	1.5
	6	9	11	4	0	8	5	4	6*	6	0	47	10	4.7
	7													
	8													
	Total	23	24	14	0	20	17	14	18	10	3	143	10	14.3
0.89	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	6	4	2	3	3	2	4	4	4	34	10	3.4
	4	0	8	2(5)	0	0	0	2*	X0	0	0	10	9	1.0
	5	0	0	0	0	0	0	1	|	0	8	9	9	0.9
	6	0	6	1	X=	0	0	0	|	7	8	22	9	2.2
	7								|					
	8								|					
	Total	0	20	7	2	3	3	5	4	11	20	75	10	7.5

Comments: (5) = split brood MF 8-20-11
* Day 4 0.89 g/L Rep 7 - 2 alive 6 aborted MF 8-20-11
** - Not counted MF 8-23-11

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
1.3	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	2	3	0	2	0	1	0	0	0	8	10	0.8
	4	0	0	0	0	0	0	0	0	0	0X	0	9	0
	5	0	0	0	0	0	0	0	0	0	|	0	9	0
	6	7	3	0	X	X	0	0	0	0	|	10	7	1.0
	7				|	|					|			
	8				|	|					|			
	Total	7	5	3	0	2	0	1	0	0	0	~~18~~ 18	7	1.8
2.0	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	1	0	0	0	0	0	0	0	1	10	0.1
	4	0	0	X0	0	0	0	0	X0	0	X0	0	7	0
	5	0	0	|	X	X	X	X	|	X	|	0	2	0
	6	0	0	|	|	|	|	|	|	|	|	0	2	0
	7			|	|	|	|	|	|	|	|	0 mf		
	8			|	|	|	|	|	|	|	|	0		
	Total	0	0	1	0	0	0	0	0	0	0	mf 0 1	2	0.1
3.0	0												10	
	1	X	X	X		X	X		X		X		4	
	2	|	X	|	X	|	|	X	|	X	|	0	0	0
	3	|	|	|	|	|	|	|	|	|	|	|	0	0	0
	4	|	|	|	|	|	|	|	|	|	|	|	0	0	0
	5	|	|	|	|	|	|	|	|	|	|	|	0	0	0
	6	|	|	|	|	|	|	|	|	|	|	|	0	0	-
	7	|	|	|	|	|	|	|	|	|	|	|	0 mf	0 mf	0
	8	|	|	|	|	|	|	|	|	|	|	|	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Test Page 3 of 6 PAGE 27 07/15/08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	7.9	26.0	7.6	(A) BA 1.85-176					
	0.59	M	8.0	25.1	7.6	1309					
	0.89	M	8.0	24.9	7.6	1861					
	1.3	M	8.0	24.6	7.6	2610					
	2.0	M	8.0	24.3	7.5	3800					
	3.0	M	8.0	24.1	7.6	5450					
	Measured by:		BA	BA	BA	BA					
	Recorded by:		BA	BA	BA	BA					
Day 1	Control	M	8.0	24.5	7.3	179	A	8.0	24.0	6.8	195
	0.59	M	7.9	24.3	7.3	1355	A	8.0	24.0	7.1	1355
	0.89	M	8.0	24.6	7.1	1873	A	8.0	24.0	7.3	1889
	1.3	M	8.0	24.6	7.5	2660	A	8.0	24.0	7.4	2720
	2.0	M	8.0	24.5	6.8	3850	A	8.0	24.0	7.0	3930
	3.0	M	8.0	24.4	7.1	5590	A	8.0	24.0	7.2	5560
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 2	Control	M	7.9	25.0	6.5	178	A	8.0	24.2	7.6	193
	0.59	M	7.9	25.7	6.6	1289	A	8.0	24.2	7.0	1381
	0.89	M	7.9	25.5	6.6	1829	A	8.1	24.3	6.9	1966
	1.3	M	8.0	25.6	6.4	2610	A	8.1	24.4	7.0	2760
	2.0	M	8.0	25.3	6.8	3750	A	8.1	24.4	7.1	3910
		M					B	8.1	24.5	7.0	5610
	Measured by:		BA	BA	BA	BA		TA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 3	Control	M	8.0	25.4	7.7	180	A	8.3	24.0	7.9	180
	0.59	M	8.1	25.0	7.5	1269	A	8.3	24.0	7.9	1293
	0.89	M	8.1	24.5	7.5	1782	A	8.3	24.0	8.0	1833
	1.3	M	8.1	24.2	7.7	2560	A	8.2	24.0	8.1	2700
	2.0	M	8.1	24.1	7.6	3730	A	8.3	24.0	8.1	3960
		M									
	Measured by:		KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:		KC	KC	KC	KC		KC	KC	KC	KC

Comments: (A) New sub sample measured

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

Test Page 4 of 6 PAGE 28 07/15/08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	Replicate	New Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Replicate	Old Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	8.2	24.8	7.6	183	A	8.2	24.3	7.8	200
	0.59	M	8.1	25.0 pH	7.6	1283	A	8.1	24.4	7.8	1380
	0.89	M	8.1	24.8	7.7	1875	A	8.1	24.3	7.9	1891
	1.3	M	8.1	25.2	7.7	2670	A	8.1	24.2	7.9	2710
	2.0	M	8.1	25.1	7.8	3820	A	8.0	24.2	8.0	3900
		M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 5	Control	M	8.0	25.3	6.8	180	A	8.1	24.0	6.2	208
	0.59	M	8.0	26.0	7.5	1282	A	8.0	24.0	6.5	1351
	0.89	M	8.0	25.8	7.5	1819	A	8.0	24.0	7.3	1875
	1.3	M	8.0	25.6	7.6	2610	A	8.1	24.0	6.8	2800
	2.0	M	8.0	25.7	7.5	3760	A	8.1	24.0	6.3	3840
		M									
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 6	Control	M		~~24.3~~ BA		+ BA	A	8.1	24.3	7.4	189
	0.59	M					A	8.2	24.1	7.6	1333
	0.89	M					A	8.3	24.0	7.7	1928
	1.3	M					A	8.3	24.0	7.5	2790
	2.0	M					A	8.3	24.0	7.6	4030
		M									
	Measured by:							BA	BA	BA	BA
	Recorded by:							BA	BA	BA	BA
Day 7	Control	M									
		M									
		M									
		M									
		M									
		M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
		M									
		M									
		M									
		M									
		M									
	Measured by:										
	Recorded by:										

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

Test Page 5 of 6

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07/15/08 MF

Test ID: August SRT Dates: 8.16.11 – 8.22.11

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

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

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

entered by Kara Doyle 8/22/11

V 1.1 9/21/10 MF/jd

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

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

Diluent/ Batch: MH/ 8.8.11 Test Days Used: 0-7

Diluent/ Batch: _____ Test Days Used: _____

Toxicant/ Batch # : KCl 8.8.11

Artemia Lot # : 23613

Start Date: 8-9-11 Time: 1310

End Date: 8-16-11 Time: 1030

Organism Batch #/ Age: 8.9.11 / <24hrs

Artemia Batch # ~~23613~~		Day 2	137-11	Day 5	140-11
Day 0	135-11	Day 3	138-11	Day 6	141-11
Day1	136-11	Day 4	139-11		

Chamber size : 1000 ml

Test volume : 500 ml

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

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

Water Quality Parameters	Diluent	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		HACH	KC	JD
Alkalinity (mg/L as $CaCO_3$):	76		HACH	KC	JD
Hardness (mg/L as $CaCO_3$):	91		HACH	KC	JD
Total Ammonia (mg/L as N):	<0.017		DENVER	BA	JD
Conductivity (µmhos-cm) mmhos-cm:	327		METTLER	JD	KC

Statistics	
Growth NOEC:	0,5g/L
Growth LOEC:	1g/L
Growth IC_{20}:	0,5362g/L
Growth IC_{25}:	0,5683g/L
Ctrl % CV:	24.2%
Dunnetts PMSD:	25.6%
Survival NOEC:	0,5g/L
Survival LOEC:	1g/L

Test incubated in : ☑ Incubator # 3

☐ Waterbath #_____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 3 min. 24.7 max. 27.0 mean —

Water bath # ____ min.____ max.____ mean____

Room B246 min. 24.4 max. 26.7 mean —

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

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

Investigators' signatures

James Daniels

Kara Pitt

Marshall Faircloth

Bruce Allen

REVIEWER

Comments:

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revised 7/16/08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

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

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

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	C1	10	10	10	10	10	10	10	10
	B	C 2	10	10	10	10	10	10	10	10
	C	C 3	10	10	10	10	10	10	10	10
	D	C 4	10	10	10	10	10	10	10	10
.125	A	C 5	10	10	10	10	10	10	10	10
	B	C 6	10	10	10	10	10	10	10	10
	C	C 7	10	10	10	10	10	10	10	10
	D	C 8	10	10	10	10	10	10	10	10
.25	A	C 9	10	10	10	10	10	10	10	10
	B	C 10	10	10	10	10	10	10	10	10
	C	C 11	10	10	10	10	10	10	10	10
	D	C 12	10	10	10	10	10	10	10	10
.5	A	C 13	10	10	10	10	10	10	10	10
	B	C 14	10	10	10	10	10	10	10	10
	C	C 15	10	10	10	10	10	10	10	10
	D	C 16	10	10	10	10	10	10	10	10
1	A	C 17	10	5 D 10D	—	—	—	—	—	—
	B	C 18	10	4 8 6 D	3 D	3	3	3	3	3
	C	C 19	10	1 9 D	0 D	— D	—	—	—	—
	D	C 20	10	3 7 D	3	D 2	2	2	0 2 D	—
2	A	C 21	10	0 10D						
	B	C 22 D	10	0 10D						
	C	C 23	10	0 10D						
	D	C24	10	0 10D						
	A		10							
	B		10							
	C		10							
	D		10							
oaded by (0 hr): JD			Checked by:	JD/KO	JD	JD	JD	JD	JD	JD
erified by (0 hr): BA										
			Concentrations prepared by:	JD	JD	JD	JD	JD	JD	JD

omments:

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Appendix C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 8.9.11 End Date: 8.16.11

Start Time: 1310 End Time: 1030

conc = concentration rep = replicate circle umhos or mmhos

Test Day		Before Renewal						After Renewal					
	Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth
Day 0	Control	A	7.6	25.9	7.8	327							
	.125	A	7.7	25.9	7.3	532							
	.25	A	7.8	25.9	7.6	772							
	.5	A	7.9	25.9	7.7	1275							
	1	A	8.0	25.9	7.6	2220							
	2	A	8.0	25.9	7.7	4070							
		A											
	Measured by		JD	JD	JD	JD							
	Recorded by		JD	JD	JD	JD							
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	Control	B	7.7	25.4	7.8	332		B	8.0	25.1	8.0	322	
	.125	B	7.7	25.3	7.5	526		B	8.0	25.0	7.8	523	
	.25	B	7.8	25.2	7.6	753		B	8.0	24.8	7.9	749	
	.5	B	7.9	25.4	7.6	1220		B	8.0	25.0	7.5	1237	
	1	B	7.9	25.0	7.0	2130		B	8.1	24.9	7.6	2180	
	2	B	7.9	24.8	7.7	3920		B					
		B						B					
	Measured by		JD	JD	JD	JD			KC	KC	KC	KC	
	Recorded by		JD	JD	JD	JD			KC	KC	KC	KC	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	7.9	24.0	6.7	325		C	7.8	24.1	7.2	325	
	.125	C	7.9	24.1	6.2	521		C	7.9	24.5	7.3	579	
	.25	C	7.9	24.0	6.6	742		C	7.9	24.4	7.3	752	
	.5	C	7.9	24.0	6.0	1227		C	7.9	24.5	7.2	1229	
	1	C	7.9	24.1	6.3	2190		D (KC)	8.0	24.8	7.4	2200	
		C						C					
		C						C					
	Measured by		JD	JD	JD	JD			KC	JD	KC	KC	
	Recorded by		JD	JD	JD	JD			KC	JD	KC	KC	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	Control	D	8.0	24.0	6.5	331		D	7.9	24.0	7.7	324	
	.125	D	7.9	24.1	6.8	582		D	7.9	24.5	7.5	522	
	.25	D	7.9	24.0	7.0	751		D	8.0	24.5	7.6	786	
	.5	D	7.8	24.1	6.5	1228		D	7.9	24.8	7.5	1227	
	1	D	7.9	24.1	6.9	2240		D	8.0	24.4	7.5	2140	
		D						D					
		D						D					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	

Comments:

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

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Appendix C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 8.9.11 End Date: 8.10.11

Start Time: 1310 End Time: 1030

conc = concentration rep = replicate

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Salinity ppth
Day 4	Control	A	7.9	24.0	6.1	329		A	8.0	25.7	7.3	324	
	.125	A	7.8	24.2	6.2	575		A	7.9	25.6	7.4	579	
	.25	A	7.7	24.4	5.8	788		A	7.9	25.3	7.1	798	
	.5	A	7.7	24.0	6.2	1236		A	7.9	25.6	7.2	1251	
	1	B/A B	7.8	24.0	6.5	2140		B/A	8.0	25.4	7.5	2140	
		A						A					
		A						A					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	Control	B	7.7	24.7	6.2	335		B	7.9	25.1	8.0	336	
	.125	B	7.7	24.0	7.5	577		B	7.8	24.9	7.9	578	
	.25	B	7.8	24.0	7.3	819		B	7.9	25.2	8.1	818	
	.5	B	7.7	24.1	6.8	1250		B	7.9	25.1	8.0	1257	
	1	B	7.8	24.0	8.3	2190		B	8.0	24.9	8.0	2180	
		B						B					
		B						B					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	Control	C	7.7	24.2	7.0	339		C	8.0	24.6	8.1	336	
	.125	C	7.6	24.4	6.0	591		C	7.9	24.9	8.1	577	
	.25	C	7.6	24.4	6.5	824		C	7.9	24.8	8.0	808	
	.5	C	7.6	24.3	7.3	1287		C	8.0	25.4	8.2	1265	
	1	D/C JD	7.6	24.4	6.7	2210		D/C B	8.0	25.5	8.6	2190	
		C						C					
		C						C					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	Control	D	7.7	24.1	5.3	335		D					
	.125	D	7.6	24.2	5.6	584		D					
	.25	D	7.6	24.3	5.2	821		D					
	.5	D	7.6	24.3	6.3	1260		D					
	1	B	7.7	24.4	7.7	2190		D					
								D					
								D					
	Measured by		JD	JD	JD	JD							
	Recorded by		JD	JD	JD	JD							

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

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

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

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	80	0.02249	0.02832	0.00583	10	.583
	B	81	0.02340	0.02792	0.00452	10	.452
	C	82	0.02246	0.03043	0.00797	10	.797
	D	83	0.02345	0.03081	0.00736	10	.736
.125	A	84	0.02313	0.02858	0.00545	10	.545
	B	85	0.02218	0.02753	0.00535	10	.535
	C	86	0.02379	0.02987	0.00608	10	.608
	D	87	0.02278	0.02737	0.00459	10	.459
.25	A	88	0.02340	0.02837	0.00497	10	.497
	B	89	0.02380	0.02950	0.00570	10	.570
	C	90	0.02234	0.02777	0.00543	10	.543
	D	91	0.02255	0.02837	0.00582	10	.582
.5	A	92	0.02247	0.02916	0.00669	10	.669
	B	93	0.02390	0.02840	0.00450	10	.450
	C	94	0.02261 (0.03320)	0.02794	0.00533	10	.533
	D	95	0.02290	0.02891	0.00601	10	.601
1	A	—	—	—	—	10	—
	B	96	0.02295	0.02496	0.00201	10	.201
	C	—	—	—	—	10	—
	D	—	—	—	—	10	—
	A					10	
	B					10	
	C					10	
	D					10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	JD	JD			

0.642

Comments:

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

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revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

Empty Pan Weights Date: 8.15.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02248	@ 0.02249
after Pan 10	0.02246	@ 0.02249
after Pan 15	0.02248	@ 0.02249
after Pan 20	0.02247	@ 0.02249
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

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

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

Fish + Pan Weights Date: 8.17.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02830	@ 0.02832
after Pan 10	0.02833	@ 0.02832
after Pan 15	0.02830	@ 0.02832
after Pan 20	0.02831	@ 0.02832
after Pan 25		@
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

	Measured Value	S-weight Value
S-weights	0.00998	@ 0.01
	0.05005	@ 0.05

Drying Oven ID: ER034000

Temperature °C: 100

Drying Hours: 8

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

Comments:

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revised 7/16/08 MF

Appendix C. (continued)

Test ID: Chronic SRT P. promelas Dates: 7-19-11 — 7-26-11

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

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

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

8.24.11 K.D.

V 1.1 9/21/10 MF/jd

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Appendix C. (continued)

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	8/16/2011 12:30	Test ID:	cdsrt81611	Sample ID:	REF-Ref Toxicant
End Date:	8/22/2011 14:30	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia
Comments:	C. dubia srt august 16 2011 repeat for 8/9/11 srt				

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	24.000	14.000	23.000	11.000	20.000	20.000	13.000	21.000	18.000	4.000
0.59	23.000	24.000	14.000	0.000	20.000	17.000	14.000	18.000	10.000	3.000
0.89	0.000	20.000	7.000	2.000	3.000	3.000	5.000	4.000	11.000	20.000
1.3	7.000	5.000	3.000	0.000	2.000	0.000	1.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

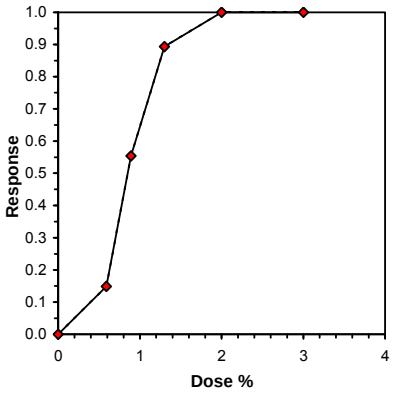
			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	16.800	1.0000	16.8000	4.0000	24.0000	37.098	10	16.800	1.0000
0.59	14.300	0.8512	14.3000	0.0000	24.0000	55.852	10	14.300	0.8512
0.89	7.500	0.4464	7.5000	0.0000	20.0000	96.404	10	7.500	0.4464
1.3	1.800	0.1071	1.8000	0.0000	7.0000	138.084	10	1.800	0.1071
2	0.000	0.0000	0.0000	0.0000	0.0000	0.000	10	0.000	0.0000
3	0.000	0.0000	0.0000	0.0000	0.0000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.976307	0.919	-0.11559	0.265717
Bartlett's Test indicates equal variances (p = 0.02)	10.23588	11.34487		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL		Skew
IC05*	0.1982	0.2194	0.0647	0.6277	0.5719
IC10*	0.3965	0.2046	0.1294	0.6832	0.0611
IC15	0.5909	0.1776	0.1942	0.7299	-0.2437
IC20	0.6279	0.1523	0.2589	0.7765	-0.4559
IC25	0.6650	0.1321	0.3236	0.8335	-0.5330
IC40	0.7762	0.1038	0.5178	0.9654	-0.0605
IC50	0.8503	0.0954	0.6958	1.0276	0.2663

* indicates IC estimate less than the lowest concentration



Appendix C. (continued)

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	8/9/2011 13:10	Test ID:	ppsrtaug11	Sample ID:	REF-Ref Toxicant
End Date:	8/16/2011 10:30	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	P. promelas chronic srt aug 2011				

Conc-gm/L	1	2	3	4
D-Control	0.5830	0.4520	0.7970	0.7360
0.125	0.5450	0.5350	0.6080	0.4590
0.25	0.4970	0.5700	0.5430	0.5820
0.5	0.6740	0.4500	0.5330	0.6010
1	0.0000	0.2010	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000

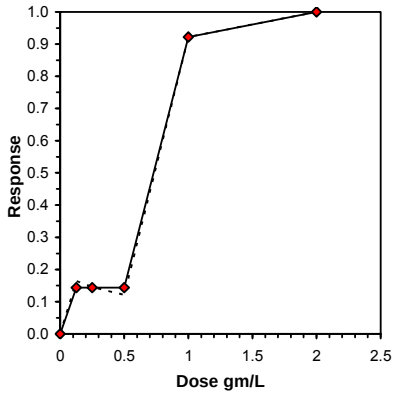
			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.6420	1.0000	0.6420	0.4520	0.7970	24.205	4	0.6420	1.0000
0.125	0.5368	0.8361	0.5368	0.4590	0.6080	11.380	4	0.5498	0.8563
0.25	0.5480	0.8536	0.5480	0.4970	0.5820	6.881	4	0.5498	0.8563
0.5	0.5645	0.8793	0.5645	0.4500	0.6740	16.937	4	0.5498	0.8563
1	0.0503	0.0783	0.0503	0.0000	0.2010	200.000	4	0.0503	0.0783
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	4	0.0000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.970829	0.868	0.015157	0.021075
Bartlett's Test indicates equal variances (p = 0.26)	5.258857	13.2767		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL(Exp)		Skew
IC05*	0.0435	0.1977	0.0107	0.8229	1.2387
IC10*	0.0870	0.2197	0.0214	0.8457	0.5822
IC15	0.5041	0.2214	0.0000	0.6448	-0.1533
IC20	0.5362	0.1844	0.0000	0.6747	-1.1631
IC25	0.5683	0.1342	0.0000	0.7045	-2.3488
IC40	0.6647	0.0440	0.5371	0.7943	0.0850
IC50	0.7290	0.0400	0.6227	0.8569	0.3141

* indicates IC estimate less than the lowest concentration



Appendix D. Test Organism Receipt(s)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 8/8/11

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	150 ac	4DA-RS	MS 110804	25	7.9	20
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi	~~100 ac~~					
Pimephales promelas	600	<24HRS	FM 110807-1600	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix E. Chemical Analyses performed on the effluent collected from the Pilgrim's Pride Processing Plant's - EFF-1 NPDES sampling point for Outfall D-001, sampled August 8, 2011.

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:15	EFF-1	AGP/LN	Algal Growth Potential	136	A	mg DryWt/L	0.3	0.9
8/8/2011 10:15	EFF-1	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	4.4		ug/L	0.55	1.7
8/8/2011 10:15	EFF-1	Chlorophyll/Grain Size/BOD	Phaeophytin-a	3		ug/L	0.4	1.2
8/8/2011 6:05	EFF-1	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	15	Q	mg/L	0.2	2
8/8/2011 10:15	EFF-1	Overflow	Fecal Coliforms-Membrane Filter	6		cfu/100 mL	1	
8/8/2011 6:05	EFF-1	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	100		NOEC		
8/8/2011 6:05	EFF-1	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	100	L	IC25		
8/8/2011 6:05	EFF-1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
8/8/2011 6:05	EFF-1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
8/8/2011 10:15	EFF-1	Metals	Nickel	1.92		ug/L	0.25	1
8/8/2011 10:15	EFF-1	Metals	Sodium	64.2		mg/L	0.5	2
8/8/2011 10:15	EFF-1	Metals	Lead	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Metals	Aluminum	5.3	I	ug/L	5	20
8/8/2011 10:15	EFF-1	Metals	Chromium	0.3	U	ug/L	0.3	1.2
8/8/2011 10:15	EFF-1	Metals	Copper	5.44		ug/L	0.5	1
8/8/2011 10:15	EFF-1	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/8/2011 10:15	EFF-1	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Metals	Arsenic	1.67		ug/L	0.25	1
8/8/2011 10:15	EFF-1	Metals	Zinc	62		ug/L	5	20
8/8/2011 10:15	EFF-1	Metals	Iron	35	I	ug/L	30	120
8/8/2011 10:15	EFF-1	Metals	Magnesium	24.8		mg/L	0.04	0.16
8/8/2011 10:15	EFF-1	Metals	Calcium	57.2		mg/L	0.075	0.3
8/8/2011 10:15	EFF-1	Nutrients	NO2NO3-N	11		mg N/L	0.08	0.2
8/8/2011 10:15	EFF-1	Nutrients	O-Phosphate-P	6.2		mg P/L	0.16	0.4
8/8/2011 6:05	EFF-1	Nutrients	NO2NO3-N	6.5		mg N/L	0.04	0.1
8/8/2011 6:05	EFF-1	Nutrients	Organic Carbon	6.9		mg C/L	1	5
8/8/2011 6:05	EFF-1	Nutrients	Ammonia-N	0.086		mg N/L	0.01	0.02
8/8/2011 10:15	EFF-1	Nutrients	Ammonia-N	0.056		mg N/L	0.01	0.02
8/8/2011 6:05	EFF-1	Nutrients	Total-P	7.1		mg P/L	0.1	1
8/8/2011 6:05	EFF-1	Nutrients	Sulfate	60		mg SO4/L	1	2.5
8/8/2011 10:15	EFF-1	Nutrients	Kjeldahl Nitrogen	1.5		mg N/L	0.16	0.4
8/8/2011 6:05	EFF-1	Nutrients	Chloride	110		mg Cl/L	1	2.5
8/8/2011 6:05	EFF-1	Nutrients	Kjeldahl Nitrogen	1.4		mg N/L	0.08	0.2
8/8/2011 10:15	EFF-1	Nutrients	Total-P	6.7		mg P/L	0.1	1
8/8/2011 6:05	EFF-1	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:15	EFF-1	Nutrients	Organic Carbon	6.6		mg C/L	1	5
8/8/2011 6:05	EFF-1	Nutrients	TSS	6	I	mg/L	2	10
8/8/2011 6:05	EFF-1	Nutrients	Alkalinity	168		mg CaCO3/L	0.65	2.5
8/8/2011 10:15	EFF-1	Overflow	Oil and Grease	0.7	U	mg/L	0.7	2.5
8/8/2011 10:15	EFF-1	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
8/8/2011 10:15	EFF-1	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
8/8/2011 10:15	EFF-1	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
8/8/2011 10:15	EFF-1	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
8/8/2011 10:15	EFF-1	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
8/8/2011 10:15	EFF-1	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
8/8/2011 10:15	EFF-1	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
8/8/2011 10:15	EFF-1	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
8/8/2011 10:15	EFF-1	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
8/8/2011 10:15	EFF-1	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
8/8/2011 10:15	EFF-1	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.1
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.1

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.1
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzidine	100	UJ	ug/L	100	400
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.1
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	UJ	ug/L	40	160
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.81
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
8/8/2011 10:15	EFF-1	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.81
8/8/2011 6:05	EFF-1	Field Parameter	Temperature	3.4		C		
8/8/2011 10:15	EFF-1	Field Parameter	Total Residual Chlorine	0.02		mg/L		
8/8/2011 10:15	EFF-1	Field Parameter	Sample Depth	0.1		m		
8/8/2011 10:15	EFF-1	Field Parameter	Specific Conductance	1141		umhos/cm		
8/8/2011 10:15	EFF-1	Field Parameter	Dissolved Oxygen	5.21		mg/L		
8/8/2011 10:15	EFF-1	Field Parameter	Temperature	30.4		C		
8/8/2011 10:15	EFF-1	Field Parameter	pH	7.29				
8/8/2011 10:00	Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
8/8/2011 10:00	Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/8/2011 10:00	Blank	Metals	Copper	0.5	U	ug/L	0.5	1
8/8/2011 10:00	Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
8/8/2011 10:00	Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
8/8/2011 10:00	Blank	Metals	Zinc	5	U	ug/L	5	20
8/8/2011 10:00	Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
8/8/2011 10:00	Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
8/8/2011 10:00	Blank	Metals	Iron	30	U	ug/L	30	120
8/8/2011 10:00	Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
8/8/2011 10:00	Blank	Metals	Aluminum	5	U	ug/L	5	20
8/8/2011 10:00	Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/8/2011 10:00	Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
8/8/2011 10:00	Blank	Nutrients	Organic Carbon	1	U	mg C/L	1	5
8/8/2011 10:00	Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
8/8/2011 10:00	Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
8/8/2011 10:00	Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
8/8/2011 10:00	Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
8/8/2011 10:00	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
8/8/2011 10:00	Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:00	Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
8/8/2011 10:00	Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
8/8/2011 10:00	Blank	Overflow	Oil and Grease	0.7	U	mg/L	0.7	2.5
8/8/2011 10:00	Blank	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.79
8/8/2011 10:00	Blank	Pesticides	Malathion	0.15	U	ug/L	0.15	0.59
8/8/2011 10:00	Blank	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.59
8/8/2011 10:00	Blank	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.59
8/8/2011 10:00	Blank	Pesticides	Alachlor	0.59	U	ug/L	0.59	2.4
8/8/2011 10:00	Blank	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
8/8/2011 10:00	Blank	Pesticides	Naled	0.79	U	ug/L	0.79	3.2
8/8/2011 10:00	Blank	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Parathion Methyl	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Hexazinone	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.59
8/8/2011 10:00	Blank	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.79
8/8/2011 10:00	Blank	Pesticides	Ethoprop	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Fonofos	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Butylate	0.2	U	ug/L	0.2	0.79
8/8/2011 10:00	Blank	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
8/8/2011 10:00	Blank	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.79
8/8/2011 10:00	Blank	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	0.99
8/8/2011 10:00	Blank	Pesticides	Metribuzin	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Chlorpyrifos Methyl	0.099	U	ug/L	0.099	0.4
8/8/2011 10:00	Blank	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.79
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
8/8/2011 10:00	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
8/8/2011 10:00	Blank	Priority Organic Pollutants	Acenaphthene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Anthracene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:00	Blank	Priority Organic Pollutants	Pyrene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Fluorene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Acenaphthylene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
8/8/2011 10:00	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
8/8/2011 10:00	Blank	Priority Organic Pollutants	Chrysene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Naphthalene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Phenanthrene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390
8/8/2011 10:00	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
8/8/2011 10:00	Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
8/8/2011 10:00	Blank	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Fluoranthene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19	U	ug/L	0.19	0.78

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/8/2011 10:00	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19	U	ug/L	0.19	0.78
8/8/2011 10:00	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L	9.7	39
8/8/2011 10:00	Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
8/8/2011 10:00	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
8/8/2011 10:00	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L	39	160
8/8/2011 10:00	Blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
8/10/2011 6:46	EFF-1 Tox #2	Field Parameter	pH	7.32				
8/10/2011 6:46	EFF-1 Tox #2	Field Parameter	Dissolved Oxygen	5.27		mg/L		
8/10/2011 6:46	EFF-1 Tox #2	Field Parameter	Temperature	29.69		C		
8/10/2011 6:46	EFF-1 Tox #2	Field Parameter	Sample Depth	0.3		m		
8/10/2011 6:46	EFF-1 Tox #2	Field Parameter	Specific Conductance	1013		umhos/cm		
8/12/2011 7:21	EFF-1 Tox #3	Field Parameter	Dissolved Oxygen	5.95		mg/L		
8/12/2011 7:21	EFF-1 Tox #3	Field Parameter	Sample Depth	0.3		m		
8/12/2011 7:21	EFF-1 Tox #3	Field Parameter	Specific Conductance	1059		umhos/cm		
8/12/2011 7:21	EFF-1 Tox #3	Field Parameter	Temperature	30.07		C		
8/12/2011 7:21	EFF-1 Tox #3	Field Parameter	pH	7.14				

Appendix F. Pages 1- 9 NPDES Permit # FL0001465

Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256
Phone: 904-807-3300 ♦ Fax: 904-448-4366

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMITTEE:

Pilgrim's Pride Corporation

RESPONSIBLE OFFICIAL:
Marc McCann, Complex Manager
19740 U.S. Hwy. 90
Live Oak, FL 32064-1000
Telephone No.: (386) 362-2544

PERMIT NUMBER: FL0001465-005 (Major)
FILE NUMBER: FL0001465-005-IW7A
ISSUANCE DATE: **May 6, 2010**
EXPIRATION DATE: **May 5, 2015**

FACILITY:

Pilgrim's Pride Processing Plant
19470 US Hwy 90 West
Live Oak, FL 32064-1000
Suwannee County
Latitude: 30°22' 18.99" N Longitude: 83°9' 29.85" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. This permit is accompanied by an Administrative Order, pursuant to paragraphs 403.088(2)(e) and (f), Florida Statutes. Compliance with Administrative Order, AO 137 NE, is a specific requirement of this permit. The above named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

FACILITY DESCRIPTION:

This facility processes live poultry into fresh and frozen chicken meat products, operates a broiler hatchery to produce chicks for distribution to growers, and processes poultry byproducts into poultry meat, poultry fat and other animal feed products.

WASTEWATER TREATMENT:

Wastewater is generated from poultry processing, byproducts processing, the hatchery, sanitary wastes, water treatment plant filtrate, sanitation, and stormwater. The facility produces a monthly average wastestream flow of 1.5 million gallons per day (MGD). Collected wastewater goes into the dissolved air flotation (DAF) unit and then into the 15 million gallon (MG) anaerobic basin. Sanitary wastewater bypasses the DAF and joins the

Appendix F. continued

process wastestream entering the anaerobic basin. Treated water then flows into the 0.5 MG anoxic basin, then into the 1.4 MG aeration basis, and then is split into the north and south 0.1 MG clarifiers. Activated sludge is returned to the anoxic basin and waste sludge is sent to the aerobic sludge digester. Treated wastewater from the clarifiers flows into the 7.5 MG facultative polishing pond and is then pumped to the denite filters after which the wastestream receives pH adjustment treatment and then flows through the chlorine contact chamber. The final treatment step is dechlorination and then the treated wastewater is discharged into the Suwannee River, a Class III Outstanding Florida Surface Water. Waste sludge treated in the aerobic sludge digester is land applied by spray irrigation to a 44 acre site with an application rate of 0.04 MGD. An on-site closed loop recycle system is used for washing forklifts, engines, and other miscellaneous items. Wash water is treated using an oil/water separator and then is reused for washing. No discharge occurs from this system. All waste oil and solids are disposed of in a department approved manner offsite.

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 1.5 MGD Monthly Average Daily Flow permitted discharge to Suwannee River, Class III Fresh Waters, (WBID# 3422B). The point of discharge is located approximately at latitude 30°21' 56" N, longitude 83°11' 30" W.

Land Application R-001: An existing 0.040 MGD permitted capacity land application system consisting of a 44-acre Liquid Sludge Sprayfield Application Site.

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions set forth in this Cover Sheet and Part I through Part IX on pages 1 through 26 of this permit.

PERMITTEE: Pilgrim's Pride Corporation
FACILITY: Pilgrim's Pride Processing Plant

PERMIT NUMBER: FL0001465-005 (Major)
EXPIRATION DATE: May 5, 2015

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge process wastewater, sanitary wastewater, floor drain wastewater, and stormwater from Outfall D-001 to Suwannee River. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.3.:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow	MGD	Max Max	1.7 1.5	Daily Maximum Monthly Average	Continuous	Recording Flow Meter with Totalizer	FLW-1	
BOD, Carbonaceous 5-day, 20°C	mg/L	Max Max Max	15.0 18.0 24.3	Annual Average Monthly Average Daily Maximum	Weekly	24-hr FPC	EFF-1	
BOD, Carbonaceous 5-day, 20°C	mg/L	Max	Report	Daily Maximum	Monthly	24-hr FPC	INF-1	
BOD, Carbonaceous 5-day, 20°C	lb/day	Max Max	156 211	Monthly Average Weekly Average	Weekly	Calculated	CAL-1	
Solids, Total Suspended	mg/L	Max	Report	Daily Maximum	Monthly	24-hr FPC	INF-1	
Solids, Total Suspended	mg/L	Max Max Max	20.0 25.5 46.2	Annual Average Monthly Average Daily Maximum	Weekly	24-hr FPC	EFF-1	
Solids, Total Suspended	lb/day	Max Max	221 401	Monthly Average Daily Maximum	Weekly	24-hr FPC	EFF-1	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max Max	10.0 15.0	Monthly Average Daily Maximum	Weekly	24-hr FPC	EFF-1	
Nitrogen, Kjeldahl, Total (as N)	lb/day	Max Max	87 130	Monthly Average Daily Maximum	Weekly	Calculated	CAL-1	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	

Appendix F. continued

PERMITTEE: Pilgrim's Pride Corporation
FACILITY: Pilgrim's Pride Processing Plant

PERMIT NUMBER: FL0001465-005 (Major)
EXPIRATION DATE: May 5, 2015

Parameter	Units	Effluent Limitations			Monitoring Requirements			Notes
		Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	Weekly	Grab	EFF-1	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Temperature (°C), Water	Deg C	Max	Report	Daily Maximum	Weekly	Grab	EFF-1	
Temperature (°C), Water	Deg C	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	
Temperature (°C), Water	Deg C	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Ammonia, Unionized (as NH3)	mg/L	Max	0.02	Daily Maximum	Weekly	Calculated	CAL-1	See I.A.5
Ammonia, Unionized (as NH3)	mg/L	Max	Report	Daily Maximum	Monthly	Calculated	SWU-1	See I.A.5
Ammonia, Unionized (as NH3)	mg/L	Max	Report	Daily Maximum	Monthly	Calculated	SWD-1	See I.A.5
Oxygen, Dissolved (DO)	mg/L	Min Min	5.0 5.0	Daily Minimum Monthly Average	Weekly	Grab	EFF-1	
Oxygen, Dissolved (DO)	mg/L	Min	Report	Daily Minimum	Monthly	Grab	SWU-1	
Oxygen, Dissolved (DO)	mg/L	Min	Report	Daily Minimum	Monthly	Grab	SWD-1	
Nitrogen, Total	mg/L	Max Max Max	Report Report Report	Annual Average Daily Maximum Monthly Average	Weekly	24-hr FPC	EFF-1	
Nitrogen, Total	lb/day	Max Max Max	313.0 Report Report	Annual Average Daily Maximum Monthly Average	Weekly	Calculated	CAL-1	
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	

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Appendix F. continued

PERMITTEE: Pilgrim's Pride Corporation
FACILITY: Pilgrim's Pride Processing Plant

PERMIT NUMBER: FL0001465-005 (Major)
EXPIRATION DATE: May 5, 2015

Parameter	Units	Max/Min	Effluent Limitations		Monitoring Requirements			Notes
			Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max Max	Report Report	Daily Maximum Monthly Average	Weekly	Grab	EFF-1	
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	
Nitrite plus Nitrate, Total 1 det. (as N)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Monthly	24-hr FPC	EFF-1	
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	
Oil and Grease	mg/L	Max Max	5.0 5.0	Daily Maximum Monthly Average	Weekly	Grab	EFF-1	
Chlorine, Total Residual	mg/L	Max	0.01	Daily Maximum	Weekly	Grab	EFF-1	
Coliform, Fecal	#/100mL	Max	200	Daily Maximum	Weekly	Grab	EFF-1	
pH	s.u.	Min Max	6.0 8.5	Daily Minimum Daily Maximum	Weekly	Grab	EFF-1	
pH	s.u.	Max Min	Report Report	Daily Maximum Daily Minimum	Monthly	Grab	SWU-1	
pH	s.u.	Max Min	Report Report	Daily Maximum Daily Minimum	Monthly	Grab	SWD-1	
Specific Conductance	umhos/cm	Max	1275	Daily Maximum	Weekly	24-hr FPC	EFF-1	
Specific Conductance	umhos/cm	Max	Report	Daily Maximum	Monthly	Grab	SWU-1	
Specific Conductance	umhos/cm	Max	Report	Daily Maximum	Monthly	Grab	SWD-1	

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Appendix F. continued

PERMITTEE: Pilgrim's Pride Corporation
FACILITY: Pilgrim's Pride Processing Plant

PERMIT NUMBER: FL0001465-005 (Major)
EXPIRATION DATE: May 5, 2015

Parameter	Units	Max/Min	Effluent Limitations		Monitoring Requirements			Notes
			Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	
Chronic Whole Effluent Toxicity, 7-Day IC_{25} (*Ceriodaphnia dubia*)	percent	Min	100	Single Sample	Quarterly	24 hour composite	EFF-1	I.A.7.
Chronic Whole Effluent Toxicity, 7-Day IC_{25} (*Pimephales promelas*)	percent	Min	100	Single Sample	Quarterly	24 hour composite	EFF-1	I.A.7.

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Appendix F. continued

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

Monitoring Site Number	Description of Monitoring Site
FLW-1	Flow meter with totalizer.
EFF-1	Effluent sample point. After final treatment but prior to discharge into the receiving water.
INF-1	Influent sample point. Shall be representative of untreated wastewater and shall not include any return process wastewater from the treatment system.
CAL-1	Calculated value
SWU-1	.01 Miles upstream of outfall D001
SWD-1	.02 Miles downstream of outfall D001

3. The discharge shall not contain components that settle to form putrescent deposits or float as debris, scum, oil, or other matter. *[62-302.500(1)(a)]*

4. The daily maximum mass loading is calculated using the 24-hour composite sample result (mg/L), total flow during that 24-hour period (MGD), and conversion factor of 8.34 lb/(MG x mg/L). The highest of each daily values calculated during the reporting period is reported in the maximum column under quantity on the DMR. The monthly average loading is calculated as sum of all of the daily mass loadings calculated during a calendar month divided by the number of daily mass loadings calculated for that month. The monthly average loading is reported in the average column under quantity on the DMR.

5. Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the unionized ammonia value. Unionized ammonia shall be calculated using the DEP Standard Operating Procedure for "Calculation of Un-Ionized Ammonia in Fresh Water" dated February 12, 2001. *[62-4.246(4) and [62-302.530(3)]*

6. The Permittee shall conduct biological integrity monitoring on an annual basis in order to determine compliance with the biological integrity requirement of FAC Rule 62-302.530(10). If the first two annual sampling events demonstrate compliance with FAC Rule 62-302.530(10), monitoring shall be conducted on a triennial sampling event. If any triennial sampling event result in a violation of FAC Rule 62-302.530(10), the required monitoring period shall revert back to an annual basis (see specific condition number VII.F).

7. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

   a. Effluent Limitation

      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC_{25}) shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]

      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency

      (1) Routine toxicity tests shall be conducted quarterly, once every three months, the first starting within 60 days of the issuance date of this permit and lasting for the duration of this permit.

Appendix F. continued

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three *flow proportional 24-hour composite* samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.

(2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

(3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%, 50%, 25%, 12.5%** and **6.25%** final effluent.

(2) The permittee shall conduct a daphnid, ***Ceriodaphnia dubia***, Survival and Reproduction Test and a fathead minnow, ***Pimephales promelas***, Larval Survival and Growth Test, concurrently.

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

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

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (*Ceriodaphnia dubia*) and Section 11.11 (*Pimephales promelas*). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

Appendix F. continued

f. Reporting Requirements

(1) Results from all required tests shall be entered on the Discharge Monitoring Report (DMR) as the calculated IC_{25} for each test species.

(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and e-mailed or mailed to the Department at the address below within 30 days after the last day of the test.

(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and e-mailed or mailed within 30 days after the last day of the second valid additional follow-up test.

(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.

(5) The same bioassay data shall not be reported as the results of more than one test.

(6) All bioassay laboratory reports shall be e-mailed or mailed to *Jacksonville*:

Florida Department of Environmental Protection
Northeast District – Wastewater Section
7825 Baymeadows Way, B-200
Jacksonville, Florida 32256

g. Test Failures

(1) A test fails when the test results do not meet the limits in 7.a.(1).

(2) Additional Follow-up Tests:

(a) If a routine test does not meet the chronic toxicity limitation in 7.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 7.d.

(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.

(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5% and 6.25% effluent. The permittee may modify the dilution series in the additional follow-up tests to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.

(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.

(b) The Department shall review and approve the plan before initiation.

(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.

(d) Progress reports shall be submitted quarterly to the Department at the address above.

Appendix G. EPA End Sheet

The Bioassay of the Pilgrim's Pride Processing Plant effluent sampled on August 8, 10 and 12, 2011. NPDES #FL0001465.

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 4 6 5 11	12 1 1 0 8 0 8	18 B	19 S	20 2

Remarks

66

The Priority Pollutants Analysis of the Pilgrim's Pride Processing Plant effluent sampled on August 8, 2011. NPDES #FL0001465.

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 4 6 5 11	12 1 1 0 8 0 8	18 X	19 S	20 2

Remarks

66

Biological Analyses of the Pilgrim's Pride Processing Plant effluent sampled on August 8, 2011. NPDES #FL0001465.

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 4 6 5 11	12 1 1 0 8 0 8	18 S	19 S	20 2

Remarks

66