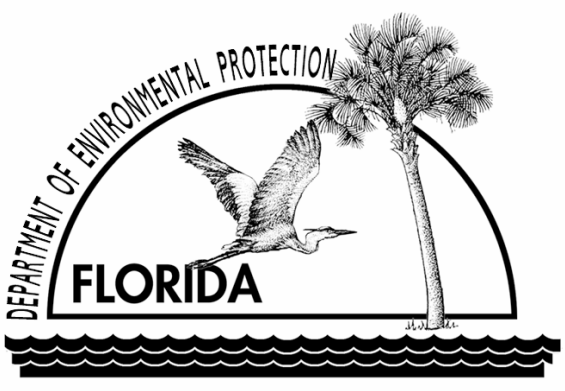


Effluent Quality Assessment

Packaging Corporation of America

(formerly known as Tenneco Packaging)

Hamilton County

NPDES #FL0000281

Sampled October 20, 22, and 24, 2008

February 2009

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

Packaging Corporation of America, (formerly Tenneco Packaging), 5495 Lake Park-Clyattville Rd, Clyattville, Georgia, 31601 and Hamilton County (Fl.). NPDES #FL0000281. Effluent samples for this facility were collected on October 20, 22, and 24, 2008.

Introduction

Packaging Corporation of America (formerly Tenneco Packaging) is an unbleached Kraft liner board production facility which uses an industrial wastewater treatment system to treat industrial wastewater. The wastewater treatment system consists of:

- a mechanical bar screen at the influent prior to the primary clarifier;
- a manual bar screen for the auxiliary wastewater lift station bypass;
- a back-up manual bar screen downstream from the mechanical bar screen;
- a wastewater lift station;
- seven secondary treatment ponds (covering approximately 344 hectares (approx. 850 acres) for secondary treatment;
    - pond 1 and 4 contain nutrient addition capabilities;
    - pond 6 contains a precipitant/ coagulant additive capability for color reduction;
- four anaerobic, facultative ponds (ponds 1-4);
- an aerated stabilization basin (pond 5);
- a 141.6 hectare (350 acre) facultative impoundment (pond 6);
- a final polishing pond (pond 7), and;
- a final effluent pumping station with an associated conveyance system, containing;
    - bar screens;
    - a post-aeration chamber;
    - a Parshall flume for effluent flow monitoring;
    - effluent pumps, and;
    - a final concrete control splitter (station 001B).

Effluent discharge is continuous and consists of a surface water discharge.

The surface water discharge consists of a permitted 55 million gallon per day (MGD) maximum daily discharge to the Withlacoochee River, a Class III fresh water body at Outfall D-001. The outfall pipe is approximately 45.72 m (150 feet) in length, and discharges at a depth which varies with river stages, generally between 3.05 m (10 feet) and 9.14 m (30 feet). The point of discharge for Outfall D-001 is located approximately at latitude 30° 37’ 21” N, longitude 83° 16’ 11” W. The annual average daily flow (AADF) to Outfall D-001 from May 2007 to August 2008 was approximately 9.9 MGD.

The facility has no administrative or consent orders, but does have an active mixing zone. The mixing zones for the effluent parameters listed below were established based on the maximum instream waste concentration of the permittee’s discharge into the Withlacoochee River. The permittee’s discharge shall not cause an exceedance of Rule 62-302.530, F.A.C. to Class III fresh water quality criteria outside of the described mixing zones for each parameter. The exception to the rule applies to dissolved oxygen (DO), in accordance with the DEP approved site–specific alternative criteria (SSAC). The SSAC, approved on February 14, 1990 (DEP file No. VE-24-334), allows the DO outside of the mixing zone to be lowered to no less than 4.0 mg/l during the months of June through October. The receiving water shall at no time have in excess of 20 percent mill effluent as calculated pursuant to Part I.A.5:

- Dissolved Oxygen: 356.9 m (1,171 ft)
- Specific Conductance: 219.8 m (721 ft)
- Total Recoverable Zinc: 139.9 m (459 ft)
- Chronic Whole Effluent Toxicity: 356.9 m (1,171 ft)
- pH: 356.9 m (1,171 ft)
- Turbidity: 220.4 m (723 ft)
- Unionized Ammonia as NH_3: 356.9 m (1,171 ft)
- Total Recoverable Lead: 194.8 m (639 ft)
- Transparency: 356.9 m (1,171 ft)
- Oil & Grease: 349.0 (1,145 ft)

A review of Discharge Monitoring Report (DMR) data for the last year, revealed two permit violations: (9/2007 - %Receiving Water Concentration (RWC) value 16.1%; permitted value 15% RWC)*, and

(9/2007 – Color value 65 PCU, permitted value no greater than 50 PCU over Upstream River color). In February and July of 2008, the facility had to bypass the primary clarifier due to mechanical problems. Effluent quality was not affected by these bypasses. The DMR review found the facility to be operating as normal except as noted above. (Facility information provided by Edward Jamro of FDEP Northeast District.)

*The permit issued February 18, 2008, raised the permitted value of RWC from 15% to 20%.

Methods

Samples were collected from the EFF-1 NPDES sampling point for Outfall D-001 by Eesa Ali, Lisa Crespo, and Stephen Nye (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/qa/sops.htm.

See Appendix A for the completed chain of custody form.

The chronic toxicity tests and algal growth potential test were performed in accordance with the facility's NPDES permit requirement of a chronic screening test consisting of a control and a single concentration of 20% effluent.

The chronic screening toxicity tests and algal growth potential 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.

Dunnett's procedure (available at Statistical Analysis for Biological Methods http://www.epa.gov/EERD/stat2.htm) and t-tests were used to analyze data from these tests.

The apparent salinity of the effluent (1.48 parts per thousand (ppth) based on conductivity and temperature measurements) exceeded the limit (1 ppth salinity) for performing algal growth potential analyses with the freshwater species, *Pseudokirchneriella subcapitata* (DEP SOP TA08_01). Therefore, the AGP analyses were performed as a marine test. The AGP sample was salinity adjusted to meet the minimum salinity requirements of the marine test species.

Toxicity Test Results

Tests were performed October 21 - 28, 2008.

Ceriodaphnia dubia chronic screening bioassay – NOEC = 20%*

Pimephales promelas chronic screening bioassay – NOEC = 20%*

The bioassay samples were not chronically toxic to the test organisms.

* As required in the permit, the bioassay tests were run at a concentration of 20% effluent.

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 salinity-adjusted effluent AGP was 28.2 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The analytical chemistry suggests that the effluent is nitrogen -limited (Table 1. Maloney et. al.1974).

Although an AGP test with the freshwater species, *Pseudokirchneriella subcapitata*, was not performed, an inference can be made that the freshwater problem threshold of 5 mg dry wt/L (Raschke and Schultz, 1987) would have also been exceeded.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine (TRC) was detected in the bioassay sample in the laboratory at concentrations of 0.07 mg/L, 0.06 mg/L, and 0.06 mg/L, respectively, in samples 1, 2, and 3. The measured TRC was likely the result of interferences within the samples. Total ammonia was detected in the bioassay sample in the laboratory at concentrations of 0.262 mg/L and 0.0314 mg/L, respectively, in samples 1 and 3. Total ammonia was not detected in sample 2 in the bioassay laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.49 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.02 mg/L.

Iron was detected in the effluent at a concentration that was in compliance with Class III fresh water quality criteria (62-302.530, F.A.C.). Arsenic, cadmium, chromium – III, copper, lead, nickel, and zinc were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Aluminum was also detected in the effluent.

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

Conclusion

The effluent samples collected from the EFF-1 NPDES sampling point for Outfall D-001 for this facility on October 20, 22, and 24, 2008, were not chronically toxic to either test species during the chronic screening bioassays. The saltwater AGP result for the effluent suggests that the algal growth potential (AGP) would likely be greater than the "problem" threshold for fresh receiving waters, suggesting that nutrient enrichment may be an issue. A freshwater AGP test was not performed due to the apparent salinity of the sample. Total residual chlorine detected in the effluent samples in the bioassay laboratory was likely due to interferences within the samples since chlorine is not used in the wastewater treatment process. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 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 algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from the Packaging Corporation of America facility on October 20, 2008.

Packaging Corporation of America NPDES # FL0000281			
Location	**AGP (measured)**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent	28.2 *	2.4	3.5
* - sample salinity adjusted to 7ppt			

Table 2. Effluent limits, Class III Freshwater Criteria and chemical data for samples collected from the Packaging Corporation of America facility on October 20, 2008.

Packaging Corporation of America NPDES # FL0000281	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-	-	-	
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	310	
Arsenic	≤ 50	-	0.51	I
Cadmium	≤ 0.4 b	-	0.023	I
Calcium (mg/L)	-	≤ 1.4 s	33.2	
Chromium-III	≤ 120.7 b	-	0.61	I
Copper	≤ 13.3 b	≤ 29 s	0.56	I
Iron	≤ 1,000	-	120	
Lead	≤ 5.4 b	≤ 9.6 s	0.4	I
Magnesium (mg/L)	-	-	16.5	
Nickel	≤ 73.9 b	-	0.5	I
Selenium	≤ 5.0	-	0.5	U
Silver	≤ 0.07	-	0.025	U
Zinc	≤ 169.7 b	≤ 250 s	5.1	I
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.37	
Total Phosphorus	-	Report	0.71	
Total Ammonia	-	Report	0.49	
Un-ionized Ammonia	≤ 0.02 s	≤ 0.134	0.02	c
Nitrate and Nitrite	-	-	0.38	
Total Kjeldahl Nitrogen	-	-	2.1	
Organic Nitrogen	-	-	1.61	c
Total Nitrogen	-	Report	2.48	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 1.5 s	9.6	
pH (SU)	6.0 - 8.5	6.0 - 9.0	8.1	
Conductivity (µmhos/cm)	≤ 1,275	3,300 s	2,584	s
Temperature °C	-	Report	18.2	
Salinity	-	-	1.48	£
Total Residual Chlorine (mg/L)	≤ 0.01	-	0.07	£ Q
Chlorophyll a (µg/L) - Corrected	-	-	25	A
Phaeophytin (µg/L)	-	-	7.1	A
Total Suspended Solids (mg/L)	-	195.4 * d	4	I
Turbidity (NTU)	< 29 t	≤ 80.0 s	4.7	A
Color (pt-Co)	-	Variable †	300	
CBOD, 5 day (mg/L), N - inhibited	-	≤ 155.8 * d	1.9	I
Oils and Greases (mg/L)	≤ 5.0	≤ 5.9 d	0	
Flow (MGD)	-	55 d	9.9	a
Hardness (mg $CaCO_3$)	-	Report	150.85	c

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
b - Value is calculated based on hardness
c - Value is calculated
d - Daily Maximum
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
† - Discharge shall not cause greater than a 50 PCU increase from natural background conditions
* - Converted from lbs/ day
£ - Measured in Central lab and entered on tox sheets

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2008-10-20-34
Packaging Corp of America

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

Requester: Jennifer Paris
Collected By: Eesa Ali / Stephen Nye
Sampling Agency: FDEP / NEO

Field Report Prepared By: Stephen Nye
Send Final Report To Tom Kallemeyn

Lab ID *	Location: PCA BEFL	☐ Comp ☒ Grab	Collection (begin) Date 10-20-08 Time 1000	Eastern Central	Collection (end) Date Time	Eastern Central	Bottle Group(s)**			
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 9.63		Storet Station Number					
	Matrix (Include type e.g. Salt, Fresh, etc): Estuary	Temp (C): 18.15	pH: 7.08	Sample Depth: 0.7 ☒ m ☐ ft	☐ Salinity (PPTh) 1.34 ☐ Sp Conductance (umho/cm) 2584	NPDES Number	A			
	Latitude o ' "	Longitude o ' "	Comments							
Lab ID *	Location: Blank	☐ Comp ☒ Grab	Collection (begin) Date 10-20-08 Time 1020	Eastern Central	Collection (end) Date Time	Eastern Central	Bottle Group(s)**			
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number					
	Matrix (Include type e.g. Salt, Fresh, etc): DI H_2O	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	B			
	Latitude o ' "	Longitude o ' "	Comments							
Lab ID *	Location	☐ Comp ☐ Grab	Collection (begin) Date Time	Eastern Central	Collection (end) Date Time	Eastern Central	Bottle Group(s)**			
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number					
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number				
	Latitude o ' "	Longitude o ' "	Comments							
Lab ID *	Location	☐ Comp ☐ Grab	Collection (begin) Date Time	Eastern Central	Collection (end) Date Time	Eastern Central	Bottle Group(s)**			
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number					
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number				
	Latitude o ' "	Longitude o ' "	Comments: 2 bottles Rec'd in Lab 5 TO 1235 10.20.08							

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
S. Nye	10.20.08/	S.F.E	AFL	10/20/08/1205P				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix A. (continued)

NLDFS-01-06
1/19/07

Department of Environmental Protection Northeast District Field Sheet

Sample Source: PCA RQ#: 2008-10-20-34 Date 10/22/08 Page 1 of 1

Meter # Y1 Acid Kit# 4 Ortho Kit # — Sampling Team SN/JC

LAB ID #	Site Name:	Field/Stored #:	Measured By:	Matrix***
	PCA GFF1			

Time	Temp °C	Cond µohm cm⁻¹	Sal ‰	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/HS	Total Depth	Sample Depth
1015	19.41	2683	1.40	8.05	9.40	103.0	0.3	—	—		0.8

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock Equipment: ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler SN

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☐ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☐ Ice ☐ H_2SO_4 ☐ pH<2		
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other:	☐ Ice ☐ 0.45µm flt		
BOD: ☐ N/A ☐ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☐ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☐ W-FIAS ☐ W-ICPMS ☐ W-ICP-Tr	☐ Ice ☐ HNO_3 ☐ pH <2		
AGP/Other: ☐ N/A ☐ AA-AGP ☐ AA-Lim-Nut ☐ Other BSY-CS-FLD/BSYCS-FFS	☐ Ice	A	CD
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli GOV-01-GES	☐ Ice H_2SO_4	A	R
Comments and conditions:			

LAB ID #	Site Name:	Field/Stored #:	Measured By:	Matrix***
	Blank			

Time	Temp °C	Cond µohm cm⁻¹	Sal ‰	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/HS	Total Depth	Sample Depth
1015											

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock Equipment: ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☐ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☐ Ice ☐ H_2SO_4 ☐ pH <2		
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other:	☐ Ice ☐ 0.45µm flt		
BOD: ☐ N/A ☐ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☐ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☐ W-FIAS ☐ W-ICPMS ☐ W-ICP-Tr	☐ Ice ☐ HNO_3 ☐ pH <2	A	
AGP/Other: ☐ N/A ☐ AA-AGP ☐ AA-Lim-Nut ☐ Other OV-01-GES	☐ Ice H_2SO_4	B	CD
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli	☐ Ice		
Comments and conditions:			

LAB ID #	Site Name:	Field/Stored #:	Measured By:	Matrix***

Time	Temp °C	Cond µohm cm⁻¹	Sal ‰	pH s.u.	DO mg/L	DO Sat %	Secchi m	WTR V ft/sec	Tide Ebb/Fld,LS/HS	Total Depth	Sample Depth

Mode: ☐ Wading ☐ Shore ☐ Gas Motor ☐ Canoe ☐ Bridge ☐ Dock Equipment: ☐ Grab ☐ Horizontal Sampler ☐ Pole Sampler

Parameters / Method	Preserve*	Suite**	Initials
Preserved Nutrients: ☐ N/A ☐ All ☐ TKN ☐ NO_2-NO_3 ☐ NH_3 ☐ TOC ☐ TP	☐ Ice ☐ H_2SO_4 ☐ pH<2		
Filtered Nutrients: ☐ N/A ☐ oP ☐ Other:	☐ Ice ☐ 0.45µm flt		
BOD: ☐ N/A ☐ CBOD-Inhb ☐ BOD-Unin	☐ Ice		
Chlorophyll: ☐ N/A ☐ CHL-PPTN-W	☐ Ice		
Physical/Aggregate Properties: ☐ N/A ☐ All ☐ TSS ☐ Turbidity ☐ W-Cl-IC ☐ W-F ☐ W-SO_4-IC ☐ Color ☐ TDS ☐ Alk	☐ Ice		
Metals: ☐ N/A ☐ W-ICP ☐ W-FIAS ☐ W-ICPMS ☐ W-ICP-Tr	☐ Ice ☐ HNO_3 ☐ pH <2		
AGP/Other: ☐ N/A ☐ AA-AGP ☐ AA-Lim-Nut ☐ Other	☐ Ice		
Micro: ☐ N/A ☐ All ☐ T Coli ☐ F Coli	☐ Ice		
Comments and conditions:			

*Preservatives: 1mL added per 500 mL sample unless otherwise noted; iced within 15 minutes ** J: samples run in Jacksonville Lab
***Matrix: SWF=Surface Water, Fresh SWS=Surface Water, Salt GW=Ground Water Sed=Sediment Other=Write In

Relinquished	Date: 10.27.08	Time: 1230	Received: Tahmoor Ebrahimi 10/28/08 12:30	☒ < 6°C on ice ☒ < 2 pH
Relinquished	Date:	Time	Received:	Shipping: SCIF

10-20-34

Request Number: RQ-2008-[redacted]

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID * 2008 - 10-20-34

Requester: Bipin Adhyaru

Field Report Prepared By: Stephen Nye

Customer: NE-DIST

Collected By: Stephen Nye / Lisa Crapps

Send Final Report To Lee Banks

Project ID: TMDL

Sampling Agency: FDEP NED

PMAS:

Lab ID *	Location		Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	PCA EFF1		☐ Comp ☒ Grab	Date 10-24-08 Time 955	Date 10-24-08 Time	A
	Field ID		Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 9.66	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc) Effluent	Temp (C) 19.13 pH 8.08	Sample Depth 0.9 ☒ m ☐ ft	1.30 2517 ☑ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "	Comments 3 BSY-CS-FCD / BSY CS FFS			

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

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

Lab ID *	Location		Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
			☐ Comp ☐ Grab			
	Field ID		Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C) pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "	Comments 3 Bossy, held water by JB 1141 10/24/08			

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	1. 1412	SELF	ABP	10-24-08 1133				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix B. Bench Sheets

FDEP Biology Laboratory - Chronic Screen Bench Sheet
Ceriodaphnia dubia

Facility: Packaging Corp. of America
Address: 5495 Lakeside-Clyattville Rd. Clyattville GA 31601
County: Lowndes GA
NPDES Permit #: FL 0000281
Contact/District: Essa Ali - NE

LIMS entry: 11-6-08 MF Verified: 11-6-08 BA

Diluent/ Batch: 20% DMW / 10-13-08 Test Days Used: 0-3
20% DMW / 10-24-08 Test Days Used: 4-6

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

Start Date: 10-21-08 Time: 13:30
End Date: 10-27-08 Time: 12:40

Organism: *Ceriodaphnia dubia*
Organism Batch #: 39-08
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 8-18-08 7-18-08
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH- 2008-10-20 03	1140434	10-20-08/ 1050	~~10-21-08~~ (A)
Test Day 2	2	TLH-2008-10-22-95	1141616	10-22-08/ 10:15	10-23-08/ 9:00
Test Day 4	3	TLH-2008-10-24-18	1142305	10-24-08/ 9:55	10-24-08/ 11:41

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L) (C)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	not measured	not measured	not measured	<0.03	<0.03	<0.03	518	521	~~500~~ 500
Diluent/Control:				0.07	0.06	0.06	81	81	~~86~~ 81 BA Transcription error 10-24-08
Method:				Hach	Hach	Hach	Hach	Hach	Hach
Measured by:				JD	JD	JD	BA	BA	BA
Verified by:	MF	MF	MF	BA	BA	BA	JD	JD	JD
Conductivity in mmhos-cm	Conductivity (circle one) ~~(umhos-cm)~~ (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	0.751	0.711	0.708	0.262	<0.017	0.0314	—	—	—
Diluent/Control:	0.180	0.181	~~0.178~~ 0.178 (B)	<0.017	<0.017	<0.017	85	85	88
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	BA	BA	BA	MF	MF	MF	BA	BA	BA
Verified by:	JD	JD	JD	BA	BA	BA	JD	JD	JD

Temperature Shipped ≤6° C (all samples) yes no
Holding Time ≤36 hours yes no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.3 max. 26.4 mean 25.9
Room B246 min. 24.5 max. 26.0 mean 25.4

Test Replicate	Loaded from culture vial
1	B9
2	A2
3	B8
4	A1
5	A23
6	A16
7	B12
8	B25
9	A15
10	A12

Statistics	
Control % CV:	20.4%
Dunnetts PMSD:	25.2% (D)
Reproduction NOEC:	100% = 20% effluent
Survival NOEC:	100% = 20% effluent
MF Reproduction T-test value	0.17984
T- table value:	1.734
df:	18

Investigators' signatures
Bea Abud
Jason Daniels
Mahshall Faircloth

Brittany Wolfe
REVIEWER

Comments: (A) Received 10-20-08 @ 12:45
(B) 0.178 Transcription error BA 10-24-08
(C) Lab Chlorine control & effluent swapped BA 10-24-08
(D) Per Permit test run at 20% effluent, results reported as NOEC = 20.0 MF 11-6-08

Test Page 1 of 3

PAGE 000031

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: Packaging Corp of America

LIMS Sample # IM0434 for lab sample 1

Start Date: 10-21-08 Time: 13:30

End Date: 10-27-08 Time: 12:40

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	0	2	0	4	4	0	4	4	0	21	10	2.1
	4	0	2	0	4	0	0	4	0	0	3	13	10	1.3
	5	6	11	8	8	7	7	11	6	10	4	78	10	7.8
	6	9	0	11	12	9	12	0	6	10	10	79	10	7.9
	7													
	8													
	Total	18	13	21	24	20	23	15	16	24	17	191	10	19.1

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
20 % sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	0	0	3	3	2	0	3	3	1	18	10	1.8
	4	0	4	0	0	0	0	4	0	0	0	8	10	0.8
	5	10	11	0	8	10	8	9	9	10	8	83	10	8.3
	6	13	10	0	7	12	7	0	10	9	9	77	10	7.7
	7													
	8													
	Total	27	25	0	17	25	17	13	22	22	18	186	10	18.6

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

Concentration	Mean neonates /adult	% survival
Control	19.1	100%
20%	18.6	100%

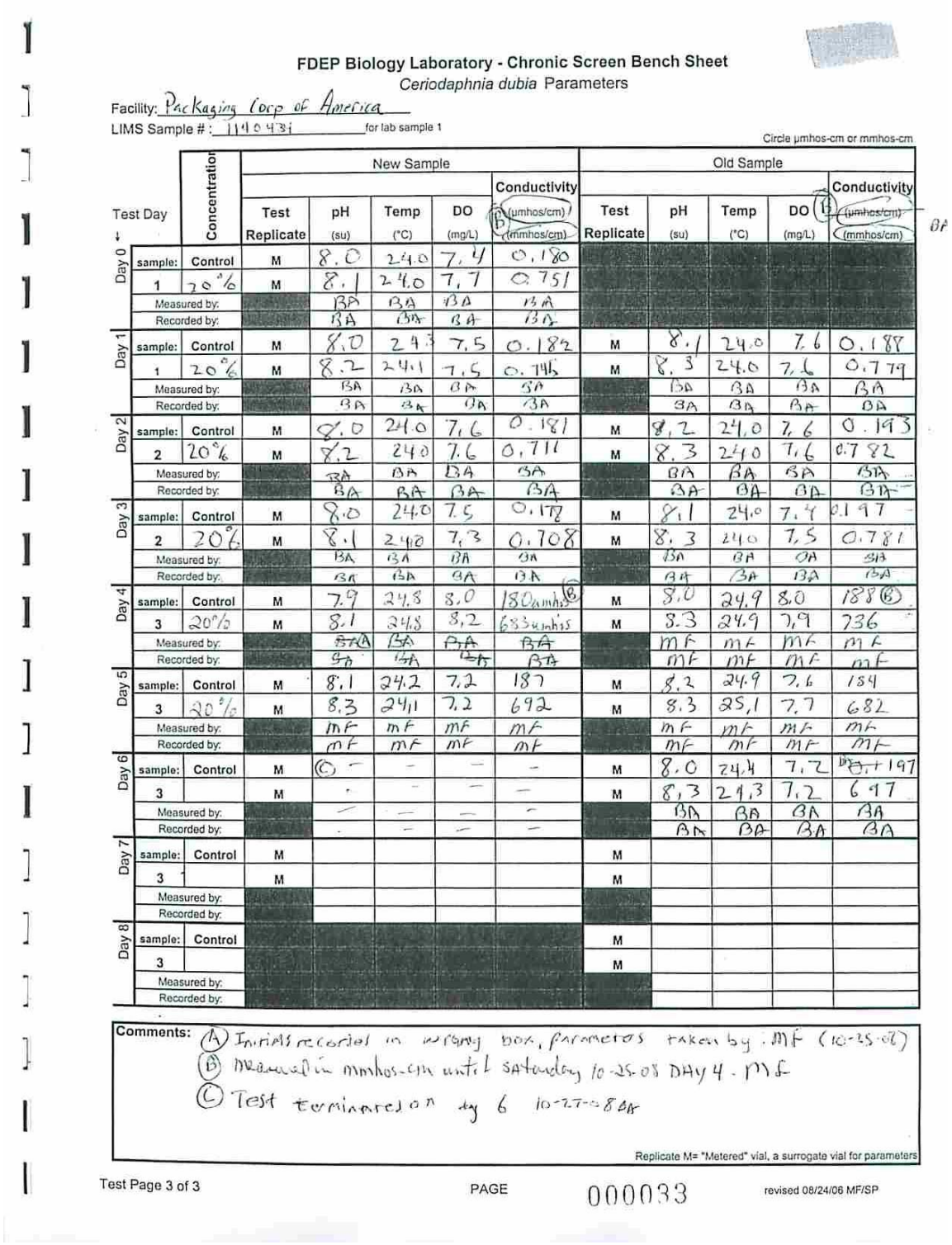
Test acceptability	
Mean control reproduction 15/female	(yes) no
3rd brood in 60% of surviving females	(yes) no
Control survival ≥80%:	(yes) no

Comments: Rep 3 of 20% sample ID'd as female 10-27-08 MF

*Day 0 is test initiation day

X = Dead (original organism)

Appendix B. (continued)



FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: Packaging Corp of America

LIMS Sample # : 1140431 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) (B) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (B) (mmhos/cm)
Day 0	sample:	Control	M	8.0	24.0	7.4	0.180					
	1	20%	M	8.1	24.0	7.7	0.751					
	Measured by:			BA	BA	BA	BA					
	Recorded by:			BA	BA	BA	BA					
Day 1	sample:	Control	M	8.0	24.3	7.5	0.182	M	8.1	24.0	7.6	0.188
	1	20%	M	8.2	24.1	7.5	0.745	M	8.3	24.0	7.6	0.779
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample:	Control	M	8.0	24.0	7.6	0.181	M	8.2	24.0	7.6	0.193
	2	20%	M	8.2	24.0	7.6	0.711	M	8.3	24.0	7.6	0.782
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 3	sample:	Control	M	8.0	24.0	7.5	0.178	M	8.1	24.0	7.4	0.197
	2	20%	M	8.1	24.0	7.3	0.708	M	8.3	24.0	7.5	0.781
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 4	sample:	Control	M	7.9	24.3	8.0	180µmhos (B)	M	8.0	24.9	8.0	188 (B)
	3	20%	M	8.1	24.8	8.2	683µmhos	M	8.3	24.9	7.9	736
	Measured by:			~~BA~~	BA	~~BA~~	~~BA~~		MF	MF	MF	MF
	Recorded by:			~~BA~~	BA	~~BA~~	~~BA~~		MF	MF	MF	MF
Day 5	sample:	Control	M	8.1	24.2	7.2	187	M	8.2	24.9	7.6	184
	3	20%	M	8.3	24.1	7.2	692	M	8.3	25.1	7.7	682
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	sample:	Control	M	(C) -	-	-	-	M	8.0	24.4	7.2	~~8.1~~ 197
	3		M	-	-	-	-	M	8.3	24.3	7.2	697
	Measured by:			-	-	-	-		BA	BA	BA	BA
	Recorded by:			-	-	-	-		BA	BA	BA	BA
Day 7	sample:	Control	M					M				
	3		M					M				
	Measured by:											
	Recorded by:											
Day 8	sample:	Control						M				
	3							M				
	Measured by:											
	Recorded by:											

Comments: (A) Initials recorded in wrong box, parameters taken by MF (10-25-08)

(B) Measured in mmhos-cm until Saturday 10-25-08 DAY 4 - MF

(C) Test termination by 6 10-27-08 BA

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

Test Page 3 of 3

PAGE 000033

revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or *Menidia beryllina*

Facility: (P.C.A) Packaging Corporation of America
Address: 5495 Lake Park - Clyattville Rd, Clyattville GA 31601
County: Lowndes, GA
NPDES Permit #: FL 0000281
Contact/District: NF / ESA Al

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: 10.21.08 Time: 1245
End Date: 10.28.08 Time: 1255

Diluent/ Batch:
MHW / 10.21.08 Test Days Used: 0-7
MHW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____
ASW / _____ Test Days Used: _____

Organism age : <24 ~~days~~ hours mf organism batch - 10-21-08
Feeding Prior to Test and Daily
Artemia Lot # : 38438
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #		Day 3	154
Day 0	151	Day 4	155
Day 1	152	Day 5	156
Day 2	153	Day 6	157

LIMS:	Date	Initials
Entry:	11-6-08	MF
Verification:	11-6-08	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2008-10-20-03	1140434	10.20.08 / 10:00	10.20.08 / 12:45
Test Day 2	2	TLH-2008-10-22-45	1141616	10.22.08 / 10:15	10.23.08 / 9:00
Test Day 4	3	TLH-2008-10-24-18	1142305	10.24.08 / 9:55	10.24.08 / 1141

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	not measured	not measured	<0.03	<0.06	0.06	518	521	500	–	–	–
Diluent/Control:				<0.03	<0.03	<0.03	85	85	85	107	107	107
Method:				Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:				JD	JD	JD	BA	BA	BA	BA	BA	BA
Verified by:	MF	MF	MF	BA	BA	BA	JD	JD	JD	JD	JD	JD

	Conductivity (circle one) (µmhos-cm / mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	2.90	2.85	2.92	0.262	<0.017	0.034	1.48	1.40	1.53
Diluent/Control:	355 umhos	355 umhos	355 umhos	<0.017	<0.017	<0.017	<1	<1	<1
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	JD	JD	MFBA	MFBA	MFBA	JD	JD	JD
Verified by:	BA	BA	BA	JD	JD	JD	BA	BA	BA

Temperature Shipped ≤6° C (all samples) (yes) no
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min 25.3 max 26.4 mean 25.9
Water bath # ____ min _____ max _____ mean _____
Room B246 min 24.5 max 26.0 mean 25.4

Investigators' signatures
James Daniel
Marshall Faircloth
Loretta C. Wolfe
REVIEWER

Statistics	
Control %cv:	4.621
Dunnetts PMSD:	19.5%
Survival NOEC:	100% = 20%(B)
Survival LOEC:	NA
Growth NOEC:	100% = 20%
Growth LOEC:	NA

Comments: (A) Transcription error BA 10-29-08
(B) Per Permit test run at 20% effluent; result reported as NOEC = 20.0 MF 11-6-08

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina Survival

Facility: PLA

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

LIMS Sample Number: 1140431 for lab sample #1

Start Date: 10.21.08 Time: 1245

End Date: 10.28.08 Time: 1255

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A F1	10	10	10	10	10	10	10	10
	B F2	10	10	10	10	10	10	10	10
	C F3	10	10	10	10	10	10	10	10
	D F4	10	9D	9	10	10	10	10	10
100 % sample concentration	A F5	10	9D	9	9	9	9	9	9
	B F6	10	10	10	10	10	10	10	10
	C F7	10	10	10	10	10	7D	7	7
	D F8	10	10	10	10	10	10	10	10
Control	A	10							
	B	10							
	C	10							
	D	10							
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	BA	JD	JD	JD
Verified by: BA									

Comments: Survival T-Test T-value 1.52506 DF=6 table value = 1.94300 = NOEC >100%
100% sample is 20% effluent and 80% MHW MF 11-6-08

Appendix B. (continued)

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

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

Sample Source: PCA

LIMS Sample #: 1140434 (for Lab sample #1)

Test Day			Old Sample						New Sample					
			Test	pH	Temp	DO	Cond (µmhos/cm)	Salinity	Test	pH	Temp	DO	Cond (µmhos/cm)	Salinity
↓	Conc.		Rep.	(su)	(°C)	(mg/L)	(mmhos/cm)	ppth	Rep.	(su)	(°C)	(mg/L)	(mmhos/cm)	ppth
Day 0	sample:	Control							A	8.1	24.0	7.8	355	<1
	1	100%							A	8.2	24.1	7.8	974	<1
	Measured by:									JD	JD	JD	JD	JD
	Recorded by:									JD	JD	JD	JD	JD
Day 1	sample:	Control	B	7.9	24.3	7.0	358	<1	B	8.0	24.0	7.7	337	<1
	1	100%	B	8.3	24.3	6.9	875	<1	B	8.3	24.6	7.5	850	4
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 2	sample:	Control	C	7.7	24.6	6.7	359	<1	C	8.0	24.0	7.5	353	<1
	2	100%	C	8.1	24.7	6.6	870	<1	C	8.2	24.0	7.4	870	4
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 3	sample:	Control	D	7.7	24.4	6.0	354	<1	D	8.1	24.0	7.5	345	<1
	2	100%	D	8.0	24.7	5.5	874	<1	D	8.2	24.3	8.2	870	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 4	sample:	Control	A	7.6	24.2	7.2	347	<1	A	7.1	24.0	8.0	340	<1
	3	100%	A	8.0	24.4	7.1	868	<1	A	8.1	24.0	8.1	833	<1
	Measured by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA	BA		BA	BA	BA	BA	BA
Day 5	sample:	Control	B	7.7	24.7	7.2	337	<1	B	8.0	24.0	7.6	341	<1
	3	100%	B	7.9	24.8	7.0	827	<1	B	8.2	24.1	7.8	853	<1
	Measured by:			MF	MF	MF	MF	MF		JD	JD	JD	JD	JD
	Recorded by:			MF	MF	MF	MF	MF		JD	JD	JD	JD	JD
Day 6	sample:	Control	C	7.7	24.7	5.7	344	<1	C	8.0	24.0	6.7	350	<1
	3	100%	C	8.0	24.5	5.8	842	<1	C	8.2	24.0	6.7	850	<1
	Measured by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
	Recorded by:			JD	JD	JD	JD	JD		JD	JD	JD	JD	JD
Day 7	sample:	Control	D	7.6	24.0	6.5	340	<1						
	3	100%	D	7.9	24.2	6.3	849	<1						
	Measured by:			JD	JD	JD	JD	JD						
	Recorded by:			JD	JD	JD	JD	JD						

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

Comments:

revised 6/24/05 mf

Test Page 3 of 4 PAGE 000 07

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: P.C.A

LIMS Sample Number: 1140431 for lab sample #1

Balance - Ohaus 250D
S-weights - Bio-S-weights-01
Oven - 630F sediment oven

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	1	0.02547	0.03137	0.0059	10	0.59
	B	2	0.02135	0.02751	0.00616	10	0.616
	C	3	0.02391	0.03001	0.006	10	0.61
	D	4	0.02403	0.03061	0.00658	10	0.658
100 % sample	A	5	0.02435	0.03146	0.00807	10	0.~~80~~ 81 (A)
	B	6	0.02247	0.02962	0.00715	10	0.715
	C	7	0.02351	0.02842	0.00491	10	0.491
	D	8	0.02518	0.03277	0.00759	10	0.759
Control	A					10	
	B					10	
	C					10	
	D					10	
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		JD	JD			

Growth	%CV	PMSD
Control	4.621	19.5%

Growth	Table	Calculated	dF
T-test	T1.943[00]	1.03453	6

stray mark MF wrong date month chang 11-4-08

Drying	
Temperature °C:	105°C
Hours:	8 hrs

weights in grams.

Tare Weighing Date: 10.28.08 Final Weighing Date: 10.29.08

			Measured Value		S-weight Value
Tare Pan 1 after Pan 5	0.02547 @	0.02547	S-weights	0.01001 @	0.01
Tare Pan 1 after Pan 8	0.02547 @	0.02547	at tare	0.03001 @	0.03
Final Pan 1 after Pan 5	0.03137 @	0.03137	S-weights	0.01201 @	0.02
Final Pan 1 after Pan 8	0.03134 @	0.03137	at final	0.05006 @	0.05

Comments: mean control wt/org = 0.61850 mg./organism
mean weight 100% sample = 0.~~72150~~ 66969 mg/organism MF corrected 11-6-08
100% sample is 20% effluent + 80% moderately Hard ~~water~~ Water (MHW) MF 11-4-08
(A) corrected wt calculation MF 11-6-08

Test Page 4 of 4 PAGE 000 08 revised 08/24/06 MF/SP

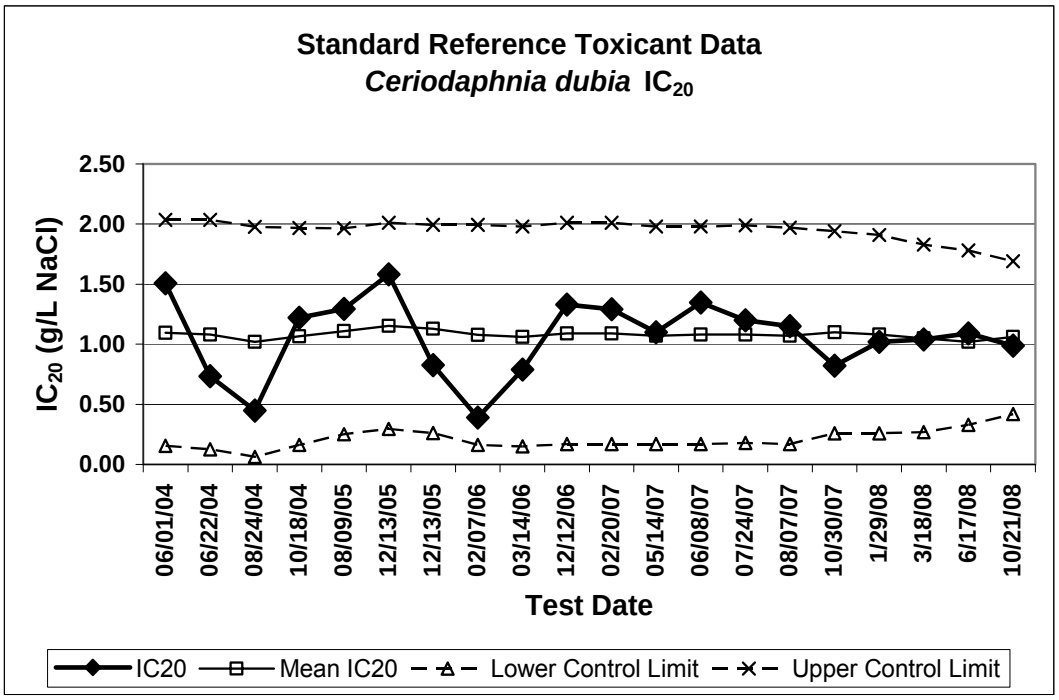
Appendix C. SRT Bench Sheets and Statistical Analysis

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	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
06/01/04	1.51	1.10	0.47	0.15	2.04
06/22/04	0.73	1.08	0.48	0.13	2.03
08/24/04	0.45	1.02	0.48	0.06	1.98
10/18/04	1.22	1.07	0.45	0.16	1.97
11/16/04	1.29	1.11	0.43	0.25	1.96
08/09/05	1.58	1.15	0.43	0.30	2.01
12/13/05	0.83	1.13	0.43	0.26	1.99
02/07/06	0.39	1.08	0.46	0.16	1.99
03/14/06	0.79	1.06	0.46	0.15	1.98
12/12/06	1.33	1.09	0.46	0.17	2.01
02/20/07	1.29	1.09	0.46	0.17	2.01
05/14/07	1.10	1.07	0.45	0.17	1.98
06/08/07	1.35	1.08	0.45	0.17	1.98
07/24/07	1.20	1.08	0.45	0.18	1.99
08/07/07	1.15	1.07	0.45	0.17	1.97
10/30/07	0.82	1.10	0.42	0.26	1.94
1/29/08	1.02	1.08	0.41	0.26	1.91
3/18/08	1.04	1.05	0.39	0.27	1.83
6/17/08	1.09	1.02	0.36	0.33	1.78
10/21/08	0.99	1.06	0.32	0.42	1.69

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



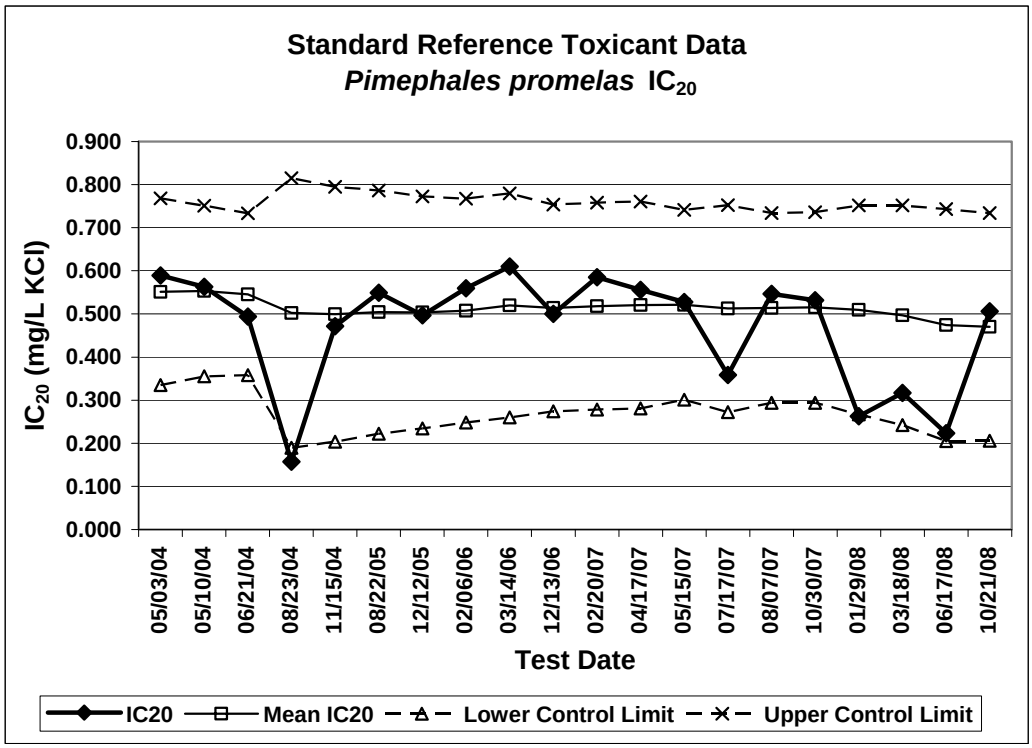
Appendix C. (continued)

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	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
05/03/04	0.589	0.551	0.11	0.335	0.768
05/10/04	0.563	0.553	0.10	0.355	0.751
06/21/04	0.494	0.546	0.09	0.358	0.734
08/23/04	0.157	0.503	0.16	0.190	0.815
11/15/04	0.472	0.499	0.15	0.204	0.795
08/22/05	0.549	0.504	0.14	0.222	0.786
12/12/05	0.497	0.503	0.13	0.234	0.772
02/06/06	0.559	0.508	0.13	0.248	0.767
03/14/06	0.610	0.520	0.13	0.260	0.780
12/13/06	0.501	0.514	0.12	0.274	0.754
02/20/07	0.585	0.518	0.12	0.278	0.758
04/17/07	0.556	0.521	0.12	0.281	0.761
05/15/07	0.528	0.521	0.11	0.301	0.741
07/17/07	0.358	0.513	0.12	0.273	0.753
08/07/07	0.547	0.514	0.11	0.294	0.734
10/30/07	0.531	0.515	0.11	0.294	0.736
01/29/08	0.263	0.509	0.12	0.267	0.752
03/18/08	0.317	0.497	0.13	0.242	0.752
06/17/08	0.223	0.474	0.13	0.205	0.743
10/21/08	0.506	0.470	0.13	0.206	0.734

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



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 10-13-08 Test Days Used: 0-3
20% DMW / 10-24-08 Test Days Used: 3-6
Toxicant/ Batch: NaCl / 10-21-08

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 39-08/ <24 hr.
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 6-18-08 7-18-08
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 10-21-08 Time: 13:00
End Date: 10-27-08 Time: 12:30

Water Quality Parameters	20% DMW 10-13-08	Diluent (or other) 10-24-08	Method	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	81	81	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	85	88	HACH	BA	JD
Total Ammonia (mg/L as N):	<0.017	<0.017	DENVER	MF	BA
Conductivity (umhos-cm) mmhos-cm :	0.178	0.172	YSI / Mettler	BA	JD

Results	
Control % CV:	26.01%
Dunnetts PMSD:	22.3%
Reproduction NOEC:	0.89
Reproduction LOEC:	1.3
Survival NOEC:	2
Survival LOEC:	3
ICP_{20}:	0.9891
ICP_{25}:	1.1377

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

Test Replicate	Loaded from culture vial
1	B9
2	A2
3	B8
4	A1
5	A23
6	A16
7	B12
8	B25
9	A15
10	A12

Comments:

Investigators' signatures

Bruce Dirks
Marshall Faircloth
James Daniels

Roberta C. Wolfe
REVIEWER

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 25.3 max. 36.4 mean 25.9
Incubator # ____ min. _____ max. _____ mean _____
Room B246 min. 24.5 max. 26.0 mean 25.7

Appendix C. (continued)

Ceriodaphnia dubia Survival and Reproduction

Start Date: 10-4-08 Time: 13:00 Loaded by: BA
End Date: ~~10-27-08~~ 10-27-08 Time: 12:30 Verified by: DO

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	3	6	3	2	4	2	0	3	3	4	24	10	2.4
	4	0	3	0	0	0	0	4	0	0	0	7	10	0.7
	5	8	8	6	9	7	8	9	6	8	5	74	10	7.4
	6	7	0	4	10	12	3	0	10	12	11	69	10	6.9
	7													
	8													
	Total	18	11	13	21	23	13	13	19	23	20	174	10	17.4
0.59 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	0	3	0	4	4	0	2	0	0	16	10	1.6
	4	0	4	0	3	0	0	2	0	4	4	17	10	1.7
	5	7	8	6	6	4	2	5	2	1	2	43	10	4.3
	6	9	0	11	6	11	9	1	11	9	9	(A) ~~76~~ 76	10	7.6
	7													
	8													
	Total	19	12	20	15	19	15	8	15	14	15	152	10	15.2
0.89 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	0	3	0	3	2	0	3	0	0	14	10	1.4
	4	0	4	0	4	0	0	3	0	4	4	19	10	1.9
	5	2	7	1	6	3	3	8	2	5	7	44	10	4.4
	6	8	0	8	7	8	9	0	7	12	9	68	10	6.8
	7													
	8													
	Total	13	11	12	17	14	14	11	12	21	20	145	10	14.5

Comments: (A) Transcription error BA 11-19-08

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 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	2	0	(A)	0	3	4	0	4	0	0	15	10	1.5
	4	X0	3	0	4	0	0	3	0	4	3	17	9	1.7
	5		4	5	5	3	7	0	3	3	6	36	9	4
	6		1	7	3	5	9	5	9	6	8	53	9	5.89
	7													
	8													
	Total	2	8	14	12	11	20	8	16	13	17	121	10	12.1
2.0 ppth	0												10	
	1												10	
	2	0	X	0	0	0	0	0	0	0	0	0	10	0
	3	0		0	0	1	3	0	0	0	0	4	9	0.44
	4	1		0	0	0	0	0	0	0	0	1	9	0.1
	5	1		1	0	0	0	1	0	0	0	3	9	0.33
	6	X		0	2	0	2	3	(B) 1	4	2	14	8	1.75
	7													
	8													
	Total	2	1	1	2	1	5	4	1	4	2	22	10	2.2
3.0 ppth	0												10	
	1		X					X			X		7	
	2	X		X	X	X	X		X	X		0	0	0
	3													
	4													
	5													
	6													
	7													
	8													
	Total											0	0	0

Comments: (A) Accidental pen mark BA 11-19-08
(B) Transcription error BA 11-19-08

Test Page 3 of 5 PAGE 000023 08/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

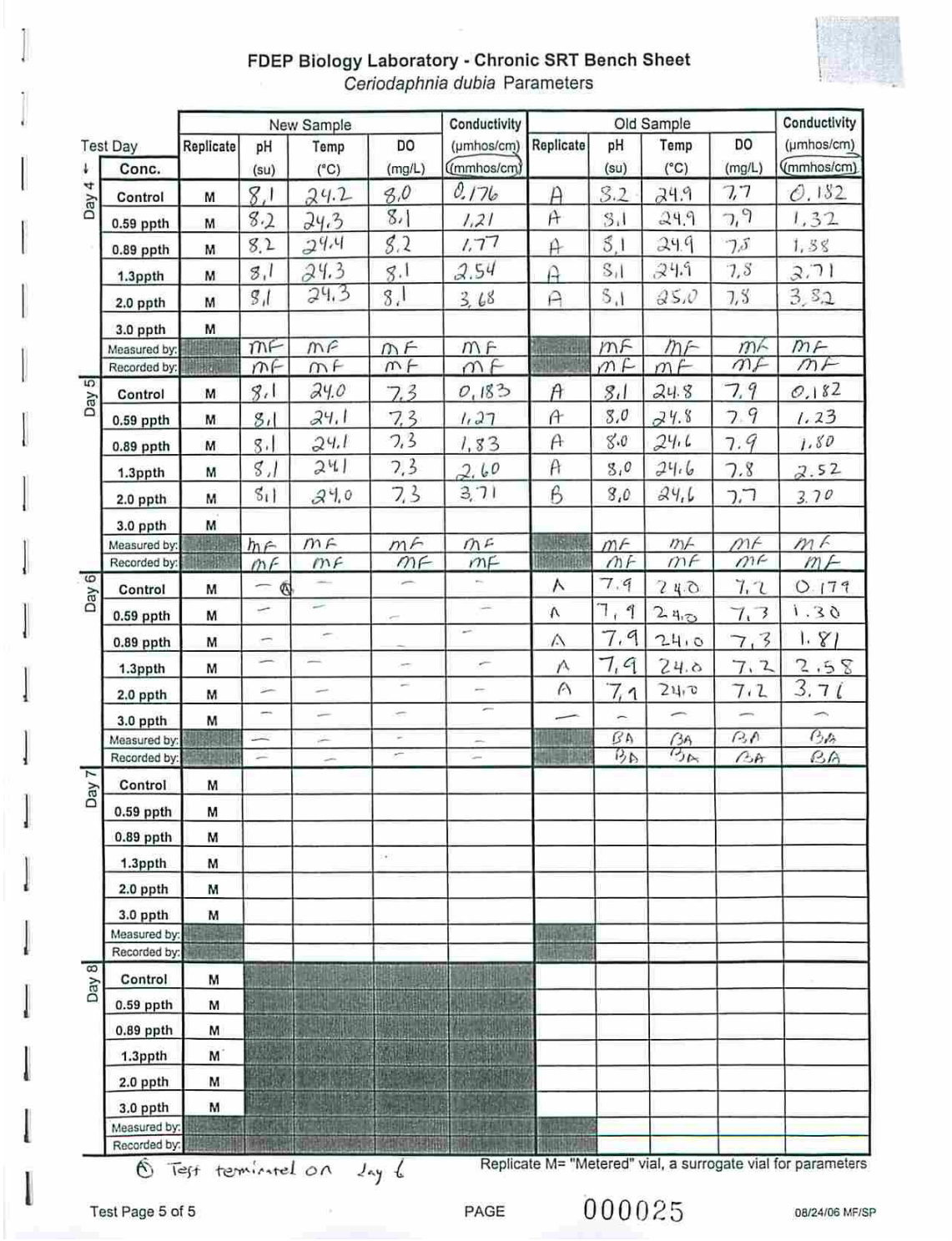
Ceriodaphnia dubia Parameters

Test Day	Conc.	New Sample Replicate	New Sample pH (su)	New Sample Temp (°C)	New Sample DO (mg/L)	New Sample Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	Old Sample pH (su)	Old Sample Temp (°C)	Old Sample DO (mg/L)	Old Sample Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	8.0	24.0	7.8	0.178					
	0.59 ppth	M	8.0	24.0	7.8	1.27					
	0.89 ppth	M	8.0	24.0	7.7	1.81					
	1.3ppth	M	8.0	24.0	7.6	2.61					
	2.0 ppth	M	8.0	24.0	7.6	3.79					
	3.0 ppth	M	8.1	24.0	7.6	5.46					
	Measured by:		BA	BA	BA	BA					
	Recorded by:		BA	BA	BA	BA					
Day 1	Control	M	8.1	24.2	7.6	0.177	A	7.9	24.0	7.4	0.199
	0.59 ppth	M	8.0	24.4	7.7	1.29	A	7.9	24.0	7.5	1.31
	0.89 ppth	M	8.1	24.4	7.7	1.83	A	7.9	24.0	7.5	1.94
	1.3ppth	M	8.1	24.4	7.7	2.61	A	7.9	24.0	7.6	2.71
	2.0 ppth	M	8.1	24.2	7.7	3.74	A	7.9	24.0	7.5	3.97
	3.0 ppth	M	8.1	24.2	7.7	5.44	A	8.0	24.0	7.5	5.78
	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	24.0	7.9	0.174	A	8.2	24.0	7.6	0.207
	0.59 ppth	M	7.9	24.0	7.9	1.23	A	8.1	24.0	7.7	1.39
	0.89 ppth	M	8.0	24.0	7.8	1.77	A	8.1	24.0	7.6	1.95
	1.3ppth	M	8.0	24.0	7.7	2.57	A	8.1	24.0	7.5	2.77
	2.0 ppth	M	8.1	24.0	7.7	3.71	A	8.1	24.0	7.4	3.9
	3.0 ppth	M	—	—	—	—	A	8.1	24.0	7.4	5.48
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 3	Control	M	8.0	24.0	7.5	0.172	A	8.1	24.0	7.7	0.191
	0.59 ppth	M	8.0	24.0	7.6	1.27	A	8.1	24.0	7.3	1.28
	0.89 ppth	M	8.0	24.0	7.7	1.83	A	8.0	24.0	7.5	1.87
	1.3ppth	M	8.1	24.0	7.7	2.59	A	8.1	24.0	7.4	2.62
	2.0 ppth	M	8.1	24.0	7.6	3.71	A	8.1	24.0	7.3	3.71
	3.0 ppth	M	—	—	—	—	—	—	—	—	—
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA

Comments:

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

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)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	8.1	24.2	8.0	0.176	A	8.2	24.9	7.7	0.182
	0.59 ppth	M	8.2	24.3	8.1	1.21	A	8.1	24.9	7.9	1.32
	0.89 ppth	M	8.2	24.4	8.2	1.77	A	8.1	24.9	7.8	1.88
	1.3ppth	M	8.1	24.3	8.1	2.54	A	8.1	24.9	7.8	2.71
	2.0 ppth	M	8.1	24.3	8.1	3.68	A	8.1	25.0	7.8	3.82
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 5	Control	M	8.1	24.0	7.3	0.183	A	8.1	24.8	7.9	0.182
	0.59 ppth	M	8.1	24.1	7.3	1.27	A	8.0	24.8	7.9	1.23
	0.89 ppth	M	8.1	24.1	7.3	1.83	A	8.0	24.6	7.9	1.80
	1.3ppth	M	8.1	24.1	7.3	2.60	A	8.0	24.6	7.8	2.52
	2.0 ppth	M	8.1	24.0	7.3	3.71	B	8.0	24.6	7.7	3.70
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 6	Control	M	— ⑥	—	—	—	A	7.9	24.0	7.2	0.179
	0.59 ppth	M	—	—	—	—	A	7.9	24.0	7.3	1.30
	0.89 ppth	M	—	—	—	—	A	7.9	24.0	7.3	1.81
	1.3ppth	M	—	—	—	—	A	7.9	24.0	7.2	2.58
	2.0 ppth	M	—	—	—	—	A	7.9	24.0	7.2	3.76
	3.0 ppth	M	—	—	—	—	—	—	—	—	—
	Measured by:		—	—	—	—		BA	BA	BA	BA
	Recorded by:		—	—	—	—		BA	BA	BA	BA
Day 7	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										

⑥ Test terminated on Day 6

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

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08/24/06 MF/SP

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: MHV/10.21.08 Test Days Used: 0-7 Start Date: 10.21.08 Time: 1315

Diluent/ Batch: _____ Test Days Used: _____ End Date: 10.28.08 Time: 1300

Toxicant/ Batch # : KCl / 10.17.08 Organism Batch #/ Age: 10.21.08 / <24hrs

Artemia Lot # : 38438

Artemia Batch # 38438	Day 2 153	Day 5 156	Chamber size : 1000 ml
Day 0 151	Day 3 154	Day 6 157	Test volume : 500 ml
Day1 152	Day 4 155		

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	JD	BA
Alkalinity (mg/L as $CaCO_3$):	85		HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	107		HACH	BA	JD
Total Ammonia (mg/L as N):	<0.07		DENVER	MF	JD
Conductivity ~~µmhos-cm~~ mmhos-cm:	337		METTLER	JD	BA

Statistics	
Growth NOEC:	0.5
Growth LOEC:	1
Growth IC_{20}:	0.5106
Growth IC_{25}:	0.54
Ctrl % CV:	8.49
Dunnetts PMSD:	26.35
Survival NOEC:	0.5
Survival LOEC:	1

→ put IC_{25} = IC_{20} appt mf 11.6.08

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 25.3 max. 26.4 mean 25.9

Water bath # ____ min. _____ max. _____ mean _____

Room B246 min. 24.5 max. 26.0 mean 25.4

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

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

Investigators' signatures

James Daniel

Brent Aboal

Marshall Faircloth

Dottie White

REVIEWER

Comments:

000019

Test Page 1 of 6 PAGE revised 8/24/06 MF/SP

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 (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	D1	10	10	10	10	10	10	10	10
	B	D2	10	10	10	10	10	10	10	10
	C	D3	10	10	10	10	10	10	10	10
	D	D4	10	10	10	10	10	10	10	10
.0625	A	D5	10	10	10	10	10	10	10	10
	B	D6	10	10	10	10	10	10	10	10
	C	D7	10	10	10	10	10	10	10	10
	D	D8	10	10	10	10	10	10	10	10
.125	A	D9	10	10	10	10	10	10	10	10
	B	D10	10	10	10	10	10	10	10	10
	C	D11	10	10	10	10	10	10	10	10
	D	D12	10	10	10	10	10	10	10	10
.250	A	D13	10	10	10	10	10	10	10	10
	B	D14	10	10	10	10	10	10	10	10
	C	D15	10	10	10	10	10	10	10	10
	D	D16	10	10	10	10	10	10	10	10
.5	A	D17	10	10	10	10	10	10	10	10
	B	D18	10	9 10	9	9	9	9	8 10	8
	C	D19	10	10	10	9 10	9	9	9	5 10
	D	D20	10	10	9 10	8 10	7 10	7	7	6 10
1.0	A	D21	10	0 10	—	—	—	—	—	—
	B	D22	10	2 10	0 10	—	—	—	—	—
	C	D23	10	3 10	2 10	1 10	1	1	0 10	—
	D	D24	10	3 10	1 10	1	1	1	1	1
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by*:		JD	JD	JD	BA	JD	JD	JD
		Concentrations prepared by:		JD	JD	JD	JD/BA	JD	JD	JD

Comments:
verified by: BA 10-21-08

*verified by for 0 hour

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 10.21.08 Time: 1300-15 DO wiskytime. Organism: (P. promelas) M.beryllina (circle one)

End Date: 10.28.08 Time: 1300 Concentration: µg/L (circle one)

circle µmhos or mmhos

Test Day		Before Renewal					Test Start and After Renewal				
	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity µmhos mmhos
Day 0	Control						A	7.9	24.0	8.0	337
	.0625						A	8.1	24.0	7.9	469
	.125						A	8.1	24.0	7.8	563
	.250						A	8.1	24.0	7.8	842
	.5						A	8.1	24.0	7.9	1284
	1.0						A	8.1		7.8	2240
							A				
	Measured by:							JD	JD	JD	JD
	Recorded by:							JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 1	Control	B	7.8	24.4	6.9	347	B	7.8	24.0	7.4	343
	.0625	B	7.9	24.4	7.1	479	B	8.1	24.0	7.4	467
	.125	B	7.9	24.5	7.1	569	B	8.1	24.0	7.5	585
	.25	B	8.0	24.4	7.2	842	B	8.1	24.0	7.6	840
	.5	B	8.0	24.3	7.2	1291	B	8.1	24.0	7.7	130
	1.0	B	7.9	24.4	7.1	2250	B	8.1	24.0	7.7	2260
		B					B				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 2	Control	C	7.7	24.7	6.9	337	C	8.0	24.1	7.5	337
	.0625	C	7.7	24.6	6.7	458	C	8.0	24.4	7.4	459
	.125	C	7.7	24.6	6.7	577	C	8.0	24.6	7.3	579
	.25	C	7.7	24.4	6.6	825	C	8.0	24.6	7.3	822
	.5	C	7.7	24.3	6.6	1294	C	8.0	24.5	7.3	1285
	1.0	C	7.7	24.2	6.7	2210	C	8.0	24.1	7.3	2200
		C					C				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 3	Control	D	7.7	24.7	6.3	338	D	8.0	24.0	7.6	325
	.0625	D	7.7	24.7	6.3	460	D	8.0	24.0	7.5	437
	.125	D	7.7	24.5	6.2	578	D	8.1	24.0	7.3	554
	.25	D	7.7	24.5	6.1	817	D	8.0	24.0	7.2	787
	.5	D	7.7	24.4	6.1	1284	D	8.0	24.0	7.3	1235
	1.0	D	7.7	24.4	6.7	2200	D	8.0	24.0	7.4	2190
		D					D				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD

Transcription error 10.24.08 JD

Comments:

000021

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

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

Concentration: µg/L g/L (circle one)

circle µmhos or mmhos

Test Day			Before Renewal					After Renewal				
↓	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos mmhos)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos mmhos)
Day 4	Control	A	7.7	24.0	7.7	327	A	7.6	24.0	8.1	320
	0.0625	A	7.7	24.3	7.6 7.8	453	A	7.7	24.0	8.3	372
	0.125	A	7.7	24.3	7.3	575	A	7.7	24.2	8.2	475
	0.25	A	7.7	24.3	7.2	813	A	7.7	24.3	8.2	811
	0.5	A	7.7	24.4	7.1	1,277	A	7.7	24.3	8.1	1,267
	1.0	~~A~~ C	7.7	24.4	7.0	2,220	~~A~~ C	7.8	24.0	8.0	2150
		A					A				
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 5	Control	B	7.7	24.5	6.8	331	B	8.0	24.0	7.9	323
	0.0625	B	7.6	24.6	6.8	404	B	7.9	24.4	7.8	387
	0.125	B	7.6	24.6	6.8	477	B	7.9	24.5	7.7	456
	0.25	B	7.6	24.6	6.4	807	B	7.9	24.4	7.7	811
	0.5	B	7.6	24.8	6.4	1,272	B	8.0	24.4	7.8	1286
	1.0	~~B~~ D	7.6	24.6	6.5	2160	~~B~~ D	8.0	24.0	7.8	2170
		B					B				
	Measured by:		MF	MF	MF	MF		JD	JD	JD	JD
	Recorded by:		MF	MF	MF	MF		JD	JD	JD	JD
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 6	Control	C	7.6	24.5	5.0	327	C	8.0	24.0	6.3	319
	0.0625	C	7.5	24.4	4.4	386	C	7.9	24.0	6.8	434
	0.125	C	7.5	24.4	4.8	453	C	7.9	24.0	6.7	578
	0.25	C	7.5	24.3	5.0	811	C	7.9	24.0	6.7	847
	0.5	C	7.5	24.3	5.1	1283	C	7.9	24.0	6.8	1245
	1.0	C	7.6	24.3	6.0	2150	C	7.9	24.0	6.8	2200
		C					C				
	Measured by:		JD	JD	JD	JD		JD	JD	JD	JD
	Recorded by:		JD	JD	JD	JD		JD	JD	JD	JD
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 7	Control	D	7.6	24.4	5.9	322	D				
	0.0625	D	7.5	24.2	5.7	435	D				
	0.125	D	7.5	24.1	5.2	576	D				
	0.25	D	7.5	24.0	5.3	867	D				
	0.5	D	7.5	24.0	5.5	1246	D				
	1.0	D	7.5	24.0	5.6	2,220	D				
		D					D				
	Measured by:		JD	JD	JD	JD					
	Recorded by:		JD	JD	JD	JD					

Comments: (A) 7.6, Transcription error BA 11-19-08

000022

Test Page 4 of 6

PAGE

revised 8/24/06 MF/SP

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

g/L

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	9	0.02277	0.02909	0.00632	10	0.632
	B	10	0.02444	0.03212	0.00768	10	0.768
	C	11	0.02375	0.03107	0.00732	10	0.732
	D	12	0.02313	0.02992	0.00679	10	0.679
0.0625	A	13	0.02617	0.03543	0.00926	10	0.926
	B	14	0.02162	0.03021	0.00859	10	0.859
	C	15	0.01978	0.02757	0.00779	10	0.779
	D	16	0.02132	0.02893	0.00761	10	0.761
0.125	A	17	0.02148	0.02994	0.00846	10	0.846
	B	18	0.02114	0.03051	0.00937	10	0.937
	C	19	0.02249	0.03113	0.00864	10	0.864
	D	20	0.02195	0.03077	0.00882	10	0.882
0.25	A	21	0.02277	0.03263	0.00986	10	0.986
	B	22	0.02294	0.03039	0.00815	10	0.815
	C	23	0.02245	0.03263	0.01018	10	~~0.1018~~ 1.018 ~~0.1018~~ JD miscalculated
	D	24	0.02194	0.03045	0.00851	10	0.851
0.5	A	25	0.02323	0.03217	0.00894	10	0.894
	B	26	0.02404	0.03122	0.00718	10	0.718
	C	27	0.02024	0.02477	0.00453 ~~0.0177~~	10	~~1.777~~ 0.453 ~~0.177~~ JD miscalculated
	D	28	0.02288	0.02920	0.00632	10	0.632
1.0	A	29	0.02172	0.02428	0.00256	10	0.256
	B	30				10	
	C	31				10	
	D	32				10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	JD	JD			

Comments:

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

Test Page 5 of 6 PAGE 000023 revised 8/24/06 MF/CP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

Empty Pan Weights Date: 10.28.08

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.02547	@	0.02547
after Pan 10	0.02547	@	0.02547
after Pan 15	0.02547	@	0.02547
after Pan 20	0.02547	@	0.02547
after Pan 25	0.02547	@	0.02547
after Pan 30	0.02547	@	0.02547
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.0100l	@	0.01
	0.0300l	@	0.03

weight measurement in grams.

Fish + Pan Weights Date: 10.29.08

	Pan 1 wt.		Pan 1 initial wt.
after Pan 5	0.03137	@	0.03137
after Pan 10	0.03134	@	0.03137
after Pan 15	0.03134	@	0.03137
after Pan 20	0.03136	@	0.03137
after Pan 25	0.03137	@	0.03137
after Pan 30	0.03137	@	0.03137
after Pan 35		@	
after Pan 40		@	
after Pan 45		@	
after Pan 48		@	

	Measured Value		S-weight Value
S-weights	0.0200l	@	0.02
	0.0500G	@	0.05

Drying Oven ID: 630F Sediment oven

Temperature °C: 105

Drying Hours: 8

Balance - OHaus 25D

S-weights - Bio_ S-weights -01

Oven - 630F sediment oven

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

Comments:

Test Page 6 of 6 PAGE 000024 revised 8/24/06 MF/SP

Appendix C. (continued)

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	10/21/2008 13:30	Test ID:	pcacd1008	Sample ID:	FL-NPDES Permit #FL0000281
End Date:	10/27/2008 12:40	Lab ID:	PCA 20% effluent	Sample Type:	EFF2-Industrial
Sample Date:	10/20/2008 10:00	Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	CD-Ceriodaphnia dubia
Comments:	Effluent tested at 20% per permit.				

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	18.000	13.000	21.000	24.000	20.000	23.000	15.000	16.000	24.000	17.000
20	27.000	25.000	0.000	17.000	25.000	17.000	13.000	22.000	22.000	18.000

			Transform: Untransformed						1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	19.100	1.0000	19.100	13.000	24.000	20.420	10			
20	18.600	0.9738	18.600	0.000	27.000	42.349	10	0.180	1.734	4.820

Auxiliary Tests	Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89235		0.868		-1.44165	3.606367
F-Test indicates equal variances (p = 0.05)	4.07889		6.54109			
Hypothesis Test (1-tail, 0.05)	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Homoscedastic t Test indicates no significant differences Treatments vs D-Control	4.81981	0.252346	1.25	38.62778	0.859249	1, 18

Appendix C. (continued)

Larval Fish Growth and Survival Test-7 Day Survival

Start Date:	10/21/2008 12:45	Test ID:	pcapp1008	Sample ID:	FL0000281-NPDES Permit #
End Date:	10/28/2008 12:55	Lab ID:	pca pp screen 10 08	Sample Type:	EFF2-Industrial
Sample Date:	10/20/2008 10:00	Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	PCA chronic screen per permit 20% effluent tested				

Conc-%	1	2	3	4
D-Control	1.0000	1.0000	1.0000	1.0000
20	0.9000	1.0000	0.7000	1.0000

			Transform: Arcsin Square Root					1-Tailed		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4			
20	0.9000	0.9000	1.2661	0.9912	1.4120	15.696	4	1.469	2.353	0.2338

Auxiliary Tests	Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.791777		0.749		-1.25971	3.022935
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Heteroscedastic t Test indicates no significant differences	0.121383	0.124495	0.042607	0.019745	0.192225	1, 6
Treatments vs D-Control						

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	10/21/2008 12:45	Test ID:	pcapp1008	Sample ID:	FL0000281-NPDES Permit #
End Date:	10/28/2008 12:55	Lab ID:	pca pp screen 10 08	Sample Type:	EFF2-Industrial
Sample Date:	10/20/2008 10:00	Protocol:	EPAF 94-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	PCA chronic screen per permit 20% effluent tested				

Conc-%	1	2	3	4
D-Control	0.5900	0.6160	0.6100	0.6580
20	0.7110	0.7150	0.4910	0.7590

			Transform: Untransformed					1-Tailed		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	0.6185	1.0000	0.6185	0.5900	0.6580	4.621	4			
20	0.6690	1.0816	0.6690	0.4910	0.7590	18.033	4	-0.815	1.943	0.1205

Auxiliary Tests	Statistic		Critical		Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.840919		0.749		-1.67478	3.633334
F-Test indicates equal variances (p = 0.04)	17.81477		47.46723			
Hypothesis Test (1-tail, 0.05)	**MSDu**	**MSDp**	**MSB**	**MSE**	**F-Prob**	**df**
Homoscedastic t Test indicates no significant differences	0.12046	0.194762	0.005101	0.007686	0.446404	1, 6
Treatments vs D-Control						

Appendix C. (continued)

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date:	10/21/2008	Test ID:	CdSRToct08	Sample ID:	REF-Ref Toxicant
End Date:	10/27/2008	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:	Ceriodaphnia chronic SRT concurrent with PCA C. dubia bioassay October				

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.59	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.89	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.3	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Conc-gm/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
D-Control	1.0000	1.0000	0	10	10	10		
0.59	1.0000	1.0000	0	10	10	10	1.0000	0.0500
0.89	1.0000	1.0000	0	10	10	10	1.0000	0.0500
1.3	0.9000	0.9000	1	9	10	10	0.5000	0.0500
2	0.8000	0.8000	2	8	10	10	0.2368	0.0500
3	0.0000	0.0000	10	0	10	10		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2	3	2.44949	
Treatments vs D-Control				

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	10/21/2008	Test ID:	CdSRToct08	Sample ID:	REF-Ref Toxicant
End Date:	10/27/2008	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:	Ceriodaphnia chronic SRT concurrent with PCA C. dubia bioassay October				

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	18.000	11.000	13.000	21.000	23.000	13.000	13.000	19.000	23.000	20.000
0.59	19.000	12.000	20.000	15.000	19.000	15.000	8.000	15.000	14.000	15.000
0.89	13.000	11.000	12.000	17.000	14.000	14.000	11.000	12.000	21.000	20.000
1.3	2.000	8.000	14.000	12.000	11.000	20.000	8.000	16.000	13.000	17.000
2	2.000	0.000	1.000	2.000	1.000	5.000	4.000	1.000	4.000	2.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed						1-Tailed	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	17.400	1.0000	17.400	11.000	23.000	26.014	10			
0.59	15.200	0.8736	15.200	8.000	20.000	23.578	10	1.261	2.223	3.879
0.89	14.500	0.8333	14.500	11.000	21.000	25.025	10	1.662	2.223	3.879
*1.3	12.100	0.6954	12.100	2.000	20.000	42.935	10	3.038	2.223	3.879
*2	2.200	0.1264	2.200	0.000	5.000	73.606	10	8.711	2.223	3.879
3	0.000	0.0000	0.000	0.000	0.000	0.000	10			

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.982725	0.93	-0.17224	0.071537
Bartlett's Test indicates equal variances (p = 0.03)	10.37362	13.2767		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	0.89	1.3	1.075639		3.879347	0.222951	353.27	15.22222	1.9E-10	4, 45
Treatments vs D-Control										

Appendix C. (continued)

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	10/21/2008	Test ID:	CdSRToct08	Sample ID:	REF-Ref Toxicant
End Date:	10/27/2008	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:	Ceriodaphnia chronic SRT concurrent with PCA C. dubia bioassay October				

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	18.000	11.000	13.000	21.000	23.000	13.000	13.000	19.000	23.000	20.000
0.59	19.000	12.000	20.000	15.000	19.000	15.000	8.000	15.000	14.000	15.000
0.89	13.000	11.000	12.000	17.000	14.000	14.000	11.000	12.000	21.000	20.000
1.3	2.000	8.000	14.000	12.000	11.000	20.000	8.000	16.000	13.000	17.000
2	2.000	0.000	1.000	2.000	1.000	5.000	4.000	1.000	4.000	2.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

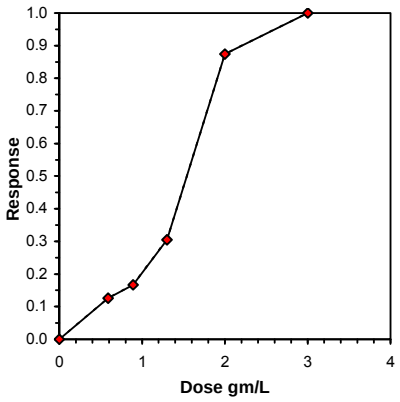
			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	17.400	1.0000	17.400	11.000	23.000	26.014	10	17.400	1.0000
0.59	15.200	0.8736	15.200	8.000	20.000	23.578	10	15.200	0.8736
0.89	14.500	0.8333	14.500	11.000	21.000	25.025	10	14.500	0.8333
1.3	12.100	0.6954	12.100	2.000	20.000	42.935	10	12.100	0.6954
2	2.200	0.1264	2.200	0.000	5.000	73.606	10	2.200	0.1264
3	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.982725	0.93	-0.17224	0.071537
Bartlett's Test indicates equal variances (p = 0.03)	10.37362	13.2767		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL		Skew
IC05*	0.2333	0.2433	0.1280	0.9378	1.0115
IC10*	0.4666	0.2625	0.2560	1.1734	0.7056
IC15	0.7657	0.2617	0.3840	1.3193	0.2721
IC20	0.9891	0.2362	0.5120	1.3732	-0.2197
IC25	1.1377	0.1950	0.7569	1.4279	-0.5904
IC40	1.4174	0.0980	1.1942	1.5703	-0.8411
IC50	1.5404	0.0817	1.3310	1.6648	-0.9394

* indicates IC estimate less than the lowest concentration



Appendix C. (continued)

Larval Fish Growth and Survival Test-7 Day Survival

Start Date:	10/21/2008	Test ID:	PpSRTOCT08	Sample ID:	REF-Ref Toxicant
End Date:	10/28/2008	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 SRT concurrent with PCA screening bioassay October 2008				

Conc-gm/L	1	2	3	4
D-Control	1.0000	1.0000	1.0000	1.0000
0.0625	1.0000	1.0000	1.0000	1.0000
0.125	1.0000	1.0000	1.0000	1.0000
0.25	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	0.8000	0.5000	0.6000
1	0.0000	0.0000	0.0000	0.1000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4		
0.0625	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
0.125	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
0.25	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
0.5	0.7250	0.7250	1.0477	0.7854	1.4120	26.497	4	12.00	10.00
*1	0.0250	0.0250	0.1995	0.1588	0.3218	40.840	4	10.00	10.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.673252	0.884	1.161978	7.59358
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	0.5	1	0.707107	
Treatments vs D-Control				

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	10/21/2008	Test ID:	PpSRTOCT08	Sample ID:	REF-Ref Toxicant
End Date:	10/28/2008	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 SRT concurrent with PCA screening bioassay October 2008				

Conc-gm/L	1	2	3	4
D-Control	0.6320	0.7680	0.7320	0.6790
0.0625	0.9260	0.8590	0.7790	0.7610
0.125	0.8460	0.9370	0.8640	0.8820
0.25	0.9860	0.8150	1.0180	0.8510
0.5	0.8940	0.7180	0.4530	0.6320
1	0.0000	0.0000	0.0000	0.2560

			Transform: Untransformed						1-Tailed	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	0.7028	1.0000	0.7028	0.6320	0.7680	8.491	4			
0.0625	0.8313	1.1829	0.8313	0.7610	0.9260	9.165	4	-1.672	2.410	0.1852
0.125	0.8823	1.2554	0.8823	0.8460	0.9370	4.460	4	-2.336	2.410	0.1852
0.25	0.9175	1.3056	0.9175	0.8150	1.0180	10.848	4	-2.795	2.410	0.1852
0.5	0.6743	0.9594	0.6743	0.4530	0.8940	27.205	4	0.371	2.410	0.1852
*1	0.0640	0.0911	0.0640	0.0000	0.2560	200.000	4	8.313	2.410	0.1852

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.949253	0.884	0.345684	0.90626
Bartlett's Test indicates equal variances (p = 0.20)	7.281353	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	0.5	1	0.707107		0.185183	0.263512	0.400147	0.011809	1.5E-08	5, 18
Treatments vs D-Control										

Appendix C. (continued)

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	10/21/2008	Test ID:	PpSRTOCT08	Sample ID:	REF-Ref Toxicant
End Date:	10/28/2008	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 SRT concurrent with PCA screening bioassay October 2008				

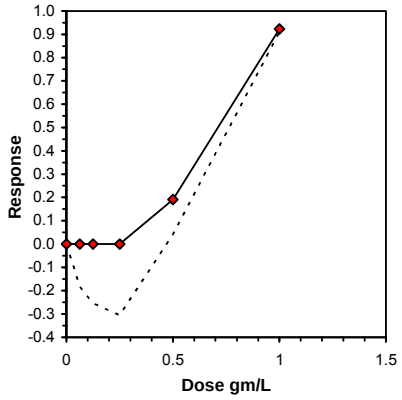
Conc-gm/L	1	2	3	4
D-Control	0.6320	0.7680	0.7320	0.6790
0.0625	0.9260	0.8590	0.7790	0.7610
0.125	0.8460	0.9370	0.8640	0.8820
0.25	0.9860	0.8150	1.0180	0.8510
0.5	0.8940	0.7180	0.4530	0.6320
1	0.0000	0.0000	0.0000	0.2560

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.7028	1.0000	0.7028	0.6320	0.7680	8.491	4	0.8334	1.0000
0.0625	0.8313	1.1829	0.8313	0.7610	0.9260	9.165	4	0.8334	1.0000
0.125	0.8823	1.2554	0.8823	0.8460	0.9370	4.460	4	0.8334	1.0000
0.25	0.9175	1.3056	0.9175	0.8150	1.0180	10.848	4	0.8334	1.0000
0.5	0.6743	0.9594	0.6743	0.4530	0.8940	27.205	4	0.6743	0.8090
1	0.0640	0.0911	0.0640	0.0000	0.2560	200.000	4	0.0640	0.0768

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.949253	0.884	0.345684	0.90626
Bartlett's Test indicates equal variances (p = 0.20)	7.281353	15.08627		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL(Exp)		Skew
IC05	0.3154	0.0685	0.2646	0.6541	1.7638
IC10	0.3809	0.0733	0.2792	0.6581	0.7916
IC15	0.4463	0.0721	0.2938	0.6622	0.2731
IC20	0.5061	0.0670	0.3118	0.6696	-0.0037
IC25	0.5403	0.0626	0.3452	0.6925	-0.1593
IC40	0.6427	0.0532	0.4625	0.7610	-0.4214
IC50	0.7110	0.0443	0.5509	0.8076	-0.3036



Appendix D. Test Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/20/08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia						
Menidia beryllina						
						Hardness
Cyprinella leedsi						
Pimephales promelas	350	<24HRS	FM081019-1520	25°C	7.8 s.u.	78 mg/L

Packed by: JW

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 from the Packaging Corporation of America Plant Outfall D-001, sampled on October 20, 2008.

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:00	PLA EFF 1	AGP/LN	Algal Growth Potential	28.2		mg DryWt/L	3	3
10/20/2008 10:00	PLA EFF 1	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	25	A	ug/L	0.69	2.1
10/20/2008 10:00	PLA EFF 1	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.9	I	mg/L	0.2	2
10/20/2008 10:00	PLA EFF 1	Chlorophyll/Grain Size/BOD	Phaeophytin-a	7.1	A	ug/L	0.3	0.89
10/20/2008 10:00	PLA EFF 1	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	20		NOEC		
10/20/2008 10:00	PLA EFF 1	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	20		NOEC		
10/20/2008 10:00	PLA EFF 1	Metals	Iron	120		ug/L	30	120
10/20/2008 10:00	PLA EFF 1	Metals	Cadmium	0.023	I	ug/L	0.02	0.08
10/20/2008 10:00	PLA EFF 1	Metals	Nickel	0.5	I	ug/L	0.25	1
10/20/2008 10:00	PLA EFF 1	Metals	Magnesium	16.5		mg/L	0.04	0.16
10/20/2008 10:00	PLA EFF 1	Metals	Copper	0.56	I	ug/L	0.5	2
10/20/2008 10:00	PLA EFF 1	Metals	Selenium	0.5	U	ug/L	0.5	2
10/20/2008 10:00	PLA EFF 1	Metals	Chromium	0.61	I	ug/L	0.5	2
10/20/2008 10:00	PLA EFF 1	Metals	Zinc	5.1	I	ug/L	5	20
10/20/2008 10:00	PLA EFF 1	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/20/2008 10:00	PLA EFF 1	Metals	Arsenic	0.51	I	ug/L	0.5	2
10/20/2008 10:00	PLA EFF 1	Metals	Aluminum	310		ug/L	60	240
10/20/2008 10:00	PLA EFF 1	Metals	Lead	0.4	I	ug/L	0.2	0.8
10/20/2008 10:00	PLA EFF 1	Metals	Calcium	33.2		mg/L	0.075	0.3
10/20/2008 10:00	PLA EFF 1	Nutrients	Ammonia-N	0.49		mg N/L	0.01	0.02
10/20/2008 10:00	PLA EFF 1	Nutrients	O-Phosphate-P	0.37		mg P/L	0.02	0.05
10/20/2008 10:00	PLA EFF 1	Nutrients	Kjeldahl Nitrogen	2.1		mg N/L	0.08	0.2
10/20/2008 10:00	PLA EFF 1	Nutrients	Turbidity	4.7	A	NTU	0.1	0.1
10/20/2008 10:00	PLA EFF 1	Nutrients	Color	300		PCU	50	50
10/20/2008 10:00	PLA EFF 1	Nutrients	Total-P	0.71		mg P/L	0.02	0.06
10/20/2008 10:00	PLA EFF 1	Nutrients	TSS	4	I	mg/L	4	16
10/20/2008 10:00	PLA EFF 1	Nutrients	NO2NO3-N	0.38		mg N/L	0.02	0.05
10/20/2008 10:00	PLA EFF 1	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:00	PLA EFF 1	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
10/20/2008 10:00	PLA EFF 1	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
10/20/2008 10:00	PLA EFF 1	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
10/20/2008 10:00	PLA EFF 1	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
10/20/2008 10:00	PLA EFF 1	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
10/20/2008 10:00	PLA EFF 1	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
10/20/2008 10:00	PLA EFF 1	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
10/20/2008 10:00	PLA EFF 1	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
10/20/2008 10:00	PLA EFF 1	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
10/20/2008 10:00	PLA EFF 1	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
10/20/2008 10:00	PLA EFF 1	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
10/20/2008 10:00	PLA EFF 1	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Pentachlorophenol	3	UJ	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Endosulfan II	4	U	ug/L	4	16
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	UJ	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Endosulfan I	4	U	ug/L	4	16
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Dimethyl phthalate	10	UJ	ug/L	10	40
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Endrin aldehyde	4	U	ug/L	4	16
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Fluoranthene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	UJ	ug/L	40	160
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.1
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4
10/20/2008 10:00	PLA EFF 1	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6.1
10/20/2008 10:00	PLA EFF 1	Field Parameter	Temperature	18.15		C		
10/20/2008 10:00	PLA EFF 1	Field Parameter	pH	8.08				
10/20/2008 10:00	PLA EFF 1	Field Parameter	Sample Depth	0.7		m		
10/20/2008 10:00	PLA EFF 1	Field Parameter	Dissolved Oxygen	9.63		mg/L		
10/20/2008 10:00	PLA EFF 1	Field Parameter	Specific Conductance	2584		umhos/cm		
10/20/2008 10:20	BLANK	Metals	Copper	0.5	U	ug/L	0.5	2
10/20/2008 10:20	BLANK	Metals	Arsenic	0.5	U	ug/L	0.5	2
10/20/2008 10:20	BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
10/20/2008 10:20	BLANK	Metals	Aluminum	60	U	ug/L	60	240
10/20/2008 10:20	BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
10/20/2008 10:20	BLANK	Metals	Selenium	0.5	U	ug/L	0.5	2
10/20/2008 10:20	BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:20	BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
10/20/2008 10:20	BLANK	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
10/20/2008 10:20	BLANK	Metals	Iron	30	U	ug/L	30	120
10/20/2008 10:20	BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
10/20/2008 10:20	BLANK	Metals	Chromium	0.5	U	ug/L	0.5	2
10/20/2008 10:20	BLANK	Metals	Zinc	5	U	ug/L	5	20
10/20/2008 10:20	BLANK	Nutrients	NO2NO3-N	0.004	UY	mg N/L	0.004	0.01
10/20/2008 10:20	BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
10/20/2008 10:20	BLANK	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
10/20/2008 10:20	BLANK	Nutrients	Kjeldahl Nitrogen	0.08	UY	mg N/L	0.08	0.2
10/20/2008 10:20	BLANK	Nutrients	Color	5	U	PCU	5	5
10/20/2008 10:20	BLANK	Nutrients	Ammonia-N	0.01	UY	mg N/L	0.01	0.02
10/20/2008 10:20	BLANK	Nutrients	Total-P	0.02	UY	mg P/L	0.02	0.06
10/20/2008 10:20	BLANK	Pesticides	Ethion	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Pesticides	Ethoprop	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Fonofos	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Naled	0.92	U	ug/L	0.92	3.7
10/20/2008 10:20	BLANK	Pesticides	Mevinphos	0.23	U	ug/L	0.23	0.92
10/20/2008 10:20	BLANK	Pesticides	Diazinon	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Pesticides	Alachlor	0.69	U	ug/L	0.69	2.8
10/20/2008 10:20	BLANK	Pesticides	Norflurazon	0.17	U	ug/L	0.17	0.68
10/20/2008 10:20	BLANK	Pesticides	Metalaxyl	0.29	U	ug/L	0.29	1.2
10/20/2008 10:20	BLANK	Pesticides	Malathion	0.17	U	ug/L	0.17	0.68
10/20/2008 10:20	BLANK	Pesticides	Hexazinone	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Bromacil	0.23	U	ug/L	0.23	0.92
10/20/2008 10:20	BLANK	Pesticides	Chlorpyrifos Ethyl	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Pesticides	Parathion Ethyl	0.17	U	ug/L	0.17	0.68
10/20/2008 10:20	BLANK	Pesticides	Simazine	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Pesticides	Metribuzin	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Metolachlor	0.57	U	ug/L	0.57	2.3
10/20/2008 10:20	BLANK	Pesticides	Fenamiphos	0.23	U	ug/L	0.23	0.92
10/20/2008 10:20	BLANK	Pesticides	Chlorpyrifos Methyl	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Prometryn	0.17	U	ug/L	0.17	0.68
10/20/2008 10:20	BLANK	Pesticides	Atrazine	0.057	U	ug/L	0.057	0.23

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:20	BLANK	Pesticides	Parathion Methyl	0.11	U	ug/L	0.11	0.44
10/20/2008 10:20	BLANK	Pesticides	Butylate	0.23	U	ug/L	0.23	0.92
10/20/2008 10:20	BLANK	Pesticides	Phorate	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Pesticides	Azinphos Methyl	0.23	UJ	ug/L	0.23	0.92
10/20/2008 10:20	BLANK	Pesticides	Ametryn	0.057	U	ug/L	0.057	0.23
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Pentachlorophenol	3	UJ	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	60
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Fluoranthene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	60
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Dimethyl phthalate	10	UJ	ug/L	10	40
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Endosulfan II	4	U	ug/L	4	16
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5	U	ug/L	5	20
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5	U	ug/L	5	20
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Endrin aldehyde	4	U	ug/L	4	16
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	60
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Endosulfan I	4	U	ug/L	4	16
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8
10/20/2008 10:20	BLANK	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
10/20/2008 10:20	BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
10/20/2008 10:20	BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
10/20/2008 10:20	BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	UJ	ug/L	40	160
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
10/20/2008 10:20	BLANK	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6
10/20/2008 10:20	BLANK	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6
10/22/2008 10:15	PCA EFF1	Overflow	Oil and Grease	1.4	UJ	mg/L	1.4	5
10/22/2008 10:15	PCA EFF1	Field Parameter	Dissolved Oxygen	9.4		mg/L		
10/22/2008 10:15	PCA EFF1	Field Parameter	Specific Conductance	2683		umhos/cm		
10/22/2008 10:15	PCA EFF1	Field Parameter	pH	8.05				
10/22/2008 10:15	PCA EFF1	Field Parameter	Temperature	19.41		C		
10/22/2008 10:15	PCA EFF1	Field Parameter	Sample Depth	0.8		m		
10/22/2008 10:15	BLANK	Overflow	Oil and Grease	2.8	I	mg/L	1.4	5
10/24/2008 9:55	PCA EFF 1	Field Parameter	Sample Depth	0.9		m		
10/24/2008 9:55	PCA EFF 1	Field Parameter	pH	8.08				
10/24/2008 9:55	PCA EFF 1	Field Parameter	Dissolved Oxygen	9.66		mg/L		
10/24/2008 9:55	PCA EFF 1	Field Parameter	Specific Conductance	2517		umhos/cm		
10/24/2008 9:55	PCA EFF 1	Field Parameter	Temperature	19.13		C		

Appendix F. Laboratory Meter ID

FDEP Biology Laboratory - Bioassay Instrument Identification

Test Dates: October 21- 28, 2008

Test ID: Packaging Corp. of America SRT Dates: October 21- 28, 2008

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

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

Comments:

V 1.4 8/21/08 BA

The Bioassay of P.C.A. Plant effluent sampled on October 20, 22, and 24 2008. NPDES #FL0000281.

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 0 2 8 1 11	12 0 8 1 0 2 0	18 **B**	19 **S**	20 2

Remarks

66

The Priority Pollutants Analysis of P.C.A. Plant effluent sampled on October 20, 2008. NPDES #FL0000281.

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 0 2 8 1 11	12 0 8 1 0 2 0	18 **X**	19 **S**	20 2

Remarks

66

Biological Analyses of P.C.A. Plant effluent sampled on October 20, 2008. NPDES #FL0000281.

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 0 2 8 1 11	12 0 8 1 0 2 0	18 **S**	19 **S**	20 2

Remarks

66