

Effluent Quality Assessment

RockTenn Corporation – Seminole Mill

(Formerly Smurfit-Stone Container Corporation)

Duval County

NPDES #FL0000400

Sampled June 13, 15 and 17, 2011

January 2012

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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RockTenn Corporation – Seminole Mill, 9469 Eastport Road, Jacksonville, Duval County, Florida, 32218. NPDES #FL0000400. Effluent grab and composite samples for biological and chemical analyses for this facility were collected on June 13, 2011. Effluent composite samples for bioassay analyses were collected on June 13, 15 and 17, 2011.

Introduction

The RockTenn Corporation – Seminole Mill is a paper mill which produces both bleached and unbleached linerboard and paper products from recycled paper and purchased pulp. The facility operates a 20 MGD permitted capacity wastewater treatment facility providing grit removal and primary clarification followed by aeration in holding ponds and an aeration basin. The facility also includes an on-site landfill and sludge drying beds. (See Appendix F for pages 1-8 of the facility's NPDES permit.)

Methods

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

See Appendix A for the completed chain of custody form. Email confirmation was received from the District samplers that EFF-1 was sampled rather than EFF-3 as indicated on the initial submittal form.

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

An aliquot of the AGP sample was salinity adjusted by the addition of artificial sea salts to meet the salinity requirements of the marine test species.

Results and Discussion

- **Toxicity Test Results**

  Tests performed June 14 - 21, 2011.

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

  Pimephales promelas 7-day chronic screening bioassay – growth IC25 = 87.8%

  The bioassay samples were not toxic to the *Ceriodaphnia dubia* test organisms. The samples were chronically toxic to the *Pimephales promelas* test species, producing an IC25 for growth of 87.8% sample.

  Due to a communication error, the bioassays did not include a 75% sample concentration per permit requirements.

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

- **Algal Growth Potential**

  The effluent Algal Growth Potential (AGP) was 82.6 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent

is co-limited by both nitrogen and phosphorus. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test with associated nutrient chemistry should be performed (Miller et al. 1978).

The salinity adjusted effluent Algal Growth Potential (AGP) was 91.7 mg dry wt/L of the saltwater species, *Dunaliella tertiolecta.* Raschke and Schultz determined 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).

See Tables 1a and 1b for AGP results and qualifiers.

- **Chemistry Results**
  Total residual chlorine (TRC) was not detected in the three bioassay samples. Total ammonia was detected in the bioassay samples (3.17 mg N/L sample # 1357034; 3.38 mg N/L sample # 1358313; and 2.79 sample # 1358627) in the bioassay laboratory. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 3.1 mg N/L. Based on the pH, salinity, and temperature of the effluent grab sample as collected, the estimated unionized ammonia concentration in the composited effluent was 0.15 mg/L.

  Field measurements on June 13, 15 and 17, 2011, indicated possible interference in the effluent and dissolved oxygen (DO) values were indeterminate. Subsequent in-situ field measurements taken on June 27, 2011, indicated a (DO) concentration of 3.95 mg/L. Additionally, samples taken on June 27, 2011, which were read at the FDEP Northeast District lab using the Winkler methodology, indicated DO concentrations of 2.95 mg/L and 3.10 mg/L. The facility is currently investigating the cause of the low DO in the facility’s effluent. A minor Permit Modification is being issued along with an Administrative Order to give the facility time to investigate and to present possible solutions to the Department.

  Aluminum, iron, fluoride and nickel were detected in the effluent at levels that comply with Class III marine quality criteria (62-302.530, F.A.C.). Arsenic, chromium, copper and lead were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Chloride, chlorophyll, sulfate, total suspended solids (TSS), and carbonaceous biochemical oxygen demand (CBOD) were also detected in the effluent. Effluent TSS, CBOD and total nitrogen concentrations were in compliance with permitted limits.

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

Conclusion

The effluent samples collected from the EFF-1 NPDES sampling point for Outfall D-001 for this facility on June 13, 15 and 17, 2011, were not chronically toxic to the *Ceriodaphnia dubia* test organisms but were toxic to the *Pimephales promelas* test organisms during the chronic bioassays. The effluent AGP results were greater than the "problem” thresholds for both fresh and marine receiving waters suggesting that nutrient enrichment may be an issue.

Effluent water quality samples collected on June 13, 2011, did not exceed any applicable water quality standards or limits found in NPDES permit #FL0000400.

Literature Cited

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

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

Table 1a. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata f* or samples collected from the RockTenn Seminole facility on June 13, 2011.

RockTenn Seminole NPDES #FL0000400					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Total N:P ratio
RockTenn Seminole EFF-1	82.6	118.4 ± 23.7	236.2 ± 47.2	197.8 ± 39.6	13.5

Table 1b. 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 RockTenn Seminole facility on June 13, 2011.

RockTenn Seminole NPDES #FL0000400		
Location	AGP (measured)	Total N:P ratio
RockTenn Seminole EFF-1*	91.7	13.5

* - sample salinity adjusted to 7ppt

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical data for sampled collected from the RockTenn Corporation - Seminole Mill facility on June 13, 15 and 17, 2011.

RockTenn Corporation - Seminole Mill NPDES# FL0000400	Class III Criteria	Effluent Limits	Rock Tenn Seminole EFF-1 grab sample	Rock Tenn Seminole EFF-1 composite sample
Organic Constituents (µg/L)				
None Detected	-		None Detected	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	≤ 1500 p	-	333
Arsenic	≤ 50	-	-	0.68 I
Cadmium	≤ 8.8	-	-	0.05 U
Calcium (mg/L)	-	-	-	92.7
Chromium-III	-	-	-	1 I
Copper	≤ 3.7	≤ 3.7 p	-	0.77 I
Iron	≤ 300	-	-	130
Lead	≤ 8.5	-	-	0.27 I
Magnesium (mg/L)	-	-	-	21.7
Nickel	≤ 8.3	-	-	1.45
Selenium	≤ 71	-	-	0.2 U
Silver	≤ 2.3	-	-	0.025 U
Zinc	≤ 86	≤ 86 p	-	5 U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.31 F	-
Total Phosphorus	-	Report	-	0.46
Total Ammonia	-	Report	-	3.1
Un-ionized Ammonia	-	-	-	0.15 J
Nitrate and Nitrite	-	-	-	0.015
Total Kjeldahl Nitrogen	-	Report	-	6.2
Organic Nitrogen	-		-	3.1 c
Total Nitrogen (limit KG/YR) result mg/L	-	≤ 74,305 a	-	6.215 c

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

p - 24 hour time proportioned composite

F - Analyte was detected in both sample and field blank (0.008 I mg/L)

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

J - Estimated value

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

Table 2. Continued

RockTenn Corporation - Seminole Mill NPDES# FL0000400	Class III Criteria	Effluent Limits	RockTenn Seminole EFF-1 grab sample	Rock Tenn Seminole EFF-1 composite sample	EFF-1 06/15/2011	Final EFF RockTenn 06/17/2011
General Physical and Chemical Parameters						
Dissolved Oxygen (mg/L)	≥ 4.0	-	-	*	*	*
pH (SU)	6.5 - 8.5 s	6.5 - 8.5 s	7.7	-	7.9	7.8
Conductivity (µmhos/cm)	-	-	1313	-	1301	1289
Temperature (°C)	-	≤ 37.7 s	30.2	-	30.0	29.3
Sample Depth (m)	-	-	0.2	-	0.3	-
Total Residual Chlorine (mg/L)	≤ 0.01	-	-	0.03 UQ£	-	-
Chlorophyll *a* (µg/L) - Corrected	-	-	12	-	-	-
Phaeophytin (µg/L)	-	-	1.3	-	-	-
Total Suspended Solids (LBS/DAY)	-	≤ 23,055 p	-	12	-	-
CBOD, 5 day (LBS/DAY), N - inhibited	-	≤ 14,284 p	-	11	-	-
Oils and Greases (mg/L)	≤ 5.0	≤ 5.0 p	0.7 U	-	-	-
Chloride (mg/L)	-	-	-	69	-	-
Fluoride (mg/L)	≤ 5.0	-	-	0.75	-	-
Sulfate (mg/L)	-	-	-	120	-	-
Hardness (mg $CaCO_3$)	-	-	-	320.83 c	-	-
Flow (MGD)	-	Report	6.48 m	-	-	-

Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated
m - monthly average
p - 24 hour time proportioned composite
s - Single sample
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
* - Field measurement of DO was indeterminate.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2011-06-13-24
FYI3 Sampling Inspection fo Stone Container Corp.

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

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

Lab ID *	Location: Rock Tenn Seminole Eff 3			☐ Comp ☑ Grab	Collection (begin) Date 6.13.11 Time 1130 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**	A
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) -1.77 ?		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C) 30.24	pH 7.73	Sample Depth ☑ m ☐ ft bucket .2m	.65 1313	☑ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments						
Lab ID *	Location: Rock Tenn Seminole Comp Eff 3			☑ Comp ☐ Grab	Collection (begin) Date 6.12 Time 1100 Eastern Central		Collection (end) Date 6.13 Time 1100 Eastern Central		Bottle Group(s)**	A
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments Sun 11am – Mon 11am 1.2°C @ collection time						
Lab ID *	Location: Field Blank			☐ Comp ☑ Grab	Collection (begin) Date 6.13.11 Time 1115 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**	B
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments						
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 ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments 2 Dissolved Rec'd in Tox by J.D. 9:46 6.14.11						

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
E Ali	6.13.11	fedex	ABJ	06-14-11 09:10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix A. continued

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

Sample Project Rock Tenn Seminole LabRequest number 2011-06-13-24

Collected By: EA ISC Date Collected: 6-15-11

Tox Sample @ 3.6°C

Lab ID #	Storet#	Site Name	Matrix:Water Surface Fresh Surface Salt Effluent	Comments
	EFF-1	Rock Tenn Seminole		Air Temp ____ Wind Sp ____ Wind Dir ____ 6-14-6-15 11am-11am Sampled in Batch

T.me	Total depth(m)	Sample depth(m)	Temp (C)	Conductivity (µmhos)	Salinity (%)	pH s.u.	D.O. mg/l	D.O. (%)	Secchi meters	Velocity ft./sec.	Tide Ebb/Flood/Slack	Turb. NTU
1133		.3	30.00	1301	0.64	7.35						

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

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

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

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

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

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

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

Relinquished	Date	Time	Shipping	Received	Date/Time
	6-15-11	1438	FEDEX		6-16-11 0010

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

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

1 bioassay Recd in Tox by J.D. 9:48 6.16.11

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2011-06-~~05-26~~ 13-24

~~SMP 2011 Group 1 Cycle 3 Sampling~~ Rock Tenn 3rd I

Customer: ~~SW-DIST~~

Project ID: ~~SMP~~

PMAS:

Requester: ~~Chris Anastasiou~~

Collected By: S. Piltz/J-Emery

Sampling Agency: DEP NED

Field Report Prepared By: S. Piltz

Send Final Report To: ~~Chris Anastasiou~~ Tom Kallemeyn

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Final Eff Rock Tenn	☑ Comp ☐ Grab	Date 6-16-11 Time 0800	Date 6-17-11 Time 0800	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 0.09	Storet Station Number	
	Matrix (include type e.g. Salt, Fresh, etc) Eff/Fresh; Temp (C) 29.34; pH 7.79	Sample Depth ☐ m ☐ ft	0.64 ☑ Salinity (PPTh) 1289 ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Comments		

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

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

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	6/17/11	Fed Ex	Marshall Faircloth	6/18/11 0915				

* Shaded Areas for Lab use only.

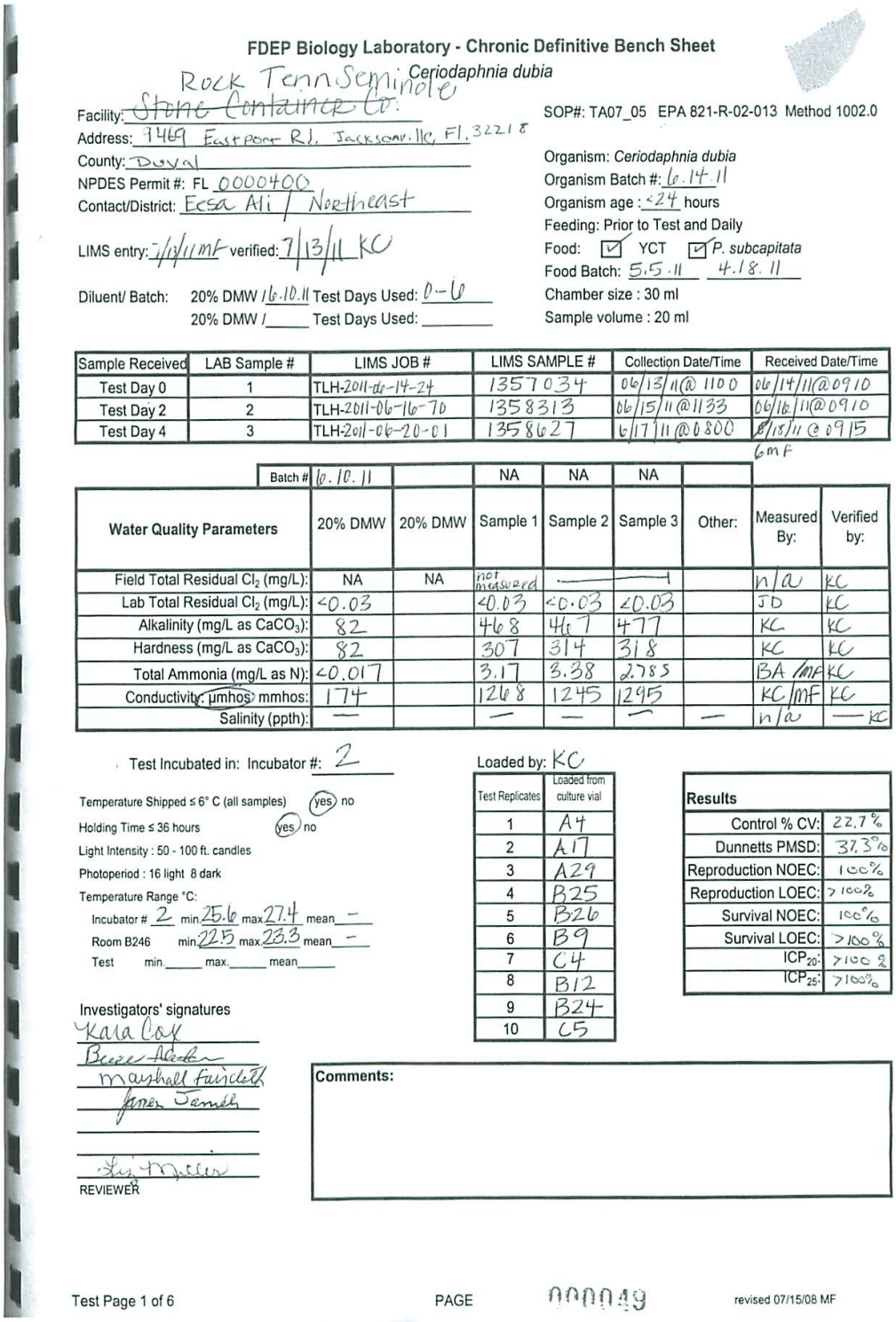
** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Orange Cooler 0.4°C

MF 6-18-11 0945 White Cooler 0.5°C

Appendix B. Bench Sheets



FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia

Rock Tenn Seminole

Facility: ~~Stone Container Co.~~

Address: 7469 Eastport Rd. Jacksonville, Fl. 32218

County: Duval

NPDES Permit #: FL 0000400

Contact/District: Ecsa Ati / Northeast

LIMS entry: 7/14/11 MF verified: 7/13/11 KC

Diluent/ Batch: 20% DMW / 6.10.11 Test Days Used: 0-6

20% DMW /_____ Test Days Used: _____

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

Organism: *Ceriodaphnia dubia*

Organism Batch #: 6.14.11

Organism age : <24 hours

Feeding: Prior to Test and Daily

Food: ☑ YCT ☑ *P. subcapitata*

Food Batch: 5.5.11 4.18.11

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-2011-06-14-24	1357034	06/13/11@1100	06/14/11@0910
Test Day 2	2	TLH-2011-06-16-70	1358313	06/15/11@1133	06/16/11@0910
Test Day 4	3	TLH-2011-06-20-01	1358627	6/17/11@0800	6/18/11 @0915 GMF

Batch #	6.10.11		NA	NA	NA			
Water Quality Parameters	20% DMW	20% DMW	Sample 1	Sample 2	Sample 3	Other:	Measured By:	Verified by:
Field Total Residual Cl_2 (mg/L):	NA	NA	not measured	—	—		n/a	KC
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03	<0.03	<0.03		JD	KC
Alkalinity (mg/L as $CaCO_3$):	82		468	467	477		KC	KC
Hardness (mg/L as $CaCO_3$):	82		307	314	318		KC	KC
Total Ammonia (mg/L as N):	<0.017		3.17	3.38	2.785		BA/MF	KC
Conductivity: ~~µmhos~~ mmhos:	174		1268	1245	1295		KC/MF	KC
Salinity (ppth):	—		—	—	—	—	n/a	— KC

Test Incubated in: Incubator #: 2

Temperature Shipped ≤ 6° C (all samples) (yes) no

Holding Time ≤ 36 hours (yes) no

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min 25.6 max 27.4 mean —

Room B246 min 22.5 max 23.3 mean —

Test min_____ max_____ mean_____

Loaded by: KC

Test Replicates	Loaded from culture vial
1	A4
2	A17
3	A29
4	B25
5	B26
6	B9
7	C4
8	B12
9	B24
10	C5

Results	
Control % CV:	22.7%
Dunnetts PMSD:	37.3%
Reproduction NOEC:	100%
Reproduction LOEC:	>100%
Survival NOEC:	100%
Survival LOEC:	>100%
ICP_{20}:	>100%
ICP_{25}:	>100%

Investigators' signatures

Kara Cox

Becca Adler

Marshall Faircloth

James Sanders

Liz Miller

REVIEWER

Comments:

Test Page 1 of 6 PAGE 000049 revised 07/15/08 MF

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

SOP TA07_05

KC

Facility: ~~Stone Container Co.~~ Rock Tenn Seminole

LIMS Sample #: 1357034 for lab sample #1

Start Date: 6.14.11 Time: 1030

End Date: 6.20.11 Time: 12:30

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
Control	0*												15	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	5	4	5	6	6	0	0	0	0	7	33	10	3.3
	4	~~0~~	~~0~~	0	0	0	2	4	3	3	0	12	10	1.2
	5	5	8	8	8	7	5	6	8	8	8	71	10	7.1
	6	8	14	11	11	9	5	5	11	9	11	94	10	9.4
	7													
	8													
	Total	18	26	24	25	22	12	15	22	20	26	210	10	21

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

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving adults	Neonates per adult
6.25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	~~2~~ 3	5	0	6	5	0	3	5	5	36	10	3.6
	4	4	5	0	0	0	0	4	0	0	0	8	10	0.8
	5	0	7	5	0	10	8	5	10	8	8	61	10	6.1
	6	14	11	9	9 M	11	8	0	10	10	12	85	10	8.5
	7													
	8											190 (S)	9	21.1
	Total	22	21	19	0	27	21	9	23	23	25	190	~~10~~	~~19.0~~

Concentration	Mean neonates /adult	% survival
Control	21	100%
6.25%	~~19~~ 21.1 BA	100%
12.50%	19	100%
25%	19.3	100%
50%	16.8	90%
100%	21.6	90%

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

Comments: (S) Day 4 6.25% Rep 2 Split brood very large neonate MF 6-18-11

(A) Male organism not tallied in final Results BA 7.13.11

M = Male

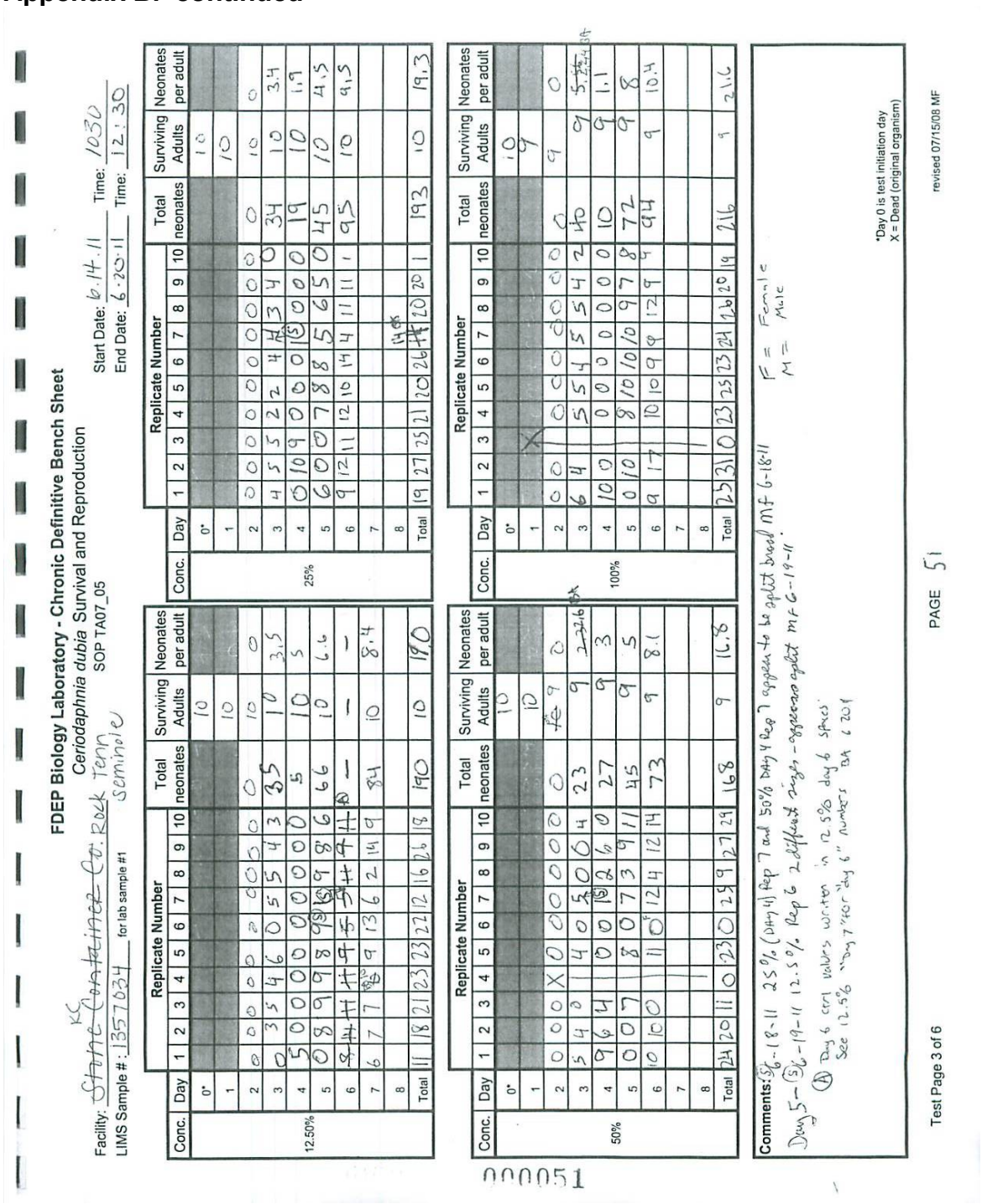
*Day 0 is test initiation day

X = Dead (original organism)

Test Page 2 of 6

PAGE

Appendix B. continued



FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: State Container Co. Rock Tenn SOP TA07_05

LIMS Sample #: 1357634 for lab sample #1 seminole

Start Date: 6.14.11 Time: 1030

End Date: 6.20.11 Time: 12:30

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
12.50%	0*												10	
	1												10	
	2	0	0	0	0	0	2	0	0	0	0	0	10	0
	3	0	3	5	4	6	0	5	5	4	3	85	10	3.5
	4	5	0	0	0	0	0	0	0	0	0	5	10	5
	5	0	8	9	9	8	9	8	6	6	6	66	10	6.6
	6	8	4	4	4	4	5	5	4	4	4	—	—	—
	7	6	7	8	9	13	6	2	14	9		84	10	8.4
	8													
	Total	11	18	21	23	23	22	12	16	26	18	190	10	19.0

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
25%	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	5	5	2	2	4	4	3	4	0	34	10	3.4
	4	0	10	9	0	0	0	0	0	0	0	19	10	1.9
	5	6	0	0	7	8	8	5	6	5	0	45	10	4.5
	6	9	12	11	12	16	14	4	11	11	1	95	10	9.5
	7													
	8													
	Total	19	27	25	21	20	26	14	20	20	1	193	10	19.3

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
50%	0*												10	
	1												10	
	2	0	0	0	X	0	0	0	0	0	0	0	9	0
	3	5	4	0		4	0	5	0	6	4	23	9	2.3
	4	9	6	4		0	0	0	0	0	0	27	9	3
	5	0	0	7		8	0	7	3	9	11	45	9	5
	6	10	10	0		11	0	12	4	12	14	73	9	8.1
	7													
	8													
	Total	24	20	11	0	23	0	29	9	27	29	168	9	16.8

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Surviving Adults	Neonates per adult
100%	0*												10	
	1												9	
	2	0	0		0	0	0	0	0	0	0	0	9	0
	3	6	4		5	5	5	5	5	4	2	40	9	5.7
	4	10	0		0	0	0	0	0	0	0	10	9	1.1
	5	0	10		8	10	10	10	9	7	8	72	9	8
	6	9	17		10	10	9	9	12	9	4	94	9	10.4
	7													
	8													
	Total	25	31	0	23	25	23	24	26	20	14	216	9	24.6

Comments: 6-18-11 25% (Day 4) Rep 7 and 50% Day 4 Rep 7 appears to be split brood MF 6-18-11

Day 5 - 6-19-11 12.5% Rep 6 2 different broods - appears split MF 6-19-11.

Ⓐ Day 6 cnt waters written in 12.5% day 6 spaces

See 12.5% "Day 7" for day 6" numbers BA 6 20 11

F = Female

M = Male

*Day 0 is test initiation day

X = Dead (original organism)

Test Page 3 of 6

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revised 07/15/08 MF

000051

Appendix B. continued

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Rock Tenn Seminole *Ceriodaphnia dubia* Parameters

Facility: ~~Stone Container Co.~~ KC SOP TA07_05

LIMS Sample #: 1357034 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) ~~(mmhos/cm)~~	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) ~~(mmhos/cm)~~
Day 0	sample	Control	M	KC 7.8.0	25.5	7.5	174					
	1	6.25%	M	8.2	25.1	7.6	237					
	1	12.5%	M	8.2	24.6	7.6	321					
	1	25%	M	8.3	24.2	7.5	468					
	1	50%	M	8.3	24.0	7.4	728					
	1	100%	M	8.2	24.0	7.5	1268					
	Measured by:			KC	KC	KC	KC					
	Recorded by:			KC	KC	KC	KC					
Day 1	sample:	Control	M	~~7.9~~	~~24.4~~	~~6.7~~	176	M	7.9	24.0	7.1	210
	1	6.25%	M	7.9	25.2	7.0	254	M	8.0	24.0	7.0	277
	1	12.5%	M	8.0	25.3	6.9	324	M	8.0	24.0	7.0	350
	1	25%	M	8.1	25.4	7.1	474	M	8.2	24.0	7.0	515
	1	50%	M	8.2	25.8	7.1	757	M	8.5	24.0	7.0	776
	1	100%	M	8.2	25.8	7.1	1292	M	8.7	24.0	7.1	1310
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 2	sample:	Control	M	7.8	24.5	6.4	173	M	8.1	24.0	7.6	185
	2	6.25%	M	8.0	25.6	6.9	251	M	8.1	24.0	7.4	260
	2	12.5%	M	8.0	25.3	6.9	321	M	8.1	24.0	7.4	339
	2	25%	M	8.1	25.0	7.1	450	M	8.3	24.0	7.4	490
	2	50%	M	8.1	24.6	7.2	712	M	8.5	24.1	7.4	750
	2	100%	M	8.1	24.5	7.3	1245	M	8.7	24.2	7.4	1244
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA
Day 3	sample:	Control	M	7.9	24.2	6.7	175	M	8.2	24.0	7.2	197
	2	6.25%	M	8.0	24.6	7.1	255	M	8.2	24.0	7.1	275
	2	12.5%	M	8.1	24.6	7.1	329	M	8.2	24.0	7.2	339
	2	25%	M	8.1	24.4	7.4	471	M	8.3	24.0	7.5	481
	2	50%	M	8.2	24.1	7.3	738	M	8.5	24.0	7.5	740
	2	100%	M	8.1	24.0	7.4	1275	M	8.7	24.0	7.5	1254
	Measured by:			BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:			BA	BA	BA	BA		BA	BA	BA	BA

Comments:

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

Test Page 4 of 6 PAGE 000052 revised 07/15/08 MF

Appendix B. continued

Rock Tenn Seminole

FDEP Biology Laboratory - Chronic Definitive Bench Sheet

Ceriodaphnia dubia Parameters

Facility: ~~Stone Container Co~~. KC SOP TA07_05

LIMS Sample #: 1357034 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample					Old Sample				
			Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	sample:	Control	M	8.3	24.6	8.3	190	M	8.1	24.6	7.9	182
	3	6.25%	M	8.3	24.9	8.3	260	M	8.1	24.3	7.9	276
	3	12.5%	M	8.2	25.2	8.3	337	M	8.1	24.3	7.9	354
	3	25%	M	8.1	25.1	8.2	475	M	8.3	24.2	7.8	499
	3	50%	M	8.1	25.3	8.1	744	M	8.4	24.4	7.9	778
	3	100%	M	8.0	25.5	7.9	1295	M	8.7	24.7	8.0	1257
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	8.1	25.5	7.9	182	M	8.2	24.4	7.8	200
	3	6.25%	M	8.1	25.4	8.2	251	M	8.3	24.4	7.8	263
	3	12.5%	M	8.1	25.4	8.2	325	M	8.3	24.3	7.7	345
	3	25%	M	8.1	25.2	8.2	463	M	8.4	24.2	7.7	494
	3	50%	M	8.1	25.0	8.1	733	M	8.5	24.3	7.6	771
	3	100%	M	8.1	24.7	8.1	1278	M	8.6	24.4	7.0	1284
	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					M	7.9	24.0	5.3	191
	3	6.25%	M					M	8.2	24.0	6.1	264
	3	12.5%	M					M	8.2	24.0	5.9	342
	3	25%	M					M	8.2	24.0	6.0	498
	3	50%	M					M	8.5	24.0	5.6	757
	3	100%	M					M	8.6	24.0	5.2	1250
	Measured by:								BA	BA	BA	BA
	Recorded by:								BA	BA	BA	BA
Day 7	sample:	Control	M					M				
	3	6.25%	M					M				
	3	12.5%	M					M				
	3	25%	M					M				
	3	50%	M					M				
	3	100%	M					M				
	Measured by:											
	Recorded by:											

Not Received MF

Comments:

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

Test Page 5 of 6

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revised 07/15/08 MF

Appendix B. continued

Test ID: Rock Tenn Seminole Dates: 6.14.11-6.20.11

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

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

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

Entered By: Kara Cox 6/30/11

V 1.1 9/21/10 MF/jd

Appendix B. continued

FDEP Biology Laboratory - Chronic Bioassay Bench Sheet

Rock Tenn Seminole — *Pimphales promelas or Menidia beryllina*

Facility: ~~Stone Container Co.~~ KC
Address: 9469 Eastport Rd., Jacksonville, FL 32218
County: Duval
NPDES Permit #: FL0000400
Contact/District: ~~Eco~~ KC Ecsa Ali/Northeast

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

Start Date: 6.14.11 Time: 1320
End Date: 6.21.11 Time: 0930

Diluent/ Batch:
MHW / 6.10.11 Test Days Used: 0-7
MHW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____
ASW /_____ Test Days Used: _____

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

Artemia Batch #	Day 3 108-11
Day 0 105-11	Day 4 109-11
Day 1 106-11	Day 5 110-11
Day 2 107-11	Day 6 111-11

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2011-06-14-24	1357034	6/13/11@1100	6/14/11@0910
Test Day 2	2	TLH-2011-06-16-70	1358313	6/15/11@1133	6/16/11@0910
Test Day 4	3	TLH-2011-06-20-01	1358627	6/17/11@0800	6/18/11@0915

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	not measured			<0.03	<0.03	<0.03	468	468	477	307	314	318
Diluent/Control:				<0.03	<0.03	<0.03	78	78	78	96	96	96
Method:	—	—	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	n/a	n/a	n/a	JD	JD/KC	JD	KC	KC	KC/JD	KC	KC	KC/JD
Verified by:	KC	KC	KC	JD KC	KC	KC	KC	KC	KC	KC	KC	KC

	Conductivity (circle one) (umhos-cm) mmhos-cm)			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	1298	1270	1274	3.17	3.38	2.785			
Diluent/Control:	324	323	326	<0.017	<0.017	<0.017			
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	KC	JD	JD	BA	BA	MF			
Verified by:	KC	KC	KC	KC	KC	KC			

LIMS ENTRY: MF 7-13-11 MF
LIMS VERIFICATION: KC 7/13/11

Statistics	
Growth NOEC:	50 %
Growth LOEC:	100 %
Growth IC_{20}:	78.81
Growth IC_{25}:	87.75
Ctrl % CV:	13.1 %
Dunnetts PMSD:	25.4 %
Survival NOEC:	100 %
Survival LOEC:	>100 %

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 5 min 24.8 max 26.3 mean —
Water bath # ____ min.____ max.____ mean____
Room B246 min 22.5 max 23.4 mean —

Investigators' signatures
Kara Cox
Marshall Faircloth
Bree Wetzel
James Daniels
Jim Miller
REVIEWER

Comments:

revised 08/24/06 MF/SP

Appendix B. continued

Chronic Bioassay Survival Benchsheet

Facility: ~~Stone Container~~ KC to. Rock Tenn Seminole

LIMS Sample Number: 1357034
(for Lab Sample # 1)

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

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

		TEST DAY							
Concentration	Replicate	0	1	2	3	4	5	6	7
Control	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 6.25 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	9 10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 12.5 %	A	10	~~JD 9 10~~ 10	JD ~~9~~ 10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 25 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 50 %	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	9 10	9	9	9
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	10
Sample 100 %	A	10	9 10	9	9	9	9	9	9
	B	10	10	10	10	10	10	10	10
	C	10	9 10	9	9	9	9 10	8	
	D	10	10	10	10	10	10	10	10
Sample %	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD	JD

Verified by: KC

Comments:

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Appendix B. continued

Rock Tenn Semino / KC Stone Container Co.

Chronic Bioassay Parameters Benchsheet

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

Sample Source: KC Stone Container Co. Start Date: 6.14.11 End Date: 6.21.11

LIMS Sample #: 1357034 (for Lab sample #1) Start Time: 1320 End Time: 0930

conc = concentration rep = replicate circle umhos or mmhos

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	sample:	Control	A	7.8	25.2	7.5	324							
	1	6.25%	A	8.0	25.5	7.4	382							
	1	12.5%	A	8.1	25.6	7.3	456							
	1	25%	A	8.2	25.6	7.2	577							
	1	50%	A	8.2	25.3	7.4	806							
	1	100%	A	8.2	25.9	7.1	1298							
	1		A											
	Measured by:			KC	JD	KC	KC							
	Recorded by:			KC	JD	KC	KC							
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	sample:	Control	B	7.8	25.3	7.3	333		B	7.8	24.8	7.4	327	
	1	6.25%	B	7.8	25.7	7.5	350		B	7.9	25.9	7.5	384	
	1	12.5%	B	8.1	25.2	7.4	451		B	8.0	25.1	7.5	454	
	1	25%	B	8.3	25.2	7.2	578		B	8.1	25.0	7.5	569	
	1	50%	B	8.5	25.5	7.1	803		B	8.3	24.8	7.3	808	
	1	100%	B	8.5	25.9	6.4	1285		B	8.3	25.9	7.0	1309	
	1		B						B					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	sample:	Control	C	7.7	24.9	5.9	327		C	7.5	24.4	7.0	323	
	2	6.25%	C	7.6	24.9	6.0	385		C	7.6	24.4	7.2	389	
	2	12.5%	C	7.7	25.1	5.5	456		C	7.8	24.4	7.2	449	
	2	25%	C	7.9	24.7	5.4	567		C	7.9	24.3	7.2	564	
	2	50%	C	8.2	24.5	4.9	797		C	8.0	24.3	6.9	800	
	2	100%	C	8.4	24.8	5.1	1258		C	8.1	24.4	7.0	1270	
	2		C						C					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	sample:	Control	D	7.5	24.0	6.1	332		D	7.5	25.3	7.2	337	
	2	6.25%	D	7.5	24.1	4.9	406		D	7.6	24.6	7.0	393	
	2	12.5%	D	7.6	24.0	5.5	469		D	7.7	24.5	6.8	454	
	2	25%	D	7.7	24.0	5.1	581		D	7.8	24.7	6.8	567	
	2	50%	D	8.2	24.0	5.4	828		D	8.1	24.1	6.8	800	
	2	100%	D	8.3	24.0	5.0	1296		D	8.1	24.0	6.7	1260	
	2		D						D					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	

Comments:

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

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Appendix B. continued

Chronic Bioassay Parameters Benchsheet

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

Sample Source: ROCK Temp Seminole — Start Date: 10.14.11 — End Date: 10.21.11

LIMS Sample #: 1357034 (for Lab sample #1) — Start Time: 1320 — End Time: 0930

conc = concentration — rep = replicate

Test Day		Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos) mmhos	Salinity ppth
Day 4	sample:	Control	A	7.8	25.9	6.1	342		A	7.9	24.9	7.2	326	
	3	6.25%	A	7.8	25.0	6.3	402		A	7.9	24.9	7.3	396	
	3	12.5%	A	7.8	25.3	6.1	474		A	8.0	25.0	7.3	453	
	3	25%	A	8.0	24.7	6.0	587		A	8.1	24.8	7.3	573	
	3	50%	A	8.1	24.5	5.9	834		A	8.1	25.0	7.3	828	
	3	100%	A	8.3	24.6	5.2	1297		A	8.1	24.8	6.2	1274	
	3		A						A					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	sample:	Control	B	7.9	25.0	6.7	342		B	8.0	25.9	7.9	337	
	3	6.25%	B	7.9	24.4	6.3	403		B	8.1	25.6	7.8	399	
	3	12.5%	B	8.0	24.7	6.4	469		B	8.0	25.6	7.9	461	
	3	25%	B	8.1	24.7	6.4	587		B	8.1	25.4	7.5	592	
	3	50%	B	8.2	24.7	5.0	852		B	8.2	25.7	7.4	824	
	3	100%	B	8.3	24.3	5.1	1293		B	8.1	25.9	7.4	1308	
	3		B						B					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	sample:	Control	C	7.8	25.4	6.8	373		C	8.0	24.7 JD	7.5	~~373~~ 339 JD	
	3	6.25%	C	7.8	25.2	5.8	407		C	8.0	24.8	7.5	~~407~~ 372 JD	
	3	12.5%	C	7.9	25.4	5.6	462		C	8.1	24.6	7.5	~~462~~ 439 JD	
	3	25%	C	8.0	25.0	5.6	595		C	8.1	24.6	7.5	~~595~~ 565 JD	
	3	50%	C	8.2	24.8	5.6	833		C	8.1	24.7	7.4	804	
	3	100%	C	8.3	24.9	4.8	1304		C	8.1	24.3	6.1	1248	
	3		C						C					
	Measured by:			JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by:			JD	JD	JD	JD			JD	JD	JD	JD	
			Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	sample:	Control	D	7.5	24.9	7.3	330		D					
	3	6.25%	D	7.6	25.0	7.0	382		D					
	3	12.5%	D	7.7	25.3	6.3	455		D					
	3	25%	D	8.0	24.9	6.6	582		D					
	3	50%	D	8.2	24.9	6.0	822		D					
	3	100%	D	8.3	25.1	5.3	1276		D					
	3								D					
	Measured by:			KC	JD	KC	KC							
	Recorded by:			KC	JD	KC	KC							

Comments:

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

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Appendix B. continued

Chronic Bioassay Weighing Benchsheet

Facility: Rock Tenn Seminole

LIMS Sample Number: 1357034 (for Lab Sample # 1)

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

			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Concentration	Replicate	Pan #	Pan wt. g	Pan + Fish g	Fish wt. g	Original # Fish	Mean wt. mg
Control	A	1	0.02135	0.02635	0.00500	10	.500
	B	2	0.02127	0.02781	0.00654	10	.654
	C	3	0.02124	0.02698	0.00574	10	.574
	D	4	0.02308	0.02979	0.00671	10	.671
sample 6.25 %	A	5	0.02251	0.02743	0.00492	10	.492
	B	6	0.02186	0.02972	0.00786	10	.786
	C	7	0.02271	0.02882	0.00611	10	.611
	D	8	0.02320	0.02898	0.00578	10	.578
sample 12.5 %	A	9	0.02342	0.03009	0.00667	10	.667
	B	10	0.02317	0.02832	0.00515	10	.515
	C	11	0.02303	0.02810	0.00507	10	.507
	D	12	0.02263	0.02854	0.00591	10	.591
sample 25 %	A	13	0.02295	0.03057	0.00762	10	.762
	B	14	0.02465	0.03069	0.00604	10	.604
	C	15	0.02120	0.02842	0.00722	10	.722
	D	16	0.02248	0.02866	0.00618	10	.618
sample 50 %	A	17	0.02284	0.02877	0.00593	10	.593
	B	18	0.02343	0.03042	0.00699	10	.699
	C	19	0.02092	0.02737	0.00645	10	.645
	D	20	0.02252	0.02940	0.00688	10	.688
sample 100 %	A	21	0.02138	0.02440	0.00302	10	.302
	B	22	0.02130	0.02617	0.00487	10	.487
	C	23	0.02088	0.02469	0.00381	10	.381
	D	24	0.02276	0.02832	0.00556	10	.556
sample %	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		JD	JD		revised 7/16/08 mf	

Comments:

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

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

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Appendix B. continued

Chronic Bioassay Weighing Benchsheet

Quality Control

Facility: Rock Tenn Seminole

LIMS Sample Number: 1357034 (for Lab Sample # 1)

P. promelas and M. beryllina Bench sheet

SOPs TA07_09, TA07_14 and TA06_21

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

Tare weighed by: JD

Final weighed by: JD

Tare Weighing Date: 6.20.11 Final Weighing Date: 6.24.11

			Measured Value (g)		S-weight Value (g)
Tare Pan 1 after Pan 5 (g)	0.02137	@ 0.02135	S-weights	@	
Tare Pan 1 after Pan 10 (g)	0.02139	@ 0.02135	at tare	@	
Tare Pan 1 after Pan 15 (g)	0.02138	@ 0.02135	S-weights	@	
Tare Pan 1 after Pan 20 (g)	0.02139	@ 0.02135	at final	@	
Tare Pan 1 after Pan 25 (g)	0.02137	@ 0.02135			
Tare Pan 1 after Pan 30 (g)		@			
Tare Pan 1 after Pan 35 (g)		@			
Tare Pan 1 after Pan 40 (g)		@			
Tare Pan 1 after Pan 45 (g)		@			
Tare Pan 1 after Pan 48 (g)		@			
Final Pan 1 after Pan 5 (g)	0.02636	@ 0.02635			
Final Pan 1 after Pan 10 (g)	0.02636	@ 0.02635			
Final Pan 1 after Pan 15 (g)	0.02640	@ 0.02635			
Final Pan 1 after Pan 20 (g)	0.02639	@ 0.02635			
Final Pan 1 after Pan 25 (g)	0.02638	@ 0.02635			
Final Pan 1 after Pan 30 (g)		@			
Final Pan 1 after Pan 35 (g)		@			
Final Pan 1 after Pan 40 (g)		@			
Final Pan 1 after Pan 45 (g)		@			
Final Pan 1 after Pan 48 (g)		@			

S-weights at tare	0.01	@	0.01
	0.03003	@	0.03
S-weights at final	0.00999	@	0.01
	0.05006	@	0.05

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

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

Comments:

revised 7/16/08 MF

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Appendix B. continued

Test ID: Rock Tenn Seminole Dates: 6.14.11 – 6.21.11

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

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

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

Entered by Kara Cox 6/30/11

V 1.1 9/21/10 MF/jd

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Appendix C. SRT Bench Sheets and Statistical Analysis

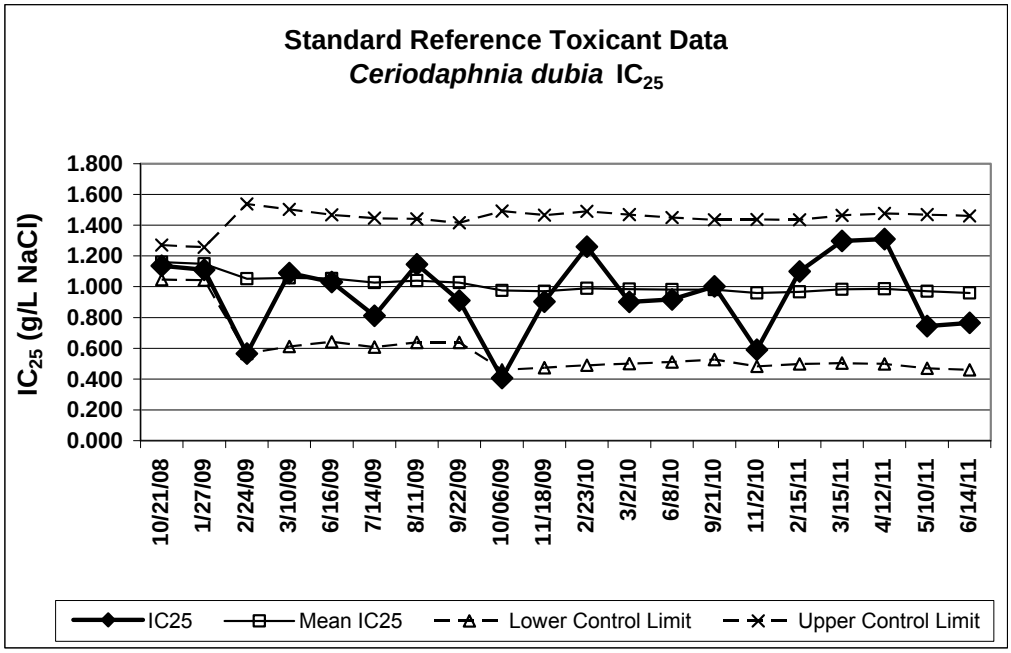
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
10/21/08	1.138	1.16	0.06	1.05	1.27
1/27/09	1.110	1.15	0.05	1.04	1.26
2/24/09	0.565	1.05	0.24	0.57	1.54
3/10/09	1.090	1.06	0.22	0.61	1.50
6/16/09	1.030	1.05	0.21	0.64	1.47
7/14/09	0.812	1.03	0.21	0.61	1.45
8/11/09	1.146	1.04	0.20	0.64	1.44
9/22/09	0.911	1.03	0.19	0.64	1.42
10/06/09	0.406	0.98	0.26	0.46	1.49
11/18/09	0.903	0.97	0.25	0.47	1.47
2/23/10	1.260	0.99	0.25	0.49	1.49
3/2/10	0.902	0.98	0.24	0.50	1.47
6/8/10	0.917	0.98	0.23	0.51	1.45
9/21/10	1.002	0.98	0.23	0.53	1.44
11/2/10	0.590	0.96	0.24	0.48	1.44
2/15/11	1.100	0.97	0.23	0.50	1.44
3/15/11	1.297	0.98	0.24	0.50	1.46
4/12/11	1.310	0.99	0.24	0.50	1.48
5/10/11	0.744	0.97	0.25	0.47	1.47
6/14/11	0.765	0.96	0.25	0.46	1.46

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

EPA 75th Percentile %CV for Reproduction **45%**
Lab %CV Reproduction **24 25.90%**

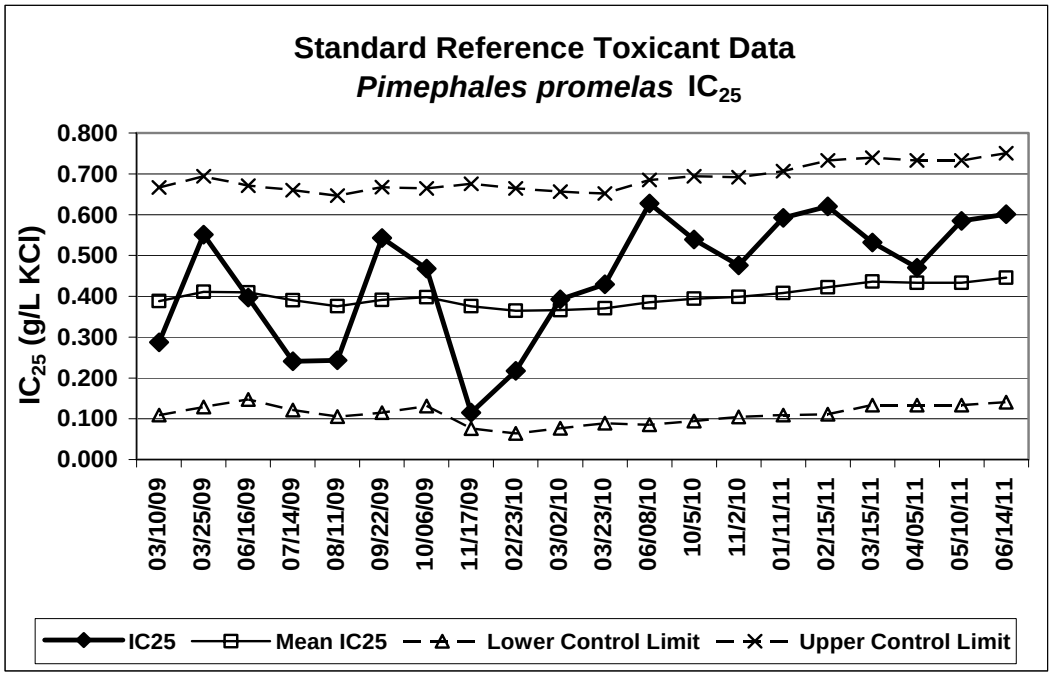


Appendix C. (continued)

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

Date	IC25	Mean IC25	Std Dev	Lower Control Limit	Upper Control Limit
03/10/09	0.287	0.388	0.14	0.109	0.667
03/25/09	0.551	0.411	0.14	0.129	0.694
06/16/09	0.397	0.410	0.13	0.148	0.671
07/14/09	0.241	0.391	0.13	0.121	0.660
08/11/09	0.243	0.376	0.14	0.105	0.647
09/22/09	0.543	0.391	0.14	0.115	0.667
10/06/09	0.468	0.398	0.13	0.131	0.664
11/17/09	0.115	0.376	0.15	0.076	0.676
02/23/10	0.217	0.365	0.15	0.064	0.665
03/02/10	0.393	0.366	0.14	0.077	0.656
03/23/10	0.429	0.370	0.14	0.089	0.652
06/08/10	0.628	0.385	0.15	0.086	0.685
10/05/10	0.539	0.394	0.15	0.094	0.694
11/02/10	0.476	0.398	0.15	0.105	0.692
01/11/11	0.592	0.408	0.15	0.109	0.707
02/15/11	0.620	0.422	0.16	0.111	0.733
03/15/11	0.532	0.436	0.15	0.133	0.740
04/05/11	0.470	0.433	0.15	0.133	0.733
05/10/11	0.585	0.433	0.15	0.133	0.733
06/14/11	0.601	0.446	0.15	0.141	0.751

Means are from the last 20 SRTs.
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 / 6.10.11 Test Days Used: 0-4
20% DMW / 6.15.11 Test Days Used: 5-6
Toxicant/ Batch: NaCl / 6.13.11

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

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 6.14.11 / <24 hr.
Feeding: Prior to Test and Daily
Food: ☑ YCT ☑ *P. subcapitata*
Food Batch: 5.5.11 4.18.11
Chamber size: 30 mL
Test Volume: 20 mL

Start Date: 6.14.11 Time: 1015
End Date: ~~6.21.11~~ 6.20.11 Time: 2100

Batch:	6.10.11	6.15.11			
Water Quality Parameters	20% DMW	20% DMW	Other	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03		JD/KC	KC
Alkalinity (mg/L as $CaCO_3$):	82	85		KC	KC
Hardness (mg/L as $CaCO_3$):	82	87		KC	KC
Total Ammonia (mg/L as N):	<0.017	<0.017		BA	KC
Conductivity (µmhos-cm) mmhos-cm :	186	180		MF	KC

Loaded by: MF

Results	
Control % CV:	47.3 %
Dunnetts PMSD:	38.7 %
Reproduction NOEC:	1.3 g/L
Reproduction LOEC:	2.0 g/L
Survival NOEC:	2.0 g/L
Survival LOEC:	3.0 g/L
IC_{20}:	0.72989
IC_{25}:	0.7654

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

Test Replicate	Loaded from culture vial
1	A4
2	A17
3	A29
4	B25
5	B26
6	B9
7	C4
8	B12
9	B7
10	C~~B~~21 MF

Comments:

Investigators' signatures

Kara Coy
marshall Fairlett
Jessa Abeles
James Daniels

Test Incubated in: Incubator: # 2
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min 25.6 max 27.4 mean —
Room B246 ___ min 22.5 max 23.3 mean —
Test min.____ max.____ mean____

REVIEWER

Appendix C. (continued)

Ceriodaphnia dubia Survival and Reproduction

Start Date: 6.14.11 Time: 1015 Loaded by: MF
End Date: 6.20.11 Time: 21:00 Verified by: KC

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	4	3	0	5	0	5	0	4	1	0	22	10	2.2
	4	0	0	3	0	0	0	5	0	0	5	13	10	1.3
	5	8	5	5	5	0	6	5	4	5	8	51	10	5.1
	6	10	7	8	ox	O[F]	11	5	6	6	12	65	9	6.5
	7													
	8									12 [8]				
	Total	22	15	16	10	0	22	15	14	~~11~~	25	151	9	15.1
0.59	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	4	3	4	0	6	0	4	5	0	29	10	2.9
	4	0	0	0	0	0	0	0	0	0	4	4	10	0.4
	5	7	7	6	7	0	6	4	3	8	7	55	10	5.5
	6	12	11	2	9	M O	5	6	9	12	9	75	10	7.5
	7													
	8											(A) 3X 163	9	18.1
	Total	22	22	11	20	0	17	10	16	25	20	163	~~10~~	~~16.3~~
0.89	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	1	5	0	0	2	0	0	1	0	13	10	1.3
	4	0	0	0	0	0	0	0	0	0	2	2	10	0.2
	5	5	5	6	0	0	5	0	~~M~~ 8	8	7	36	10	3.6
	6	5	0	9	O[M]	O[M]	3	3	X O[MF]	7	0	27	10	2.7
	7													
	8											(A) 78	8	9.75
	Total	14	6	20	0	0	10	3	0	16	9	78	~~10~~	~~7.8~~

Comments: Day 5 Rep 8 0.89 ppth = ♂ MF 6-19-11 (A) Males not counted in final tally BF 7-13-11

F = Female
M = Male

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
1.3	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	3	1	3	3	4	0	0	0	0	0	14	10	1.4
	4	0	0	0	0	0	2	0	1	0	1	4	10	0.4
	5	0	8	5	4	4	8	.1	.0	0	6	36	10	3.6
	6	0	8	6	1	0	5	0	0	0[M]	0	20	10	2.0
	7													
	8											Ⓐ 14	9	8.2
	Total	3	17	14	8	8	15	1	1	0	7	74	~~10~~	~~7.4~~
2.0	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	1	0	0	0	0	0	0	0	1	10	0.1
	4	0	0	0	0	0	0	0	0	0	0	0	10	0
	5	0	3	1	4	0	0	0	0	0	1	9	10	0.9
	6	0	0	0	0	0	0	0	3	0	0	3	10	0.3
	7													
	8													
	Total	0	3	2	4	0	0	0	3	0	1	13	10	1.3
3.0	0												10	
	1			X	X	X				X			10	
	2	X	0	|	|	|	X	X	X	|	X	0	1	0
	3	|	X	|	|	|	|	|	|	|	|	0	0	0
	4	|	|	|	|	|	|	|	|	|	|			
	5	|	|	|	|	|	|	|	|	|	|			
	6	|	|	|	|	|	|	|	|	|	|			
	7	|	|	|	|	|	|	|	|	|	|			
	8	|	|	|	|	|	|	|	|	|	|			
	Total	|	|	|	|	|	|	|	|	|	|			

Comments: Ⓐ see NOTE Page #2

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

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day ↓	Conc.	New Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	Control	M	7.9	~~24.9~~ MF	7.8	186					
	0.59	M	7.9	25.5	7.8	1345					
	0.89	M	7.9	25.5	7.7	1870					
	1.3	M	7.9	25.4	7.5	2650					
	2.0	M	7.9	25.5	7.6	3780					
	3.0	M	8.0	25.4	7.5	5470					
	Measured by:		MF	MF	MF	MF					
	Recorded by:		MF	MF	MF	MF					
Day 1	Control	M	7.9	~~24.1~~ 24.1	7.9	177	A	7.8	24.5	7.5	203
	0.59	M	8.0	25.3	7.7	1291	A	7.9	24.0	7.5	1462
	0.89	M	8.1	24.6	7.8	1832	A	8.0	24.3	7.5	2030
	1.3	M	8.1	24.4	7.8	2600	A	8.0	24.1	7.5	2760
	2.0	M	8.1	24.1	7.7	3740	A	8.0	24.0	7.4	3970
	3.0	M	8.1	24.0	7.6	5480	A	8.0	24.8	7.3	5660
	Measured by:		KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:		KC	KC	KC	KC		KC	KC	KC	KC
Day 2	Control	M	8.1	25.8	8.1	174	A	7.9	25.2	7.3	195
	0.59	M	8.1	24.8	7.7	1243	A	7.9	25.3	7.5	1360
	0.89	M	8.1	25.1	7.9	1765	A	7.9	25.1	7.8	1949
	1.3	M	8.1	24.6	7.7	2520	A	7.9	24.9	7.8	~~2800~~ (A)
	2.0	M	8.1	24.2	7.8	3630	A	7.9	25.1	7.7	4000
	3.0	M	8.1	24.0	7.8	5290	A	7.9	25.1	7.7	5630
	Measured by:		KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:		KC	KC	KC	KC		KC	KC	KC	KC
Day 3	Control	M	8.0	25.2	~~25.2~~ (B)	171					
	0.59	M	8.0	25.1	~~25.1~~ (B)	1246	(*) See comment below.				
	0.89	M	8.1	24.8	~~24.8~~	1786					
	1.3	M	8.1	24.5	~~24.5~~	2570					
	2.0	M	8.1	24.0	~~24.0~~	3730					
	3.0	M	8.1	24.0	~~24.0~~	5260					
	Measured by:		KC	KC	KC	KC					
	Recorded by:		KC	KC	KC	KC					

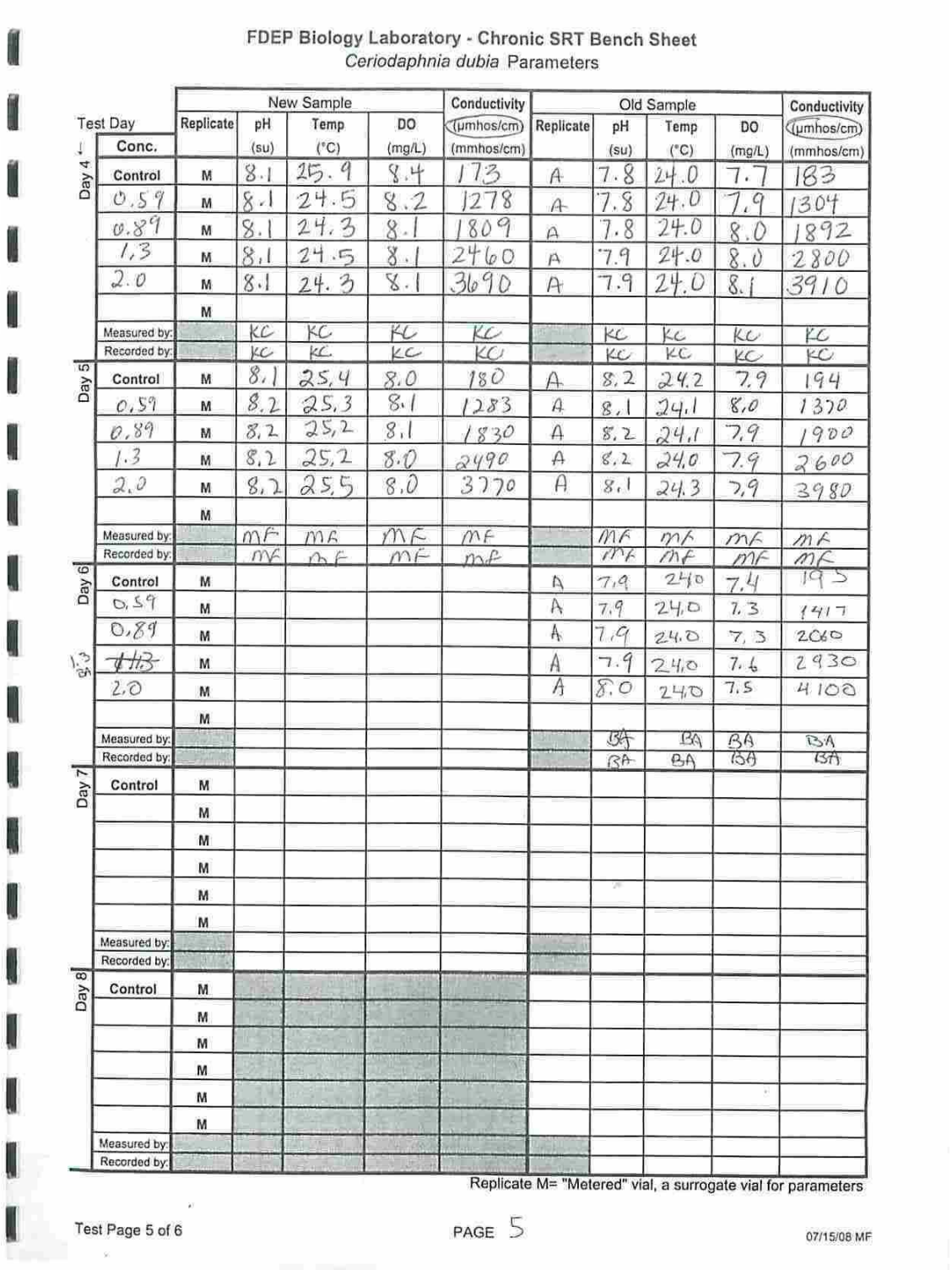
Comments: (A) 2800 - KC -

(B) Day 3 New Sample DO's: CTRL. = 7.6
0.59 = 7.7
0.89 = 7.8
1.3 = 7.8
2.0 = 7.8
3.0 = 7.9
- KC -

(*) Accidently dumped out old sample vials before they were parameterized. - KC - 6.17.11

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)	Replicate	Old Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	8.1	25.9	8.4	173	A	7.8	24.0	7.7	183
	0.59	M	8.1	24.5	8.2	1278	A	7.8	24.0	7.9	1304
	0.89	M	8.1	24.3	8.1	1809	A	7.8	24.0	8.0	1892
	1.3	M	8.1	24.5	8.1	2460	A	7.9	24.0	8.0	2800
	2.0	M	8.1	24.3	8.1	3690	A	7.9	24.0	8.1	3910
		M									
	Measured by:		KC	KC	KC	KC		KC	KC	KC	KC
	Recorded by:		KC	KC	KC	KC		KC	KC	KC	KC
Day 5	Control	M	8.1	25.4	8.0	180	A	8.2	24.2	7.9	194
	0.59	M	8.2	25.3	8.1	1283	A	8.1	24.1	8.0	1370
	0.89	M	8.2	25.2	8.1	1830	A	8.2	24.1	7.9	1900
	1.3	M	8.2	25.2	8.0	2490	A	8.2	24.0	7.9	2600
	2.0	M	8.2	25.5	8.0	3770	A	8.1	24.3	7.9	3980
		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					A	7.9	24.0	7.4	195
	0.59	M					A	7.9	24.0	7.3	1417
	0.89	M					A	7.9	24.0	7.3	2060
1.3	~~1.3~~	M					A	7.9	24.0	7.6	2930
	2.0	M					A	8.0	24.0	7.5	4100
		M									
	Measured by:							BA	BA	BA	BA
	Recorded by:							BA	BA	BA	BA
Day 7	Control	M									
		M									
		M									
		M									
		M									
		M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
		M									
		M									
		M									
		M									
		M									
	Measured by:										
	Recorded by:										

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

Test Page 5 of 6

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Appendix C. (continued)

C. dubia

Test ID: June 2011 SRT

Dates: 6-14-11 — 6.20.11

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

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

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

Reviewed 6-14-11 MF

V 1.1 9/21/10 MF/jd

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

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

Diluent/ Batch: MHW/6.10.11 Test Days Used: 0-7

Diluent/ Batch: _____ Test Days Used: _____

Toxicant/ Batch # : KCl / ~~KBr 6.11~~ 6.13.11

Artemia Lot # : 23613

Start Date: 6.14.11 Time: 1300

End Date: 6.21.11 Time: 0830

Organism Batch #/ Age: 6.14.11 / < 24 HRS.

Artemia Batch #	Day 2 107-11	Day 5 110-11
Day 0 105-11	Day 3 108-11	Day 6 111-11
Day1 106-11	Day 4 109-11	

Chamber size : 1000 ml

Test volume : 500 ml

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

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

Water Quality Parameters	Diluent	Diluent (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<0.03		HACH	JD	KC
Alkalinity (mg/L as $CaCO_3$):	78		HACH	KC	KC
Hardness (mg/L as $CaCO_3$):	96		HACH	KC	KC
Total Ammonia (mg/L as N):	<0.017		DENVER	BA	KC
Conductivity (µmhos-cm mmhos-cm):	325		METTLER	JD	KC

Statistics	(calculated?)	(T_{25} adjusted)
Growth NOEC:	0.5 g/L	
Growth LOEC:	~~1.0 g/L~~ 1.0 g/L	BA
Growth IC_{20}:	0.5756	0.573
Growth IC_{25}:	0.6012	0.5977
Ctrl % CV:	13%	
Dunnetts PMSD:	20.8%	14.9 %
Survival NOEC:	0.5 g/L	
Survival LOEC:	1.0 g/L	

Test incubated in : ☑ Incubator # 5

☐ Waterbath #____

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 5 min. 24.8 max. 26.3 mean –

Water bath # ____ min.____ max.____ mean____

Room B246 min. 22.5 max 23.4 mean –

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

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

Investigators' signatures

Kara Cov

Marshall Faircloth

Bruce Noble

James Daniel

Liz Miller

REVIEWER

Comments:

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revised 7/16/08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

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

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

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	A1	10	10	10	10	9 JD	9	9	9
	B	A2	10	10	10	10	10	8 JD	8	8
	C	A3	10	10	10	10	10	10	10	10
	D	A4	10	10	10	10	10	10	10	10
.125	A	A5	10	10	10	9 JD	9	9	9	~~8~~ 9 JD
	B	A6	10	10	10	10	10	10	10	10
	C	A7	10	10	10	10	10	10	10	10
	D	A8	10	10	10	10	10	10	10	10
.25	A	A9	10	10	10	10	10	10	10	10
	B	A10	10	10	10	10	10	10	10	9 JD
	C	A11	10	10	10	10	10	10	10	10
	D	A12	10	10	10	10	10	10	10	10
.5	A	A13	10	10	9 JD	9	9	9	9	8 JD
	B	A14	10	9 JD	9	9	9	9	9	9
	C	A15	10	10	9 JD	9	9	9	9	9
	D	A16	10	10	10	10	10	10	10	10
1	A	A17	10	~~0~~ 3 JD	3	1 JD	1	1	1	1
	B	A18	10	~~0~~ 2 JD	2	2	1 JD	0 JD	—	—
	C	A19	10	~~0~~ 2 JD	2	2	2	2	0 JD	—
	D	A20	10	~~0~~ 4 JD	4	4	4	~~8~~ 5 JD	2 JD	X JD
2	A	A21	10	0 JD						
	B	A22	10	0 JD						
	C	A23	10	0 JD						
	D	A24	10	0 JD						
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by:		JD	JD	JD	JD	JD	JD	JD
Verified by (0 hr): KC										
Concentrations prepared by:				JD	JD	JD	JD	JD	JD	JD

Comments:

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revised 7/16/08 MF

Appendix C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 6.14.11 End Date: 6.21.11

Start Time: 1300 End Time: 0830

conc = concentration rep = replicate circle umhos or mmhos

Test Day	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity umhos mmhos	Salinity ppth
Day 0	Control	A	8.0	25.4	7.3	325							
	.125	A	8.0	25.8	7.4	537							
	.25	A	8.1	24.9	7.6	739							
	.5	A	8.1	24.0	7.6	1218							
	1	A	8.1	24.9	7.7	2150							
	2	A	8.1	25.9	7.7	3960							
		A											
	Measured by		KC	JD	KC	KC							
	Recorded by		KC	JD	KC	KC							
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 1	Control	B	7.7	24.4	7.3	331		B	7.8	25.0	7.5	328	
	.125	B	7.8	24.2	7.3	534		B	7.9	24.6	7.0	548	
	.25	B	7.8	24.2	7.4	743		B	7.9	24.4	7.3	753	
	.5	B	7.9	24.1	7.5	1234		B	7.9	24.4	7.4	1264	
	1	B	7.9	24.8	7.2	2130		B	8.0	24.6	7.6	2150	
	2	B	7.9	24.3	7.3	3880		B					
		B						B					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 2	Control	C	8.0	25.7	6.2	330		C	8.1	24.6	7.4	321	
	.125	C	7.9	25.6	6.3	541		C	8.0	24.6	7.4	544	
	.25	C	7.9	25.4	7.7	780		C	8.0	24.5	7.4	784	
	.5	C	7.9	25.5	6.9	1235		C	8.0	24.4	7.5	1222	
	1	C	7.9	25.2	7.2	2070		C	8.0	24.3	7.4	2100	
		C						C					
		C						C					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	KC	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 3	Control	D	7.8	25.5	5.8	346		D	7.6	25.3	7.1	330	
	.125	D	7.8	25.3	5.9	578		D	7.7	24.0	7.0	547	
	.25	D	7.8	25.5	5.8	835		D	7.7	24.0	7.1	780	
	.5	D	7.8	25.3	5.3	1280		D	7.7	24.0	7.0	1224	
	1	D	7.8	25.1	6.5	2180		D	7.8	24.0	7.1	2120	
		D						D					
		D						D					
	Measured by		JD	JD	JD	JD			JD	KC/JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	KC/JD	JD	JD	

Comments:

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

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Appendix C. (continued)

Chronic SRT Parameters Benchsheet

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

Start Date: 6.14.11 End Date: 6.21.11

Start Time: 1300 End Time: 0830

conc = concentration rep = replicate

Test Day ↓	Conc.	Before Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos/mmhos)	Salinity ppth	After Renewal: Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (umhos/mmhos)	Salinity ppth
Day 4	Control	A	7.8	25.9	6.6	339		A	7.7	25.9	7.5	333	
	.125	A	7.8	25.7	6.4	569		A	7.7	25.9	7.8	572	
	.25	A	7.8	25.4	6.3	811		A	7.8	25.7	8.0	800	
	.5	A	7.8	25.9	6.6	1277		A	7.8	25.7	8.0	1275	
	1	A	7.9	25.7	7.1	2180		A	7.9	25.9	8.3	2210	
		A						A					
		A						A					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 5	Control	B	7.8	25.8	6.2	349		B	8.0	25.9	7.7	340	
	.125	B	7.8	25.4	6.3	591		B	8.0	25.5	7.8	572	
	.25	B	7.8	25.2	6.1	826		B	8.0	25.8	8.0	827	
	.5	B	7.8	25.0	5.8	1296		B	8.0	25.8	7.9	1296	
	1	B	7.8	25.4	6.3	2250		B/C	8.0	25.9	8.0	2210	
		B						B					
		B						B					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 6	Control	C	7.8	25.9	6.8	339		C	7.6	25.4	7.5	323	
	.125	C	7.7	25.7	6.8	573		C	7.8	25.7	7.7	~~407~~ JD 568	
JD	~~.25~~ .25	C	7.8	25.8	6.7	815		C	7.8	25.5	7.7	~~462~~ JD 785	
	.5	C	7.8	25.7	6.6	1294		C	7.8	25.4	7.7	1240	
	1	C	7.8	25.9	6.6	2230		E.D	7.9	25.9	7.8	2140	
		C						C					
		C						C					
	Measured by		JD	JD	JD	JD			JD	JD	JD	JD	
	Recorded by		JD	JD	JD	JD			JD	JD	JD	JD	
		Rep	pH	Temp	DO	Conductivity	Salinity	Rep	pH	Temp	DO	Conductivity	Salinity
Day 7	Control	D	7.6	25.9	7.5	336		D					
	.125	D	7.6	25.9	7.4	570		D					
	.25	D	7.6	25.9	6.7	801		D					
	.5	D	7.6	25.9	6.8	1271		D					
	1	D	7.7	25.9	7.5	2190		D					
								D					
								D					
	Measured by		KC	JD	KC	KC							
	Recorded by		KC	JD	KC	KC							

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

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

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

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

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	25	0.02126	0.02666	0.00540	10	.540
	B	26	0.02248	0.02771	0.00523	10	.523
	C	27	0.02170	0.02862	0.00692	10	.692
	D	28	0.02337	0.02941	0.00604	10	.604
.125	A	29	0.02275	0.02752	0.00477	10	.477
	B	30	0.02240	0.02827	0.00587	10	.587
	C	31	0.02365	0.02988	0.00623	10	.623
	D	32	0.02266	0.02821	0.00555	10	.555
.25	A	33	0.02319	0.02916	0.00597	10	.597
	B	34	0.02301	0.02881	0.00580	10	.580
	C	35	0.02204	0.02698	0.00494	10	.494
	D	36	0.02188	0.02696	0.00508	10	.508
.5	A	37	0.02240	0.02771	0.00531	10	.531
	B	38	0.02208	0.02796	0.00588	10	.588
	C	39	0.02181	0.02791	0.00610	10	.610
	D	40	0.02249	0.02837	0.00588	10	.588
1	A	41	0.02317	0.02351	0.00034	10	0.034
	B	—	—	—	—	10	—
	C	—	—	—	—	10	—
	D	42	0.02260	0.02299	0.00039	10	.039
2	A					10	
	B					10	
	C					10	
	D					10	
	A					10	
	B					10	
	C					10	
	D					10	
		Weighed by:	JD	JD			

Comments:

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

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revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

all weights in grams

(A) Fish + Pan

~~Empty~~ Pan Weights Date: 6.24.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02665 @	0.2666
after Pan 10	0.02661 @	0.2666
after Pan 15	0.02661 @	0.2666
after Pan 20	0.02662 @	0.2666
after Pan 25	@	
after Pan 30	@	
after Pan 35	@	
after Pan 40	@	
after Pan 45	@	
after Pan 48	@	

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

Balance: Ohaus 250D Ser# 1125481084

S-Weights: BIO-S-Weights-01

(A) Empty

~~Fish + Pan~~ Weights Date: 6.20.11 Weighed by: JD

	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02124 @	0.02126
after Pan 10	0.02127 @	0.02126
after Pan 15	0.02125 @	0.02126
after Pan 20	0.02126 @	0.02126
after Pan 25	@	
after Pan 30	@	
after Pan 35	@	
after Pan 40	@	
after Pan 45	@	
after Pan 48	@	

	Measured Value	S-weight Value
S-weights	0.00999 @	0.01
	0.05006 @	0.05

Drying Oven ID: ER034000

Temperature °C: 100

Drying Hours: 8

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

Comments:

(A) Transcription ERROR. -KC-
↳ Table at the top is the "Fish + Pan" weights & the bottom table lists the "Empty Pan" weights.

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revised 7/16/08 MF

Appendix C. (continued)

Test ID: P.DROmulas SRT Dates: 6.14.11 – 6.21.11

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

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

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

entered 6/21/11 by Karen Cox

V 1.1 9/21/10 MF/jd

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Appendix C. (continued)

CETIS Analytical Report

Report Date: 27 Oct-11 08:12 (p 1 of 4)
Test Code: 16-4029-5966/61C4EE1E

Ceriodaphnia 7-d Survival and Reproduction Test — **DEP-Bureau of Labs**

Analysis ID:	17-4290-9502	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.7.0
Analyzed:	05 Jul-11 12:25	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	18-3027-1946	**Test Type:**	Survival-Reproduction	**Analyst:**	
Start Date:	14 Jun-11 10:15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	20% DMW
Ending Date:	20 Jun-11 21:00	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 11h	**Source:**	In-House Culture	**Age:**	<24
Sample ID:	16-6983-2845	**Code:**	6387A08D	**Client:**	Internal Lab
Sample Date:	14 Jun-11	**Material:**	Sodium chloride	**Project:**	WET Monthly Compliance Test (JUN)
Receive Date:	14 Jun-11	**Source:**	Reference Toxicant		
Sample Age:	10h	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	57951	200	Yes	Two-Point Interpolation

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(5%)
Extreme Value	Grubbs Extreme Value	3.112	3.173	0.0643	No Outliers Detected

Point Estimates

Level	gm/L	95% LCL	95% UCL
IC5	0.6236	0.1694	0.7022
IC10	0.658	0.3675	0.8223
IC15	0.6931	0.5922	0.9157
IC20	0.7289	0.6329	0.9999
IC25	0.7654	0.6717	1.069
IC40	0.8799	0.7659	1.378
IC50	1.276	0.8193	1.496

Reproduction Summary

			Calculated Variate						
Conc-gm/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Dilution Water	10	15.1	0	25	1.304	7.141	47.29%	0.0%
0.59		9	18.11	10	25	0.9285	5.085	28.08%	-19.94%
0.89		8	9.75	0	20	1.23	6.735	69.07%	35.43%
1.3		9	8.222	1	17	1.098	6.016	73.17%	45.55%
2		10	1.3	0	4	0.2861	1.567	120.5%	91.39%
3		10	0	0	0	0	0		100.0%

Reproduction Detail

Conc-gm/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	22	15	16	10	0	22	15	14	12	25
0.59		22	22	11	20	17	10	16	25	20	
0.89		14	6	20	10	3	0	16	9		
1.3		3	17	14	8	8	15	1	1	7	
2		0	3	2	4	0	0	0	3	0	1
3		0	0	0	0	0	0	0	0	0	0

Appendix C. (continued)

CETIS Analytical Report

Report Date: 27 Oct-11 08:17 (p 3 of 6)
Test Code: 00-2350-5366/166A9D6

Larval Fish 7-d Survival and Growth Test — DEP-Bureau of Labs

Analysis ID:	11-1466-3045	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.7.0
Analyzed:	06 Jul-11 8:25	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes
Batch ID:	14-0912-0848	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	14 Jun-11 13:00	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Mod-Hard Synthetic Water
Ending Date:	21 Jun-11 08:30	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 20h	Source:	Marinco	Age:	<24
Sample ID:	20-3933-0155	Code:	798DB56B	Client:	Internal Lab
Sample Date:	13 Jun-11	Material:	Potassium chloride	Project:	Concurrent SRT
Receive Date:	13 Jun-11	Source:	Reference Toxicant		
Sample Age:	37h	Station:	In House		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	57951	200	Yes	Two-Point Interpolation

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(5%)
Extreme Value	Grubbs Extreme Value	2.094	2.652	0.4695	No Outliers Detected

Point Estimates

Level	gm/L	95% LCL	95% UCL
IC5	0.501	N/A	0.5367
IC10	0.5255	N/A	0.5598
IC15	0.5503	N/A	0.5833
IC20	0.5756	0.4851	0.6072
IC25	0.6012	0.5152	0.6315
IC40	0.6808	0.6091	0.7064
IC50	0.736	0.6746	0.7582

Mean Dry Weight-mg Summary

			Calculated Variate						
Conc-gm/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Dilution Water	4	5.897	5.23	6.92	0.1398	0.7657	12.98%	0.0%
0.125		4	5.605	4.77	6.23	0.1136	0.6221	11.1%	4.96%
0.25		4	5.447	4.94	5.97	0.09368	0.5131	9.42%	7.63%
0.5		4	5.793	5.31	6.1	0.0617	0.338	5.84%	1.78%
1		2	0.365	0.34	0.39	0.006455	0.03535	9.69%	93.81%

Mean Dry Weight-mg Detail

Conc-gm/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5.4	5.23	6.92	6.04
0.125		4.77	5.87	6.23	5.55
0.25		5.97	5.8	4.94	5.08
0.5		5.31	5.88	6.1	5.88
1		0.34	0.39		

Appendix D. Test Organism Receipt(s)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 6/13/11

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia						
Menidia beryllina						
						Hardness mg/L
Cyprinella leedsi	200 ac	7-10 DAYS	CL 110661	25	7.8	60
Pimephales promelas	600	< 24 Hrs	FM 110612-1715	25	7.8	80
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM

Shipped Via: Fed Ex

Notes: _____

Thank you for your order.

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

Appendix E. Chemical Analyses performed on the effluent collected from the RockTenn Seminole facility's- EFF-1 NPDES sampling point for Outfall D-001, sampled June 13, 2011.

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:30	EFF-1	AGP/LN	Algal Growth Potential-Salinity Adjusted	91.7		mg DryWt/L	3	3
6/13/2011 11:30	EFF-1	AGP/LN	Algal Growth Potential	82.6		mg DryWt/L	0.3	0.9
6/13/2011 11:30	EFF-1	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	12		ug/L	0.55	1.7
6/13/2011 11:30	EFF-1	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.3		ug/L	0.4	1.2
6/13/2011 11:30	EFF-1	Nutrients	O-Phosphate-P	0.31		mg P/L	0.04	0.1
6/13/2011 11:30	EFF-1	Overflow	Oil and Grease	0.7	U	mg/L	0.7	2.5
6/13/2011 11:30	EFF-1	Pesticides	Alachlor	0.58	UJ	ug/L	0.58	2.3
6/13/2011 11:30	EFF-1	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Ethion	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Ethoprop	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Naled	0.77	U	ug/L	0.77	3.1
6/13/2011 11:30	EFF-1	Pesticides	Parathion Methyl	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.58
6/13/2011 11:30	EFF-1	Pesticides	Atrazine	0.066	U	ug/L	0.066	0.26
6/13/2011 11:30	EFF-1	Pesticides	Butylate	0.19	UJ	ug/L	0.19	0.77
6/13/2011 11:30	EFF-1	Pesticides	Diazinon	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Malathion	0.14	U	ug/L	0.14	0.58
6/13/2011 11:30	EFF-1	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.77
6/13/2011 11:30	EFF-1	Pesticides	Phorate	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Metolachlor	0.48	UJ	ug/L	0.48	1.9
6/13/2011 11:30	EFF-1	Pesticides	Metribuzin	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Simazine	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Fonofos	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Hexazinone	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.77
6/13/2011 11:30	EFF-1	Pesticides	Chlorpyrifos Methyl	0.096	U	ug/L	0.096	0.38
6/13/2011 11:30	EFF-1	Pesticides	Bromacil	0.19	UJ	ug/L	0.19	0.77
6/13/2011 11:30	EFF-1	Pesticides	Ametryn	0.048	U	ug/L	0.048	0.19
6/13/2011 11:30	EFF-1	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.58
6/13/2011 11:30	EFF-1	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
6/13/2011 11:30	EFF-1	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.77
6/13/2011 11:30	EFF-1	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.58
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L	0.21	0.82

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Di-n-butyl phthalate	5.2	U	ug/L	5.2	21
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	41
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Phenanthrene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	62
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.2
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Butyl benzyl phthalate	5.2	U	ug/L	5.2	21
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Chrysene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Pyrene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	62
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	UJ	ug/L	41	160
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Anthracene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.2
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.2
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Pentachlorophenol	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	62
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Fluorene	0.21	U	ug/L	0.21	0.82
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	12
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1
6/13/2011 11:30	EFF-1	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.2
6/13/2011 11:30	EFF-1	Field Parameter	Temperature	30.24		C		
6/13/2011 11:30	EFF-1	Field Parameter	Specific Conductance	1313		umhos/cm		
6/13/2011 11:30	EFF-1	Field Parameter	pH	7.73				
6/13/2011 11:30	EFF-1	Field Parameter	Sample Depth	0.2		m		
6/13/2011 11:00	COMP 1	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	11		mg/L	0.2	2
6/13/2011 11:00	COMP 1	Toxicology	Bioassay-Chron-Def-FW-Fish, NOEC	50		NOEC		
6/13/2011 11:00	COMP 1	Toxicology	Bioassay-Chron-Def-FW-Fish, IC25	87.8		IC25		
6/13/2011 11:00	COMP 1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, NOEC	100		NOEC		
6/13/2011 11:00	COMP 1	Toxicology	Bioassay-Chron-Def-FW-C.dubia, IC25	100	L	IC25		
6/13/2011 11:00	COMP 1	Metals	Selenium	0.2	U	ug/L	0.2	0.8
6/13/2011 11:00	COMP 1	Metals	Arsenic	0.68	I	ug/L	0.25	1
6/13/2011 11:00	COMP 1	Metals	Aluminum	333		ug/L	5	20
6/13/2011 11:00	COMP 1	Metals	Magnesium	21.7		mg/L	0.04	0.16
6/13/2011 11:00	COMP 1	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
6/13/2011 11:00	COMP 1	Metals	Nickel	1.45		ug/L	0.25	1
6/13/2011 11:00	COMP 1	Metals	Chromium	1	I	ug/L	0.3	1.2
6/13/2011 11:00	COMP 1	Metals	Zinc	5	U	ug/L	5	20
6/13/2011 11:00	COMP 1	Metals	Copper	0.77	I	ug/L	0.5	1
6/13/2011 11:00	COMP 1	Metals	Sodium	178		mg/L	0.5	2
6/13/2011 11:00	COMP 1	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/13/2011 11:00	COMP 1	Metals	Lead	0.27	I	ug/L	0.2	0.8
6/13/2011 11:00	COMP 1	Metals	Iron	130		ug/L	30	120
6/13/2011 11:00	COMP 1	Metals	Calcium	92.7		mg/L	0.075	0.3
6/13/2011 11:00	COMP 1	Nutrients	Fluoride	0.75		mg F/L	0.035	0.1

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:00	COMP 1	Nutrients	Total-P	0.46		mg P/L	0.005	0.05
6/13/2011 11:00	COMP 1	Nutrients	Sulfate	120		mg SO4/L	4	10
6/13/2011 11:00	COMP 1	Nutrients	Organic Carbon	33	A	mg C/L	1	5
6/13/2011 11:00	COMP 1	Nutrients	Ammonia-N	3.1		mg N/L	0.05	0.1
6/13/2011 11:00	COMP 1	Nutrients	Kjeldahl Nitrogen	6.2		mg N/L	0.4	1
6/13/2011 11:00	COMP 1	Nutrients	NO2NO3-N	0.015		mg N/L	0.004	0.01
6/13/2011 11:00	COMP 1	Nutrients	TSS	12		mg/L	2	10
6/13/2011 11:00	COMP 1	Nutrients	Chloride	69		mg Cl/L	4	10
6/13/2011 11:00	COMP 1	Nutrients	Alkalinity	459		mg CaCO3/L	0.65	2.5
6/13/2011 11:15	FIELD BLANK	Metals	Iron	30	U	ug/L	30	120
6/13/2011 11:15	FIELD BLANK	Metals	Sodium	0.5	U	mg/L	0.5	2
6/13/2011 11:15	FIELD BLANK	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/13/2011 11:15	FIELD BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
6/13/2011 11:15	FIELD BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
6/13/2011 11:15	FIELD BLANK	Metals	Aluminum	5	U	ug/L	5	20
6/13/2011 11:15	FIELD BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
6/13/2011 11:15	FIELD BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
6/13/2011 11:15	FIELD BLANK	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
6/13/2011 11:15	FIELD BLANK	Metals	Chromium	0.3	U	ug/L	0.3	1.2
6/13/2011 11:15	FIELD BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/13/2011 11:15	FIELD BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
6/13/2011 11:15	FIELD BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
6/13/2011 11:15	FIELD BLANK	Metals	Zinc	5	U	ug/L	5	20
6/13/2011 11:15	FIELD BLANK	Nutrients	O-Phosphate-P	0.008	I	mg P/L	0.004	0.01
6/13/2011 11:15	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
6/13/2011 11:15	FIELD BLANK	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
6/13/2011 11:15	FIELD BLANK	Nutrients	Organic Carbon	1	U	mg C/L	1	5
6/13/2011 11:15	FIELD BLANK	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
6/13/2011 11:15	FIELD BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
6/13/2011 11:15	FIELD BLANK	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
6/13/2011 11:15	FIELD BLANK	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
6/13/2011 11:15	FIELD BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
6/13/2011 11:15	FIELD BLANK	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
6/13/2011 11:15	FIELD BLANK	Overflow	Oil and Grease	0.7	U	mg/L	0.7	2.5
6/13/2011 11:15	FIELD BLANK	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Butylate	0.19	UJ	ug/L	0.19	0.76
6/13/2011 11:15	FIELD BLANK	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.95

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:15	FIELD BLANK	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.57
6/13/2011 11:15	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Malathion	0.14	U	ug/L	0.14	0.57
6/13/2011 11:15	FIELD BLANK	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Bromacil	0.19	UJ	ug/L	0.19	0.76
6/13/2011 11:15	FIELD BLANK	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.57
6/13/2011 11:15	FIELD BLANK	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
6/13/2011 11:15	FIELD BLANK	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Metolachlor	0.47	UJ	ug/L	0.47	1.9
6/13/2011 11:15	FIELD BLANK	Pesticides	Naled	0.76	U	ug/L	0.76	3
6/13/2011 11:15	FIELD BLANK	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
6/13/2011 11:15	FIELD BLANK	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Alachlor	0.57	UJ	ug/L	0.57	2.3
6/13/2011 11:15	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
6/13/2011 11:15	FIELD BLANK	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
6/13/2011 11:15	FIELD BLANK	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.57
6/13/2011 11:15	FIELD BLANK	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.2	U	ug/L	0.2	0.82

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.2
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.2
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.2
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	41
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	UJ	ug/L	41	160
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.2
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.2	U	ug/L	0.2	0.82
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1

Appendix E. continued

Date	Field ID	Analysis	Component	Results	Qualifier	Units	MDL	PQL
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
6/13/2011 11:15	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.2	U	ug/L	0.2	0.82
6/15/2011 11:33	EFF-1	Field Parameter	Temperature	30		C		
6/15/2011 11:33	EFF-1	Field Parameter	Specific Conductance	1301		umhos/cm		
6/15/2011 11:33	EFF-1	Field Parameter	pH	7.85				
6/15/2011 11:33	EFF-1	Field Parameter	Sample Depth	0.3		m		
6/17/2011 8:00	FINAL EFF	Field Parameter	Temperature	29.34		C		
6/17/2011 8:00	FINAL EFF	Field Parameter	Specific Conductance	1289		umhos/cm		
6/17/2011 8:00	FINAL EFF	Field Parameter	pH	7.79				

Appendix F. Pages 1-8 NPDES Permit # FL0000400

Florida Department of
Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590
Phone: 904/807-3300 ♦ Fax: 904/448-4366

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMITTEE:

Smurfit-Stone Container Corporation,
Seminole Mill
Post Office Box 26998
Jacksonville, Florida 32226

PERMIT NUMBER:	FL0000400 (Major)
PA FILE NUMBER:	FL0000400-002-IW1S
ISSUANCE DATE:	May 22, 2009
EXPIRATION DATE:	May 21, 2014

RESPONSIBLE AUTHORITY:

Mr. James E. Smith
General Manager

FACILITY:

Smurfit-Stone Container Corporation
Seminole Mill
9469 Eastport Road
Jacksonville, Florida 32218
Duval County

Latitude: 30° 25' 26.25" N Longitude: 81° 36' 9.78" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.) and applicable rules of the Florida Administrative Code (F.A.C.), and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System (NPDES). The above named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

Description of System

Manufacture of bleached and unbleached linerboard and paper from recycled paper and purchased pulp. Pulp may consist of either old corrugated container (OCC) recycle fiber or purchased bleached kraft pulp. The primary SIC is 2631, under PAPERBOARD MILLS.

Appendix F. continued

PERMITTEE:	PERMIT NUMBER:	FL0000400 – 002
Smurfit-Stone Container Corporation, Seminole Mill Post Office Box 26998 Jacksonville, FL 32226	Expiration date:	May 21, 2014

WASTEWATER TREATMENT:

An existing 20.0 MGD design flow discharge of process wastewater from pulp and paper operations, domestic wastewater and stormwater to surface water. Pulp is generated with an on-site OCC recycling pulp operation or the purchase of bleached pulp. Treatment consists of grit removal, primary clarification, and aeration in two 3.5 acre unlined holding ponds and a 60 acre unlined aeration stabilization basin with discharge to outfall D-001. It also includes an on-site 69-acre landfill and two sludge drying beds. Non-hazardous solid waste material generated by on-site operation and activities are deposited in the designated on-site landfill.

EFFLUENT DISPOSAL:

Surface Water Discharge:

An existing 20 MGD average daily flow (ADF) discharge to St. John's River (Class III Marine waters – WBID 2213C North Main Stem Unit), D-001. The final effluent outfall line is a 72-inch diameter, reinforced concrete pipe branching to four 36-inch diffusers and the point of discharge is located approximately at latitude 30° 25' 10" N, longitude 81° 35' 56" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions as set forth in Part I through Part VIII on pages 2 through 25 of this permit.

Appendix F. continued

PERMITTEE:

Smurfit-Stone Container Corporation.
Seminole Mill
Post Office Box 26998
Jacksonville, FL 32226

PERMIT NUMBER: FL0000400 – 002

Expiration date: May 21, 2014

I. Effluent Limitations and Monitoring Requirements

A. Surface Water Discharges

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

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Average**	**Daily Maximum**	**Other**	**Monitoring Frequency**	**Sample Type**	**Sample Point**
Flow (MGD)	Report	Report	--	Continuous	Recorder	EFF-1
pH (SU)	--	8.5	6.5 Daily Minimum	Continuous	Recorder	EFF-1
Temperature, Water (DEG.C)	35	37.7	--	Continuous	Recorder	EFF-1
Biochemical Oxygen Demand-5 (LBS/DAY)*	7,016	14,284	--	1 day/week	24-hour time proportioned composite	EFF-1
Solids, Total Suspended (LBS/DAY)*	11,527	23,055	--	1 day/week	24-hour time proportioned composite	EFF-1
Nitrogen, Ammonia, Total (as N) (MG/L)	Report	--	--	Monthly	24-hour time proportioned composite	EFF-1
Nitrogen, Total (MG/L)	Report	--	--	Monthly	24-hour time proportioned composite	EFF-1 (see I.A.7)

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Appendix F. continued

PERMITTEE:

Smurfit-Stone Container Corporation,
Seminole Mill
Post Office Box 26998
Jacksonville, FL 32226

PERMIT NUMBER: FL0000400 – 002

Expiration date: May 21, 2014

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Average**	**Daily Maximum**	**Other**	**Monitoring Frequency**	**Sample Type**	**Sample Point**
Nitrogen, Total (KG/YR)	Report (Monthly Mass Load)	--	74,305 (Total Annual Mass Load)	Monthly	24-hour time proportioned composite	EFF-1 (see I.A.7)
Nitrogen, Kjeldahl, Total (as N) (MG/L)	--	Report	--	Monthly	24-hour time proportioned composite	EFF-1
Phosphorus, Total (as P) (MG/L)	--	Report	--	Quarterly	24-hour time proportioned composite	EFF-1
Oil and Grease (MG/L)	--	5.0	--	Quarterly	Grab	EFF-1
Aluminum, Total Recoverable (MG/L)	--	1.5	--	Quarterly	24-hour time proportioned composite	EFF-1
Copper, Total Recoverable (UG/L)	--	3.7	--	Quarterly	24-hour time proportioned composite	EFF-1
Zinc, Total Recoverable (UG/L)	--	86	--	Quarterly	24-hour time proportioned composite	EFF-1
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Ceriodaphnia dubia*)	--		100 Minimum	Annual See Permit Condition I.A.3	24-hour time proportioned composite	EFF-1

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Appendix F. continued

PERMITTEE:

Smurfit-Stone Container Corporation,
Seminole Mill
Post Office Box 26998
Jacksonville, FL 32226

PERMIT NUMBER: FL0000400 – 002

Expiration date: May 21, 2014

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Average**	**Daily Maximum**	**Other**	**Monitoring Frequency**	**Sample Type**	**Sample Point**
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Pimephales promelas*)	--		100 Minimum	Annual See Permit Condition I.A.3	24-hour time proportioned composite	EFF-1

* If the BOD or TSS for any single sample is within 10% of the monthly average limit, the frequency of sampling shall return to 3 days per week starting the week following the laboratory analysis report is made available to the mill and lasting until the single sample BOD or TSS for 3 consecutive samples is below 50% of the monthly average limit.

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

Sample Point	Description of Monitoring Location
EFF-1	At the Parshall Flume

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

   a. Effluent Limitation
      (1) Whole effluent chronic toxicity shall not result in a 25 percent inhibition concentration (IC_{25}) less than 100% effluent in any test. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) Whole effluent acute toxicity shall not result in a 96-hour LC_{50} of less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once each year, the first starting within 60 days of permit issuance or one year from previous chronic testing in accordance with Permit Condition I.A.3, whichever is later, and lasting for the duration of this permit.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three 24-hour composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
      (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

   d. Test Requirements
      (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%, 75%, 50%, 25%,** and **12.5%** final effluent.

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

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

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

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. The SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

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

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

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

f. Reporting Requirements

(1) Results from all routine and additional follow-up tests shall be entered on the Discharge Monitoring Report (DMR) as the calculated IC_{25} for each test species.

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

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

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

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

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

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

Appendix F. continued

PERMITTEE:

Smurfit-Stone Container Corporation,
Seminole Mill
Post Office Box 26998
Jacksonville, FL 32226

PERMIT NUMBER: FL0000400 – 002

Expiration date: May 21, 2014

g. Test Failures
   (1) A test fails when the test results do not meet the limits in 3.a.(1) above.
   (2) Additional Follow-up Tests:
      (a) If a routine test does not meet the chronic toxicity limitation in 3.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests, in accordance with 3.d. above, on each species that failed the test.
      (b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
      (c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 75%, 50%, 25%, and 12.5% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013.
   (3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
      (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
      (b) The Department shall review and approve the plan before initiation.
      (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
      (d) Progress reports shall be submitted quarterly to the Department at the address above.
      (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 3.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 3.b.(1) above. If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
      (f) Upon completion of four consecutive, valid routine tests that demonstrate compliance with the effluent limitation in 3.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive valid routine whole effluent toxicity tests.
      (g) If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive valid tests for the purpose of terminating the plan.
   (4) The Department shall require acute definitive whole effluent toxicity testing if mortality exceeds 50% in the 100% effluent sample before or at 96 hours

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Appendix F. continued

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity test failures. *[62-4.241, 62-620.620(3)]*

4. There shall be no discharge of floating solids or visible foam in other than trace amounts.

5. The discharge shall not cause a visible sheen on the receiving water.

6. In order to determine compliance with the discharge limitations specified in Section I.A of this permit sampling results shall be calculated and reported as follows:
   - Daily Average Value - the average of all sampling results or measurements taken over a single day.
   - Monthly Average Value - the average of all daily average values during a single month.
   - Daily Maximum - the maximum of all of the daily average values calculated during a single month.
   - Daily Minimum – the minimum of all of the daily average values calculated during a single month.
   - When only one sample is required to be taken per day then the value of that sampling result shall be the daily average value.

7. Smurfit Stone (permittee) is subject to the effluent limitation for annual mass load of the total nitrogen (i.e., the sum of monthly mass loading of total nitrogen for each month starting from the first day of the second month following permit issuance through the last day of the 12th month period (rolling 12 month period)) discharged from the Seminole Mill to the Lower St. Johns River basin through the Outfall D-001. The annual mass-based effluent limitation for total nitrogen (as N) discharged from Outfalls D-001 shall not exceed 74,305 kg/year. Year-to-date annually mass loads (AL) of total nitrogen shall be calculated as follows:

$$\text{AL (kg/yr)} = \sum_{i}^{j} (ML)_i$$

Where:

AL	= Year-to-date annual mass load (lbs/yr)
ML	= Monthly mass load of total nitrogen (lbs/mo)
i	= Second month started from the issuance month.
j	= the current monitoring month (Note: $1 \leq j \leq 12$)
Σ	= Sum of mass load of TN starting from the first day of the second month following permit issuance to the current month.

8. Flow measurement calibration shall occur not less than annually.

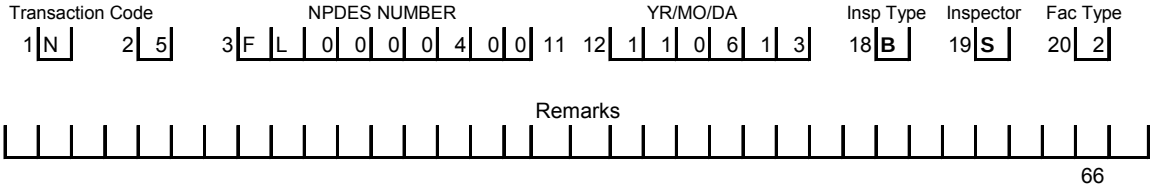
B. Underground Injection Control Systems

1. This section is not applicable to this facility.

Appendix G. EPA End Sheet

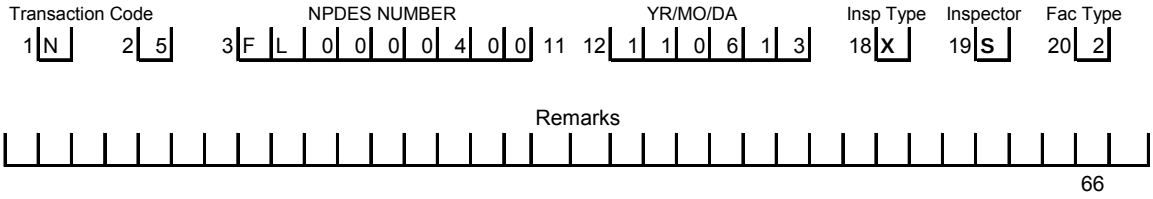
The Bioassay of the Rock Tenn Seminole Corporation effluent sampled on June 13, 15 and 17, 2011. NPDES #FL0000400.

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



The Priority Pollutants Analysis of the Rock Tenn Seminole Corporation effluent sampled on June 13, 2011. NPDES #FL0000400.

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



Biological Analyses of the Rock Tenn Seminole Corporation effluent sampled on June 13, 2011. NPDES #FL0000400.

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

