



Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
100 Mill Supply Rd.
P.O. Box 3333
Crossett, AR 71635
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March 21, 2014

Mr. Craig Uyeda
NPDES Enforcement Section
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Reference: Georgia-Pacific LLC: Crossett Paper Operations
NPDES Permit # **AR0001210**

Dear Mr. Uyeda:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for February 2014. As required by Part III, Section 4 paragraph a, of our NPDES Permit, a full report of the chronic toxicity testing has also been included with this submittal.

If you have any questions or need additional information, please feel free to contact me at (870) 567-8144 or by email at james.cutbirth@gapac.com.

Sincerely,

A handwritten signature in cursive script that reads 'James W. Cutbirth'.

James W. Cutbirth
Environmental Manager



**Chronic Toxicity Test Results-
Outfall 001 Effluent**

Prepared for:
**Georgia Pacific Crossett Mill
Crossett, Arkansas**

Prepared by:
**ENVIRON International Corporation
Nashville, Tennessee**

Date:
January 2014

Project Number:
20-19675G



January 20, 2014

Ms. Rachel Johnson
 Georgia-Pacific Crossett Mill
 100 Mill Supply Road
 Crossett, Arkansas 71635

**Re: Chronic Toxicity Test Results - January 2014
 ENVIRON Project No. 20-19675G**

Dear Ms. Johnson:

ENVIRON conducted a chronic (7-day) whole effluent toxicity (WET) test for Georgia-Pacific in Crossett, AR. The test was conducted as a repeat for a non-compliant test conducted in October 2013 according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on January 6, 8, and 10, 2014. The samples were received at ENVIRON on January 7, 9, and 11, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on January 7, 9 and 11, 2014 in good condition. The test organism utilized for the chronic toxicity test was *Ceriodaphnia dubia* (*C. dubia*). The test was initiated upon receipt of the first sample (January 7, 2014). Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated. All control organisms met USEPA test acceptability criteria. The results of the chronic toxicity tests are as follows:

TEST RESULTS FOR OUTFALL 001 EFFLUENT	
Permit Limits	<i>C. dubia</i>
NOEC Value 80% (lethality)	80%
NOEC Value 80% (sub-lethality)	45%

The results of the chronic tests with *C. dubia* indicated No Observable Effect Concentration (NOEC) values for survival (lethality) of 80 percent effluent. The *C. dubia* test results indicated no significant toxicity at the critical dilution to the survival of *C. dubia*. The sub-lethal NOEC value for *C. dubia* reproduction was 45 percent, which demonstrates sub-lethal toxicity to *C. dubia* at the critical dilution.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 10.1 and 20.4 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent in case of findings of no toxicity. The PMSD value was 15.1 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction indicating normal test sensitivity. The effluent concentration-response is described as a Type 3 response in EPA 821-B-00-004, *Method Guidance and Recommendations for Whole*

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NELAP Accredited and Laboratory Certification in the following States: AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351) Test Results Contained in this Report Meet NELAP Requirements

Effluent Toxicity (WET) Testing. A Type 3 response demonstrates stimulatory effects at lower exposure concentrations, but significant effects at higher test concentrations. This test is considered valid for assessment of permit requirements. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data and documentation from the terminated test are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2.

In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 26 pages including this cover letter, attachment pages and separator pages.

If you have any questions please contact Rick Lockwood at (615) 277-7523. ENVIRON appreciates the opportunity to assist Georgia-Pacific with their testing needs.

Sincerely,

ENVIRON International Corporation



Richard E. Lockwood
Project Manager



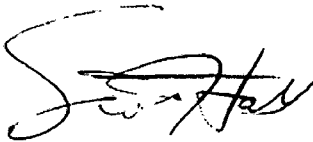
Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

The raw data (i.e., laboratory bench sheets) and data in the applicable summary sheets have been checked and found to be complete. Additionally, test conditions and control performance meet test acceptability criteria specified by the US Environmental Protection Agency and the certifying state authority for the tests conducted.¹



Scott Hall, Manager
Ecotoxicology Group

¹ Any data limitations regarding their applicability for determining NPDES permit compliance are discussed in the report cover letter.

**Attachment 1:
Laboratory Bench Sheets, Statistical Data, and
Terminated Test Documentation**

CETIS Analytical Report

Report Date: 16 Jan-14 13:24 (p 1 of 2)
 Test Code: 16558cd | 11-9132-1608

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 00-8226-5448 Endpoint: 7d Survival Rate CETIS Version: CETISv1.8.4
 Analyzed: 16 Jan-14 13:22 Analysis: STP 2x2 Contingency Tables Official Results: Yes
 Sample ID: 01-8971-4534 Code: B4ED066 Client: GPAC Crossett
 Sample Date: 06 Jan-14 Material: Industrial Effluent Project: WET Monthly Compliance Test (JAN)
 Receive Date: 07 Jan-14 Source: Discharge Monitoring Report
 Sample Age: 24h Station: 001

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU
Untransformed		C > T	NA	NA	80	>80	NA	1.25

Fisher Exact/Bonferroni-Holm Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	1	1.0000	Exact	Non-Significant Effect
		34	1	1.0000	Exact	Non-Significant Effect
		45	1	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	1	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria

Data Summary

C-%	Control Type	NR	R	NR + R	Prop NR	Prop R	%Effect
0	Receiving Water	10	0	10	1	0	0.0%
25		10	0	10	1	0	0.0%
34		10	0	10	1	0	0.0%
45		10	0	10	1	0	0.0%
60		10	0	10	1	0	0.0%
80		10	0	10	1	0	0.0%

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	1	1	1	1	1	1	1
34		1	1	1	1	1	1	1	1	1	1
45		1	1	1	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		1	1	1	1	1	1	1	1	1	1

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
34		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
45		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
60		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
80		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 16 Jan-14 13:24 (p 2 of 2)
Test Code: 16558cd | 11-9132-1608

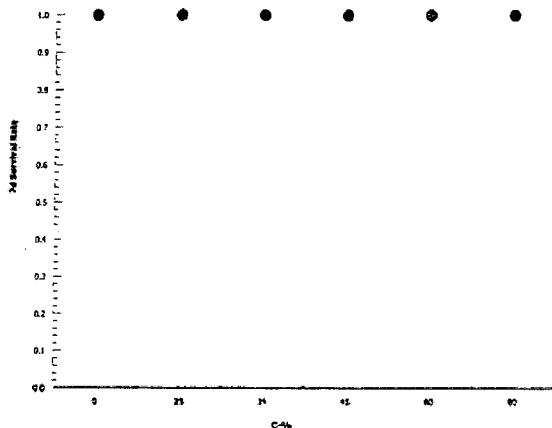
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 00-8226-5448 Endpoint: 7d Survival Rate
Analyzed: 16 Jan-14 13:22 Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 16 Jan-14 13:23 (p 1 of 2)
Test Code: 16558cd | 11-9132-1608

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 19-8135-9487	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 16 Jan-14 13:22	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Sample ID: 01-8971-4534	Code: B4ED066	Client: GPAC Crossett
Sample Date: 06 Jan-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JAN)
Receive Date: 07 Jan-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	45	60	51.96	2.222	15.1%

Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	-1.782	2.289	4.496	18	0.9989	CDF	Non-Significant Effect
	34	-1.426	2.289	4.496	18	0.9959	CDF	Non-Significant Effect
	45	1.375	2.289	4.496	18	0.2610	CDF	Non-Significant Effect
	60*	2.444	2.289	4.496	18	0.0353	CDF	Significant Effect
	80*	2.75	2.289	4.496	18	0.0169	CDF	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	29.8	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1509	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	723.2	144.64	5	7.5	<0.0001	Significant Effect
Error	1041.4	19.28518	54			
Total	1764.6		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.543	15.09	0.6169	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9872	0.9459	0.7806	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	29.8	27.65	31.95	30	25	34	0.9522	10.1%	0.0%
25		10	33.3	30.73	35.87	32.5	27	40	1.136	10.79%	-11.74%
34		10	32.6	29.43	35.77	32	28	44	1.4	13.58%	-9.4%
45		10	27.1	23.34	30.86	27.5	19	36	1.663	19.41%	9.06%
60		10	25	21.66	28.34	26	16	31	1.476	18.67%	16.11%
80		10	24.4	20.84	27.96	24	17	33	1.572	20.37%	18.12%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	34	29	31	25	28	27	27	32	33	32
25		36	33	35	32	32	27	40	31	31	36
34		31	32	30	33	29	34	32	28	33	44
45		28	19	22	25	30	27	33	36	29	22
60		25	22	27	22	28	16	21	31	29	29
80		20	21	22	26	22	33	26	31	17	26

CETIS Analytical Report

Report Date: 16 Jan-14 13:23 (p 2 of 2)
Test Code: 16558cd | 11-9132-1608

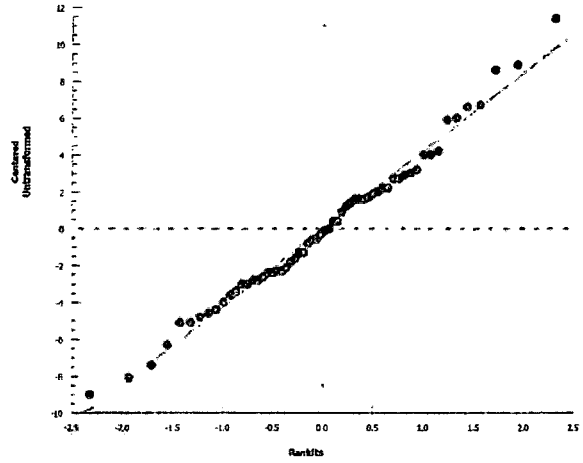
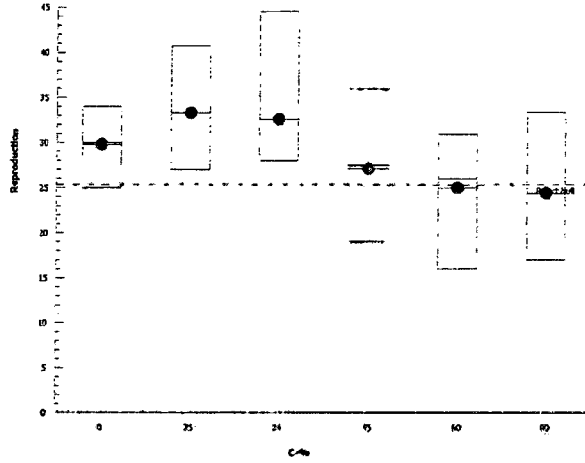
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 19-8135-9487 Endpoint: Reproduction
Analyzed: 16 Jan-14 13:22 Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 16 Jan-14 13:24 (p 1 of 1)
 Test Code: 16558cd | 11-9132-1608

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 11-0629-8704	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 16 Jan-14 13:22	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 01-8971-4534	Code: B4ED066	Client: GPAC Crossett
Sample Date: 06 Jan-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JAN)
Receive Date: 07 Jan-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	808288	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	29.8	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>80	N/A	N/A	<1.25	NA	NA

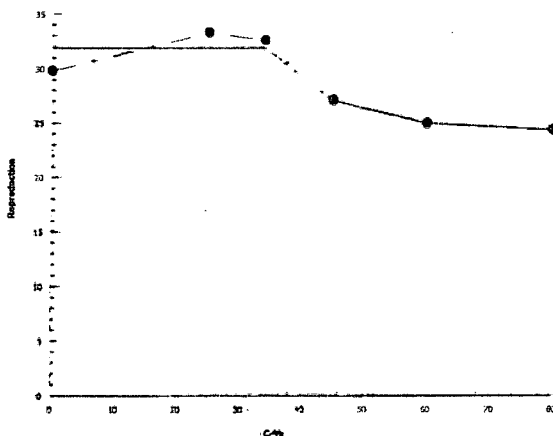
Reproduction Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	29.8	25	34	0.9522	3.011	10.1%	0.0%
25		10	33.3	27	40	1.136	3.592	10.79%	-11.74%
34		10	32.6	28	44	1.4	4.427	13.58%	-9.4%
45		10	27.1	19	36	1.663	5.259	19.41%	9.06%
60		10	25	16	31	1.476	4.667	18.67%	16.11%
80		10	24.4	17	33	1.572	4.971	20.37%	18.12%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	34	29	31	25	28	27	27	32	33	32
25		36	33	35	32	32	27	40	31	31	36
34		31	32	30	33	29	34	32	28	33	44
45		28	19	22	25	30	27	33	36	29	22
60		25	22	27	22	28	16	21	31	29	29
80		20	21	22	26	22	33	26	31	17	26

Graphics



**ENVIRON CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION 3-BROOD CHRONIC TOXICITY TEST
EPA-821-R-02-013 Method 1002.0**

TEST LOG NO.: 16558 PHOTOPERIOD: 16 hr light/8 hr dark
 JOB NUMBER.: 20-196750H FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
 INDUSTRY: Georgia Pacific-Crossett TEST VESSEL CAPACITY: 30 mL
 EFFLUENT: Outfall 001 TEST SOLUTION VOLUME: 15 mL
 DILUTION WATER: River Water NO. ORGANISMS/REPLICATE: 1
 NPDES (Y/N): Yes NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 1/6/14
 TEMP @ TEST START: 24.6
 RANDOMIZED BY: RL
 TEST START:
 HOURS: 1157 DATE: 1/7/14
 TEST END:
 HOURS: 1349 DATE: 1/14/14

SOURCE ID:	AGE (time):
10486	1211-1445
10487	1212-1448

SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding/End Initials/Time	Daily Renewal & Feeding Initials/Time	Date	Control River Water		Temp (°C)	REPLICATES										Notes	
						86					87						
						Adult	1	2	3	4	5	6	7	8	9	10	
LM 1157		1/7	24.3			20	6	17	11	14	7	13	11	13	1		
	AH 1055	1/8	24.2	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1158	1/9	24.5	24.2		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	24.4	24.1		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1145	1/11	24.0	24.3		Day 3	✓	✓	✓	4	✓	✓	✓	5	✓	5	
	AW 1111	1/12	24.0	24.2		Day 4	6	4	4	✓	5	4	4	✓	6	✓	
	LM 1130	1/13	24.0	24.2		Day 5	✓	11	✓	7	9	8	7	11	✓	12	
LM 1349		1/14	24.1			Day 6	14	✓	9	14	14	15	16	✓	10	✓	
						Day 7	14	14	18	✓	✓	✓	✓	16	17	15	100
						Day 8											
			Total				34	29	31	25	28	27	27	32	33	32	298

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16558

JOB # 20-196756H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Adult	REPLICATES										Notes
			25%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1157		1/7	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 1055	1/8	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1153	1/9	24.2	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	24.5	24.1	Day 3	✓	✓	✓	4	6	4	4	5	4	5	
	HM 1145	1/11	24.3	24.4	Day 4	6	5	6	✓	11	✓	✓	✓	✓	12	
	AM 1111	1/12	24.1	24.1	Day 5	9	12	11	12	✓	7	✓	10	9	✓	
	LM 1130	1/13	24.0	24.0	Day 6	20	✓	18	16	15	16	16	16	18	19	
LM 1349		1/14		24.1	Day 7	19	16	✓	✓	18	✓	20	✓	21	18	
					Day 8											
Total						36	33	35	32	32	27	40	31	31	36	333

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Adult	REPLICATES										Notes
			34%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1157		1/7	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 1055	1/8	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1158	1/9	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	24.4	24.8	Day 3	6	5	✓	✓	✓	5	5	5	4	6	
	HM 1145	1/11	24.1	24.5	Day 4	✓	✓	5	6	6	✓	11	✓	11	✓	
	AM 1111	1/12	24.0	24.2	Day 5	9	11	8	12	10	11	✓	8	9	✓	
	LM 1130	1/13	24.0	24.1	Day 6	20	✓	16	17	15	✓	18	16	14	19	19
LM 1349		1/14		24.1	Day 7	14	✓	✓	✓	13	13	18	big	✓	19	
					Day 8											
Total						31	32	30	33	29	34	32	28	33	44	326

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

L:\Ecotoxlab\Labforms\ToxTestSheets\7DchronicCD.doc

TEST LOG #

16558

JOB # 20-196756H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Temp (°C)	REPLICATES										Notes		
			45%			1	2	3	4	5	6	7	8	9	10			
						Adult												
LM 1157		1/7	243			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1055	1/8	245	244		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1158	1/9	241	242		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	246	243		Day 3	✓	✓	4	✓	✓	✓	6	✓	5	4		
	HM 1145	1/11	244	240		Day 4	5	4	✓	3	4	5	✓	6	9	✓		
	AW 1111	1/12	243	244		Day 5	9	5	4	11	10	7	✓	11	15	5		
	LM 1130	1/13	241	241		Day 6	✓	8	13	✓	10	✓	13	✓	✓	13		
LM 1349		1/14		242		Day 7	14	2	13	10	11	✓	15	14	19	18	13	
						Day 8												
			Total				28	19	22	25	30	27	33	36	29	22	271	

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Temp (°C)	REPLICATES										Notes		
			60%			1	2	3	4	5	6	7	8	9	10			
						Adult												
LM 1157		1/7	247			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1055	1/8	246	245		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1158	1/9	244	243		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	247	244		Day 3	✓	5	✓	5	5	3	✓	✓	4	6		
	HM 1145	1/11	242	242		Day 4	5	7	5	✓	✓	✓	7	5	✓	✓		
	AW 1111	1/12	241	241		Day 5	✓	6	9	7	7	3	8	11	9	8		
	LM 1130	1/13	241	248		Day 6	9	10	13	10	16	10	✓	✓	16	15		
LM 1349		1/14		242		Day 7	11	15	✓	7	13	15	6	15	✓	✓		
						Day 8												
			Total				25	22	27	22	28	16	21	31	29	29	250	

✓ = Test Organism Alive
D = Test Organism Dead

0 = Live neonates
(-0) = Dead neonates

Miss = Lost or Missing
M = Male

TEST LOG # 16558

JOB # 20-19675G

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes
			80%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1157		1/7	241		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	PH 1055	1/8	244	243	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	HM 1153	1/9	242	244	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	HM 1138	1/10	243	242	Day 3	4	✓	5	✓	5	✓	6	5	4	5	
	HM 1145	1/11	245	241	Day 4	✓	4	✓	6	10	6	✓	✓	✓	✓	
	AM 1111	1/12	242	241	Day 5	1	7	3	8	✓	11	✓	✓	9	7	
	LM 1130	1/13	243	241	Day 6	✓	✓	9	10	7	✓	7	13	✓	14	
LM 1349		1/14		243	Day 7	15	10	5	8	15	16	13	13	✓	✓	90% 2x
					Day 8											
Total						20	21	22	26	22	33	26	31	17	26	244

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration MH		Adult	REPLICATES										Notes
			MH	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1157		1/7	240		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1055	1/8	245	243	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1153	1/9	242	246	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1138	1/10	244	241	Day 3	4	4	3	✓	✓	6	6	4	3	✓	HM 1110
	HM 1145	1/11	243	245	Day 4	✓	✓	✓	6	3	4	✓	✓	✓	5	
	AM 1111	1/12	241	247	Day 5	✓	9	10	7	11	8	9	✓	✓	13	
	LM 1100	1/13	241	241	Day 6	11	14	✓	✓	3	✓	2	✓	✓	✓	
LM 1349		1/14		247	Day 7	16	✓	13	12	3	16	✓	✓	✓	11	70% 2x
					Day 8											
Total						31	27	26	25	20	28	17	4	3	29	200

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16550

JOB # 20-19675614

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

ENVIRON / TN
LAB/STATE: _____

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		REPLICATES										Notes			
			80% filtered	Temp (°C)	1	2	3	4	5	6	7	8	9	10				
					Adult													
LM 1157		1/7	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	PH 1055	1/8	24.3	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	HM 1158	1/9	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	HM 1138	1/10	24.3	24.4	Day 3	4	5	5	4	6	3	4	5	5	✓			
	HM 1145	1/11	24.5	24.0	Day 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5		
	PH 1111	1/12	24.0	24.3	Day 5	4	2	5	5	7	✓	5	7	6	7		Small 2nd feed	
	LM 1130	1/13	24.0	24.1	Day 6	7	9	14	11	10	11	10	12	8	9			
LM 1349		1/14	24.5		Day 7	14	7	14	20	12	10	✓	✓	✓	✓			
					Day 8													
					Total	15	23	24	22	24	24	19	24	19	21	22	9	

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SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		REPLICATES										Notes			
			100% filtered	Temp (°C)	1	2	3	4	5	6	7	8	9	10				
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	PH 1055	1/8	24.5	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	really pile	
	HM 1158	1/9	24.0	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	HM 1137	1/10	24.4	24.5	Day 3	✓	4	✓	✓	✓	4	5	✓	✓	✓			
	HM 1145	1/11	24.1	24.2	Day 4	5	✓	3	4	6	✓	✓		4	4			
	PH 1111	1/12	24.1	24.2	Day 5	7	5	6	7	8	1	5		✓	8			
	LM 1130	1/13	24.0	24.0	Day 6	3	12	✓	✓	11	8	11		7	✓			
LM 1349		1/14	24.0		Day 7	✓	✓	11	12	13	14	13		2	14			
					Day 8													
					Total	15	21	20	23	28	27	21	10	13	26	19	9	

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Page 5 of 5

TEST LOG NO.

16558

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO.

20-196756 H

TEST ORGANISM: Cd

DATE: 1/7/14

ENVIRON Test Log No. 16558

16 of 26

		D.O. (mg/L)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
25	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6			
34	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6			
45	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
60	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
80	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
MH	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
80 filtered	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			
100 filtered	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			

		pH (s.u.)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW	7.02	7.02	7.02	7.10	7.02	7.02	7.02	6.80	7.02	6.42	7.02	6.57	7.29	6.94	7.02	6.15			
25	7.54	7.54	7.54	7.56	7.54	7.54	7.54	7.53	7.54	7.05	7.54	7.09	7.11	7.19	7.54	7.71			
34	7.65	7.65	7.65	7.60	7.65	7.65	7.65	7.64	7.65	7.07	7.65	7.10	7.17	7.50	7.65	7.60			
45	7.77	7.77	7.77	7.66	7.77	7.77	7.77	7.69	7.77	7.07	7.77	7.18	7.31	7.50	7.77	7.62			
60	7.78	7.78	7.78	7.73	7.78	7.78	7.78	7.70	7.78	7.22	7.78	7.12	7.44	7.61	7.78	7.52			
80	7.88	7.88	7.88	7.76	7.88	7.88	7.88	7.76	7.88	7.22	7.88	7.12	7.49	7.64	7.88	7.52			
MH	7.96	7.96	7.96	7.80	7.96	7.96	7.96	7.70	7.96	7.25	7.96	7.18	7.93	7.95	7.96	7.67			
80 filtered	7.99	7.99	7.99	7.80	7.99	7.99	7.99	7.70	7.99	7.49	7.99	7.24	8.49	7.64	7.99	7.67			
100 filtered	7.91	7.91	7.91	7.80	7.91	7.91	7.91	7.70	7.91	7.55	7.91	7.31	8.56	7.66	7.91	7.60			

		Conductivity (µmhos/cm)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW	6.3	6.3	6.3	6.4	6.3	6.3	6.3	5.7	6.3	6.6	6.3	6.8	6.3	6.6	6.3	6.2			
25	4.44	4.44	4.44	5.36	4.44	4.44	4.44	5.02	4.44	5.31	4.44	5.28	4.44	4.59	4.44	5.36			
34	6.3	6.3	6.3	6.34	6.3	6.3	6.3	6.5	6.3	6.6	6.3	6.24	6.3	6.21	6.3	7.02			
45	7.77	7.77	7.77	7.54	7.77	7.77	7.77	8.41	7.77	8.24	7.77	8.51	7.77	8.07	7.77	9.18			
60	10.27	10.27	10.27	10.36	10.27	10.27	10.27	10.71	10.27	10.97	10.27	10.98	10.27	10.72	10.27	12.03			
80	13.34	13.34	13.34	13.36	13.34	13.34	13.34	14.05	13.34	14.28	13.34	14.28	13.34	14.08	13.34	15.28			
MH	2.11	2.11	2.11	3.15	2.11	2.11	2.11	2.21	2.11	2.19	2.11	2.12	2.11	2.17	2.11	2.83			
80 filtered	1.314	1.314	1.314	1.317	1.314	1.314	1.314	1.314	1.314	1.314	1.314	1.314	1.314	1.314	1.314	1.314			
100 filtered	1.626	1.626	1.626	1.627	1.626	1.626	1.626	1.626	1.626	1.626	1.626	1.626	1.626	1.626	1.626	1.626			
Params Int/Time:	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130	AW 1130			
Dilutions Int/Time:	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129	AW 1129			
Control Water Batch:	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508	A508			
Food Batch	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3	A360, H3			

TEST LOG NO. 16558

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 1/7/14

JOB NO. 20-19675

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

ENVIRON Test Log No. 16558

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH ₃ N mg/L
17056	Outfall 001	1/5-6/14	1/7/14	324	355	LO.02	to 0.285
17062	outfall 001	1/7-8/14	1/7/14	304	370	LO.02	0.246
17072	outfall 001	1/9-10/14	1/11/14	296	370	LO.02	0.142

CONTROL / DILUTION WATER

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH ₃ N mg/L
17057	River Water	1/6/14	1/7/14	21.6	18	0.06	LO.1
17061	RW	1/6/14	1/6/14	20.8	16	0.07	LO.1
17073	RW	1/6/14	1/11/14	20	13	0.04	
5408	MH	12/10/13	12/27/13	824	43	LO.02	
5413	MH	12/31/13	1/7/14	848	44	LO.02	
5415	MH	1/7/14	1/9/14	834	43	LO.02	
5417	MH	1/8/14	1/11/14	832	41	LO.02	

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**Attachment 2:
Chain-Of-Custody Documentation and
Reference Toxicant Data**

ENVIRON Test Log No. 16558

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Project Name:				Project Number:				CHAIN-OF-CUSTODY 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																																																	
Industry: <i>Georgia-Pacific Crossett Paper Ops</i>																		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="10">Analysis Requested</th> </tr> <tr> <td>Total Volume in liters</td> <td>Acute Fathead minnow</td> <td>Acute Bannerfin shiner</td> <td>Acute Ceriodaphnia dubia</td> <td>Acute Daphnia pulex</td> <td>Chronic Fathead minnow</td> <td>Chronic Ceriodaphnia dubia</td> <td>Continuous Batch Tests</td> <td>Discrete Batch Tests</td> <td>Other</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> <td></td> <td></td> </tr> </table>										Analysis Requested										Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other							✓			
Analysis Requested																																																									
Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests																					Discrete Batch Tests	Other																												
						✓																																																			
Phone: <i>810-567-8170</i>				FAX: <i>870-364-9076</i>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Description</th> <th>Sample B# (lab only)</th> </tr> <tr> <td>Definitive or Screen</td> <td></td> </tr> <tr> <td></td> <td><i>17096</i></td> </tr> <tr> <td><i>Dilution Water</i></td> <td><i>705</i></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>										Description	Sample B# (lab only)	Definitive or Screen			<i>17096</i>	<i>Dilution Water</i>	<i>705</i>																																
Description	Sample B# (lab only)																																																								
Definitive or Screen																																																									
	<i>17096</i>																																																								
<i>Dilution Water</i>	<i>705</i>																																																								
County: <i>Ashley</i>				City: <i>Crossett</i> State: <i>AR</i>																																																					
Sample Collected by (print): <i>Rachel Johnson</i>				NPDES Permit No.: <i>AR 0001210</i>																																																					
Sample Collected by (signature): <i>Rachel Johnson</i>				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																																																					
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description	Sample B# (lab only)																																							
<i>Outfall 001</i>	<i>Comp</i>	<i>Plastic</i>	<i>Y</i>	<i>1/5/14 4:15am</i>	<i>1/6/14 6:20am</i>	<i>1</i>							✓																																												
<i>River</i>	<i>Grab</i>	<i>Plastic</i>	<i>NR</i>	<i>1/6/14 1:05pm</i>													<i>Dilution Water</i>	<i>705</i>																																							
* Matrix: SS - Soil GW - Groundwater <u>WW - Wastewater</u> AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____ Remarks: Measured TRC (if applicable): <u>0.00</u> mg/L																																																									
Relinquished by: (Signature) <i>Rachel Johnson</i>				Date: <i>1/6/14</i>		Time: <i>4:00pm</i>		Received by: (Signature) <i>Brita Winter</i>				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered				Condition: (lab use only)																																									
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp: <i>0.5, 0.9</i>		Containers/Volume Received: <i>10 L of each</i>																																											
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature)				Date: <i>1/7/14</i>		Time: <i>0953</i>		pH upon arrival: <i>7.69, 7.02</i>		DO upon arrival: <i>9.2, 8.9</i>																																							

Sample Receipt Checklist:


Client: Georgia Pacific (rossett)

Date/Time received 1/7/14 0953 by AN

1. Cooler sealed and intact upon arrival? Yes No
2. Custody seals present? Yes No
3. Samples received below 6 degrees Celsius? Yes No
4. Was ice present? Yes No
5. Is the COC filled out correctly including the sample date/time and signed? Yes No
6. Was the sample received within 36 hours of collection? Yes No
7. Did the sample(s) arrive in good condition? Yes No
8. Was pH and DO measured and in range? Yes No
9. Was residual chlorine present? Yes No
- > 1.0 mg/L? (did dechlor occur) Yes No *in River water*

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17056	Outfall 001	0.5	7.68	9.2	20.02
17057	River	0.9	7.02	8.9	0.06

Project Name:				Project Number:				Analysis Requested										CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976				
Industry: Georgia-Pacific Crossett Paper Ops				Phone: 870-567-8170 FAX: 870-364-9076				Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other					
County: Ashley City: Crossett State: RR				Sample Collected by (print): Rachel Johnson NPDES Permit No.: RR0001210																No. of Cntrs	NPDES Test:	
Sample Collected by (signature): [Signature]				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Description															Sample # (lab only)	
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Definitive or Screen	Sample # (lab only)				
Outfall 001	Comp	Plastic	YES	1/7/14 8:20am	1/8/14 6:57am	1	10											17062				
River	Grab	Plastic	NR	1/6/14 1:05pm		1	10											Dilution Water 165-17061				

ENVIRON TEST LOG NO. 16336

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* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____

Remarks:

Measured TRC (if applicable): _____ mg/L

Relinquished by: (Signature) [Signature]	Date: 1/8/14	Time: 4:00pm	Received by: (Signature)	<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Courier	Condition: (lab use only) OK		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: Specimen	Containers/Volume Received: 2/10L		
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [Signature]	Date: 1/9/14	Time: 0932	pH upon arrival: 6.757	DO upon arrival: 6L

b) 7.12 87

Sample Receipt Checklist:

Client: CP Cusseth

Date/Time received 1/14 0932 by AD

1. Cooler sealed and intact upon arrival? Yes No
2. Custody seals present? Yes No
3. Samples received below 6 degrees Celsius? Yes No
4. Was ice present? Yes No
5. Is the COC filled out correctly including the sample date/time and signed? Yes No
6. Was the sample received within 36 hours of collection? Yes No
7. Did the sample(s) arrive in good condition? Yes No
8. Was pH and DO measured and in range? Yes No
9. Was residual chlorine present?
 > 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17061	River	1.1	7.12	8.7	0.07
17062	B. Hill Ave	0.9	7.57	8.2	0.02

Project Name:				Project Number:				<h3>CHAIN-OF-CUSTODY</h3> <p>201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Description</th> <th style="width: 50%;">Sample B# (lab only)</th> </tr> <tr> <td>Definitive or Screen</td> <td></td> </tr> </table>												Description	Sample B# (lab only)	Definitive or Screen																
Description	Sample B# (lab only)																																					
Definitive or Screen																																						
Industry: <i>Georgia-Pacific Crossett Paper Ops</i>				Phone: <i>870-567-8170</i>																FAX: <i>870-364-9076</i>																		
County: <i>Ashley</i>		City: <i>Crossett</i>		State: <i>AR</i>																																		
Sample Collected by (print): <i>Rachel Johnson</i>						NPDES Permit No.: <i>AR0001210</i>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</th> <th rowspan="2">Acute Fathead minnow</th> <th rowspan="2">Acute Bannerfin shiner</th> <th rowspan="2">Acute Ceriodaphnia dubia</th> <th rowspan="2">Acute Daphnia pulex</th> <th rowspan="2">Chronic Fathead minnow</th> <th rowspan="2">Chronic Ceriodaphnia dubia</th> <th rowspan="2">Continuous Batch Tests</th> <th rowspan="2">Discrete Batch Tests</th> <th rowspan="2">Other</th> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>												Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other									
Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests																							Discrete Batch Tests	Other							
Sample Collected by (signature): <i>Rachel Johnson</i>						NPDES Test:														No. of Cntrs																		
				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																																		
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time																																	
<i>Outfall 001</i>	<i>Comp</i>	<i>Plastic</i>	<i>Yes</i>	<i>1/9/14</i>	<i>1/10/14</i>	<i>1</i>	<i>10</i>																															
				<i>10:18am to 1:17pm</i>																																		
<i>River</i>	<i>Grab</i>	<i>Plastic</i>	<i>NA</i>	<i>1/6/14</i>		<i>1</i>	<i>10</i>																															
				<i>1:05pm</i>																																		
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other																																						
Remarks: Measured TRC (if applicable): <u> 0 </u> mg/L																																						
Relinquished by: (Signature) <i>Rachel Johnson</i>				Date: <i>1/10/14</i>		Time: <i>4:00pm</i>		Received by: (Signature) <i>[Signature]</i>				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Counter <input type="checkbox"/> UPS Hand Delivered				Condition: (lab use only) <i>Good</i>																						
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp: <i>0.6 0.9</i>		Containers/Volume Received: <i>110 12 5 5 5 5 5</i>																								
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) <i>[Signature]</i>				Date: <i>1/11/14</i>		Time: <i>1028</i>		pH upon arrival: <i>7.20</i>		DO upon arrival: <i>8.5</i>																				

Sample Receipt Checklist:

Client: G P Crossett

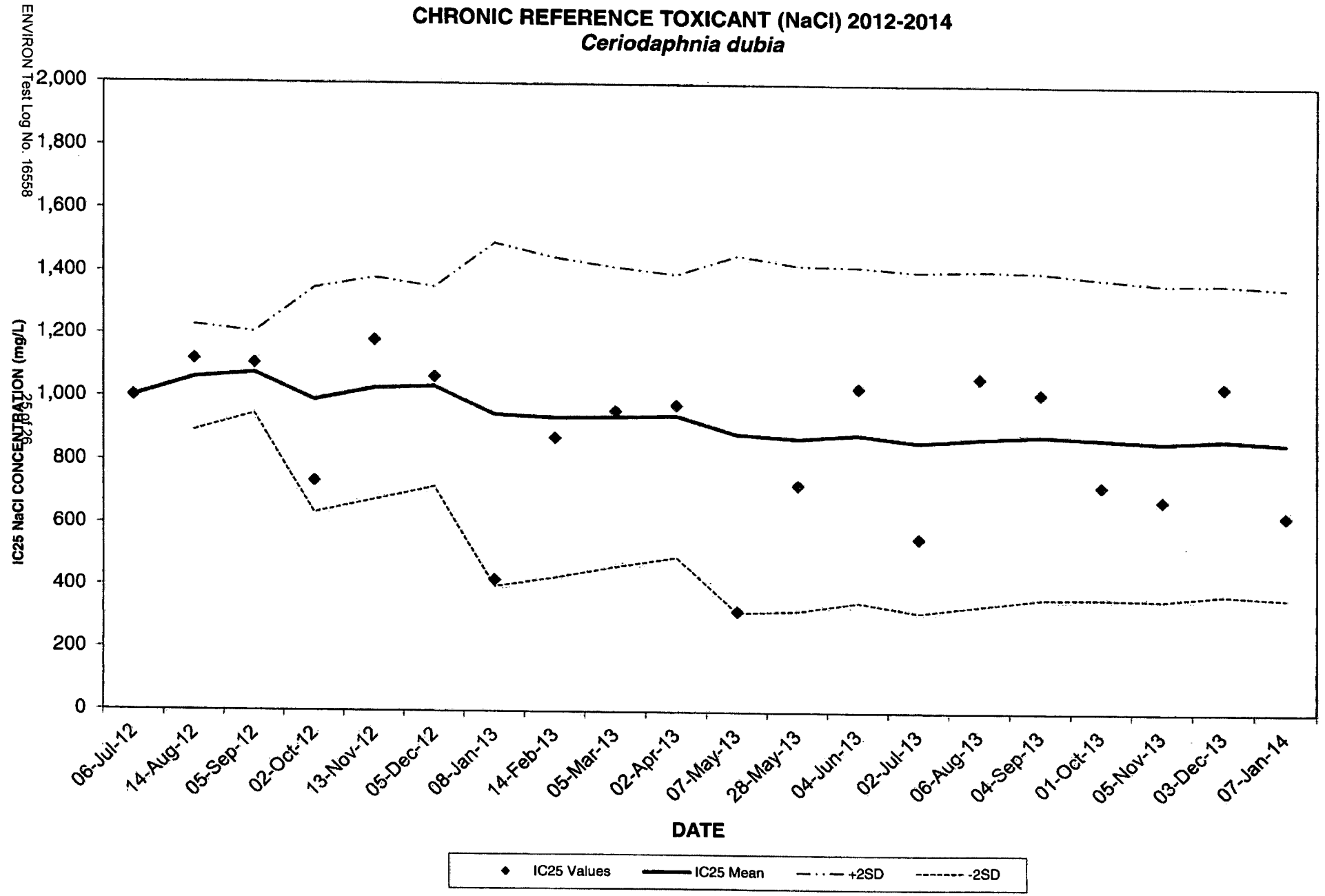
Date/Time received 1/11/14 1028 by AW

1. Cooler sealed and intact upon arrival? Yes No
2. Custody seals present? Yes No
3. Samples received below 6 degrees Celsius? Yes No
4. Was ice present? Yes No
5. Is the COC filled out correctly including the sample date/time and signed? Yes No
6. Was the sample received within 36 hours of collection? Yes No
7. Did the sample(s) arrive in good condition? Yes No
8. Was pH and DO measured and in range? Yes No
9. Was residual chlorine present? Yes No
 - > 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17072	Ductfall 1001	0.6	7.20	8.55 ^{af}	20.02
17072 17073	River	0.9	6.15	8.7 ^L	0.04

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2014
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2014

ENVIRON Test Log No. 16558

26 of 26

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repr (*)	Survival		Reproduction			IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)	PMSD						
1	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1,003	1,003				
2	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1,121	1,062	83	1,229	895	6
3	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1,109	1,078	65	1,208	948	5
4	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	993	178	1,349	636	16
5	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1,183	1,031	176	1,383	678	15
6	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.8	1,067	1,037	159	1,354	720	14
7	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	949	274	1,497	400	27
8	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	939	255	1,450	429	25
9	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	942	239	1,420	464	24
10	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	945	226	1,397	494	23
11	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	889	285	1,459	319	31
12	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	875	276	1,427	324	30
13	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	887	268	1,423	352	29
14	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	864	272	1,408	320	30
15	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	877	267	1,412	343	29
16	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	886	261	1,407	365	28
17	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	877	255	1,387	366	28
18	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	866	252	1,370	362	28
19	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	875	248	1,371	379	28
20	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	863	248	1,358	367	28

Avg	99	93	30	1700	600	500	1006	19	863	937	226	1385	482
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Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

(*) Minimum USEPA CONTROL CRITERIA - 80 percent survival, 80 percent with 3 broods, and average reproduction of 15 neonates/adult.



**Chronic Toxicity Test Results
Outfall 001 Effluent**

Prepared for:
**Georgia Pacific Crossett Mill
Crossett, Arkansas**

Prepared by:
**ENVIRON International Corporation
Nashville, Tennessee**

Date:
February 2014

Project Number:
20-19675H



February 26, 2014

Ms. Rachel Johnson
 Georgia-Pacific Crossett Mill
 100 Mill Supply Road
 Crossett, Arkansas 71635

**Re: Chronic Toxicity Test Results – Outfall 001 Effluent
 ENVIRON Project No. 20-19675H**

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The tests were conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on February 3, 5, and 7, 2014. The samples were received at ENVIRON on February 4, 6, and 8, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

Tests were conducted in accordance with *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition for chronic testing (EPA-821-R-02-013). Pathogen interference was observed in the fathead minnow river water control, thereby not meeting test acceptability criteria (TAC). The moderately hard secondary fathead minnow control met both the lethal and sub-lethal TAC. Therefore, the moderately hard secondary fathead minnow control was used for statistical analyses. *C. dubia* met USEPA TAC with the river water and moderately hard water controls. The results of the chronic toxicity tests are as follows:

TEST RESULTS FOR OUTFALL 001 EFFLUENT		
Permit Limits	Fathead Minnow*	<i>C. dubia</i>
NOEC Value 80% (lethality)	80%	80%
NOEC Value 80% (sub-lethality)	80%	80%

*Results based on comparison to secondary control

The results of the chronic test with the fathead minnow indicated a No Observable Effect Concentration (NOEC) value for lethality of 80 percent effluent. The fathead minnow test results indicate no significant toxicity at the critical dilution to the survival of fathead minnow. The sub-lethal NOEC value for fathead minnow growth was 80 percent effluent, which demonstrates no sub-lethal toxicity to the fathead minnow. The results of the chronic test with *C. dubia* indicated

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NELAP Accredited and Laboratory Certification in the following States: AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351) Test Results Contained in this Report Meet NELAP Requirements

NOEC values for lethality and sub-lethality of 80 percent effluent. The *C. dubia* test results indicate no significant toxicity at the critical dilution.

The river water control for the fathead minnow test did not meet USEPA criteria for test acceptability due to pathogen interference. Therefore, the secondary control (moderately hard water met all TAC) was used for the statistical analyses. The Coefficient of Variation (CV) values for survival in the control and critical dilution are 26 and zero percent, respectively. The CV values for growth in the control and critical dilution are 25 and 14 percent, respectively, and are below the CV limit of 40 percent for findings of no toxicity. The effluent concentration-response curve can be described as a Type 10 dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 10 response is characterized by an increase in fish growth as the test concentrations increase. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 31 percent which is above the USEPA PMSD bounds of 12 to 30 percent when alpha 0.05 was used for hypothesis testing. However, an inflated PMSD value is not uncommon with a Type 10 concentration-response curve, even with acceptable CV values.

Pathogen interference was observed in the river water control and lowest test concentration creating an increase in inter-replicate variability and a PMSD value of 53%. When the statistical variability due to pathogen interference was removed and the secondary control water results were substituted for the river water control, the PMSD value was 27% with a clear Type 10 concentration-response curve.

The test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 32 and 19 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 21 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response can be described in EPA 821-B-00-004 as a Type 4 dose response. A Type 4 concentration-response curve is characterized by stimulation at low concentrations but non-significant effects at higher concentrations. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 44 pages including this cover letter, attachment pages and separator pages.

If you have any questions please contact Rick Lockwood at (615) 277-7523. ENVIRON appreciates the opportunity to assist Georgia-Pacific with their testing needs.

Sincerely,

ENVIRON International Corporation



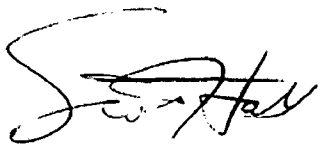
Richard E. Lockwood
Project Manager



Robin L. Richards, REM
Principal

DATA REVIEW FORM
ACUTE AND CHRONIC WET TESTS
ENVIRON International Corporation

The raw data (i.e., laboratory bench sheets) and data in the applicable summary sheets have been checked and found to be complete. Additionally, test conditions and control performance meet test acceptability criteria specified by the US Environmental Protection Agency and the certifying state authority for the tests conducted.¹



Scott Hall, Manager
Ecotoxicology Group

¹ Any data limitations regarding their applicability for determining NPDES permit compliance are discussed in the report cover letter.

**Attachment 1:
Statistical Analysis and
Raw Data Sheets**

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 3 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 09-1510-8066	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:10	Analysis: Nonparametric-Multiple Comparison	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	21.4%

Wilcoxon/Bonferroni Adj Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Water	25	19.5	NA	2	7	1.0000	Exact	Non-Significant Effect
	34	29.5	NA	1	8	1.0000	Exact	Non-Significant Effect
	45	32.5	NA	1	8	1.0000	Exact	Non-Significant Effect
	60	31	NA	1	8	1.0000	Exact	Non-Significant Effect
	80	32.5	NA	1	8	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.85	0.8 - NL	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.962	2.893	0.0364	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.199181	0.0398362	5	1.652	0.1865	Non-Significant Effect
Error	0.5547752	0.02412066	23			
Total	0.7539562		28			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	242.2	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.898	0.9004	0.0088	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	0.85	0.5724	1	1	0.5	1	0.1	26.31%	0.0%
25		4	0.8438	0.5454	1	0.875	0.625	1	0.09375	22.22%	0.74%
34		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	-11.76%
45		5	1	1	1	1	1	1	0	0.0%	-17.65%
60		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-14.71%
80		5	1	1	1	1	1	1	0	0.0%	-17.65%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	1.202	0.8583	1.546	1.393	0.7854	1.393	0.1239	23.04%	0.0%
25		4	1.186	0.7962	1.576	1.22	0.9117	1.393	0.1226	20.66%	1.34%
34		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	-9.75%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-15.86%
60		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	-12.81%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-15.86%

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 4 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 09-1510-8066 Endpoint: 7d Survival Rate
 Analyzed: 18 Feb-14 15:10 Analysis: Nonparametric-Multiple Comparison

CETIS Version: CETISv1.8.4
 Official Results: Yes

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	1	0.75	0.5	1	1
25		1	0.75	1	0.625	
34		1	0.875	1	1	0.875
45		1	1	1	1	1
60		1	1	0.875	1	1
80		1	1	1	1	1

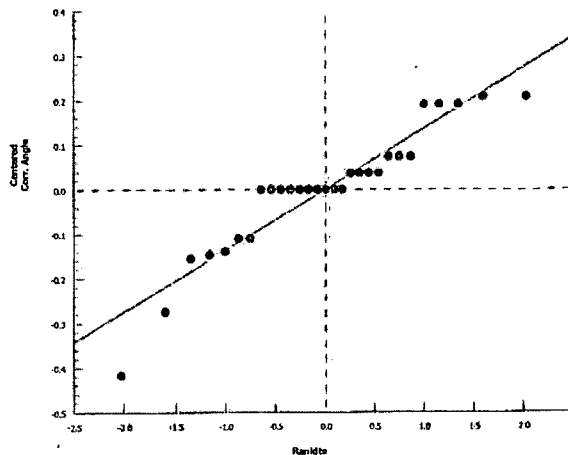
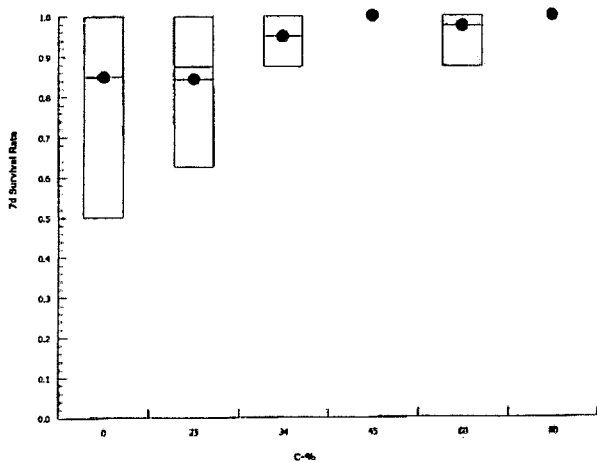
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	1.393	1.047	0.7854	1.393	1.393
25		1.393	1.047	1.393	0.9117	
34		1.393	1.209	1.393	1.393	1.209
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.209	1.393	1.393
80		1.393	1.393	1.393	1.393	1.393

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	8/8	6/8	4/8	8/8	8/8
25		8/8	6/8	8/8	5/8	
34		8/8	7/8	8/8	8/8	7/8
45		8/8	8/8	8/8	8/8	8/8
60		8/8	8/8	7/8	8/8	8/8
80		8/8	8/8	8/8	8/8	8/8

Graphics



CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 7 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 05-9687-5512	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:11	Analysis: Parametric-Multiple Comparison	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	31.4%

Bonferroni Adj t Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water	25	-2.048	2.5	0.151	7	1.0000	CDF	Non-Significant Effect
	34	-4.616	2.5	0.143	8	1.0000	CDF	Non-Significant Effect
	45	-5.378	2.5	0.143	8	1.0000	CDF	Non-Significant Effect
	60	-2.207	2.5	0.143	8	1.0000	CDF	Non-Significant Effect
	80	-3.097	2.5	0.143	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.4547	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.3138	0.12 - 0.3	Yes	Above Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.155	2.893	0.7370	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.3002695	0.06005389	5	7.373	0.0003	Significant Effect
Error	0.1873453	0.008145446	23			
Total	0.4876147		28			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.781	15.09	0.5814	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9671	0.9004	0.4850	Normal Distribution

Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	0.4547	0.3125	0.597	0.4325	0.2887	0.585	0.05123	25.19%	0.0%
25		4	0.5787	0.3912	0.7663	0.6325	0.4025	0.6475	0.05894	20.37%	-27.27%
34		5	0.7182	0.6352	0.8013	0.7525	0.6175	0.775	0.02991	9.31%	-57.94%
45		5	0.7617	0.6443	0.8792	0.745	0.6325	0.8938	0.04229	12.41%	-67.51%
60		5	0.5807	0.5243	0.6372	0.5675	0.5413	0.6563	0.02033	7.83%	-27.71%
80		5	0.6315	0.5217	0.7413	0.5862	0.5825	0.7875	0.03954	14.0%	-38.87%

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 8 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

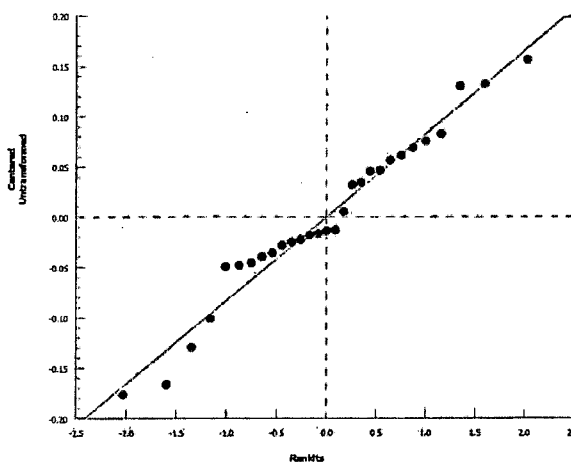
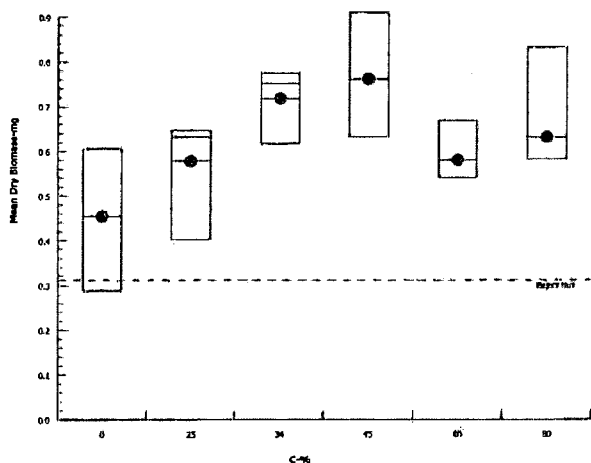
Analysis ID: 05-9687-5512 Endpoint: Mean Dry Biomass-mg
 Analyzed: 18 Feb-14 15:11 Analysis: Parametric-Multiple Comparison

CETIS Version: CETISv1.8.4
 Official Results: Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.585	0.43	0.2887	0.5375	0.4325
25		0.6475	0.625	0.64	0.4025	
34		0.775	0.7525	0.6175	0.7637	0.6825
45		0.7938	0.8938	0.745	0.7437	0.6325
60		0.5413	0.6563	0.5525	0.5675	0.5862
80		0.7875	0.5862	0.5825	0.5838	0.6175

Graphics



CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 9 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 09-3830-6900	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:12	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	27.4%

Dunnnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water		34	-4.882	2.305	0.124	8	1.0000	CDF	Non-Significant Effect
		45	-5.688	2.305	0.124	8	1.0000	CDF	Non-Significant Effect
		60	-2.334	2.305	0.124	8	0.9995	CDF	Non-Significant Effect
		80	-3.275	2.305	0.124	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.4547	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2735	0.12 - 0.3	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.131	2.822	0.6554	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2914222	0.07285556	4	10	0.0001	Significant Effect
Error	0.145664	0.007283199	20			
Total	0.4370862		24			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.212	13.28	0.5230	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9621	0.8877	0.4572	Normal Distribution

Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	0.4547	0.3125	0.597	0.4325	0.2887	0.585	0.05123	25.19%	0.0%
34		5	0.7182	0.6352	0.8013	0.7525	0.6175	0.775	0.02991	9.31%	-57.94%
45		5	0.7617	0.6443	0.8792	0.745	0.6325	0.8938	0.04229	12.41%	-67.51%
60		5	0.5807	0.5243	0.6372	0.5675	0.5413	0.6563	0.02033	7.83%	-27.71%
80		5	0.6315	0.5217	0.7413	0.5862	0.5825	0.7875	0.03954	14.0%	-38.87%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.585	0.43	0.2887	0.5375	0.4325
34		0.775	0.7525	0.6175	0.7637	0.6825
45		0.7938	0.8938	0.745	0.7437	0.6325
60		0.5413	0.6563	0.5525	0.5675	0.5862
80		0.7875	0.5862	0.5825	0.5838	0.6175

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 10 of 10)

Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

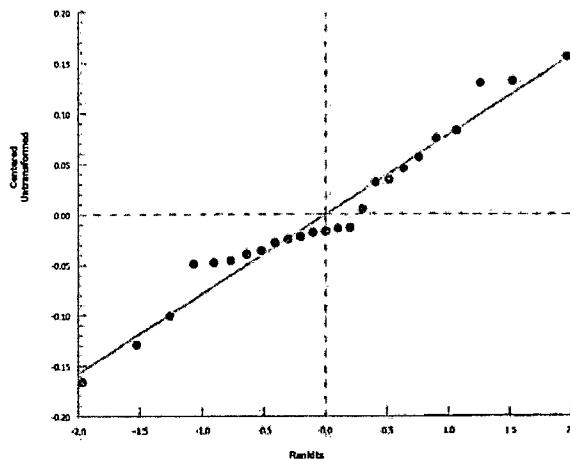
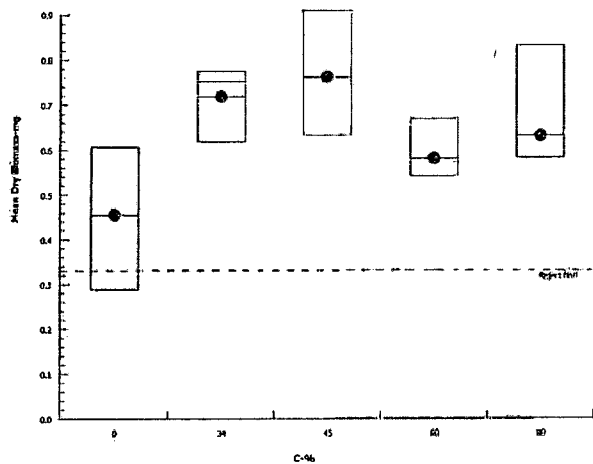
ENVIRON International Corp

Analysis ID: 09-3830-6900
Analyzed: 18 Feb-14 15:12

Endpoint: Mean Dry Biomass-mg
Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 1 of 2)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 08-8591-2126	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:13	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1642145	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.4547	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.131	2.822	0.6554	No Outliers Detected

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>80	N/A	N/A	<1.25	NA	NA

Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	5	0.4547	0.2887	0.585	0.05123	0.1145	25.19%	0.0%
34		5	0.7182	0.6175	0.775	0.02991	0.06688	9.31%	-57.94%
45		5	0.7617	0.6325	0.8938	0.04229	0.09455	12.41%	-67.51%
60		5	0.5807	0.5413	0.6563	0.02033	0.04545	7.83%	-27.71%
80		5	0.6315	0.5825	0.7875	0.03954	0.08841	14.0%	-38.87%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.585	0.43	0.2887	0.5375	0.4325
34		0.775	0.7525	0.6175	0.7637	0.6825
45		0.7938	0.8938	0.745	0.7437	0.6325
60		0.5413	0.6563	0.5525	0.5675	0.5862
80		0.7875	0.5862	0.5825	0.5838	0.6175

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 2 of 2)
Test Code: 16618fm | 17-3085-8668

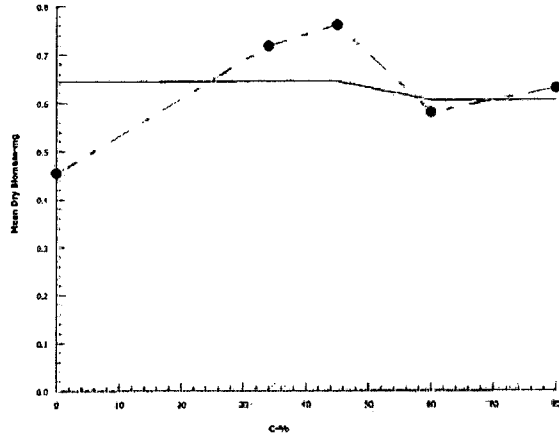
Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 08-8591-2126 Endpoint: Mean Dry Biomass-mg
Analyzed: 18 Feb-14 15:13 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 1 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 19-9938-7078	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:10	Analysis: Nonparametric-Multiple Comparison	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	52.9%

Wilcoxon/Bonferroni Adj Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	23.5	NA	3	7	1.0000	Exact	Non-Significant Effect
	34	33	NA	2	8	1.0000	Exact	Non-Significant Effect
	45	35	NA	2	8	1.0000	Exact	Non-Significant Effect
	60	34	NA	2	8	1.0000	Exact	Non-Significant Effect
	80	35	NA	2	8	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6	0.8 - NL	Yes	Below Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.722	2.893	0.1032	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.8524211	0.1704842	5	3.367	0.0199	Significant Effect
Error	1.164548	0.05063253	23			
Total	2.016969		28			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	253.7	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8672	0.9004	0.0018	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.6	0.0923	1	0.625	0.125	1	0.1829	68.15%	0.0%
25		4	0.8438	0.5454	1	0.875	0.625	1	0.09375	22.22%	-40.62%
34		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	-58.33%
45		5	1	1	1	1	1	1	0	0.0%	-66.67%
60		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-62.5%
80		5	1	1	1	1	1	1	0	0.0%	-66.67%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	0.9166	0.3221	1.511	0.9117	0.3614	1.393	0.2141	52.23%	0.0%
25		4	1.186	0.7962	1.576	1.22	0.9117	1.393	0.1226	20.66%	-29.42%
34		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	-43.97%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-51.99%
60		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	-47.98%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-51.99%

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 2 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 19-9938-7078 Endpoint: 7d Survival Rate
 Analyzed: 18 Feb-14 15:10 Analysis: Nonparametric-Multiple Comparison

CETIS Version: CETISv1.8.4
 Official Results: Yes

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.125	1	0.25	1	0.625
25		1	0.75	1	0.625	
34		1	0.875	1	1	0.875
45		1	1	1	1	1
60		1	1	0.875	1	1
80		1	1	1	1	1

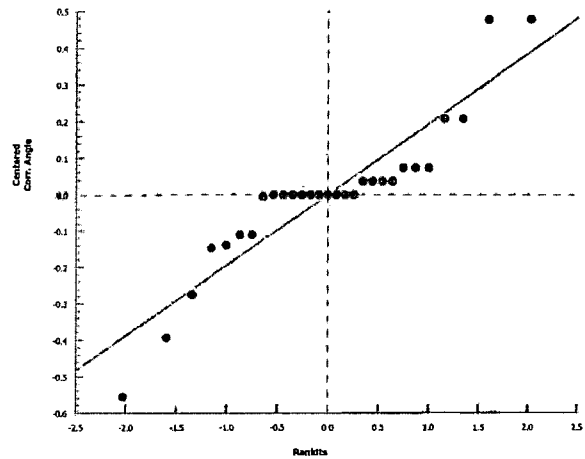
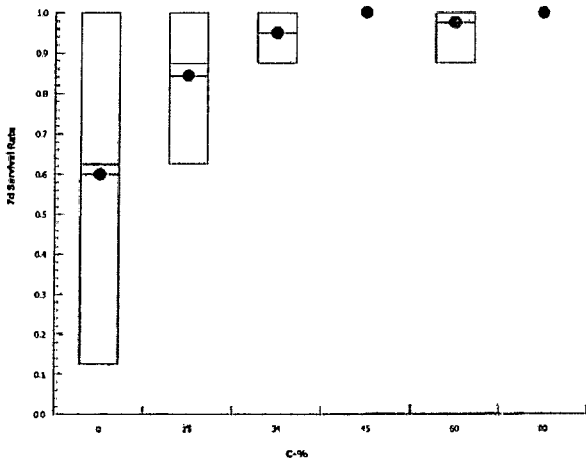
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.3614	1.393	0.5236	1.393	0.9117
25		1.393	1.047	1.393	0.9117	
34		1.393	1.209	1.393	1.393	1.209
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.209	1.393	1.393
80		1.393	1.393	1.393	1.393	1.393

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1/8	8/8	2/8	8/8	5/8
25		8/8	6/8	8/8	5/8	
34		8/8	7/8	8/8	8/8	7/8
45		8/8	8/8	8/8	8/8	8/8
60		8/8	8/8	7/8	8/8	8/8
80		8/8	8/8	8/8	8/8	8/8

Graphics



CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 5 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 12-5226-9052	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-14 15:11	Analysis: Parametric-Multiple Comparison	Official Results: Yes
Batch ID: 04-5290-2503	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 11 Feb-14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-4981-2588	Code: 389CFD6C	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	48.1%

Bonferroni Adj t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-3.29	2.5	0.177	7	1.0000	CDF	Non-Significant Effect
		34	-5.583	2.5	0.167	8	1.0000	CDF	Non-Significant Effect
		45	-6.236	2.5	0.167	8	1.0000	CDF	Non-Significant Effect
		60	-3.519	2.5	0.167	8	1.0000	CDF	Non-Significant Effect
		80	-4.281	2.5	0.167	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.3462	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.4811	0.12 - 0.3	Yes	Above Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	1.937	2.893	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5308958	0.1061792	5	9.566	<0.0001	Significant Effect
Error	0.2553048	0.01110021	23			
Total	0.7862005		28			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	7.223	15.09	0.2046	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9687	0.9004	0.5244	Normal Distribution

Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.3462	0.1308	0.5617	0.2863	0.1675	0.5313	0.0776	50.12%	0.0%
25		4	0.5787	0.3912	0.7663	0.6325	0.4025	0.6475	0.05894	20.37%	-67.15%
34		5	0.7182	0.6352	0.8013	0.7525	0.6175	0.775	0.02991	9.31%	-107.4%
45		5	0.7617	0.6443	0.8792	0.745	0.6325	0.8938	0.04229	12.41%	-120.0%
60		5	0.5807	0.5243	0.6372	0.5675	0.5413	0.6563	0.02033	7.83%	-67.73%
80		5	0.6315	0.5217	0.7413	0.5862	0.5825	0.7875	0.03954	14.0%	-82.38%

CETIS Analytical Report

Report Date: 18 Feb-14 15:13 (p 6 of 10)
 Test Code: 16618fm | 17-3085-8668

Fathead Minnow 7-d Larval Survival and Growth Test

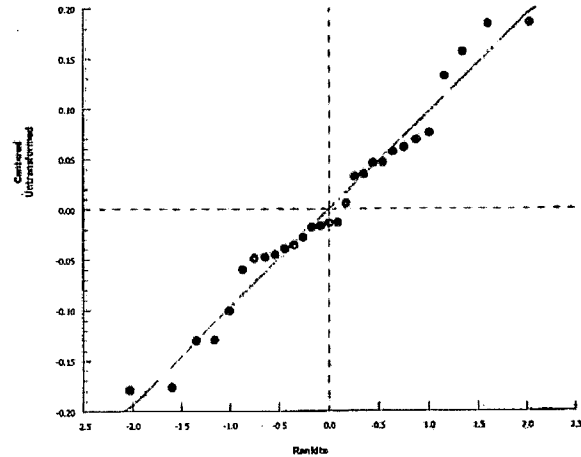
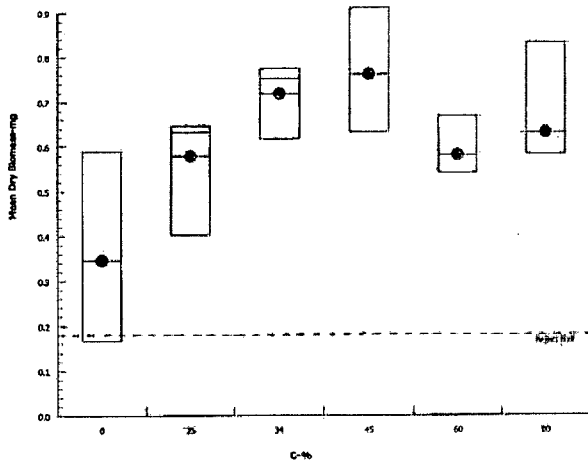
ENVIRON International Corp

Analysis ID: 12-5226-9052 Endpoint: Mean Dry Biomass-mg CETIS Version: CETISv1.8.4
 Analyzed: 18 Feb-14 15:11 Analysis: Parametric-Multiple Comparison Official Results: Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.1675	0.5313	0.2162	0.53	0.2863
25		0.6475	0.625	0.64	0.4025	
34		0.775	0.7525	0.6175	0.7637	0.6825
45		0.7938	0.8938	0.745	0.7437	0.6325
60		0.5413	0.6563	0.5525	0.5675	0.5862
80		0.7875	0.5862	0.5825	0.5838	0.6175

Graphics



ENVIRON FATHEAD MINNOW SURVIVAL AND GROWTH 7-DAY CHRONIC TOXICITY TEST
EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: 16618
 JOB NUMBER: 20-19675H
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: 4512

BEGINNING: HRS: 1435 DATE: 2/11/14 PHOTOPERIOD: 16 hr light/8 hr dark
 ENDING: HRS: 1257 DATE: 2/11/14 FEEDING REGIME:
 TEST DILUTIONS: 25, 34, 45, 60, 80% 0.15 mL Artemia @ 2 times/day
 ORGANISM AGE (date): 2/13/14 TEST VESSEL CAPACITY: 450 mL
 ORGANISM SOURCE: ECT # 4591 TEST SOLUTION VOLUME: 250 - 300 mL
 SOURCE TEMP @ TEST START: 24.2 NO. ORGANISMS/TREATMENT: 8
 RANDOMIZED BY: HM NO. REPLICATES: 5

CONC (%)	REP ID	SURVIVAL (#) <i>* dead fish</i>							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
RW	A	8	8	8	8	3*	2	1	1
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	3*	2	2	2
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	6*	5	5
	Temp(°C):old/new	24.2	24.2/24.7	24.2/24.4	24.2/24.7	24.4/24.2	24.2/24.1	24.0/24.1	24.1
25	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	7*	6*	6	6
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	6*	5*	5	5
	E	8	8	8	8	(1-8) spilled			
	Temp(°C):old/new	24.4	24.4/24.1	24.3/24.2	24.4/24.1	24.2/24.3	24.5/24.2	24.1/24.0	24.2
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	7	7	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	7	7	7
	Temp(°C):old/new	24.2	24.4/25.6	24.4/24.4	24.5/24.1	24.3/24.5	24.1/24.1	24.0/24.1	24.1
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.1	24.5/25.3	24.5/24.2	24.3/24.2	24.1/24.4	24.2/24.2	24.0/24.1	24.0
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.4	24.5/25.8	24.3/24.2	24.1/24.2	24.2/24.3	24.0/24.1	24.0/24.0	24.1
80	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.2	24.6/25.8	24.4/24.2	24.1/24.4	24.2/24.3	24.0/24.1	24.0/24.1	24.1
Test Renewal	Time	1435	1338	1244	0903	1315	1146	1008	1252
	Date	2/11/14	2/15/14	2/16/14	2/11/14	2/18/14	2/19/14	2/10/14	2/11/14
	Initials	HM	LM	HM	HM	JM	AW	AW	AW
morning feeding	Int/Time		LM1000	LM1000	LM1000	HM1030	HM1000	LM1010	
afternoon feeding	Int/Time	AW1615	LM1530	HM1530	LM1500	HM1430	AW1530	LM1500	

ENVIRON FATHEAD MINNOW SURVIVAL AND GROWTH 7-DAY CHRONIC TOXICITY TEST
EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: _____
 JOB NUMBER: 20-19675H
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: 001
 DILUTION WATER: River Water
 NPDES: Yes _____ No _____
 FOOD BATCH: _____

BEGINNING: HRS: _____ DATE: _____
 ENDING: HRS: _____ DATE: _____

PHOTOPERIOD: 16 hr light/8 hr dark
 FEEDING REGIME:
 0.15 mL Artemia @ 2 times/day
 TEST VESSEL CAPACITY: 450 mL
 TEST SOLUTION VOLUME: 250 - 300 mL
 NO. ORGANISMS/TREATMENT: 8
 NO. REPLICATES: 5

CONC (%)	REP ID	SURVIVAL (#) <i>*fuzzy dead</i>							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MH	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	6	6	6
	C	8	8	8	8	4*	4	4	4
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.2	24.1/24.2	24.0/24.3	24.1/24.5	24.3/24.2	24.1/24.2	24.0/24.1	24.0
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	Int/Time								
afternoon feeding	Int/Time								

ENVIRON FATHEAD MINNOW SURVIVAL AND GROWTH 7-DAY CHRONIC TOXICITY TEST
EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: _____ BEGINNING: HRS: _____ DATE: _____
 JOB NO.: 20-19675H ENDING: HRS: _____ DATE: _____
 INDUSTRY: Georgia Pacific-Crossett
 EFFLUENT: Outfall 001 NO. ORGANISMS/TREATMENT: 8
 NPDES: Yes _____ No _____ NO. REPLICATES: 5

PHOTOPERIOD: 16 hr light
 FEEDING REGIME:
 0.15 mL Artemia @ 2 times/day
 TEST VESSEL CAPACITY: 450 mL
 TEST SOLUTION VOLUME: 250 mL

GROWTH RESULTS							
CONC (%)	REP ID	Boat ID	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish
		10					
RW	A	1	1.06855	1.06989	0.00134	1	
	B	2	1.11666	1.12091	0.00425	8	
	C	3	1.07727	1.07900	0.00173	2	
	D	4	1.09004	1.09428	0.00424	8	
1.13897	E	5	1.113897	1.14126	0.00229	5	
25	A	6	1.10276	1.11227	0.00518	8	
	B	7	1.10727	1.11227	0.00500	6	
	C	8	1.11502	1.12014	0.00512	8	
	D	9	1.12603	1.12925	0.00322	5	
	E	10	1.13859	—	—	—	
34	A	11	1.07004	1.07624	0.0062	8	
	B	12	1.07426	1.08028	0.00602	7	
	C	13	1.07514	1.08008	0.00494	8	
	D	14	1.11646	1.12257	0.00611	8	
	E	15	1.09812	1.10358	0.00546	7	
45	A	16	1.10708	1.11343	0.00635	8	
	B	17	1.12345	1.13060	0.00715	8	
	C	18	1.12376	1.12972	0.00596	8	
	D	19	1.14277	1.14872	0.00595	8	
	E	20	1.10028	1.10534	0.00506	0	
60	A	21	1.10207	1.10640	0.00433	8	
	B	22	1.14475	1.15060	0.00585	8	
	C	23	1.06604	1.07046	0.00442	7	
	D	24	1.10059	1.10513	0.00454	8	
	E	25	1.06715	1.07184	0.00469	8	
80	A	26	1.12182	1.12812	0.00630	8	
	B	27	1.13239	1.13708	0.00469	8	
	C	28	1.12062	1.12528	0.00466	8	
1.11426	D	29	1.11426	1.11893	0.00467	8	
	E	30	1.12095	1.12589	0.00494	8	
MH	A	31	1.13423	1.13891	0.00468	8	
	B	32	1.10425	1.10769	0.00344	6	
	C	33	1.08755	1.08986	0.00231	4	
	D	34	1.10550	1.10980	0.00430	8	
	E	35	1.12488	1.12834	0.00346	8	
	Initials / Date:		2/9/14 AW				

AVG Control Fish wt. (using final #)

Oven ID: 2
 Tins In:
 Date: 2/11/14
 Time: 1402
 Temp (°C): 101
 Initials: AW
 Tins Out:
 Date: 2/12/14
 Time: 1400
 Temp (°C): 100
 Initials: AW

FINAL WEIGHTS
 DATE: 2/14/14
 INITIALS: CTH

10794

TEST LOG NO. 16618

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675H

TEST ORGANISM: Fm

DATE: 2/4/04

ENVIRON Test Log No. 16618

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		D.O. (mg/L)																	
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7					
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New				
RW	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
25	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
34	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
45	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
60	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
80	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				
MH	8.9	8.6	8.7	8.3	8.1	8.6	8.2	8.6	7.8	8.6	8.6	8.3	8.3	8.5	8.4				

		pH (s.u.)																	
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7					
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New				
RW	7.51	7.69	7.88	7.86	7.15	7.79	7.39	7.84	7.40	7.70	7.52	7.93	7.41	7.96					
25	7.60	7.78	7.82	7.66	7.16	7.79	7.39	7.74	7.40	7.72	7.52	7.93	7.41	7.96					
34	7.69	8.04	7.86	7.98	7.32	7.90	7.70	7.93	7.62	7.74	7.64	7.93	7.60	7.89					
45	7.76	8.14	7.88	8.10	7.26	7.91	7.76	7.92	7.64	7.85	7.64	7.97	7.75	7.96					
60	7.80	8.20	7.88	8.19	7.79	8.00	7.86	8.26	7.69	8.01	7.67	8.09	7.78	7.97					
80	7.83	8.30	7.89	8.26	7.78	8.04	7.82	8.11	7.70	8.07	7.68	8.14	7.78	8.04					
MH	7.78	7.58	7.84	7.72	7.74	7.77	7.83	7.91	8.08	7.45	8.08	7.90	8.03	7.87					

		Conductivity (µmhos/cm)																	
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7					
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New				
RW	89	93	136	99	101	116	124	102	101	125	93	127	91	99					
25	503	503	626	619	512	448	455	418	560	550	545	523	544	537					
34	718	701	750	727	731	697	774	729	742	724	716	727	728	719					
45	740	388	905	896	919	908	911	923	951	928	874	855	894	884					
60	1145	1104	1193	1048	1127	1152	1233	1208	1257	1156	1163	1163	1159	1142					
80	1333	1330	135	1320	1236	1963	1368	1380	1354	1321	1288	1317	1291	1296					
MH	205	200	244	216	219	216	221	216	213	255	212	244	200	219					

Params Int/Time:	L1104	L10134	L11029	L10716	AM1134	L10657	L12090	AM0758	AM1246	AM0850	AM1019	AM0828	AM0915	L10711
Dilutions Int/Time:	AM1048		LM1019		AM1129	AM0950		AM1232		AM1005		AM1005	AM1003	
Control Water Batch:	4117145		mit 5444 17145				5444 17155							
Food Batch:	4512		4512		4512		4512		4512		17164		4512	4512

TEST LOG NO. 110012

CLIENT: Georgia Pacific Crossett

DATE OF TEST: _____

JOB NO. 20-19675H

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

ENVIRON Test Log No. 18618

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100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH ₃ N mg/L
17145	Outfall 001	7/3-2/2-2/3/14	2/4/14	340	475	20.02	2.12
17156	Effluent	2/4-5/14	2/6/14	380	445	20.02	2.71
17165	Effluent	2/10-7/14	2/18/14	304	410	0.05	3.59

Silica
31.9 mg/L

CONTROL / DILUTION WATER

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH ₃ N mg/L
17145	River Water	2/3/14	2/4/14	36	33	20.02	0.110
17156	River Water	2/3/14	2/6/14	34.4	25	20.02	0.150
17164	RW	2/3/14	2/18/14	28.3	25	0.07	20.1

CETIS Analytical Report

Report Date: 14 Feb-14 17:11 (p 1 of 2)
 Test Code: 16618cd | 12-8719-2558

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 14-9075-9824	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 14 Feb-14 17:10	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 03-3499-4647	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 11 Feb-14	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 01-1062-2640	Code: 697F7B0	Client: GPAC Crosssett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU
Untransformed		C > T	NA	NA	80	>80	NA	1.25

Fisher Exact/Bonferroni-Holm Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	1	1.0000	Exact	Non-Significant Effect
		34	1	1.0000	Exact	Non-Significant Effect
		45	1	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	1	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria

Data Summary

C-%	Control Type	NR	R	NR + R	Prop NR	Prop R	%Effect
0	Receiving Water	10	0	10	1	0	0.0%
25		10	0	10	1	0	0.0%
34		9	0	9	1	0	0.0%
45		10	0	10	1	0	0.0%
60		10	0	10	1	0	0.0%
80		9	0	9	1	0	0.0%

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	1	1	1	1	1	1	1
34		1	1	1	1	1	1	1	1	1	
45		1	1	1	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		1	1	1	1	1	1	1	1	1	

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
34		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
45		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
60		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
80		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	

CETIS Analytical Report

Report Date: 14 Feb-14 17:11 (p 2 of 2)
Test Code: 16618cd | 12-8719-2558

Ceriodaphnia 7-d Survival and Reproduction Test

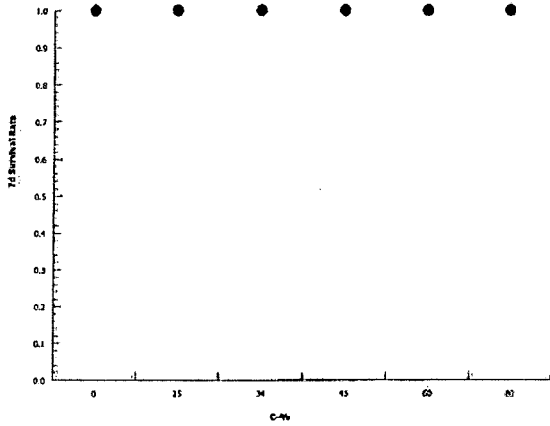
ENVIRON International Corp

Analysis ID: 14-9075-9824
Analyzed: 14 Feb-14 17:10

Endpoint: 7d Survival Rate
Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 14 Feb-14 17:11 (p 1 of 2)
 Test Code: 16618cd | 12-8719-2558

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 09-2439-1777	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 14 Feb-14 17:11	Analysis: Nonparametric-Multiple Comparison	Official Results: Yes
Batch ID: 03-3499-4647	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Feb-14	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 11 Feb-14	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 01-1062-2640	Code: 697F7B0	Client: GPAC Crossett
Sample Date: 03 Feb-14	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 04 Feb-14	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	21.1%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	144.5	NA	1	18	1.0000	Exact	Non-Significant Effect
		34	115.5	NA	3	17	1.0000	Exact	Non-Significant Effect
		45	118	NA	3	18	1.0000	Exact	Non-Significant Effect
		60	83	NA	2	18	0.2453	Exact	Non-Significant Effect
		80	62.5	NA	2	17	0.0584	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	19.7	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2109	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	4.363	3.187	<0.0001	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	770.9583	154.1917	5	10.87	<0.0001	Significant Effect
Error	737.9556	14.19145	52			
Total	1508.914		57			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	10.45	15.09	0.0635	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9051	0.9443	0.0003	Non-normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	19.7	15.26	24.14	20.5	4	26	1.961	31.48%	0.0%
25		10	26.7	24.46	28.94	25	24	32	0.9894	11.72%	-35.53%
34		9	24.33	22.06	26.61	24	21	30	0.986	12.16%	-23.52%
45		10	22.3	20.51	24.09	22	17	27	0.7895	11.2%	-13.2%
60		10	17.7	15.29	20.11	18.5	13	23	1.065	19.03%	10.15%
80		9	16.22	13.86	18.58	15	12	22	1.024	18.94%	17.65%

CETIS Analytical Report

Report Date: 14 Feb-14 17:11 (p 2 of 2)
 Test Code: 16618cd | 12-8719-2558

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

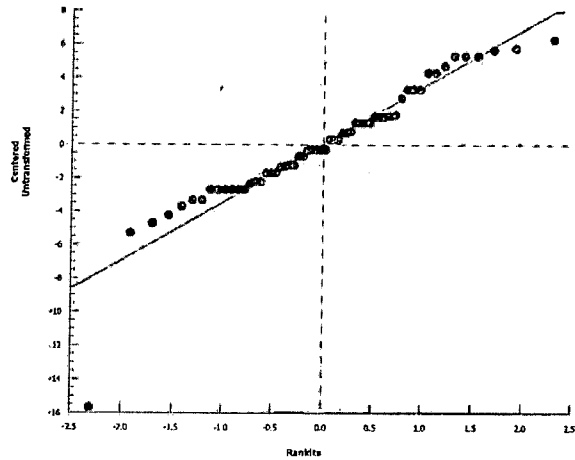
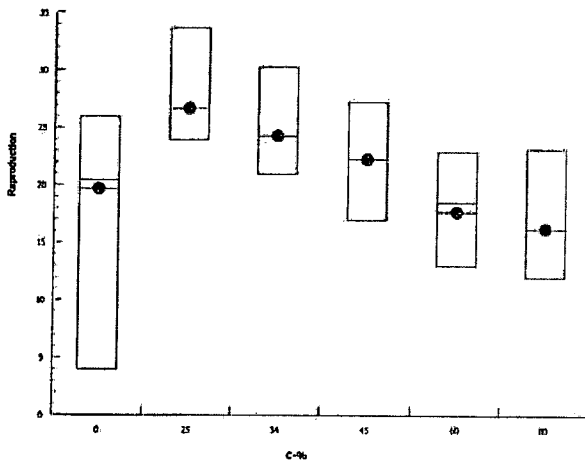
Analysis ID: 09-2439-1777 Endpoint: Reproduction
 Analyzed: 14 Feb-14 17:11 Analysis: Nonparametric-Multiple Comparison

CETIS Version: CETISv1.8.4
 Official Results: Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	23	19	23	19	17	20	21	26	25	4
25		24	31	25	27	32	25	30	24	25	24
34		26	26	30	24	22	26	21	23	21	
45		24	21	23	22	22	27	22	23	22	17
60		19	14	15	23	19	22	15	19	18	13
80		15	17	19	18	22	14	12	14	15	

Graphics



CETIS Analytical Report

Report Date: 14 Feb-14 17:11 (p 1 of 1)
 Test Code: 16618cd | 12-8719-2558

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 04-8585-6982 Endpoint: Reproduction CETIS Version: CETISv1.8.4
 Analyzed: 14 Feb-14 17:11 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Batch ID: 03-3499-4647 Test Type: Reproduction-Survival (7d) Analyst:
 Start Date: 04 Feb-14 Protocol: EPA/821/R-02-013 (2002) Diluent: Mod-Hard Synthetic Water
 Ending Date: 11 Feb-14 Species: Ceriodaphnia dubia Brine: Not Applicable
 Duration: 7d 0h Source: In-House Culture Age:

Sample ID: 01-1062-2640 Code: 697F7B0 Client: GPAC Crossett
 Sample Date: 03 Feb-14 Material: Industrial Effluent Project: WET Monthly Compliance Test (FEB)
 Receive Date: 04 Feb-14 Source: Discharge Monitoring Report
 Sample Age: 24h Station: 001

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1610012	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	19.7	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	60.23	54.2	N/A	1.66	NA	1.845

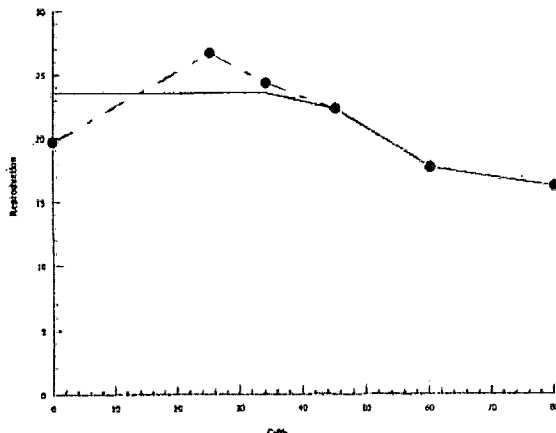
Reproduction Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	19.7	4	26	1.961	6.201	31.48%	0.0%
25		10	26.7	24	32	0.9894	3.129	11.72%	-35.53%
34		9	24.33	21	30	0.986	2.958	12.16%	-23.52%
45		10	22.3	17	27	0.7895	2.497	11.2%	-13.2%
60		10	17.7	13	23	1.065	3.368	19.03%	10.15%
80		9	16.22	12	22	1.024	3.073	18.94%	17.65%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	23	19	23	19	17	20	21	26	25	4
25		24	31	25	27	32	25	30	24	25	24
34		26	26	30	24	22	26	21	23	21	
45		24	21	23	22	22	27	22	23	22	17
60		19	14	15	23	19	22	15	19	18	13
80		15	17	19	18	22	14	12	14	15	

Graphics



**ENVIRON CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION 3-BROOD CHRONIC TOXICITY TEST
EPA-821-R-02-013 Method 1002.0**

TEST LOG NO.: 16618 PHOTOPERIOD: 16 hr light/8 hr dark
 JOB NUMBER: 20-19675H FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
 INDUSTRY: Georgia Pacific-Crossett TEST VESSEL CAPACITY: 30 mL
 EFFLUENT: Outfall 001 TEST SOLUTION VOLUME: 15 mL
 DILUTION WATER: River Water NO. ORGANISMS/REPLICATE: 1
 NPDES (Y/N): Yes NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 2/3/14
 TEMP @ TEST START: 24.2
 RANDOMIZED BY: AH
 TEST START: HOURS: 1157 DATE: 2/4/14
 TEST END: HOURS: 1357 DATE: 2/11/14

SOURCE ID:	AGE (time):
10509	1434-1951
10510	1435-1954
10512	1440-1959

SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water		Temp (°C)	REPLICATES										Notes	
						09					10		12				
						1	2	3	4	5	6	7	8	9	10		
						Adult	6	10	7	13	5	14	20	19	7	4	
AD 1157		2/4	24.3			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1119	2/5	24.5	24.6		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1210	2/6	24.4	24.3		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1100	2/7	24.9	25.1		Day 3	4	3	✓	✓	4	4	3	4	3		
	AH 1251	2/8	24.1	24.8		Day 4	✓	✓	3	2	2	✓	✓	✓	✓		
	AH 1041	2/9	24.5	24.3		Day 5	7	5	4	5	3	8	✓	7	6	1	pale
	MS 1521	2/10	25.6	25.6		Day 6	✓	11	14	12	11	8	9	16	✓	✓	
HM 1357		2/11	24.6			Day 7	12	✓	18	✓	11	✓	8	✓	15	✓	
						Day 8											
			Total				23	19	23	19	17	20	21	26	25	4	197

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16618

JOB # 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration			REPLICATES										Notes
			25%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
					Adult											
AW 1157		2/4	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1119	2/5	24.5	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1210	2/6	24.1	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1150	2/7	24.2	24.5	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1251	2/8	24.0	24.4	Day 4	3	3	4	4	4	3	4	3	4	4	
	AW 1049	2/9	24.3	24.6	Day 5	6	✓	7	5	8	6	10	7	6	7	Dead
			25.4	25.6	Day 6	15	14	14	18	20	16	16	14	15	13	
LM 1357	LM	2/11		25.1	Day 7	✓	14	✓	✓	✓	20	✓	✓	✓	✓	
					Day 8											
			Total			24	31	25	27	22	25	30	24	25	24	267

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration			REPLICATES										Notes
			34%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
AW 1157		2/4	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1119	2/5	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1210	2/6	24.0	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1150	2/7	24.1	24.4	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1251	2/8	24.1	24.8	Day 4	3	Miss	5	4	3	✓	5	4	4	3	
	AW 1049	2/9	24.3	24.6	Day 5	6		9	11	7	7	8	5	6	7	
			24.4	25.4	Day 6	5		12	15	14	15	13	12	13	11	
LM 1357			25.1		Day 7	12		✓	16	16	✓	✓	14	✓	✓	
					Day 8											
			Total			26	24	26	30	24	22	26	21	23	21	219/9

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16618

JOB # 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA															
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		REPLICATES	Notes									
			45%	Temp (°C)											
					1	2	3	4	5	6	7	8	9	10	
					Adult										
AH 1157		2/4	242		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1119	2/4	244	243	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1210	2/6	241	244	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AL 1100	2/7	242	243	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1251	2/8	241	248	Day 4	5	5	3	5	4	4	2	5	5	
	AW 1041	2/9	241	246	Day 5	7	6	8	6	8	10	8	7	7	
			241	243	Day 6	12	10	12	✓	9	13	11	10	8	
UM 1357		2/11	247		Day 7	✓	✓	✓	11	12	12	6	✓	8	
					Day 8										
Total						24	21	23	22	22	27	22	23	22	23

SURVIVAL AND REPRODUCTION DATA															
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		REPLICATES	Notes									
			60%	Temp (°C)											
					1	2	3	4	5	6	7	8	9	10	
AH 1157		2/4	243		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1119	2/5	244	246	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1210	2/6	241	242	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AL 1100	2/7	244	246	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1251	2/8	241	244	Day 4	2	✓	3	6	4	3	3	4	5	
	AW 1041	2/9	246	248	Day 5	7	4	7	7	6	✓	4	5	5	
			241	247	Day 6	✓	7	5	6	9	11	✓	10	8	
UM 1357		2/11	249		Day 7	10	3	✓	4	8	8	8	13	6	
					Day 8										
Total						19	14	15	23	19	22	15	19	18	13

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-) = Dead neonates M = Male

TEST LOG # 16618

JOB # 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		80% Temp (°C)	REPLICATES										Notes		
						1	2	3	4	5	6	7	8	9	10			
						Adult												
PH 1157		2/4	24.2			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1119	2/5	24.5	24.4		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1210	2/6	24.3	24.2		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OVZ 1100	2/7	24.5	24.0		Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1251	2/8	24.0	24.6		Day 4	2	1	3	5	4	4	3	✓	Miss	✓		
	PH 1049	2/9	24.4	24.2		Day 5	5	4	7	6	5	4	5	2		7		
			25.1	25.1		Day 6	8	12*	7	7	9*	6	4	2		4	* 7m	
LM 1357		2/11	24.9			Day 7	13	✓	2	✓	4	11	3	10		12	B. 26.28	
						Day 8												
			Total				15	17	19	18	22	14	12	14	15	14	16	19

= 162

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		MH Temp (°C)	REPLICATES										Notes		
						1	2	3	4	5	6	7	8	9	10			
PH 1157		2/4	24.3			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1119	2/5	24.4	24.6		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1210	2/6	24.2	24.5		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OVZ 1100	2/7	24.4	24.3		Day 3	4	2	2	✓	✓	✓	3	4	5	✓	✓	
	PH 1251	2/8	24.0	24.3		Day 4	✓	✓	✓	2	2	2	✓	✓	✓	✓	✓	
	PH 1049	2/9	24.0	24.0		Day 5	6	6	7	✓	✓	8	6	4	13	3	✓	
			24.6	25.1		Day 6	12	12	✓	8	8	✓	✓	11	16	✓	✓	
LM 1357		2/11	24.7			Day 7	✓	✓	12	12	11	12	10			8		
						Day 8												
			Total				22	20	21	22	21	22	19	19	34	11	21	17

= 158

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16618

JOB # 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Temp (°C)	REPLICATES										Notes
			Filt 80%			1	2	3	4	5	6	7	8	9	10	
						Adult										
AB 1157		2/4	245			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1119	2/5	244	242		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1210	2/6	241	242		Day 2	✓	✓	✓	D/O	✓	✓	✓	✓	✓	
	OR 1100	2/7	243	245		Day 3	✓	✓	D/O	✓	✓	✓	D/O	✓	✓	
	AW 1251	2/8	240	241		Day 4	4	6	3	1	2	2	2	5	✓	
	AW 1044	2/9	240	240		Day 5	5	7	4		8	5	4	7	2	
	AB 1257	2/10	248	244		Day 6	11	10	11		12	10	11	11	4	
	AB 1357	2/11	244	244		Day 7	✓	12	✓		✓	14	10	7	✓	
						Day 8										
			Total				20	23	18	10	22	17	17	23	6	146/8

= 1825 par

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Temp (°C)	REPLICATES										Notes
			Filt 100%			1	2	3	4	5	6	7	8	9	10	
AB 1157		2/4	243			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1119	2/5	243	243		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1210	2/6	242	240		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OR 1100	2/7	245	242		Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1251	2/8	241	244		Day 4	4	4	2	3	5	6	3	✓	4	
	AW 1044	2/9	240	240		Day 5	4	6	4	4	5	5	5	2	5	
	AB 1257	2/10	248	256		Day 6	8	6	9	9	11	6	6	9	8	
	AB 1357	2/11	244	244		Day 7	✓	9	✓	✓	1	7	5	10	✓	
						Day 8										
			Total				16	16	15	16	15	22	14	18	18	168

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing
 D = Test Organism Dead (-) = Dead neonates M = Male

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TEST LOG NO. 16618

CLIENT/SAMPLE ID: Georgia Pacific Crossett

DATE: 2/4/14

JOB NO. 20-19675H

TEST ORGANISM: Cd

ENVIRON Test Log No. 16618

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D.O. (mg/L)														
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	8.6	8.0	8.5	8.1	8.1	8.2	8.2	8.3	7.8	8.0	8.6	8.5	8.5	8.4
25	8.9	8.5	8.5	8.0	8.2	8.0	8.4	8.4	7.9	8.6	8.6	8.6	8.5	8.5
34	8.1	8.6	8.4	7.9	8.3	8.1	8.3	8.2	7.8	8.7	8.5	8.7	8.8	8.4
45	8.9	8.5	8.4	8.2	8.1	8.2	8.2	8.0	8.0	8.5	8.4	8.6	8.5	8.4
60	8.9	8.5	8.4	8.1	8.1	8.2	8.2	8.0	8.0	8.5	8.4	8.6	8.5	8.4
80	8.5	8.4	8.4	8.0	8.0	8.3	8.4	8.1	8.1	8.4	8.4	8.5	8.4	8.5
80% Filt	8.4	8.4	8.5	8.3	8.2	8.3	8.5	8.2	8.1	8.3	8.0	8.5	8.0	8.5
100% Filt	8.6	8.4	8.4	8.1	8.1	8.2	8.5	8.2	7.9	8.0	8.7	8.4	8.4	8.5
MH	8.6	8.4	8.4	8.1	8.1	8.4	8.4	8.4	8.0	8.0	8.7	8.4	8.4	8.4


pH (s.u.)														
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	7.8	7.90	7.88	7.62	7.15	7.59	7.03	7.49	7.00	7.53	7.52	7.36	7.91	7.90
25	7.60	8.02	7.32	8.26	7.06	8.20	7.59	8.21	7.61	8.20	7.49	8.34	7.48	8.21
34	7.69	8.28	7.36	8.34	7.38	8.31	7.70	8.42	7.62	8.35	7.61	8.41	7.63	8.26
45	7.76	8.41	7.38	8.42	7.76	8.45	7.76	8.52	7.67	8.48	7.64	8.47	7.75	8.22
60	7.80	8.51	7.38	8.54	7.79	8.56	7.80	8.61	7.69	8.54	7.67	8.37	7.78	8.58
80	7.89	8.62	7.79	8.60	7.79	8.68	8.02	8.64	7.70	8.61	7.68	8.60	7.78	8.60
80% Filt	8.14	8.62	8.35	8.68	8.36	8.72	8.19	8.76	7.79	8.71	7.78	8.64	7.80	8.65
100% Filt	8.14	8.75	8.39	8.74	8.31	8.79	8.26	8.72	8.15	8.8	7.87	8.71	7.84	8.64
MH	7.10	8.7	7.84	7.71	7.74	7.80	7.83	7.71	8.08	8.09	8.08	8.15	8.09	7.7

Conductivity (µmhos/cm)														
Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	89	159	136	129	101	130	124	170	101	112	98	170	91	1.71
25	509	649	626	700	548	595	455	534	560	545	545	627	544	689
34	718	734	750	796	781	717	774	875	742	738	716	852	728	860
45	870	105	905	1018	919	891	916	1009	984	938	874	1009	944	1025
60	1145	1262	1193	1721	1167	1980	1233	1371	1207	1244	1165	1552	1159	1575
80	1330	1404	1355	1514	1326	1426	1308	1525	1358	1340	1288	1426	1291	1487
80% Filt	1556	1606	1550	1644	1561	1521	1492	1483	1493	1554	1469	1426	1480	1600
100% Filt	1929	1926	1961	2000	1921	1926	1841	1552	1600	1861	1785	1592	1769	1883
MH	205	271	244	235	219	240	221	231	212	230	212	278	208	259
Params Int/Time:	AW1017	AW1150	AW1023	AW1122	AW1134	AW1145	AW0900	AW1330	AW1284	AW124	AW1015	AW1405	AW0915	
Dilutions Int/Time:	AW1012		AW1017	AW1128		AW1145	AW0900	AW1330	AW1284	AW124	AW1015	AW1405	AW0915	
Control Water Batch#:	1745	RW14538	MH540, 21715	5411, 155	541, 17155	5449, 17164	544, 17164	544, 17164	544, 17164	544, 17164	544, 17164	544, 17164	544, 17164	
Food Batch	4576, 38	4580, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	4583, 76	

**Attachment 2:
Chain-Of-Custody Documentation and
Reference Toxicant Data**

ENVIRON Test Log No. 16618

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Project Name:		Project Number:		Analysis Requested										CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976	
Industry: GEORGIA PACIFIC PAPER				Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other		
Phone: 810-567-8170 FAX: 810-314-9074															
County: ASHLEY City: CROCKETT State: AR.															
Sample Collected by (print): DANNY / JIM				NPDES Permit No.: AR0001210				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		No. of Cntrs					
Sample Collected by (signature): <i>[Signature]</i>				Start Date/Time		End Date/Time						Description		Sample B# (lab only)	
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)												
RIVER	G	PLASTIC	NA	2-3-14	10:25am	2	20								DILUTION WATER
OUTFALL 001	C	PLASTIC	YES	2-2-14	2-3-14	2	20								
				4:10am	6:16am										
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____															
Remarks:															
Measured TRC (if applicable): 2100 mg/L															
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		<input checked="" type="checkbox"/> Samples shipped via: FedEx <input type="checkbox"/> Other Courier		<input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered		Condition: (lab use only)					
<i>[Signature]</i>		2-3-14	3:00pm												
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Receipt Temp:		Containers/Volume Received:							
<i>[Signature]</i>						17.1		20L / 20L							
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature)		Date:	Time:	pH upon arrival:		DO upon arrival:					
<i>[Signature]</i>				Stacy Winton		2-4-14	10:00	7.2		0.2					

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 2/4/14 0900 by AW


- 1. Cooler sealed and intact upon arrival? Yes No
- 2. Custody seals present? Yes No
- 3. Samples received below 6 degrees Celsius? Yes No
- 4. Was ice present? Yes No
- 5. Is the COC filled out correctly including the sample date/time and signed? Yes No
- 6. Was the sample received within 36 hours of collection? Yes No
- 7. Did the sample(s) arrive in good condition? Yes No
- 8. Was pH and DO measured and in range? Yes No
- 9. Was residual chlorine present? Yes No
 - 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17144	Duffall 001	1.1	7.74	8.6	<0.02
17145	River	1.7	7.28	8.2	<0.02

ENVIRON Test Log No. 16618

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Project Name:				Project Number:				Analysis Requested										CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976							
Industry: GEORGIA PACIFIC PAPER								Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other			Description					
Phone: 870-567-8170 FAX: 870-8364-9074				County: ASHLEY City: CROSSETT State: AR.																Definitive or Screen		Sample B# (lab only)			
Sample Collected by (print): DANNY / JIM / ROBBIE				NPDES Permit No.: AR0001210																NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		No. of Cntrs			
Sample Collected by (signature):																									
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description	Sample B# (lab only)							
RIVER	G	PLASTIC	NA	2-3-14 10:30am	2-3-14 10:30am	2	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DILUTION	WATER 17155							
OUTFALL 001	C	PLASTIC	YES	2-4-14 6:15am	2-5-14 6:15am	2	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		17150							
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____ Remarks: Measured TRC (if applicable): 0.00 mg/L																									
Relinquished by: (Signature) Danny R.				Date: 2-5-14		Time: 3:30p		Received by: (Signature) [Signature]				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered				Condition: GOOD (lab use only)									
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp: 12.9, 10.9		Containers/Volume Received: 2/10L											
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) [Signature]				Date: 2/10/14		Time: 08:45		pH upon arrival: 7.53, 7.50		DO upon arrival: 8.5, 8.9							

Sample Receipt Checklist:

Client: GIPC

Date/Time received 2/10/14 0845 by AR

- 1. Cooler sealed and intact upon arrival? Yes No
- 2. Custody seals present? Yes No
- 3. Samples received below 6 degrees Celsius? Yes No
- 4. Was ice present? Yes No
- 5. Is the COC filled out correctly including the sample date/time and signed? Yes No
- 6. Was the sample received within 36 hours of collection? Yes No
- 7. Did the sample(s) arrive in good condition? Yes No
- 8. Was pH and DO measured and in range? Yes No
- 9. Was residual chlorine present? Yes No
 - > 1.0 mg/L? (did dechlor occur) Yes No

Comments:


Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17155	RW	1.2	7.53	8.5	10.02
17156	EFF	0.9	7.80	8.9	10.02

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ENVIRON Test Log No. 16618

Project Name:		Project Number:	
Industry: GEORGIA PACIFIC PAPER			
Phone: 870-567-8170		FAX: 870-364-9076	
County: ASHLEY	City: CROSSETT	State: AR	
Sample Collected by (print): DANNY / JIM / ROBE		NPDES Permit No.: AR0001210	
Sample Collected by (signature): <i>[Signature]</i>		NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	

CHAIN-OF-CUSTODY



201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 277-7570
FAX: (615) 377-4976

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested										Description Definitive or Screen	Sample B# (lab only)	
								Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other				
RIVER	A	PLASTIC	NA	2-3-14 10:30am	2-3-14 10:30am	2	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		157104	
FALL 001	C	PLASTIC	YES	2-6-14 6:16am	2-7-14 6:17am	2	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		157105	
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature) <i>[Signature]</i>	Date: 2-7-14	Time: 3:00pm	Received by: (Signature) <i>[Signature]</i>	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier	<input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered	Condition: (lab use only) Good
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received by: (Signature)	Receipt Temp: 10.9/10.6	Containers/Volume Received: 2/10L	
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 2/8/14	Time: 12:11	pH upon arrival: 7.88, 7.91 DO upon arrival: 8.3, 8.10

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Sample Receipt Checklist:

Client: GPC

Date/Time received 2/8/14 12:11 by CR

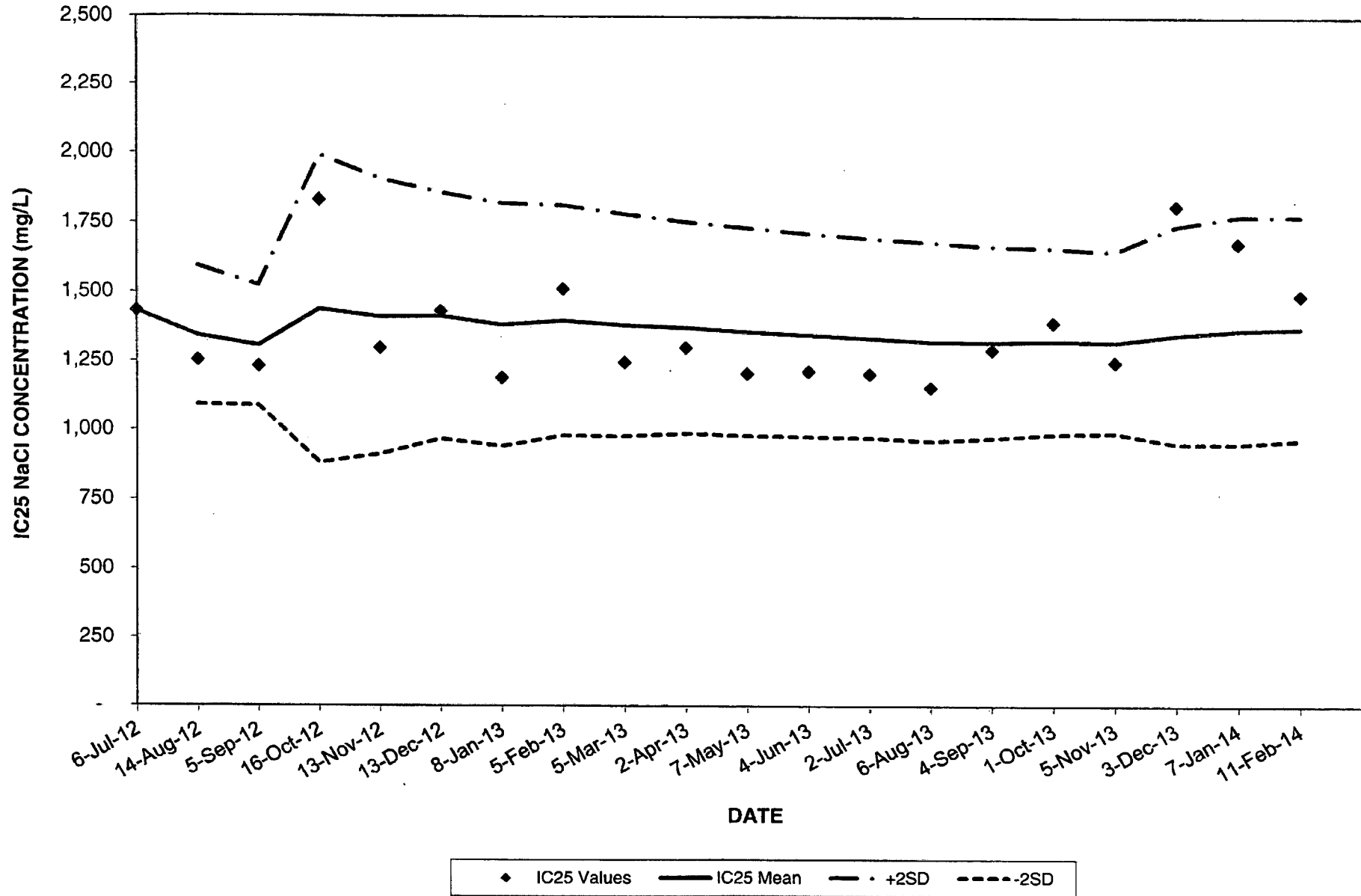
1. Cooler sealed and intact upon arrival? Yes No
2. Custody seals present? Yes No
3. Samples received below 6 degrees Celsius? Yes No
4. Was ice present? Yes No
5. Is the COC filled out correctly including the sample date/time and signed? Yes No
6. Was the sample received within 36 hours of collection? Yes No
7. Did the sample(s) arrive in good condition? Yes No
8. Was pH and DO measured and in range? Yes No
9. Was residual chlorine present? Yes No
 - 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17164	RW	0.9	7.88	8.5	0.07
17165	ERG	0.6	7.71	8.6	0.05

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CHRONIC REFERENCE TOXICANT TEST (NaCl) 2012 - 2014 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2012 - 2014

ENVIRON Test Log No. 16618

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Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	Control Mean Dry Weight (mg/fish) (*)	SURVIVAL		GROWTH		PMSD (%)	IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
					NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)							
1	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,431				
2	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,343	125	1,593	1,092	7
3	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,306	109	1,524	1,087	7
4	15683	16-Oct-12	97.5	0.447	1,500	3,000	1,500	3,000	19.0	1,832	1,437	278	1,993	882	17
5	15743	13-Nov-12	100	0.514	750	1,500	750	1,500	15.9	1,297	1,409	249	1,907	912	16
6	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,413	223	1,858	968	14
7	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,381	220	1,821	941	15
8	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,397	209	1,815	980	14
9	15965	05-Mar-13	100	0.538	750	1,500	750	1,500	28.1	1,246	1,380	202	1,784	977	14
10	16017	02-Apr-13	100	0.504	750	1,500	750	1,500	25.8	1,300	1,372	192	1,756	989	13
11	16088	07-May-13	100	0.390	750	1,500	750	1,500	29.3	1,207	1,357	189	1,735	980	13
12	16137	04-Jun-13	100	0.402	750	1,500	750	1,500	21.5	1,215	1,346	185	1,715	976	13
13	16189	02-Jul-13	100	0.444	750	1,500	750	1,500	26.7	1,205	1,335	181	1,697	973	13
14	16256	06-Aug-13	100	0.382	750	1,500	750	1,500	19.3	1,157	1,322	180	1,682	962	13
15	16309	04-Sep-13	97.5	0.369	750	1,500	750	1,500	27.1	1,293	1,320	174	1,668	972	13
16	16348	01-Oct-13	97.5	0.310	1,500	3,000	750	1,500	23.4	1,391	1,325	169	1,662	987	12
17	16425	05-Nov-13	100	0.335	750	1,500	750	1,500	19.7	1,248	1,320	165	1,649	991	12
18	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814	1,347	198	1,743	952	14
19	16554	07-Jan-14	100	0.464	750	1,500	1,500	3,000	27.8	1,679	1,365	207	1,778	952	15
20	16631	11-Feb-14	92.5	0.484	750	1,500	750	1,500	13.5	1,491	1,371	203	1,777	965	14

Avg	99	0.422	825	1650	900	1800	23	1371	1364	192	1745	976
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Notes:

Dilution series - 0.375 g/L - 6.0 g/L

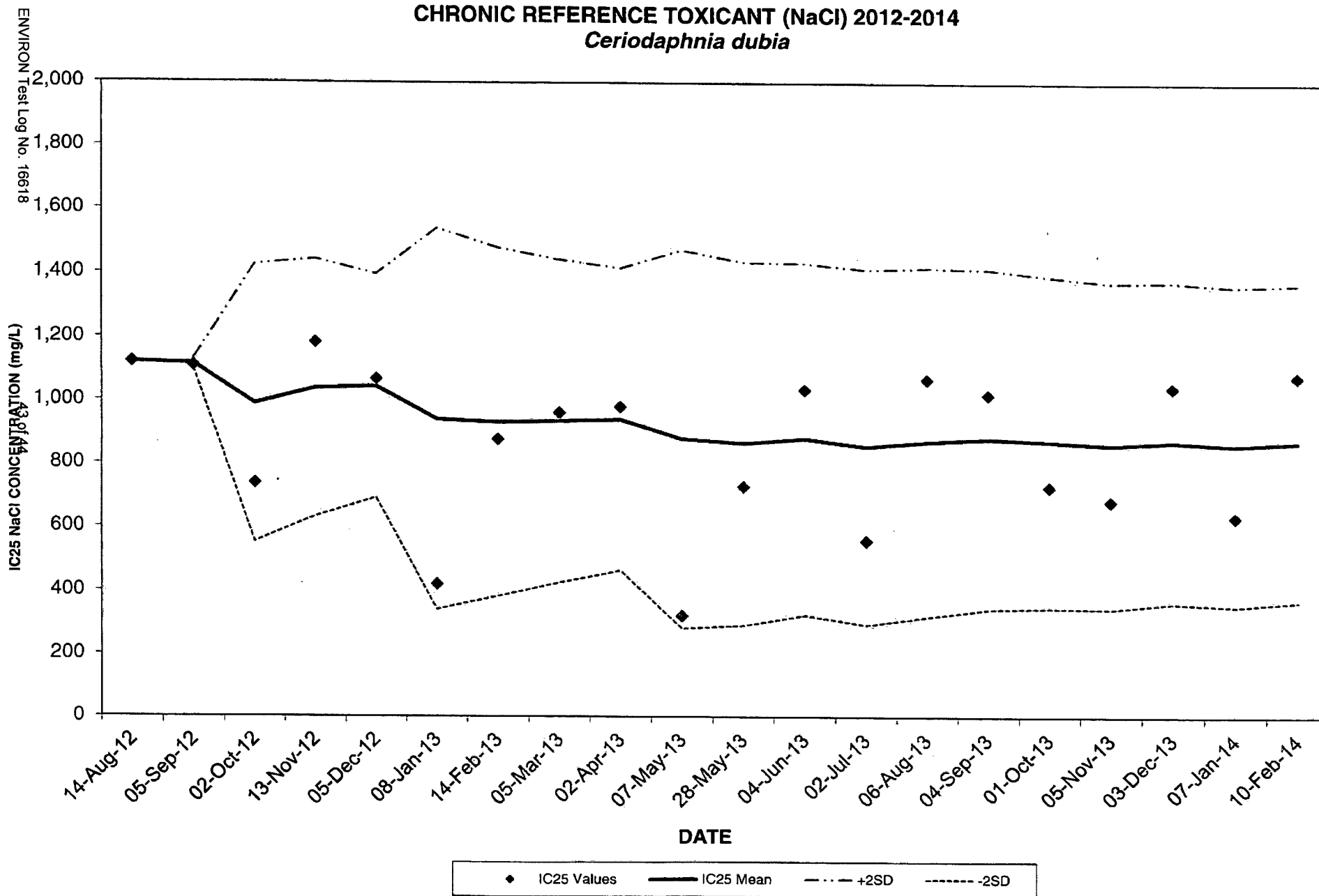
NOEC - No Observable Effect Concentration (survival or growth)

LOEC - Lowest Observable Effect Concentration (survival or growth)

ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.

(*) Minimum USEPA CONTROL CRITERIA - 80 percent survival and average dry weight of 0.25 mg (weight based on surviving number of fish).

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2014
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2014

ENVIRON Test Log No. 16618

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Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repro (*)	Survival		Reproduction			IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)	PMSD						
1	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1,121	1,121				
2	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1,109	1,115	8	1,132	1,098	1
3	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	989	218	1,426	552	18
4	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1,183	1,038	203	1,443	632	17
5	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.8	1,067	1,043	176	1,396	691	15
6	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	940	299	1,538	341	29
7	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	930	274	1,479	382	27
8	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	934	254	1,442	426	25
9	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	939	238	1,416	462	24
10	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	877	298	1,473	282	32
11	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	864	286	1,436	291	32
12	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	878	277	1,432	323	30
13	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	853	280	1,413	293	32
14	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	868	275	1,418	318	31
15	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	878	268	1,414	343	29
16	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	869	262	1,392	346	29
17	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	858	257	1,372	343	29
18	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	868	253	1,375	361	28
19	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	855	252	1,360	351	29
20	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	866	250	1,367	366	28

Avg	99	92	30	1737	526	500	1007	20	855	932	243	1409	435
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Notes:
 NOEC - No Observable Effect Concentration (survival or reproduction)
 LOEC - Lowest Observable Effect Concentration (survival or reproduction)
 (*) Minimum USEPA CONTROL CRITERIA - 80 percent survival, 80 percent with 3 broods, and average reproduction of 15 neonates/adult.

Do not ship liquids, blood, or diagnostics in this packaging.

FedEx[®]
Express

Extremely Urgent

Page 1 of 3

From: (870) 567-8812
Becky Blankenship
Georgia-Pacific
100 Supply Road
Drop Point 33
Crossett, AR 71635

Origin ID: ELDA



Ship Date: 21MAR14
ActWgt: 1.0 LB
CAD: 102787395/NET3490

Delivery Address Bar Code



SHIP TO: (501) 682-0718
CRAIG UYEDA
ADEQ
5301 NORTSHORE DR

BILL SENDER

Ref #
Invoice #
PO #
Dept #

NORTH LITTLE ROCK, AR 72118

1 of 2

MON - 24 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 7982 9959 4853

0201

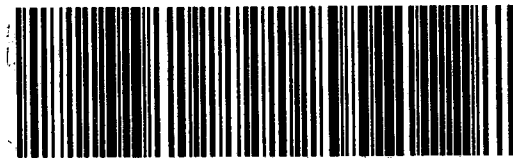
MASTER

72118

AR-US

LIT

X2 LITA



522G10C4F220

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and conditions and
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o **fedex.com**
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