



Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
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July 18, 2013

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 June 2013. As required by Part II, Section 5, paragraph d, of our NPDES Permit, a Toxicity Reduction Evaluation (TRE) Activities Report has also been included to cover TRE activities conducted this quarter.

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 Services Superintendent

TRE Activities Report
For Second Quarter of 2013

A Toxicity Reduction Evaluation (TRE) Action Plan was submitted on July 12, 2011 after sub-lethal effects were demonstrated in three consecutive Whole Effluent Toxicity (WET) tests for *Ceriodaphnia dubia*, as required by Part II, Condition 15, Paragraph 5 of NPDES permit number AR0001210. As per the plan the mill has begun conducting monthly WET testing for *Ceriodaphnia dubia* in an attempt to capture episodes of sub-lethal toxicity.

Samples collected during April and May of this quarter did demonstrated sub-lethal effects. Reduction in toxicity due to sample aging was not observed for the April and May test events, as observed in prior TIE test events. Toxicity was significantly reduced by Ferric Chloride treatment for samples collected the week of May 28, 2013. All tests were conducted at the 80 and 100 percent effluent test concentration using Ouachita River water as diluent. The results of these TIE manipulations are outlined in Table 1 below. We are continuing investigations and testing to determine if we can identify the source(s) of the observed effects.

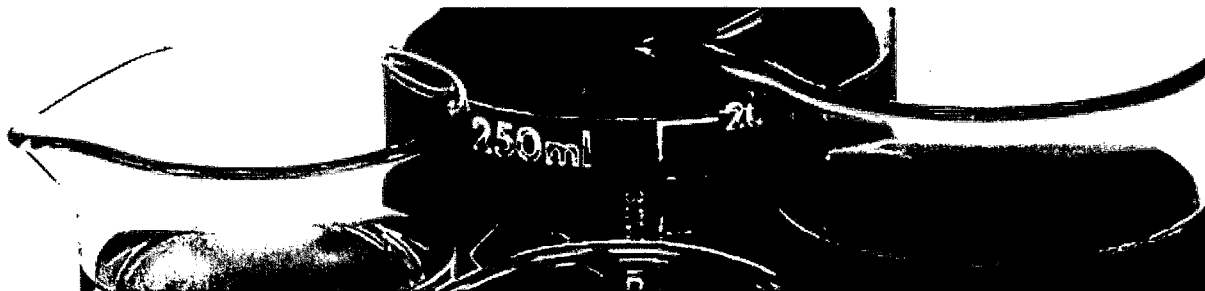
TABLE 1.
Percent Effect to *C. dubia* Reproduction for Untreated and Treated Effluent
Georgia Pacific, Crossett Arkansas – April and May 2013

Water/Test Date	Average Neonates per Female	Percent Inhibition
River Water 4/23/13	34.5	NA
80% 001 Effluent	20.6	40.3 ¹
River Water 5/1/13	35.1	NA
80% 001 Effluent ²	16.7	52.4 ¹
100% 001 Effluent	5.5	84.3 ¹
80% 10 ppm Ferric/Floc treated Effluent	21.0	40.2 ¹
100% 10 ppm Ferric/Floc treated Effluent	7.0	80.0 ¹
80% 20 ppm Ferric/Floc treated Effluent	20.9	40.5 ¹
100% 20 ppm Ferric/Floc treated Effluent	12.4	64.7 ¹
River Water 5/28/13	28.5	NA
80% 001 Effluent	17.8	37.5 ¹
River Water 6/7/13	34.5	NA
80% 001 Effluent ³	14.1	59.1 ¹
100% 001 Effluent	7.3	78.8 ¹
80% 20 ppm Ferric/Floc treated 001	29.9	13.3
100% 20 ppm Ferric/Floc treated 001	18.1	47.5 ¹

¹ Impaired compared to river water control.

² 5/1/13 effluent sample used is a composite of the same samples used for the 4/23/13 test.

³ 5/1/13 effluent sample used is a composite of the same samples used for the 4/23/13 test.



**Chronic Toxicity Test Results
Outfall 001 Effluent**

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

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

Date:
May 2013

Project Number:
20-19675E





June 18, 2013

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

**Re: Chronic Toxicity Test Results - May 2013
ENVIRON Project No. 20-19675E**

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. Due to holiday shipping issues, the composite samples of Outfall 001 effluent were collected on May 28, 29, and 31, 2013. The samples were received at ENVIRON on May 29, 30, and June 1, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on May 29, 30, and June 1, 2013 in good condition. Test organisms utilized for the chronic toxicity tests were the *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. 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)	60%

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 60 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 27.3 and 22.1 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity (even though the test demonstrates toxicity). The PMSD value was 25.8 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 can be described as a Type 1 response in EPA 821-B-00-004: an ideal

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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

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ENVIRON Test Log No. 16129

2 of 28

dose response. 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 28 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



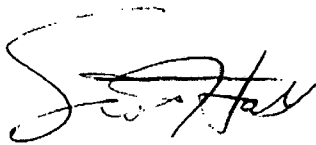
Richard E. Lockwood
Project Manager



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 and
Statistical Data**

CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 1 of 2)
 Test Code: 16129cd | 08-8355-7775

Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 03-8359-9752	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 06 Jun-13 11:32	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 13-7735-8333	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 29 May-13	Protocol: EPA/600/4-91/002 (1994)	Diluent: Receiving Water
Ending Date: 04 Jun-13	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 01-6068-5955	Code: 993DF83	Client: GPAC <i>Cross</i>
Sample Date: 28 May-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 29 May-13	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	0.5	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		9	1	10	0.9	0.1	10.0%
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	0	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	0/1	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: 06 Jun-13 11:33 (p 2 of 2)
Test Code: 16129cd | 08-8355-7775

Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 03-8359-9752

Endpoint: 7d Survival Rate

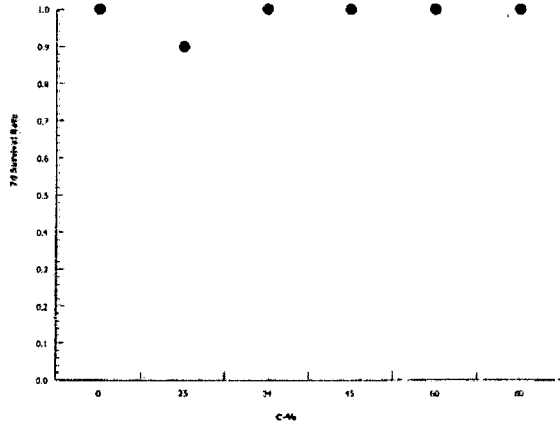
CETIS Version: CETISv1.8.4

Analyzed: 06 Jun-13 11:32

Analysis: STP 2x2 Contingency Tables

Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 1 of 4)
 Test Code: 16129cd | 08-8355-7775

Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 21-2748-2785	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 06 Jun-13 11:32	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 13-7735-8333	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 29 May-13	Protocol: EPA/600/4-91/002 (1994)	Diluent: Receiving Water
Ending Date: 04 Jun-13	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 01-6068-5955	Code: 993DF83	Client: GPAC <i>W. Cross</i>
Sample Date: 28 May-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 29 May-13	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	60	80	69.28	1.667	25.8%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	90.5	75	3	18	0.3707	Asymp	Non-Significant Effect
		34	101.5	75	4	18	0.7427	Asymp	Non-Significant Effect
		45	94	75	3	18	0.4923	Asymp	Non-Significant Effect
		60	89.5	75	2	18	0.3378	Asymp	Non-Significant Effect
		80*	69.5	75	1	18	0.0156	Asymp	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.5	15 - NL	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.956	3.2	0.1312	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	781.4833	156.2967	5	3.033	0.0175	Significant Effect
Error	2783.1	51.53889	54			
Total	3564.583		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.444	15.09	0.1334	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.939	0.9459	0.0049	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	28.5	22.93	34.07	30.5	13	39	2.464	27.34%	0.0%
25		10	23.3	16	30.6	25.5	3	37	3.225	43.77%	18.25%
34		10	27.1	21.61	32.59	29.5	16	35	2.429	28.34%	4.91%
45		10	27.6	23.52	31.68	29	17	34	1.802	20.65%	3.16%
60		10	25.2	20.82	29.58	27	15	32	1.937	24.3%	11.58%
80		10	17.8	14.98	20.62	18.5	12	24	1.245	22.13%	37.54%

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	31	31	30	29	31	17	13	39	35	29
25		30	21	30	3	30	37	20	31	17	14
34		33	30	35	29	33	17	16	33	29	16
45		29	29	33	29	28	17	18	31	28	34
60		28	30	29	26	32	19	15	32	23	18
80	ENVIRON Test Log No. 16129	20	15	14	14	14	21	12	17	20	21

CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 2 of 4)
Test Code: 16129cd | 08-8355-7775

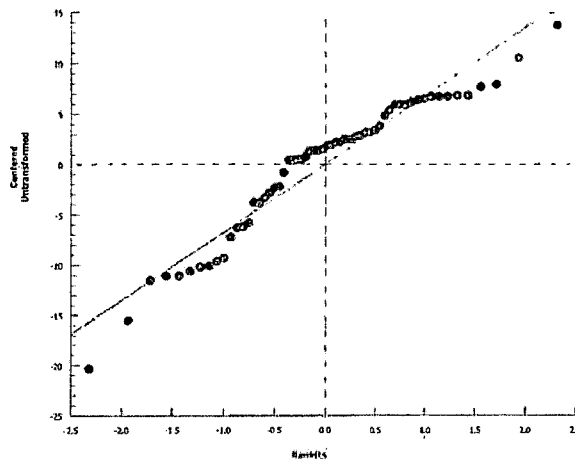
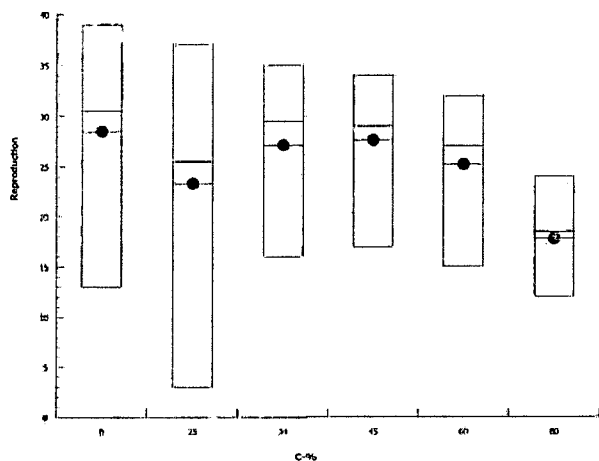
Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 21-2748-2785 Endpoint: Reproduction
Analyzed: 06 Jun-13 11:32 Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 1 of 2)
 Test Code: 16129cd | 08-8355-7775

Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 10-3800-5284 Endpoint: Reproduction CETIS Version: CETISv1.8.4
 Analyzed: 06 Jun-13 11:32 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Batch ID: 13-7735-8333 Test Type: Reproduction-Survival (7d) Analyst:
 Start Date: 29 May-13 Protocol: EPA/600/4-91/002 (1994) Diluent: Receiving Water
 Ending Date: 04 Jun-13 Species: Ceriodaphnia dubia Brine: Not Applicable
 Duration: 6d 0h Source: In-House Culture Age:

Sample ID: 01-6068-5955 Code: 993DF83 Client: GPAC ~~Polarka~~ *Crossell*
 Sample Date: 28 May-13 Material: Industrial Effluent Project: WET Monthly Compliance Test (MAY)
 Receive Date: 29 May-13 Source: Discharge Monitoring Report
 Sample Age: 24h Station: 001

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1428607	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.5	15 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.956	3.2	0.1312	No Outliers Detected

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	70.34	52.78	79.11	1.422	1.264	1.895

Reproduction Summary

Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	28.5	13	39	2.464	7.792	27.34%	0.0%
25		10	23.3	3	37	3.225	10.2	43.77%	18.25%
34		10	27.1	16	35	2.429	7.68	28.34%	4.91%
45		10	27.6	17	34	1.802	5.7	20.65%	3.16%
60		10	25.2	15	32	1.937	6.125	24.3%	11.58%
80		10	17.8	12	24	1.245	3.938	22.13%	37.54%

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	31	31	30	29	31	17	13	39	35	29
25		30	21	30	3	30	37	20	31	17	14
34		33	30	35	29	33	17	16	33	29	16
45		29	29	33	29	28	17	18	31	28	34
60		28	30	29	26	32	19	15	32	23	18
80		24	20	15	14	14	21	12	17	20	21

CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 2 of 2)
Test Code: 16129cd | 08-8355-7775

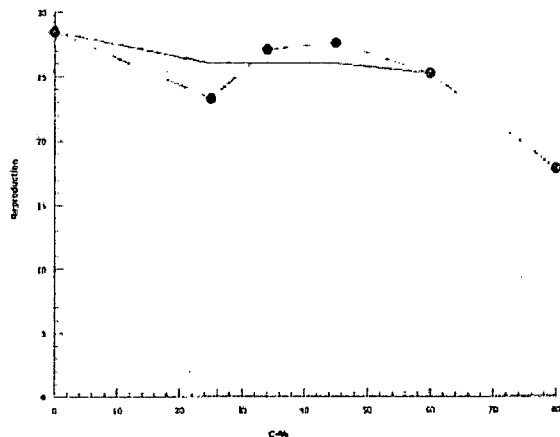
Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 10-3800-5284 Endpoint: Reproduction
Analyzed: 06 Jun-13 11:32 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



controls

CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 3 of 4)
Test Code: 16129cd | 08-8355-7775

Cladoceran 7-d Survival and Reproduction Test ENVIRON International Corp

Analysis ID: 20-2324-0761 Endpoint: Reproduction
Analyzed: 06 Jun-13 11:33 Analysis: Nonparametric-Two Sample
Batch ID: 13-7735-8333 Test Type: Reproduction-Survival (7d)
Start Date: 29 May-13 Protocol: EPA/600/4-91/002 (1994)
Ending Date: 04 Jun-13 Species: Ceriodaphnia dubia
Duration: 6d 0h Source: In-House Culture
Sample ID: 01-6068-5955 Code: 993DF83
Sample Date: 28 May-13 Material: Industrial Effluent
Receive Date: 29 May-13 Source: Discharge Monitoring Report
Sample Age: 24h Station: 001

CETIS Version: CETISv1.8.4
Official Results: Yes
Analyst:
Diluent: Receiving Water
Brine: Not Applicable
Age:
Client: GPAC ~~Palaka~~ Crosswell
Project: WET Monthly Compliance Test (MAY)

Table with 7 columns: Data Transform, Zeta, Alt Hyp, Trials, Seed, Test Result, PMSD. Row 1: Untransformed, NA, C > T, NA, NA, Sample passes reproduction endpoint, 24.4%

Wilcoxon Rank Sum Two-Sample Test

Table with 9 columns: Control vs Control, Test Stat, Critical, Ties, DF, P-Value, P-Type, Decision(alpha:5%). Row 1: Receiving Water Lab Water, 104, NA, 1, 18, 0.4853, Exact, Non-Significant Effect

Test Acceptability Criteria

Table with 5 columns: Attribute, Test Stat, TAC Limits, Overlap, Decision. Row 1: Control Resp, 27.2, 15 - NL, Yes, Passes Acceptability Criteria

Auxiliary Tests

Table with 7 columns: Attribute, Test, Test Stat, Critical, P-Value, Decision(alpha:5%). Row 1: Extreme Value, Grubbs Extreme Value, 2.887, 2.708, 0.0197, Outlier Detected

ANOVA Table

Table with 7 columns: Source, Sum Squares, Mean Square, DF, F Stat, P-Value, Decision(alpha:5%). Row 1: Between, 8.45, 8.45, 1, 0.105, 0.7496, Non-Significant Effect

Distributional Tests

Table with 7 columns: Attribute, Test, Test Stat, Critical, P-Value, Decision(alpha:1%). Row 1: Variances, Variance Ratio F, 1.65, 6.541, 0.4674, Equal Variances

Reproduction Summary

Table with 12 columns: C-%, Control Type, Count, Mean, 95% LCL, 95% UCL, Median, Min, Max, Std Err, CV%, %Effect. Row 1: 0, Receiving Water, 10, 28.5, 22.93, 34.07, 30.5, 13, 39, 2.464, 27.34%, 0.0%

Reproduction Detail

Table with 12 columns: C-%, Control Type, Rep 1, Rep 2, Rep 3, Rep 4, Rep 5, Rep 6, Rep 7, Rep 8, Rep 9, Rep 10. Row 1: 0, Lab Water, 29, 34, 34, 33, 34, 2, 19, 32, 28, 27

CETIS Analytical Report

Report Date: 06 Jun-13 11:33 (p 4 of 4)
Test Code: 16129cd | 08-8355-7775

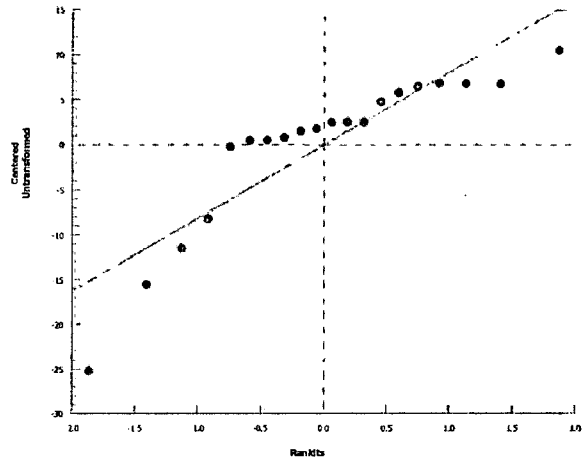
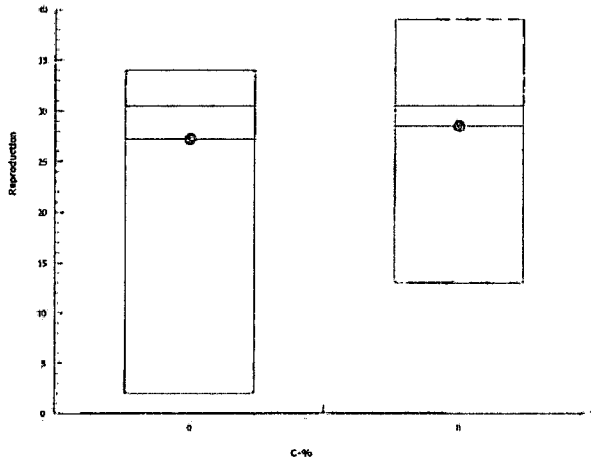
Cladoceran 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 20-2324-0761 Endpoint: Reproduction
Analyzed: 06 Jun-13 11:33 Analysis: Nonparametric-Two Sample

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



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

16129

TEST LOG NO.: _____
 JOB NUMBER.: 20-19675G
 INDUSTRY: Georgia Pacific-Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES (Y/N): Yes

PHOTOPERIOD: 16 hr light/8 hr dark
 FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
 TEST VESSEL CAPACITY: 30 mL
 TEST SOLUTION VOLUME: 15 mL
 NO. ORGANISMS/REPLICATE: 1
 NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 5/28-29/13
 TEMP @ TEST START: 24.3
 RANDOMIZED BY: AH
 TEST START: _____
 HOURS: 0922 DATE: 5/29/13
 TEST END: _____
 HOURS: 1122 DATE: 6/4/13

SOURCE ID:	AGE (time):
10264	1528-1826
10266	1530-2058
10268b	1153-2115

SURVIVAL AND REPRODUCTION DATA													Notes			
Test Start & Feeding/End Initials/Time	Daily Renewal & Feeding Initials/Time	Date	Control		REPLICATES											
			River Water	Temp (°C)	64					66					68	
					1	2	3	4	5	6	7	8	9	10		
					Adult	20	10	12	16	9	2	5	6	13	17	
AH 0922		5/29	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1005	5/30	24.3	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 0845	5/31	24.6	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1133	6/1	24.4	24.5	Day 3	4	3	4	5	4	✓	✓	5	✓	✓	
	AH 1156	6/2	24.4	24.6	Day 4	✓	✓	✓	✓	✓	5	4	✓	5	5	
	AH 0923	6/3	24.4	24.3	Day 5	12	12	11	9	11	12	9	13	9	11	
OK 1122		6/4		24.5	Day 6	15	16	15	15	16	✓	✓	21	21	13	
					Day 7											
					Day 8											
			Total			31	31	30	29	31	17	13	39	35	29	285

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

16129

TEST LOG # _____

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		Temp (°C)	REPLICATES										Notes
			25%			1	2	3	4	5	6	7	8	9	10	
						Adult										
AM 0922		5/29	24.4			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OR 1005	5/30	24.6	24.3		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OR 0845	5/31	24.8	24.5		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1130	6/1	24.5	24.0		Day 3	4	3	5	3	4	✓	✓	4	✓	
	AW 1156	6/2	24.1	24.8		Day 4	✓	✓	✓	✓	11	7	6	✓	5 4	
	AM 0923	6/3	24.2	24.7		Day 5	13	5	10	✓	✓	12	✓	10	12 10	
AM 1122		6/4		24.7		Day 6	13	14	15	9	15	18	14	17	✓	
						Day 7										
						Day 8										
						Total	30	21	30	9/3	30	37	20	31	17 14	233

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Temp (°C)	REPLICATES										Notes
			34%			1	2	3	4	5	6	7	8	9	10	
AM 0922		5/29	24.3			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OR 1005	5/30	24.5	24.7		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OR 0845	5/31	24.7	24.9		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1130	6/1	24.4	24.3		Day 3	4	5	6	3	4	5	✓	6	4	
	AW 1156	6/2	24.4	24.7		Day 4	✓	✓	✓	✓	✓	✓	4	✓	✓	
	AM 0923	6/3	24.2	24.4		Day 5	13	9	13	12	12	12	12	10	10 12	
AM 1122		6/4		24.4		Day 6	16	16	16	14	17	✓	✓	17	15	
						Day 7										
						Day 8										
						Total	33	30	35	29	33	17	16	33	29 16	271

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

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TEST LOG # 16129

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		Temp (°C)	REPLICATES										Notes		
			45%			1	2	3	4	5	6	7	8	9	10			
						Adult												
AH 0922		5/29	24.3			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CR 1005	5/30	24.5	24.6		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CR 0845	5/31	24.4	24.7		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	HM 1130	6/1	24.5	24.8		Day 3	4	4	6	5	4	✓	✓	✓	4	5		
	AW 1156	6/2	24.2	24.8		Day 4	✓	✓	✓	✓	10	5	6	5	✓	✓		
	BM 0923	6/3	24.1	24.2		Day 5	10	10	13	9	✓	12	12	10	9	12		
BM 1122		6/4		24.4		Day 6	15	15	14	15	14	✓	✓	16	15	17		
						Day 7												
						Day 8												
						Total	29	29	33	29	28	17	18	31	28	34	276	

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			
AH 0922		5/29	24.2			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CR 1005	5/30	24.6	24.3		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CR 0845	5/31	24.6	24.9		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	HM 1130	6/1	24.0	24.4		Day 3	5	5	4	3	5	✓	✓	5	✓	✓		
	AW 1156	6/2	24.2	24.6		Day 4	✓	✓	✓	✓	12	4	3	✓	✓	5		
	BM 0923	6/3	24.1	24.3		Day 5	10	11	10	12	✓	✓	✓	12	8	13		
BM 1122		6/4		24.7		Day 6	13	14	15	11	15	15	12	15	15	✓		
						Day 7												
						Day 8												
						Total	28	30	29	26	32	19	15	32	23	18	252	

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

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TEST LOG # 16129

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			REPLICATES										Notes
			80%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
					Adult											
AH 0922		5/25	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1005	5/30	24.7	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0845	5/31	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1130	6/1	24.0	24.6	Day 3	5	3	4	✓	3	✓	✓	✓	✓	✓	
	AW 1156	6/2	24.3	25.1	Day 4	✓	✓	✓	✓	✓	7	2	4	3	6	
	AH 0923	6/3	24.2	24.4	Day 5	11	12	8	6	7	✓	10	13	12	11	
LM 1122		6/4		24.2	Day 6	8	5	3	8	4	14	✓	✓	5	4	
					Day 7											
					Day 8											
			Total			24	20	15	14	14	21	12	17	20	21	178

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH			REPLICATES										Notes
			MH	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
AH 0922		5/29	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1005	5/30	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0845	5/31	24.4	24.8	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1130	6/1	24.2	24.1	Day 3	4	5	6	5	4	2	3	6	5	✓	
	AW 1156	6/2	24.3	24.5	Day 4	✓	✓	✓	✓	✓	✓	(2)	✓	✓	5	
	AH 0923	6/3	24.3	24.2	Day 5	10	13	13	13	14	✓	13	12	10	9	
LM 1122		6/4		24.4	Day 6	15	16	15	15	16	✓	10	14	13	13	
					Day 7											
					Day 8											
			Total			29	34	34	33	34	2	19	32	28	27	272

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

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TEST LOG NO. 11/129

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Cd

DATE: 5/29/13

ENVIRON Test Log No. 16129

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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		8.4	8.3	8.3	8.2	8.6	8.2	8.5	8.0	8.1	8.2	8.1	8.2	8.2	
25		8.5	8.6	8.5	8.5	8.5	8.5	8.5	8.1	8.4	8.2	8.2	8.2	8.2	
34		8.6	8.7	8.4	8.6	8.6	8.6	8.6	8.2	8.6	8.2	8.2	8.2	8.2	
45		8.4	8.5	8.6	8.5	8.6	8.5	8.6	8.1	8.7	8.2	8.2	8.2	8.2	
60		8.4	8.6	8.5	8.4	8.5	8.5	8.5	7.9	8.6	8.2	8.2	8.2	8.2	
80		8.4	8.5	8.5	8.4	8.3	8.4	8.3	8.0	8.6	8.2	8.2	8.2	8.2	
MH		8.5	8.4	8.5	8.5	8.6	8.5	8.6	7.9	8.7	8.3	8.3	8.2	8.2	

		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		7.40	7.40	7.34	7.28	6.80	7.11	6.70	7.15	6.82	7.61	6.98	7.67		
25		7.35	8.08	7.40	8.03	7.59	8.21	7.87	8.37	7.52	8.10	7.69	7.86		
34		7.52	8.55	7.60	8.30	7.67	8.45	7.82	8.59	7.71	8.25	7.76	8.29		
45		7.67	8.41	7.83	8.41	7.79	8.03	7.81	8.89	7.85	8.27	7.91	8.49		
60		7.75	8.58	7.93	8.53	7.88	8.26	7.71	8.87	8.00	8.49	7.97	8.58		
80		7.90	8.68	7.98	8.65	7.93	8.20	7.86	8.94	8.12	8.64	8.00	8.71		
MH		7.66	7.51	7.74	7.54	7.85	7.61	7.92	7.86	8.02	7.61	8.03	7.64		

		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		86	91	83	94	86	92	90	95	123	116	79	98		
25		1639	1689	1651	1640	1716	1671	1712	1670	1652	1707	1647	1672		
34		837	826	845	874	795	859	910	918	847	830	860	804		
45		1074	1167	1075	1068	1032	1098	1180	1128	1074	1112	1096	1122		
60		1401	1384	1379	1410	1352	1436	1525	1513	1402	1450	1385	1512		
80		1780	1744	1790	1739	1737	1706	1945	1897	1830	1865	1785	1912		
MH		213	224	209	221	202	218	210	225	220	230	236	224		

Params Int/Time:		02:09:20	02:10:50	02:08:25	02:10:55	02:08:05	02:11:50	02:11:08	02:11:17	02:11:52	02:13:34	02:08:37	02:15:30
Dilutions Int/Time:		02:09:10	02:08:15	02:08:15	02:08:00	02:11:15	02:11:15	02:11:08	02:11:08	02:11:08	02:13:27	02:08:27	

Control Water Batch:		5226, RW 16284	52210, RW 16284	16284, 5226	16284, 5226	16297, 26	16297, 26
Food Batch		4337, 4319	4340, 4319	29, 40	29, 40	29, 44	29, 44

TEST LOG NO. 16129

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 5/29/13

JOB NO. 20-19675G

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

ENVIRON Test Log No. 16129

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L $\pm 1.5/30$	TRC mg/L	NH ₃ N mg/L
110285	Outfall 001	5/28/13	5/29/13	204	282.487	0.03	22.25
110288	Outfall 001	5/28/29/13	5/30/13	192	457	2.002	19.5
1102910	Outfall 001	5/28/31/13	6/1/13	200	457	0.05	15.35

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
110284	River Water	5/28/13	5/29/13	20.8	18	0.016	0.205
5724	MH						
5726	MH	5/28/13	5/30/13	44.224	44	2.002	—
110289	RW	5/28/13	5/30/13	22.4		0.11	0.176
110297	RW	5/28/13	6/1/13	20.0	16	0.09	0.174
5326	MH	5/28/13	5/29/13	80	44	<	<

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

ENVIRON Test Log No. 16129

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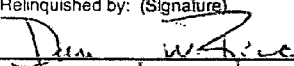
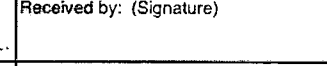
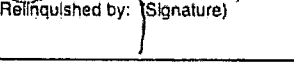
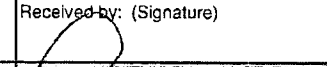

Project Name:				Project Number:				Analysis Requested										CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976	
Industry: <u>GEORGIA PACIFIC PAPER</u>								Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other		
Phone: <u>870-527-8170</u> FAX: <u>870-364-9076</u>																			
County: <u>ASHLEY</u> City: <u>CROSSETT</u> State: <u>AR</u>																			
Sample Collected by (print): <u>DANNY/RACHEL</u>				NPDES Permit No.: <u>AR0001210</u>															
Sample Collected by (signature): 				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes				No. of Cntrs											
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 Definitive or Screen	Sample B# (lab only)
<u>RIVER</u>	<u>G</u>	<u>PLASTIC</u>	<u>NA</u>	<u>5-23-13</u>	<u>10:15am</u>	<u>1</u>	<u>10</u>		<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"/>		<u>162184</u>
<u>OUTFALL 001</u>	<u>C</u>	<u>PLASTIC</u>	<u>YES</u>	<u>5-23-13</u>	<u>5-23-13</u>	<u>1</u>	<u>10</u>		<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"/>		<u>162185</u>
									<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"/>	<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"/>	<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"/>		

3.4^{cc}
3.1^{cc}

* 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) 	Date: <u>5-23-13</u>	Time: <u>3:00pm</u>	Received by: (Signature) 	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier	<input checked="" type="checkbox"/> UPS Hand Delivered	Condition: (lab use only) <u>OK</u>
Relinquished by: (Signature) 	Date:	Time:	Received by: (Signature) 	Receipt Temp: <u>10.5</u>	Containers/Volume Received: <u>10/5/105</u>	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) 	Date: <u>5/23/13</u>	Time: <u>08:4</u>	pH upon arrival: <u></u> DO upon arrival: <u></u>

Sample Receipt Checklist:

Client: GP Crassett


Date/Time received 0854 ^{LA} ~~5/22/13~~ ^{3:11 AM} by AM

- 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
16284	River	3.4	7.24	8.4	0.04
16285	Subsurface	3.1	7.98	7.2	0.03

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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:		Phone:		FAX:		<table border="1"> <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></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <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																												
County:		City:		State:																																											
Sample Collected by (print):				NPDES Permit No.:				<table border="1"> <tr> <th>Description</th> <th>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																																															
Sample Collected by (signature):				NPDES Test:																																											
Sample Location / ID				Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs																																						
Outfall DOI				Comp	Plastic	Y	5/28/13	5/29/13	10																																						
River				Grab	Plastic	NA	5/28/13		1																																						
* 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)			Date:		Time:		Received by: (Signature)			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)																																
Relinquished by: (Signature)			Date:		Time:		Received by: (Signature)			Receipt Temp:		Containers/Volume Received:																																			
Relinquished by: (Signature)			Date:		Time:		Received for lab by: (Signature)			Date:		Time:		pH upon arrival:		DO upon arrival:																															

ENVIRON Test Log No. 16129

23 of 28

Sample Receipt Checklist:

Client: GP Crossetta

Date/Time received 0845 5/30/13 by AK

- 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
116288	outfall001	2.6	7.93	9.8	0.02
116289	RW	3.5	7.35	9.3	0.11, 0.11

L:\Ecotox Lab\FORMS

ENVIRON TEST LOG No. 16129

25 of 28

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:		Phone:		FAX:		<table border="1"> <tr> <td>Total Volume in liters</td> <td>Acute Fathead minnow</td> <td>Acute Bannertin 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></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <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 Bannertin 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 Bannertin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow											Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other																												
Georgia-Pacific		870-667-8170		870-364-9076																																											
County: Ashley		City: Crossett		State: AR																																											
Sample Collected by (print): R. Phillips				NPDES Permit No.: AR0001210								Description																																			
Sample Collected by (signature): Rachel John				NPDES Test:								Definitive or Screen																																			
				<input type="checkbox"/> No <input type="checkbox"/> Yes								Sample B# (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 Bannertin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other																															
Outfall 001 C		Plastic	Y	5/30/13 6:18am	5/31/13 6:17am	1	10																																								
River	G	Plastic	NA	5/28/13		1	10																																								
* Matrix: SS - Soil GW - Groundwater <u>WW</u> - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____																																															
Remarks:																																															
Measured TRC (if applicable): <u>D.O</u> mg/L																																															
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Samples shipped via:				Condition: (lab use only)																																			
Rachel John		5/31/13		4:00pm				<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Courier				Oxid																																			
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Receipt Temp:		Containers/Volume Received:																																					
								23.1C		2/10L																																					
Relinquished by: (Signature)		Date:		Time:		Redelivered for lab by: (Signature)		Date:		Time:		pH upon arrival:		DO upon arrival:																																	
								10/1/13		10:01		7.7-7.8		7.87																																	

706
44
61

Sample Receipt Checklist:

Client: COP Crossett

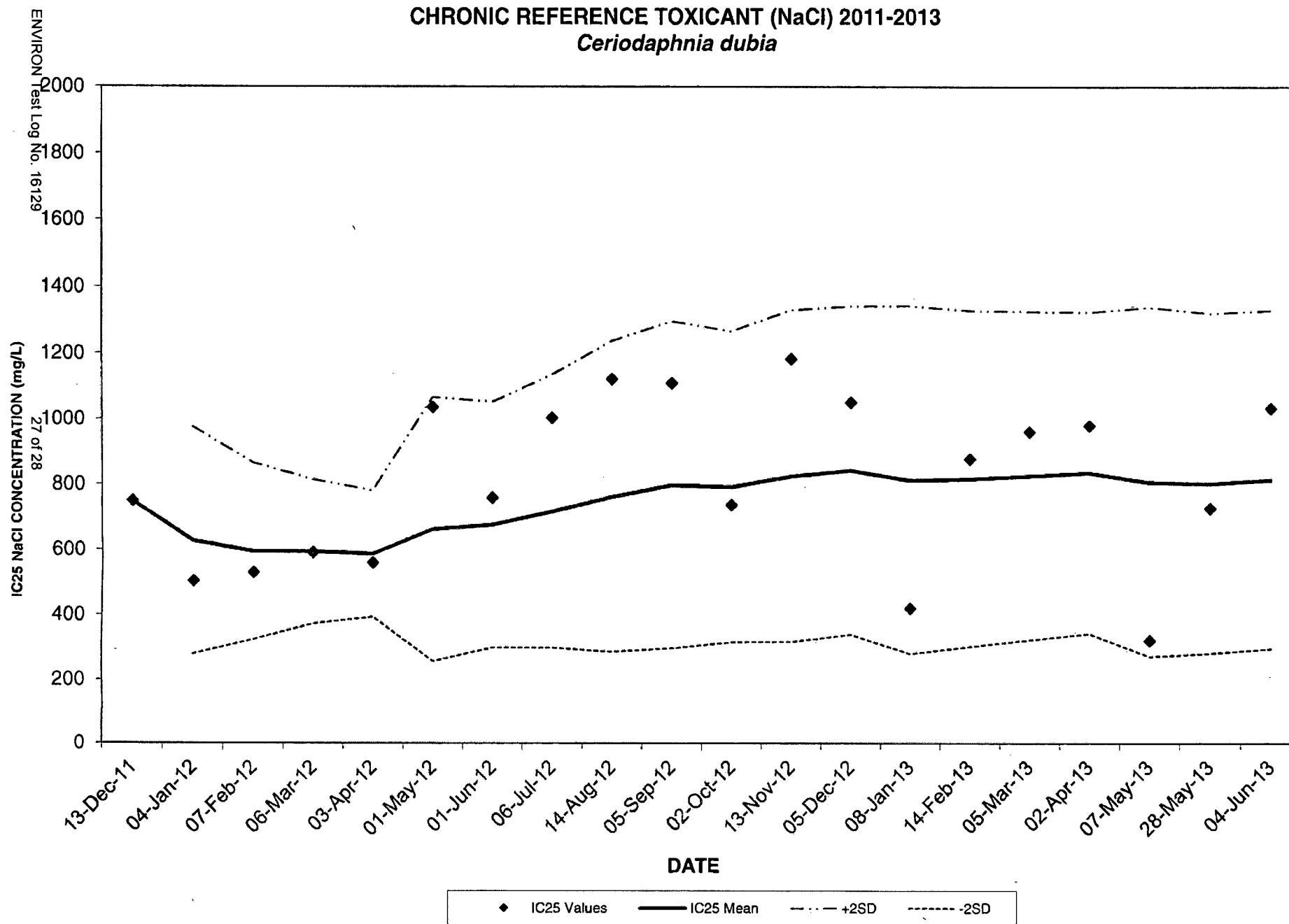
Date/Time received ^{HM 12/11/13} 12/11/13 by HM

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
1102910	OUTSIDE	2.8	7.7	7.5	0.05
1102917	RW	3.1	7.8	8.7	0.09
			HM 12/11		

CHRONIC REFERENCE TOXICANT (NaCl) 2011-2013
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2011-2013

ENVIRONMENTAL TEST LOG No. 16129

28 OF 28

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	14306	13-Dec-11	100	100	21.4	1,000	2,000	500	1,000	16.8	750	750				0
2	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	627	174	975	279	20
3	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	595	135	865	324	19
4	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	594	110	815	373	16
5	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	587	97	781	394	15
6	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	662	203	1,067	257	28
7	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	676	189	1,053	299	26
8	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	717	209	1,136	298	27
9	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	762	238	1,237	286	29
10	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	796	250	1,296	297	30
11	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	791	238	1,266	316	29
12	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	824	253	1,330	317	29
13	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.6	1050	841	250	1,342	340	29
14	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	811	266	1,342	280	32
15	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	815	256	1,328	302	30
16	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	824	250	1,325	324	29
17	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	833	245	1,324	343	29
18	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	805	267	1,339	271	32
19	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	801	260	1,321	281	32
20	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1034	813	258	1,329	296	31

Avg	98	96	30	1525	850	488	981	20	813	746	218	1183	309
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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:
June 2013

Project Number:
20-19675E





July 1, 2013

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

**Re: Chronic Toxicity Test Results - June 2013
ENVIRON Project No. 20-19675E**

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 June 10, 12, and 14, 2013. The samples were received at ENVIRON on June 11, 12, and 14, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on June 10, and 13, 2013, in good condition. 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. 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	Fathead Minnow	<i>C. dubia</i>
NOEC Value 80% (lethality)	80%	80%
NOEC Value 80% (sub-lethality)	80%	80%

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

The river water control for the fathead minnow test met USEPA criteria for test acceptability. The Coefficient of Variation (CV) values for survival in the control and critical dilution are 0 and 0 percent respectively. The CV values for growth in the control and critical dilution are 17 and 8 percent respectively, and are below the CV limit of 40 percent for findings of no toxicity. The PMSD value was 26 percent, which is within the USEPA PMSD bounds of 12 to 30 percent for fathead minnow growth. The effluent concentration-response curve can be described as a Type 4

ENVIRON International Corp. 201 Summit View Drive, Suite 300, Brentwood, TN 37027
V +1 615.277.7570 F +1 615.377.4976

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

dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 4 response is characterized by stimulation in the lower test concentrations, but no significant effect at the higher test concentrations. This 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 38 and 29 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity. The PMSD value was 30 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction indicating high test sensitivity. The effluent concentration-response is flat and cannot be described in EPA 821-B-00-004. A flat concentration-dose response is indicative of a lack of toxicity. 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 36 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



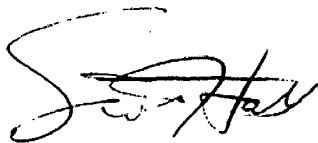
Richard E. Lockwood
Project Manager



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 with Statistical Data**

CETIS Analytical Report

Report Date: 19 Jun-13 15:47 (p 1 of 4)
 Test Code: 16159fm | 04-4563-7390

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 06-0707-7912	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 19 Jun-13 15:45	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 12-4476-7543	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Jun-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Jun-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-2219-8732	Code: 36F7A2CC	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	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	7.92%

Steel Many-One Rank Sum Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
	34	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
	45	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
	60	25	16	1	8	0.6353	Asymp	Non-Significant Effect
	80	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect

Test Acceptability Criteria

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

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04587426	0.009174853	5	1.772	0.1569	Non-Significant Effect
Error	0.1242686	0.005177859	24			
Total	0.1701429		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	455.6	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6872	0.9031	<0.0001	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	1	1	1	1	1	1	0	0.0%	0.0%
25		5	0.925	0.7862	1	1	0.75	1	0.05	12.09%	7.5%
34		5	1	1	1	1	1	1	0	0.0%	0.0%
45		5	1	1	1	1	1	1	0	0.0%	0.0%
60		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
80		5	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
25		5	1.287	1.094	1.481	1.393	1.047	1.393	0.06974	12.12%	7.6%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
60		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%

CETIS Analytical Report

Report Date: 19 Jun-13 15:47 (p 2 of 4)
 Test Code: 16159fm | 04-4563-7390

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 06-0707-7912 Endpoint: 7d Survival Rate
 Analyzed: 19 Jun-13 15:45 Analysis: Nonparametric-Control vs Treatments

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	1	1	1	1	1
25		0.875	0.75	1	1	1
34		1	1	1	1	1
45		1	1	1	1	1
60		1	1	1	1	0.875
80		1	1	1	1	1

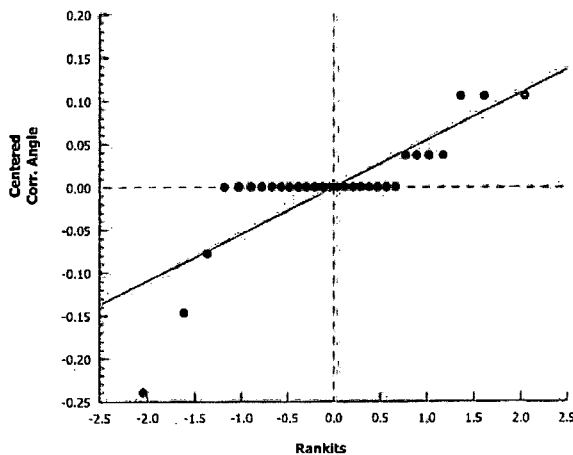
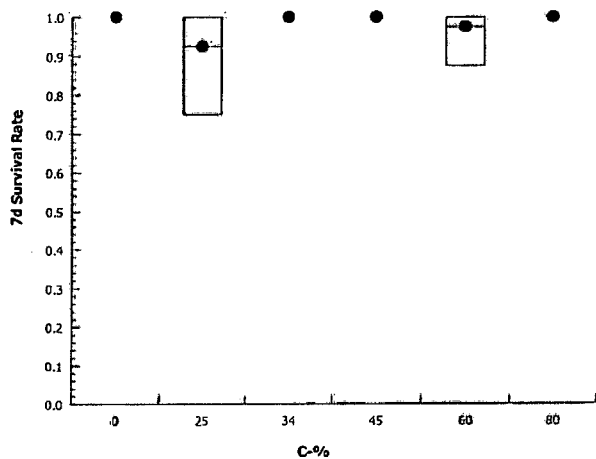
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.393	1.393	1.393	1.393
25		1.209	1.047	1.393	1.393	1.393
34		1.393	1.393	1.393	1.393	1.393
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.209
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	8/8	8/8	8/8	8/8	8/8
25		7/8	6/8	8/8	8/8	8/8
34		8/8	8/8	8/8	8/8	8/8
45		8/8	8/8	8/8	8/8	8/8
60		8/8	8/8	8/8	8/8	7/8
80		8/8	8/8	8/8	8/8	8/8

Graphics



CETIS Analytical Report

Report Date: 19 Jun-13 15:47 (p 3 of 4)
 Test Code: 16159fm | 04-4563-7390

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 02-5400-8292	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 19 Jun-13 15:46	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 12-4476-7543	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Jun-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Jun-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-2219-8732	Code: 36F7A2CC	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	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	25.7%

Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	-2.56	2.362	0.163	8	0.9999	CDF	Non-Significant Effect
	34	-2.687	2.362	0.163	8	0.9999	CDF	Non-Significant Effect
	45	-3.184	2.362	0.163	8	1.0000	CDF	Non-Significant Effect
	60	-2.089	2.362	0.163	8	0.9995	CDF	Non-Significant Effect
	80	-2.299	2.362	0.163	8	0.9997	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6327	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2573	0.12 - 0.3	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1466969	0.02933937	5	2.47	0.0611	Non-Significant Effect
Error	0.2851233	0.01188014	24			
Total	0.4318202		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.882	15.09	0.7181	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9669	0.9031	0.4590	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	0.6327	0.5032	0.7623	0.5912	0.5212	0.7438	0.04667	16.49%	0.0%
25		5	0.8092	0.691	0.9275	0.8062	0.7	0.9125	0.04258	11.77%	-27.89%
34		5	0.818	0.6239	1.012	0.8175	0.6487	1.065	0.06992	19.11%	-29.28%
45		5	0.8522	0.7182	0.9863	0.835	0.7487	1.011	0.04829	12.67%	-34.69%
60		5	0.7767	0.6456	0.9079	0.7563	0.6537	0.9175	0.04725	13.6%	-22.76%
80		5	0.7913	0.7121	0.8704	0.8087	0.69	0.8487	0.0285	8.05%	-25.05%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5638	0.7438	0.5912	0.5212	0.7437
25		0.7312	0.7	0.9125	0.8062	0.8963
34		0.6487	0.8175	0.7287	1.065	0.83
45		0.9025	0.7487	0.7637	0.835	1.011
60		0.71	0.9175	0.6537	0.7563	0.8463
80		0.8487	0.69	0.8363	0.7725	0.8087

CETIS Analytical Report

Report Date: 19 Jun-13 15:47 (p 4 of 4)
Test Code: 16159fm | 04-4563-7390

Fathead Minnow 7-d Larval Survival and Growth Test

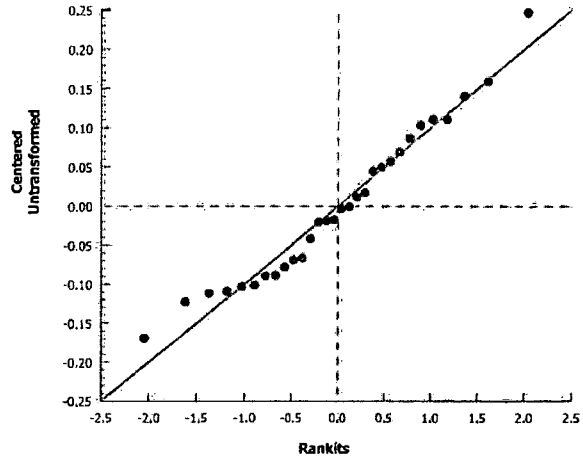
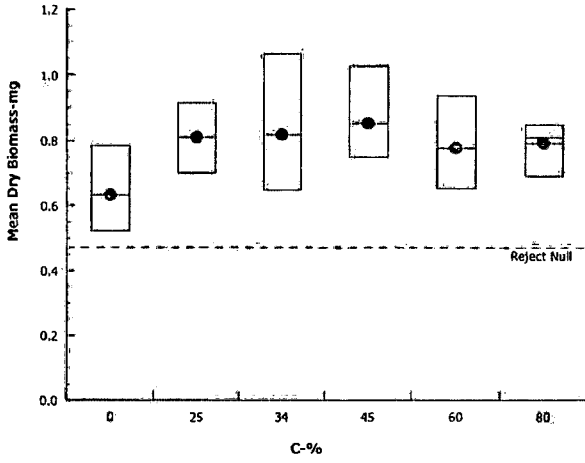
ENVIRON International Corp

Analysis ID: 02-5400-8292
Analyzed: 19 Jun-13 15:46

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

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 19 Jun-13 15:47 (p 1 of 1)

Test Code: 16159fm | 04-4563-7390

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 16-6764-9459	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 19 Jun-13 15:47	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 12-4476-7543	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Jun-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Jun-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 09-2219-8732	Code: 36F7A2CC	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1241532	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6327	0.25 - 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

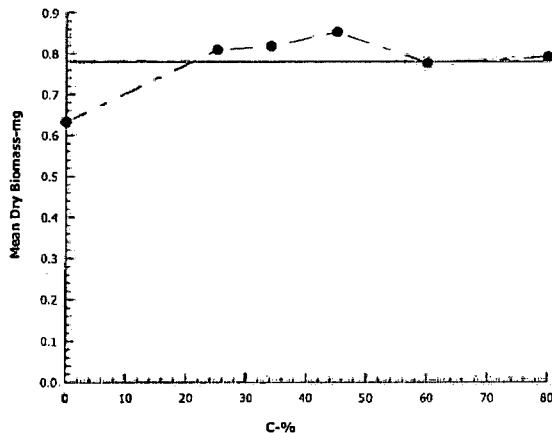
Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.6327	0.5212	0.7438	0.04667	0.1044	16.49%	0.0%
25		5	0.8092	0.7	0.9125	0.04258	0.09521	11.77%	-27.89%
34		5	0.818	0.6487	1.065	0.06992	0.1563	19.11%	-29.28%
45		5	0.8522	0.7487	1.011	0.04829	0.108	12.67%	-34.69%
60		5	0.7767	0.6537	0.9175	0.04725	0.1056	13.6%	-22.76%
80		5	0.7913	0.69	0.8487	0.0285	0.06372	8.05%	-25.05%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5638	0.7438	0.5912	0.5212	0.7437
25		0.7312	0.7	0.9125	0.8062	0.8963
34		0.6487	0.8175	0.7287	1.065	0.83
45		0.9025	0.7487	0.7637	0.835	1.011
60		0.71	0.9175	0.6537	0.7563	0.8463
80		0.8487	0.69	0.8363	0.7725	0.8087

Graphics



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

TEST LOG NO.: 16159
 JOB NUMBER: 20-19675G
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: 4770

BEGINNING: HRS: 1300 DATE: 6/11/13
 ENDING: HRS: 1310 DATE: 6/18/13
 TEST DILUTIONS: 25, 34, 45, 60, 80%
 ORGANISM AGE (date): 6/10/13
 ORGANISM SOURCE: EOT 4354
 SOURCE TEMP @ TEST START: 24.2
 RANDOMIZED BY: AW

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 (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
RW	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	24.5	24.4/24.2	24.2/24.6	24.2/24.8	24.3/24.5	24.5/25.1	24.1/24.7	24.3
25	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	24.6	24.4/24.3	24.4/24.2	24.1/24.9	24.3/24.6	24.4/24.3	24.0/24.8	24.2
34	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	24.9	24.2/24.5	24.6/24.4	24.1/24.4	24.1/24.5	24.4/24.1	24.1/24.9	24.2
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	24.7	25.0/24.8	24.5/24.3	24.8/24.7	24.1/24.8	24.7/24.1	24.2/24.9	24.1
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	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	24.4/24.3	24.3/24.5	24.1/24.8	24.1/24.5	24.1/24.3	24.1/24.9	24.3
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	24.8	24.1/24.2	24.1/24.4	24.2/24.9	24.1/24.6	24.2/24.3	24.0/24.8	24.2
Test Renewal	Time	1300	1037	124	1058	1205	1157	0923	1310
	Date	6/11/13	6/12/13	6/13/13	6/14/13	6/15/13	6/16/13	6/17/13	6/18/13
	Initials	AW	AW	AW	AW	AW	AW	AW	AW
morning feeding	Int/Time	AW0710	AW0700	AW0700	AW0720	AW0735	AW0735	AW0735	AW0735
afternoon feeding	Int/Time	AW1645	AW1530	AW1520	AW1615	AW1500	AW1504	AW1615	AW1615

AW
6/18/13

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

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

BEGINNING: HRS: 1300 DATE: 6/11/15
 ENDING: HRS: 1310 DATE: 6/18/15

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 (#)							
		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	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	25.0	24.4/24.2	24.4/24.3	24.2/24.1	24.2/24.1	24.1/24.2	24.1/24.1	24.1
	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.: 16159 BEGINNING: HRS: 1300 DATE: 6/11/13
 JOB NO.: 20-19675G ENDING: HRS: 1310 DATE: 6/18/13
 INDUSTRY: Georgia Pacific-Crosssett
 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
RW	A	1	1.101087	1.11138	0.00451	8	0.564
	B	2	1.10534	1.11129	0.00595	8	0.743
	C	3	1.13091	1.13504	0.00473	8	0.591
	D	4	1.10465	1.10882	0.00417	8	0.521
	E	5	1.13354	1.13949	0.00595	8	0.743
25	A	6	1.10174	1.10759	0.00585	7	
	B	7	1.10715	1.11235	0.00510	8	
	C	8	1.11394	1.12124	0.00730	8	
	D	9	1.08599	1.09244	0.00645	8	
	E	10	1.09202	1.09979	0.00777	8	
34	A	11	1.09390	1.09909	0.00519	8	
	B	12	1.07191	1.07845	0.00654	8	
	C	13	1.06956	1.07531	0.00583	8	
	D	14	1.09122	1.08974	0.00852	8	
	E	15	1.09039	1.09703	0.00664	8	
45	A	16	1.08400	1.09182	0.00722	8	
	B	17	1.08947	1.09516	0.00599	8	
	C	18	1.07531	1.08142	0.00611	8	
	D	19	1.14098	1.14716	0.006108	8	
	E	20	1.11429	1.12138	0.00809	8	
60	A	21	1.11740	1.12308	0.00568	8	
	B	22	1.06980	1.07714	0.00734	8	
	C	23	1.010517	1.017040	0.00583	7	
	D	24	1.10288	1.10893	0.00605	8	
	E	25	1.09839	1.10516	0.00677	7	
80	A	26	1.074100	1.08115	0.00679	8	
	B	27	1.13572	1.13804	0.00552	8	
	C	28	1.06535	1.07204	0.00669	8	
	D	29	1.11337	1.11955	0.00618	8	
	E	30	1.07299	1.07946	0.00647	8	
MH	A	31	1.11052	1.11486	0.00434	8	
	B	32	1.07376	1.08037	0.00601	8	
	C	33	1.12003	1.12500	0.00497	8	
	D	34	1.07781	1.08214	0.00433	8	
	E	35	1.06299	1.06830	0.00551	8	
Initials / Date:		AR	6/11/13	AM	6/19/13		

0.591
 AVG Control 0.633 mg
 Fish wt: 0.600 mg
 (using final #) AM
 6/25/13

Oven ID: 1
 Tins In:
 Date: 6/18/13
 Time: 1421
 Temp (°C): 101
 Initials: AW

Tins Out:
 Date: 6/19/13
 Time: 1738
 Temp (°C): 99
 Initials: AR

FINAL WEIGHTS
 DATE: 6/19/13
 INITIALS: AM

TEST LOG NO.

10159

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Fm

DATE: 6/11/13

ENVIRON Test Log No. 16129

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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	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
25	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
34	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
45	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
60	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
80	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
MH	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5

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	7.25	7.43	7.34	7.88	7.88	7.26	7.08	7.71	7.19	7.26	7.03	7.33	7.76	7.89
25	7.25	7.39	7.49	7.27	7.80	7.01	7.16	7.95	7.77	7.76	7.81	8.06	7.78	7.71
34	7.81	8.09	7.6	8.03	7.86	8.04	7.82	8.02	7.89	8.07	7.88	8.18	7.90	7.76
45	7.89	8.13	7.85	8.15	7.92	8.12	7.89	8.03	7.94	8.06	7.94	8.19	7.98	8.08
60	7.90	8.30	7.93	8.24	7.98	8.26	7.96	8.19	8.01	8.21	7.91	8.28	8.07	8.14
80	7.99	8.41	7.95	8.30	7.90	8.35	7.90	8.30	8.04	8.29	8.04	8.33	8.14	8.25
MH	7.91	7.93	7.97	7.98	7.82	7.84	7.82	7.88	7.82	7.82	8.00	8.20	7.73	7.86

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	60	60	67	65	68	126	106	130	107	116	75	111	131	133
25	652	646	608	612	1010	673	1055	618	657	611	614	626	640	639
34	815	846	801	810	884	854	800	796	818	808	807	773	854	829
45	1124	966	980	105	1072	1076	1081	1032	1000	1033	1076	1026	1130	1104
60	1470	1321	1341	1324	1311	1266	1470	1368	1417	1388	1348	1379	1406	1411
80	1814	1350	1741	1730	1774	1766	1811	2020	1839	1786	1878	1748	1740	1828
MH	203	171	196	775	835	263	229	262	231	235	223	282	229	267

Params Int/Time:	01-1040	A00734	A00838	M1-0750	M10040	A100815	A100900	A100749	A101056	A100915	A101010	A100624	A100359	A10060
Dilutions Int/Time:	12-1030	11-0829	11-0829	A100815	A100900	A100815	A100900	A100749	A101056	A100915	A101010	A100624	A100359	A100848
Control Water Batch:	5235	5235	5235	5238	5238	5238	5238	5239	5239	5239	5239	5239	5239	5239
Food Batch:	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170

TEST LOG NO. 16159
 JOB NO. 20-19675G

CLIENT: Georgia Pacific Crossett
 TEST TYPE(S) PERFORMED: Fm & Cd Chronic

DATE OF TEST: 6/11/13

ENVIRON Test Log No. 16129

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
110333	Outfall 001	6/9-10/13	6/11/13	220	487	0.07	3.05
110340	Outfall 001	6/11-12/13	6/13/13	228	497	0.07	3.59
110350	Outfall 001	6/13-14/13	6/15/13	244	502	10.02	3.37

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
110332	River Water	6/10/13	6/11/13	18.4	27	0.05	0.328
5235	MH	6/7/13	6/10/13	81.6	46	10.02	-
110339	RW	6/10/13	6/13/13	110.8	16	0.07	0.379
5238	MH	6/10/13	6/12/13	81.6	45	10.02	-
5239	MH	6/11/13	6/14/13	82.4	48	10.02	-

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CETIS Analytical Report

Report Date: 19 Jun-13 15:39 (p 1 of 2)
 Test Code: 16159cd | 01-5197-7291

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 10-4465-1315	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 19 Jun-13 15:34	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 01-4406-7327	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Jun-13 11:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 17 Jun-13 12:30	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 1h	Source: In-House Culture	Age:
Sample ID: 06-9189-9907	Code: 293D8E03	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	Source: Discharge Monitoring Report	
Sample Age: 35h	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	0.5	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		9	1	10	0.9	0.1	10.0%
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	
45		1	1	1	1	1	1	1	1	1	0
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	
45		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
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: 19 Jun-13 15:39 (p 2 of 2)
Test Code: 16159cd | 01-5197-7291

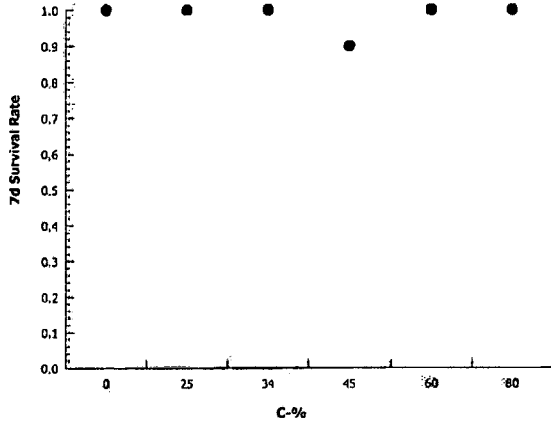
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 10-4465-1315 Endpoint: 7d Survival Rate
Analyzed: 19 Jun-13 15:34 Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 25 Jun-13 11:08 (p 1 of 2)
 Test Code: 16159cd | 01-5197-7291

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 11-2612-7705	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 25 Jun-13 11:08	Analysis: Nonparametric-Multiple Comparison	Official Results: Yes
Sample ID: 06-9189-9907	Code: 293D8E03	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	Source: Discharge Monitoring Report	
Sample Age: 35h	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	29.9%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	107	NA	4	18	1.0000	Exact	Non-Significant Effect
		34	91	NA	2	17	1.0000	Exact	Non-Significant Effect
		45	104	NA	3	18	1.0000	Exact	Non-Significant Effect
		60	124.5	NA	4	18	1.0000	Exact	Non-Significant Effect
		80	96.5	NA	2	18	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	23.5	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2991	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	247.11	49.422	5	1.151	0.3453	Non-Significant Effect
Error	2274.822	42.92117	53			
Total	2521.932		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.927	15.09	0.4249	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8959	0.9451	0.0001	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	23.5	17.05	29.95	26.5	5	32	2.853	38.39%	0.0%
25		10	25.4	21.66	29.14	27	16	31	1.655	20.6%	-8.09%
34		9	25.44	21.56	29.33	26	17	31	1.684	19.86%	-8.27%
45		10	24.6	19.4	29.8	27	8	31	2.301	29.56%	-4.68%
60		10	28.9	25.23	32.57	30	19	35	1.622	17.75%	-22.98%
80		10	22.4	17.76	27.04	25	13	30	2.05	28.95%	4.68%

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	14	32	16	24	25	28	32	28	5	31
25		16	16	31	26	27	25	29	27	28	29
34		17	26	27	26	18	30	30	31	24	
45		16	23	30	30	28	26	27	31	27	8
60		19	32	35	28	34	31	29	27	22	32
80		18	29	30	26	15	28	15	26	13	24

CETIS Analytical Report

Report Date: 25 Jun-13 11:08 (p 2 of 2)
Test Code: 16159cd | 01-5197-7291

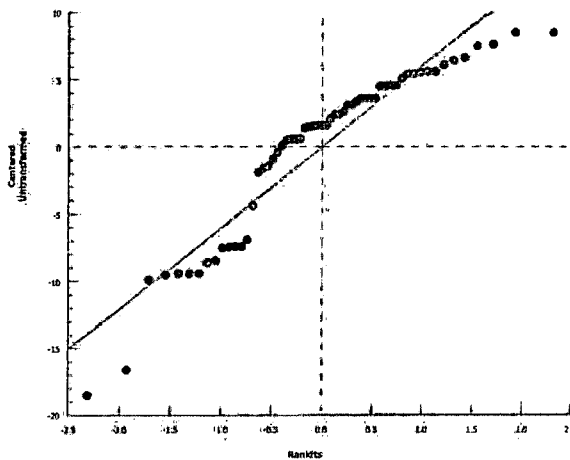
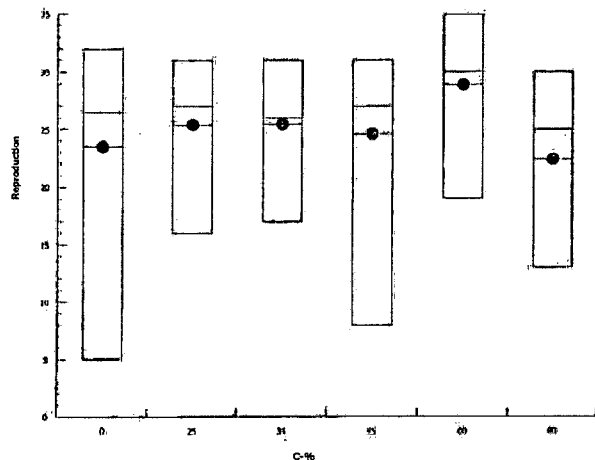
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 11-2612-7705 Endpoint: Reproduction
Analyzed: 25 Jun-13 11:08 Analysis: Nonparametric-Multiple Comparison

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 25 Jun-13 11:08 (p 1 of 1)
 Test Code: 16159cd | 01-5197-7291

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 08-6411-2203	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 25 Jun-13 11:08	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 06-9189-9907	Code: 293D8E03	Client: GPAC Crossett
Sample Date: 10 Jun-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 11 Jun-13	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	838994	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	23.5	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

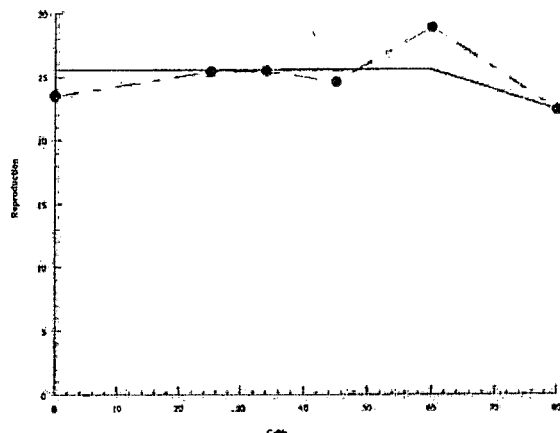
Reproduction Summary

C-%	Control Type	Count	Mean	Calculated Variate					
				Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	23.5	5	32	2.853	9.022	38.39%	0.0%
25		10	25.4	16	31	1.655	5.232	20.6%	-8.09%
34		9	25.44	17	31	1.684	5.053	19.86%	-8.27%
45		10	24.6	8	31	2.301	7.276	29.58%	-4.68%
60		10	28.9	19	35	1.622	5.131	17.75%	-22.98%
80		10	22.4	13	30	2.05	6.484	28.95%	4.68%

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	14	32	16	24	25	28	32	28	5	31
25		16	16	31	26	27	25	29	27	28	29
34		17	26	27	26	18	30	30	31	24	
45		16	23	30	30	28	26	27	31	27	8
60		19	32	35	28	34	31	29	27	22	32
80		18	29	30	26	15	28	15	26	13	24

Graphics



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

TEST LOG NO.: 16159 PHOTO PERIOD: 16 hr light/8 hr dark
 JOB NUMBER.: 20-19675G 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): 6/10/13
 TEMP @ TEST START: 25.0
 RANDOMIZED BY: LM
 TEST START: 1122 DATE: 6/11/13
 TEST END: 1316 DATE: 6/17/13

SOURCE ID:	AGE (time):
10283	1209-1837

SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water		Temp (°C)	REPLICATES										Notes	
						1	2	3	4	5	6	7	8	9	10		
						Adult	18	15	19	12	3	5	20	12	8	17	
LM 1122		6/11	24.4			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1012	6/12	24.0	24.1		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1051	6/13	24.5	24.4		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1139	6/14	24.4	24.2		Day 3	✓	5	✓	3	4	4	4	4	✓	4	
	AW 1009	6/15	24.1	24.7		Day 4	6	✓	6	9	✓	✓	11	9	5	✓	
	AW 1028	6/16	24.1	24.7		Day 5	8	11	10	✓	7	8	✓	✓	✓	11	
AW 1316		6/17		24.6		Day 6	✓	16	✓	12	14	16	17	15	✓	16	70%
						Day 7											
						Day 8											
			Total				14	32	16	24	25	28	32	28	5	31	235

X.75 1763

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

TEST LOG # 110159

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		REPLICATES										Notes			
			25%	Temp (°C)	1	2	3	4	5	6	7	8	9	10				
					Adult													
LH 1122		6/11	244		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1012	6/12	24.2	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1051	6/13	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Aw 1139	6/14	24.7	24.6	Day 3	✓	✓	3	4	3	3	2	3	4	3			
	Aw 1109	6/15	24.1	24.3	Day 4	5	4	✓	✓	7	7	11	8	✓	✓			
	Aw 1028	6/16	24.0	24.5	Day 5	11	✓	11	8	6	✓	✓	✓	9	12			
		6/17		24.8	Day 6	✓	12	17	14	11	15	16	16	15	14			50%
					Day 7													
					Day 8													
			Total			16	16	31	26	27	25	29	27	28	29	254		

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				
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LH 1122		6/11	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1012	6/12	24.1	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1051	6/13	24.5	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Aw 1139	6/14	24.8	24.6	Day 3	✓	3	3	4	4	1	3	3	4			Miss	
	Aw 1109	6/15	24.1	24.5	Day 4	5	✓	✓	6	7	11	✓	10	✓				
	Aw 1028	6/16	24.0	24.1	Day 5	✓	9	10	✓	7	✓	11	✓	7				
		6/17		25.2	Day 6	12	14	14	16	✓	18	16	18	13				70%
					Day 7													
					Day 8													
			Total			17	26	27	26	18	30	30	21	24	21	29	19	25.4

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

U:\Ecotox\lab\Labforms\ToxTestSheets\7DchronicCD.doc

TEST LOG # 10159

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		REPLICATES										Notes			
			45%	Temp (°C)	1	2	3	4	5	6	7	8	9	10				
					Adult													
6/11 1122 LM 1012		6/11	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1012		6/12	24.1	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HM 1051		6/13	24.2	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AW 1139		6/14	24.6	25.2	Day 3	✓	✓	4	3	3	2	3	3	4	3			
AW 1109		6/15	24.2	24.3	Day 4	4	2	✓	✓	✓	9	7	✓	✓	5			
AW 1028		6/16	24.0	24.1	Day 5	✓	7	11	11	7	✓	✓	10	9	D/O			
		6/17	24.9		Day 6	12	14	15	16	18	15	17	18	14				80%
					Day 7													
					Day 8													
			Total			16	23	30	30	28	26	27	31	27	28	246		

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				
6/11 1122 LM 1122		6/11	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1012		6/12	24.1	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HM 1051		6/13	24.4	24.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AW 1139		6/14	24.8	25.3	Day 3	✓	✓	4	4	5	3	4	4	3	3			
AW 1109		6/15	24.5	24.1	Day 4	5	4	✓	9	3	11	✓	8	✓	✓			
AW 1028		6/16	24.3	24.2	Day 5	✓	10	12	✓	11	✓	8	✓	9	11			
		6/17	24.3		Day 6	14	18	19	15	15	17	17	15	10	18			90%
					Day 7													
					Day 8													
			Total			19	32	35	28	34	31	29	27	22	32	289		

✓ = Test Organism Alive
D = Test Organism Dead

0 = Live neonates
(-0) = Dead neonates

Miss = Lost or Missing
M = Male

TEST LOG NO. 10159
 JOB NO. 20-19675G

CLIENT/SAMPLE ID: Georgia Pacific Crossett
 TEST ORGANISM: Cd

DATE: 6/11/13

ENVIRON Test Log No. 16129

25 of 36

		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			
RVW	8.2		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
25	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
34	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
45	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
60	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
80	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						
MH	8.5		9.9	9.2	7.1	7.1	8.6	9.9	8.3	7.5	8.2	8.2	7.7						

		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			
RVW	7.25		7.63	7.74	7.48	7.89	7.44	7.00	7.59	7.19	7.48	7.00	7.58						
25	7.73		8.07	7.74	8.26	7.80	8.21	7.76	8.24	7.77	8.27	7.91	8.20						
34	7.87		8.26	7.76	8.40	7.80	8.23	7.82	8.37	7.81	8.38	7.85	8.13						
45	7.89		8.42	7.85	8.51	7.97	8.42	7.89	8.47	7.94	8.53	7.94	8.54						
60	7.98		8.54	7.95	8.60	7.95	8.53	7.96	8.59	8.01	8.62	7.94	8.63						
80	7.99		8.64	7.95	8.69	7.95	8.64	7.99	8.67	8.04	8.73	8.04	8.72						
MH	7.91		7.69	7.7	7.84	7.64	7.91	7.82	7.98	7.82	7.92	8.00	7.97						

		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			
RVW	6.0		73	67	72	68	74	66	79	68	70	75	76						
25	6.52		543	608	664	666	693	655	663	657	655	614	670						
34	8.5		769	801	858	854	904	800	851	818	871	801	853						
45	11.34		1068	983	1067	1072	1141	1081	1104	1060	1112	1076	1117						
60	14.76		1425	1341	1417	1341	1475	1420	1446	1417	1529	1398	1473						
80	18.18		1794	1741	1700	1774	1887	1811	1831	1839	1871	1828	1860						
MH	20.3		203	22196	217	235	219	229	225	231	225	227	224						

Params Int/Time:	AW1040	AW1100	AW0593	AW1140	AW0619	AW1722	AW1000	AW1243	AW1050	AW1300	AW1000	AW1000	AW1000			
Dilutions Int/Time:	AW1030	AW0829	AW0829	AW1046	AW0829	AW0829	AW0829	AW1040	AW1040	AW1000	AW1000	AW1000	AW1000			
Control Water Batch:	5235, 110332	5235, 110332	5235, 110332	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339	5235, 110339			
Food Batch	4351, 4329	4351, 4329	4351, 4329	51129	51129	51129	51129	51129	51129	51129	51129	51129	51129			

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

Project Name: _____ Project Number: _____

Industry: GEORGIA PACIFIC PAPER

Phone: 810-567-8170 FAX: 810-364-9076

County: ASHLEY City: CROSBY State: AR

Sample Collected by (print): DANNY/RACHEL NPDES Permit No.: AR000210

Sample Collected by (signature): Danny W. Rice NPDES Test: No 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	Analysis Requested										Description Definitive or Screen	Sample B# (lab only)	
								Acute Fathead minnow	Acute Bannerrfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other				
<u>RIVER</u>	<u>G</u>	<u>PLASTIC</u>	<u>NA</u>	<u>6/10/13</u>	<u>11:28am</u>	<u>1</u>	<u>10</u>	<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"/>	<u>DLUTICA WATER</u>	<u>16332</u>	<u>2.3°C</u>
<u>WALL COOL</u>	<u>C</u>	<u>PLASTIC</u>	<u>YES</u>	<u>6/9/13</u>	<u>6/10/13</u>	<u>1</u>	<u>10</u>	<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"/>	<u>16333</u>	<u>16333</u>	<u>2.2°C</u>
								<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) <u>Danny W. Rice</u>	Date:	Time:	Received by: (Signature)	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier	UPS Hand Delivered <input type="checkbox"/>	Condition: (lab use only) <u>0.0102</u>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: <u>15°C</u>	Containers/Volume Received: <u>2 10L</u>	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <u>Danny W. Rice</u>	Date: <u>6/10/13</u>	Time: <u>08:37</u>	pH upon arrival: <u>7.52</u> DO upon arrival: <u>8.9</u>

ENVIRON Test Log No. 16129

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Sample Receipt Checklist:

Client: G.P. Crossett

Date/Time received 6/11/13 0853 by AT

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


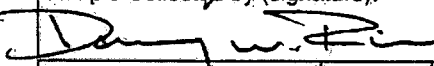
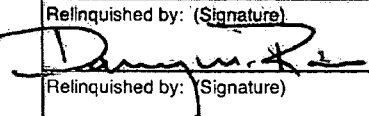


Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
16332	River	2.3	7.82	8.9	0.05
16333	Outfall out	2.2	7.89	9.3	0.07

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ENVIRON Test Log No. 16129

29 of 36

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: 870-364-9076				County: ARIZONA City: CROSETT State: AR.																Definitive or Screen		Sample B# (lab only)	
Sample Collected by (print): DANNY / Rachel				NPDES Permit No.: AR 001210																NPDES Test:			
Sample Collected by (signature): 				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		No. of Cntrs																	
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	6-10-13	11:20am	1	10	<input checked="" 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"/>							
OFFFALL 001	C	PLASTIC	YES	6-11-13	6-12-13	1	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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) 				Date: 6-12-13		Time: 3:00PM		Received by: (Signature) 				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: 0.98cc (lab use only)							
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp: 14.5°C		Containers/Volume Received: 8.10L									
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) 				Date: 6/13/13		Time: 6:20		pH upon arrival: 7.5, 7.9, 8		DO upon arrival: 5.9, 9.1					

Sample Receipt Checklist:

Client: Georgia Pacific Corbett



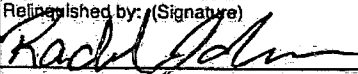

Date/Time received 0828 6/13/13 by AS

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
16339	Rena	1.4	7.15	8.9	0.07
16340	Outfall out	1.8	7.98	9.1	0.07

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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:				Phone:				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											
Georgia-Pacific Crossett Paper 870-562-8170				FAX: Ashley City: Crossett State: AR				Total Volume in liters No. of Cntrs.											
Sample Collected by (print): Rachel Johnson				NPDES Permit No.: AR 0001210				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes											
Sample Collected by (signature): 				Start Date/Time: 6/13/13 End Date/Time: 6/14/13				Description Definitive or Screen Sample B# (lab only)											
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs.	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				
outfall 001	Comp	Plastic	Y	6/13/13	6/14/13	2											110550		
* 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>0.0</u> mg/L																			
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier				UPS <input type="checkbox"/> Hand <input type="checkbox"/> Delivered		Condition: (lab use only)	
				4/14/13		4:00pm										Good			
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp:		Containers/Volume Received:					
												50.0		2/10L					
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature)				Date:		Time:		pH upon arrival:		DO upon arrival:	
												6/15/13		0930		7.95		8.0	

Sample Receipt Checklist:

Client: GPC

Date/Time received 10/15/13 0930 by af

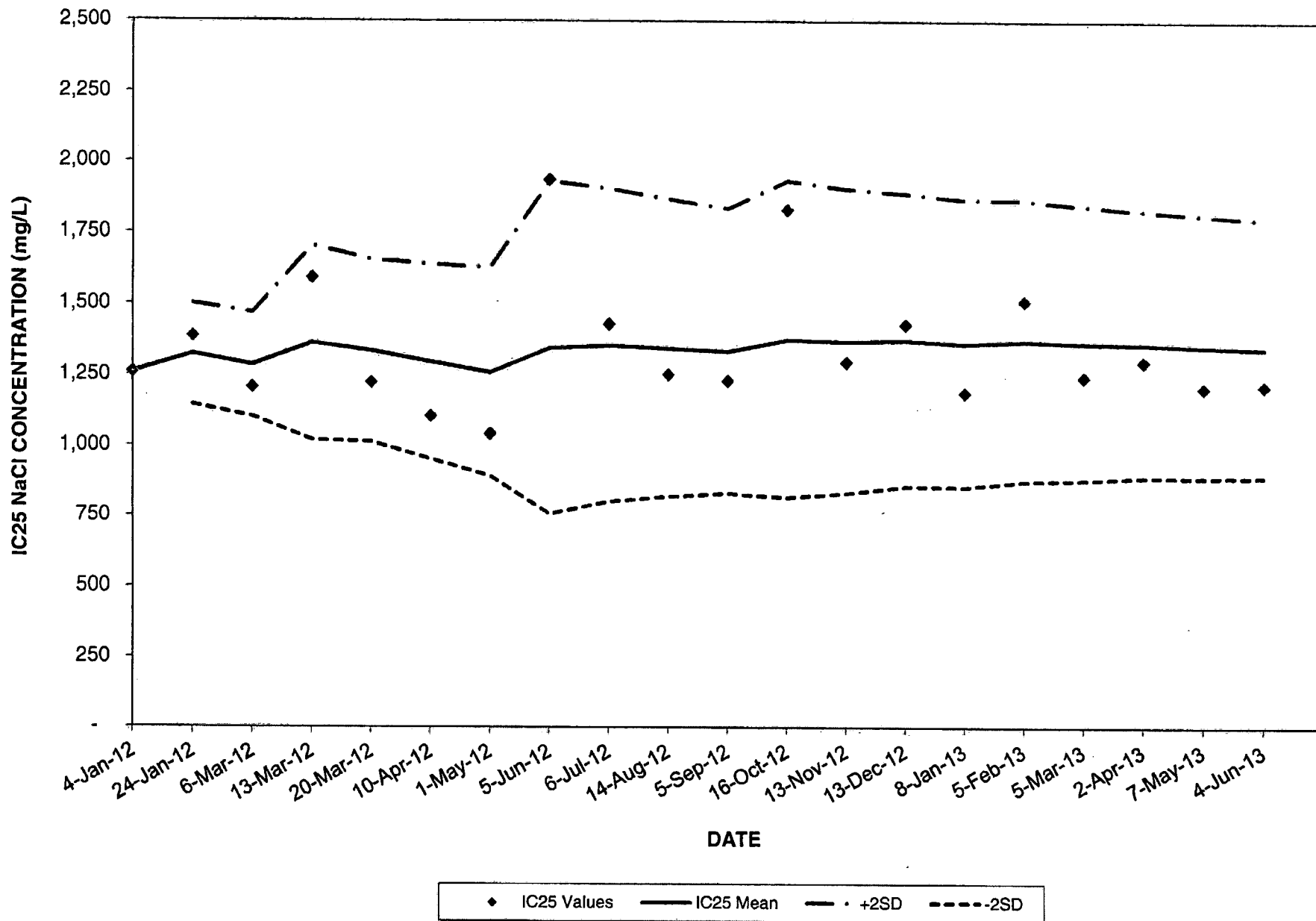
- 1. Cooler sealed and intact upon arrival? Yes No
- 2. Custody seals present? Yes No
- 3. Samples received below 6 degrees Celsius? Yes No
- 4. Was ice present? Yes No
- 5. Is the COC filled out correctly including the sample date/time and signed? Yes No
- 6. Was the sample received within 36 hours 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
110350	011001	5.6	7.95	8.10	20.02

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CHRONIC REFERENCE TOXICANT TEST (NaCl) 2012 - 2013 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2012 - 2013

ENVIRON Test Log No. 16129

34 of 36

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	14056	04-Jan-12	89	0.305	750	1,500	750	1,500	29.1	1,261	1,261				
2	14095	24-Jan-12	97.5	0.476	1,500	3,000	750	1,500	25.6	1,387	1,324	89	1,502	1,146	5
3	15207	06-Mar-12	97.5	0.372	750	1,500	1,500	3,000	39.2	1,209	1,286	92	1,469	1,103	6
4	15225	13-Mar-12	85	0.290	6,000	>6,000	1,500	3,000	30.2	1,593	1,363	171	1,704	1,021	11
5	15248	20-Mar-12	100	0.383	750	1,500	750	1,500	28.1	1,225	1,335	160	1,655	1,015	11
6	15299	10-Apr-12	100	0.716	750	1,500	750	1,500	17.0	1,105	1,297	171	1,639	954	12
7	15343	01-May-12	100	0.562	750	1,500	750	1,500	25.0	1,042	1,260	184	1,628	893	13
8	15115	05-Jun-12	100	0.499	750	1,500	1,500	3,000	24.0	1,937	1,345	294	1,932	758	20
9	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,354	276	1,907	802	19
10	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,344	262	1,869	820	19
11	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,334	251	1,836	832	18
12	15683	16-Oct-12	97.5	0.447	1,500	3,000	1,500	3,000	19.0	1,832	1,376	279	1,934	817	19
13	15743	13-Nov-12	100	0.514	750	1,500	750	1,500	15.9	1,297	1,370	268	1,906	833	19
14	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,374	258	1,890	858	18
15	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,362	253	1,868	855	18
16	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,371	248	1,866	876	17
17	15965	05-Mar-13	100	0.538	750	1,500	750	1,500	28.1	1,246	1,364	242	1,847	880	17
18	16017	02-Apr-13	100	0.504	750	1,500	750	1,500	25.8	1,300	1,360	235	1,830	890	17
19	16088	07-May-13	100	0.390	750	1,500	750	1,500	29.3	1,207	1,352	231	1,814	890	17
20	16137	04-Jun-13	100	0.402	750	1,500	750	1,500	21.5	1,215	1,345	227	1,799	892	16

Avg	98	0.442	1088	1575	938	1875	24	1345	1339	221	1784	902
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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)

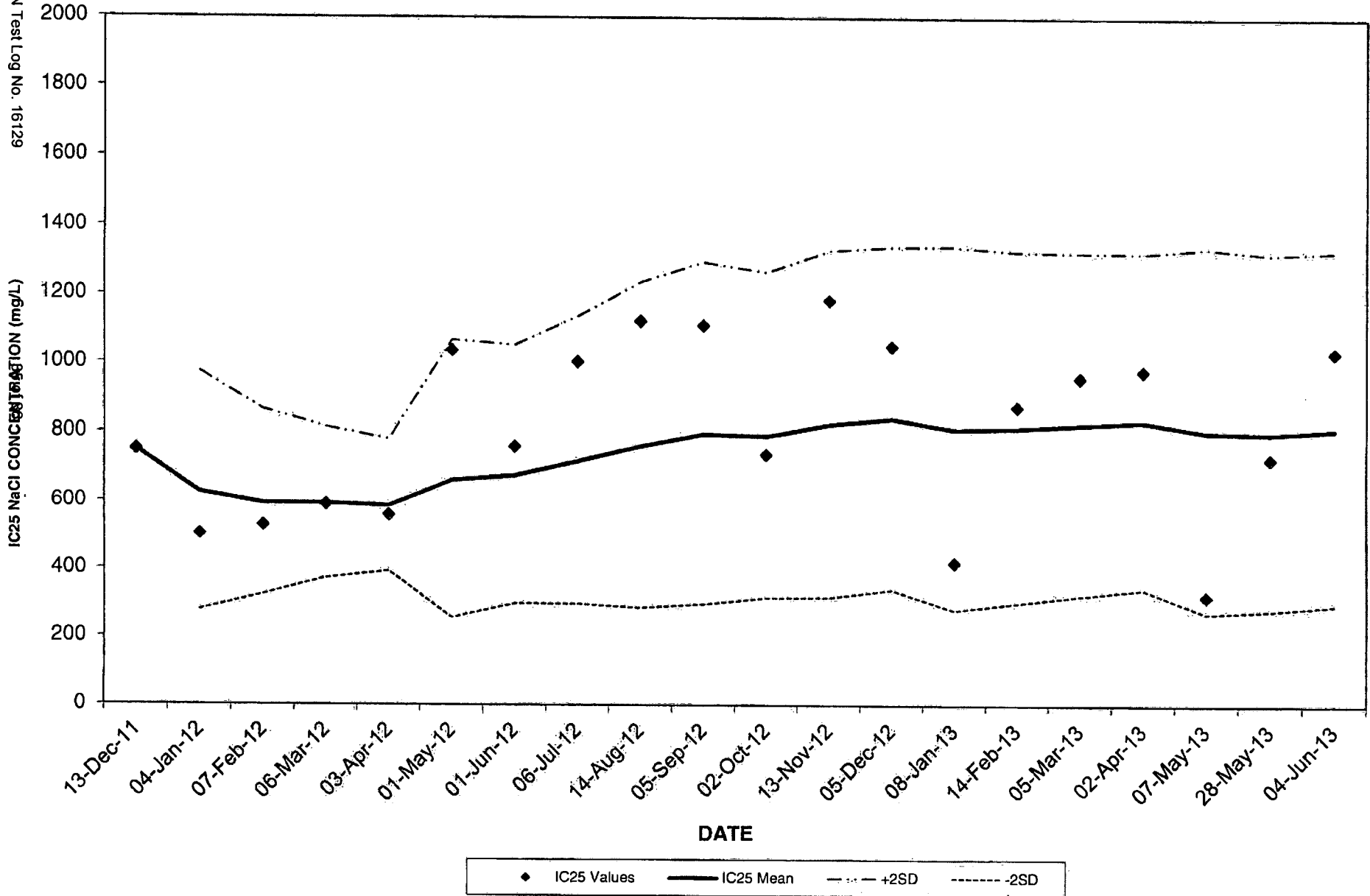
ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.

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

Test Log 15132 initiated Feb 7, 2012 was invalidated due to standard deviation over 2x

CHRONIC REFERENCE TOXICANT (NaCl) 2011-2013
Ceriodaphnia dubia

ENVIRON Test Log No. 16129



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2011-2013

ENVIRON Test Log No. 16129

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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	14306	13-Dec-11	100	100	21.4	1,000	2,000	500	1,000	16.8	750	750				0
2	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	627	174	975	279	20
3	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	595	135	865	324	19
4	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	594	110	815	373	16
5	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	587	97	781	394	15
6	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	662	203	1,067	257	28
7	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	676	189	1,053	299	26
8	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	717	209	1,136	298	27
9	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	762	238	1,237	286	29
10	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	796	250	1,296	297	30
11	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	791	238	1,266	316	29
12	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	824	253	1,330	317	29
13	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.6	1050	841	250	1,342	340	29
14	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	811	266	1,342	280	32
15	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	815	256	1,328	302	30
16	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	824	250	1,325	324	29
17	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	833	245	1,324	343	29
18	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	805	267	1,339	271	32
19	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	801	260	1,321	281	32
20	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1034	813	258	1,329	296	31

Avg	98	96	30	1525	850	488	981	20	813	746	218	1183	309
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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.

earth smart

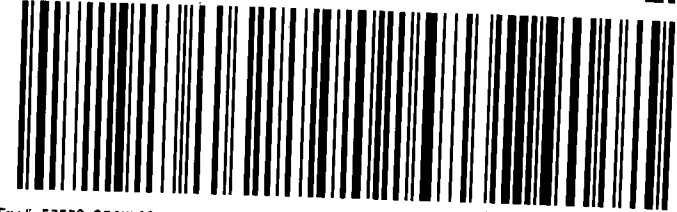
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FedEx

00001 00128

Package Airbill FedEx Tracking Number 8035 6748 9559

RT 177 ST 18 3 9559 07.26

CA BLANKENSHIP Phone 870 567-8812

ORGIA PACIFIC/UTILITIES

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City CROSSETT State AR ZIP 71635

2 Your Internal Billing Reference

3 To Recipient's Name Craig Wyrda Phone 501 682-1640

Company AR Dept. of Env. Quality

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Address Use this line for the HOLD location address or for continuation of your shipping address. City North Little Rock State AR ZIP 72118



8035 6748 9559

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Options for SATURDAY Delivery, No Signature Required, Direct Signature, Indirect Signature, and Dangerous Goods handling.

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Payment options: Sender Acct No. in Section 1 will be billed, Recipient, Third Party, Credit Card, Cash/Check.

Total Packages Total Weight lbs. Credit Card Auth. Our liability is limited to US\$100 unless you declare a higher value.

Rev. Date 2/12 • Part #163134 • ©1994-2012 FedEx • PRINTED IN U.S.A. SRS

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