



Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
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Crossett, AR 71635
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November 16, 2012

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 October 2012. As required by Part III, Section 4 paragraph a, of our NPDES Permit, a full report of the chronic toxicity testing has also been included with this submittal.

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

Sincerely,

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

James W. Cutbirth
Environmental Services Superintendent



Chronic Toxicity Test Results

Prepared for:
Georgia-Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
September 2012

Project Number:
20-19675E



September 28, 2012

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

**Re: Results of Chronic Toxicity Test: September 2012
ENVIRON Job 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 September 10, 12, and 14, 2012. The samples were received at ENVIRON on September 11, 13, and 15, 2012, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on September 11, 14, and 15, 2012 in good condition. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). 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 indicated No Observable Effect Concentration (NOEC) values for survival (lethality) of 80 percent effluent. The fathead minnow test results indicate no significant toxicity at the critical dilution to the survival of fathead minnow. The sub-lethal NOEC value for fathead minnow growth was 80 percent, which demonstrates no sub-lethal toxicity to the fathead minnow. 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 indicate no significant toxicity at the critical dilution to the survival of *C. dubia*. The sub-lethal NOEC value for *C. dubia* reproduction was 80 percent, which also demonstrates no sub-lethal toxicity to *C. dubia*.

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 7.2 and 0 percent respectively. The CV values for growth in the control and critical dilution are 10.6 and 1.9 percent respectively, and are below the CV limit of 40 percent for findings of no toxicity. The

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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
ENVIRON Test Log No. 15619 2 of 37

PMSD value was 16.6 percent, which is within the USEPA PMSD bounds of 12 to 30 percent for fathead minnow growth. The effluent concentration-response curve is flat and not described in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A flat concentration-response demonstrates 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.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 35.8 and 37.4 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity. The PMSD value was 33.7 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response curve is flat and not described in EPA 821-B-00-004. A flat concentration-response demonstrates 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 37 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



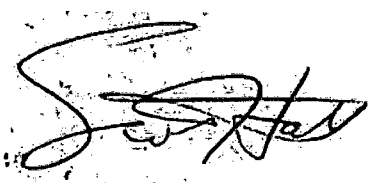
Richard Lockwood
Project Scientist



Robin L. Richards, REM
Principal

DATA REVIEW FORM
ACUTE AND CHRONIC WET TESTS
ENVIRON INTERNATIONAL

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 conducted¹.



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: 25 Sep-12 17:11 (p 1 of 4)
 Test Code: 15619fm | 17-5391-7478

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 20-4402-3579	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 25 Sep-12 17:08	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 08-3048-6900	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 10-2699-9554	Code: 3D36C502	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	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	6.31%

Steel Many-One Rank Sum Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect
	34	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect
	45	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect
	60	27.5	16	2	8	0.8333	Asymp	Non-Significant Effect
	80	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.95	0.8 - NL	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.086	2.908	0.9376	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03597837	0.007195673	5	2.133	0.0960	Non-Significant Effect
Error	0.08095133	0.003372972	24			
Total	0.1169297		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	447.9	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.7318	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	0.95	0.865	1	1	0.875	1	0.03062	7.21%	0.0%
25		5	1	1	1	1	1	1	0	0.0%	-5.26%
34		5	1	1	1	1	1	1	0	0.0%	-5.26%
45		5	1	1	1	1	1	1	0	0.0%	-5.26%
60		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	0.0%
80		5	1	1	1	1	1	1	0	0.0%	-5.26%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	0.0%
25		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-5.57%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-5.57%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-5.57%
60		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	0.0%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-5.57%

CETIS Analytical Report

Report Date: 25 Sep-12 17:11 (p 2 of 4)
 Test Code: 15619fm | 17-5391-7478

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 20-4402-3579 Endpoint: 7d Survival Rate
 Analyzed: 25 Sep-12 17:08 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	0.875	1	1	1	0.875
25		1	1	1	1	1
34		1	1	1	1	1
45		1	1	1	1	1
60		0.875	1	1	1	0.875
80		1	1	1	1	1

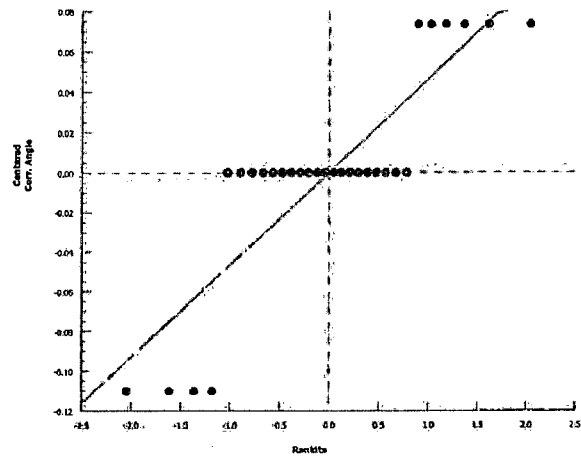
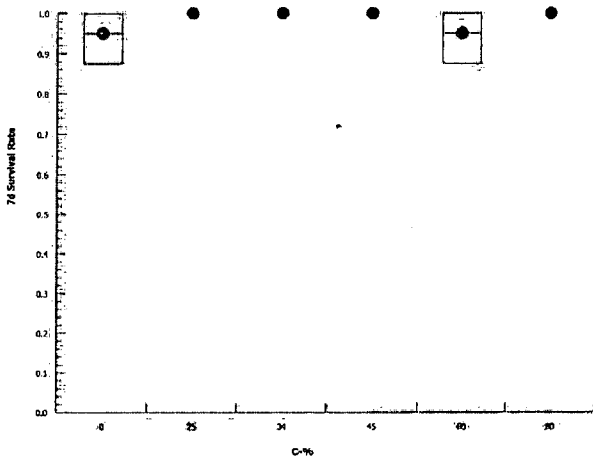
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.209	1.393	1.393	1.393	1.209
25		1.393	1.393	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		1.209	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	7/8	8/8	8/8	8/8	7/8
25		8/8	8/8	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		7/8	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: 25 Sep-12 17:11 (p 3 of 4)
 Test Code: 15619fm | 17-5391-7478

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 13-1004-7416	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 25 Sep-12 17:08	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 08-3048-6900	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 10-2699-9554	Code: 3D36C502	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	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	16.6%

Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	-6.291	2.362	0.104	8	1.0000	CDF	Non-Significant Effect
	34	-5.547	2.362	0.104	8	1.0000	CDF	Non-Significant Effect
	45	-8.019	2.362	0.104	8	1.0000	CDF	Non-Significant Effect
	60	-5.45	2.362	0.104	8	1.0000	CDF	Non-Significant Effect
	80	-6.922	2.362	0.104	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.625	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1662	0.12 - 0.3	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.236	2.908	0.6019	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.3787952	0.07575904	5	15.66	<0.0001	Significant Effect
Error	0.1161099	0.004837913	24			
Total	0.4949051		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.166	15.09	0.1473	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9492	0.9031	0.1606	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	0.625	0.5425	0.7075	0.6588	0.53	0.6837	0.02972	10.63%	0.0%
25		5	0.9017	0.8024	1.001	0.9175	0.8175	0.995	0.0358	8.88%	-44.28%
34		5	0.869	0.7598	0.9782	0.8737	0.7275	0.9638	0.03932	10.12%	-39.04%
45		5	0.9778	0.8715	1.084	0.9913	0.8463	1.083	0.03827	8.75%	-56.44%
60		5	0.8648	0.7984	0.9311	0.8725	0.7863	0.935	0.02388	6.18%	-38.36%
80		5	0.9295	0.908	0.951	0.9375	0.9013	0.9438	0.00773	1.86%	-48.72%

CETIS Analytical Report

Report Date: 25 Sep-12 17:11 (p 4 of 4)
 Test Code: 15619fm | 17-5391-7478

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

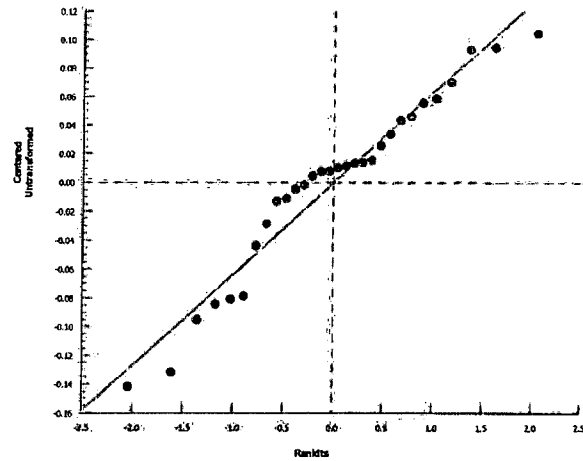
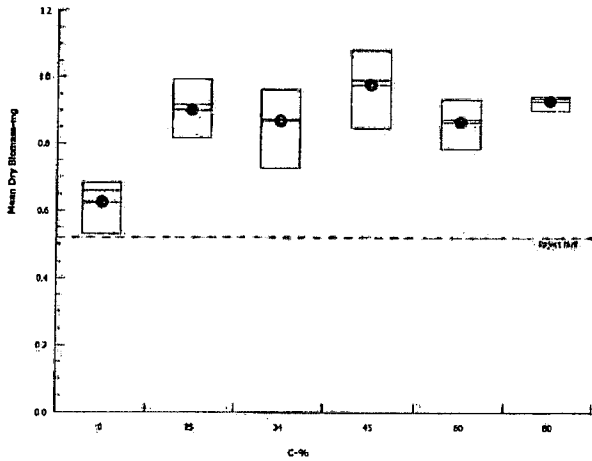
Analysis ID: 13-1004-7416 Endpoint: Mean Dry Biomass-mg
 Analyzed: 25 Sep-12 17:08 Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.8.4
 Official Results: Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.53	0.5812	0.6588	0.6712	0.6837
25		0.9575	0.8175	0.8212	0.995	0.9175
34		0.8737	0.9125	0.8675	0.7275	0.9638
45		0.9913	0.965	1.004	0.8463	1.083
60		0.7863	0.8538	0.8725	0.935	0.8763
80		0.9375	0.9013	0.9438	0.94	0.925

Graphics



CETIS Analytical Report

Report Date: 25 Sep-12 17:11 (p 1 of 2)
Test Code: 15619fm | 17-5391-7478

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 12-8967-8019	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 25 Sep-12 17:10	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 08-3048-6900	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 10-2699-9554	Code: 3D36C502	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1445547	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.625	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.236	2.908	0.6019	No Outliers Detected

Point Estimates

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

Mean Dry Biomass-mg Summary

Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.625	0.53	0.6837	0.02972	0.06646	10.63%	0.0%
25		5	0.9017	0.8175	0.995	0.0358	0.08005	8.88%	-44.28%
34		5	0.869	0.7275	0.9638	0.03932	0.08792	10.12%	-39.04%
45		5	0.9778	0.8463	1.083	0.03827	0.08557	8.75%	-56.44%
60		5	0.8648	0.7863	0.935	0.02388	0.05341	6.18%	-38.36%
80		5	0.9295	0.9013	0.9438	0.00773	0.01728	1.86%	-48.72%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.53	0.5812	0.6588	0.6712	0.6837
25		0.9575	0.8175	0.8212	0.995	0.9175
34		0.8737	0.9125	0.8675	0.7275	0.9638
45		0.9913	0.965	1.004	0.8463	1.083
60		0.7863	0.8538	0.8725	0.935	0.8763
80		0.9375	0.9013	0.9438	0.94	0.925

CETIS Analytical Report

Report Date: 25 Sep-12 17:11 (p 2 of 2)
Test Code: 15619fm | 17-5391-7478

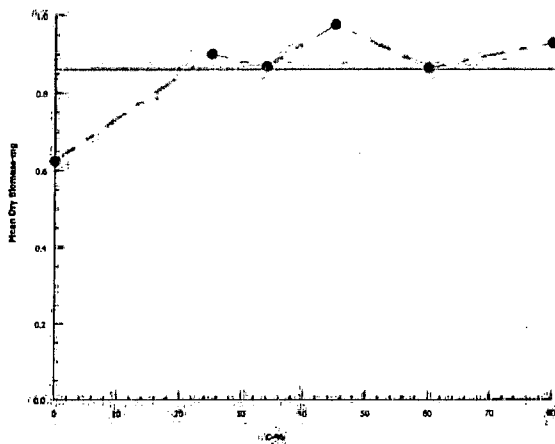
Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 12-8967-8019 Endpoint: Mean Dry Biomass-mg
Analyzed: 25 Sep-12 17:10 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



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

TEST LOG NO.: 15619
 JOB NUMBER: 20-19675F
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: 3949

BEGINNING: HRS: 1150 DATE: 9/11/12
 ENDING: HRS: 1245 DATE: 9/18/12
 TEST DILUTIONS: 25, 34, 45, 60, 80
 ORGANISM AGE (date): 9/10/12
 ORGANISM SOURCE: ECT # 4084
 SOURCE TEMP @ TEST START: 24.1
 RANDOMIZED BY: CR

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	7	7	7
	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	7	7	7	7
	Temp(°c):old/new	24.1	24.0/24.0	24.4/24.1	24.5/24.9	24.3/24.5	24.3/24.1	24.0/24.1	24.1
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	24.0	24.0/24.0	24.0/24.1	24.5/24.2	24.4/24.7	24.2/24.4	24.0/24.4	24.0
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	24.2	24.0/24.0	24.2/24.3	24.2/24.3	24.5/24.3	24.4/24.5	24.0/24.3	25.2
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	24.4	24.0/24.0	24.3/24.3	24.1/24.3	24.1/24.5	24.3/24.4	24.0/24.1	25.3
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	24.0/24.0	24.1/24.3	24.2/24.1	24.3/24.4	24.1/24.5	24.0/24.6	24.0
80	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.2	24.0/24.0	24.3/24.4	24.1/24.2	24.2/24.0	24.0/24.3	24.0/24.4	24.1
Test Renewal	Time	1150	1203	1220	1007	1115	1000	0948	1245
	Date	9/11	9/12	9/13	9/14	9/15	9/16	9/17	9/18
	Initials	CR	LU	CR	AH	CR	CR	AW	AH
morning feeding	Int/Time	AW1610	AW1650	AW1645	AW1745	AW1740	AW1610	AW1610	AW1610
afternoon feeding	Int/Time	AW1610	AW1650	AW1650	AW1505	AW1542	AW1600	AW1600	AW1600

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

TEST LOG NO.: 15619
 JOB NUMBER: 20-19675F
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: _____

BEGINNING: HRS: 150 DATE: 9/11/12
 ENDING: HRS: _____ DATE: _____

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

CONC (%)	REP ID	SURVIVAL (#)							
		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	24.3	24.0/24.0	24.4/24.1	24.1/24.0	24.3/24.5	24.5/24.4	24.1/24.2	24.2
	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.: 131019 BEGINNING: HRS: 1130 DATE: 9/11/12
 JOB NO.: 20-19675F ENDING: HRS: 045 DATE: 9/18/12
 INDUSTRY: Georgia Pacific-Crossett
 EFFLUENT: Outfall 001 NO. ORGANISMS/TREATMENT: 8
 NPDES: Yes No NO. REPLICATES: 5

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

GROWTH RESULTS							
CONC (%)	REP ID	Boat ID	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish
		<u>55</u>					
RW	A	1	1.08152	1.09376	0.00424	7	0.6000
	B	2	1.08179	1.09144	0.00465	8	0.465
	C	3	1.08335	1.08882	0.00527	8	0.527
	D	4	1.08450	1.08987	0.00537	8	0.537
	E	5	1.07802	1.08349	0.00547	7	0.781
25	A	6	1.07935	1.08701	0.00766	8	
	B	7	1.12171	1.12825	0.00654	8	
	C	8	1.08331	1.08988	0.00657	8	
	D	9	1.09566	1.10362	0.00796	8	
	E	10	1.06762	1.07496	0.00734	8	
34	A	11	1.07574	1.08273	0.00699	8	
	B	12	1.07192	1.08422	0.01130	8	
	C	13	1.09800	1.10494	0.00694	8	
	D	14	1.06704	1.07286	0.00582	8	
	E	15	1.07157	1.07928	0.00771	8	
45	A	16	1.11010	1.11803	0.00793	8	
	B	17	1.08851	1.09623	0.00772	8	
	C	18	1.07595	1.10398	0.00803	8	
	D	19	1.06398	1.07075	0.00677	8	
	E	20	1.08034	1.08907	0.00866	8	
60	A	21	1.07220	1.07849	0.00629	7	
	B	22	1.09759	1.10442	0.00683	8	
	C	23	1.11034	1.11732	0.00698	8	
	D	24	1.10050	1.10798	0.00748	8	
	E	25	1.11527	1.12228	0.00701	7	
80	A	26	1.09413	1.10163	0.00750	8	
	B	27	1.09421	1.10142	0.00721	8	
	C	28	1.10235	1.10990	0.00755	8	
<u>02 9/19</u>	D	29	1.09843	1.10595	0.00752	8	
<u>1.11824</u>	E	30	1.11084	1.11824	0.00740	8	
MH	A	31	1.10792	1.11255	0.00443	8	
	B	32	1.09765	1.10212	0.00497	8	
	C	33	1.10963	1.107430	0.00467	8	
	D	34	1.08900	1.09414	0.00514	8	
	E	35	1.10550	1.11093	0.00543	8	
	Initials / Date:		<u>02 9/12</u>				

AVG Control
 Fish wt. 0.582
 (using final #)

Oven ID: 2

Temp 02 Tins In: 9/18/12 1332
 Date/Time
 Temp 100 Tins Out: 9/19/12 1245
 Date/Time

FINAL WEIGHTS
 DATE: 9/19/12
 INITIALS: 02

TEST LOG NO. 15619

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675F

TEST ORGANISM: Fm

DATE: 9/11/12

ENVIRONMENTAL TEST LOG NO. 15619

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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	8.9	8.7	8.4	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.8	8.2
25	8.5	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2
34	8.5	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2
45	8.5	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2
60	8.5	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2
80	8.5	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2
MH	8.7	8.9	8.7	8.5	8.6	8.7	8.7	8.7	8.7	8.0	8.0	8.8	7.4	8.2

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	7.95	7.76	7.94	7.80	7.73	7.85	7.89	7.76	7.93	7.71	7.91	7.89	7.94	7.95
25	7.95	7.71	7.93	7.79	7.50	7.68	7.53	7.61	7.61	7.58	7.59	7.73	7.52	7.82
34	7.95	7.82	7.67	7.78	7.67	7.82	7.62	7.78	7.66	7.83	7.70	7.81	2.60	7.65
45	7.95	8.09	7.71	7.90	7.67	7.94	7.72	7.89	7.71	7.91	7.73	7.85	2.74	7.87
60	7.95	8.31	7.80	8.19	7.83	8.10	7.81	8.08	7.78	8.13	7.79	8.01	2.71	7.86
80	7.95	8.29	7.82	8.26	7.81	8.24	7.85	8.13	7.79	8.13	7.84	8.15	2.78	8.06
MH	7.94	7.55	7.83	7.62	7.94	7.97	7.91	7.93	7.91	7.94	7.95	7.77	7.90	7.72

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	95	228	95	94	92	105	93	166	214	143	101	95	95	91
25	675	672	675	657	679	658	704	685	713	624	705	678	684	673
34	914	899	899	882	902	929	882	879	927	963	957	908	892	887
45	1152	1126	1138	1119	1190	1225	1149	1170	1183	1131	1177	1120	1199	1149
60	1480	1481	1453	1416	1478	1496	1504	1518	1508	1461	1616	1443	1488	1469
80	1759	1928	1897	1916	1846	1983	1971	1955	1973	1860	1972	1847	1913	1900
MH	215	218	209	216	214	240	212	228	214	258	242	206	208	213

Params Int/Time:	AA0941	AA0710	AA0937	AA0645	CR0920	AA0726	CR0845	AA0808	CR1005	AA0757	AA0900	AA0600	AA0917	AA0724
Dilutions Int/Time:	AW0925	AW0828		CR0910	CR0830	CR0953	CR0953	CR1005	CR0953	CROSSO		AW0911	AW0911	
Control Water Batch:	5011	5011		5011	5014	5014	5014	5014	5014	5014		5014	5014	
Food Batch:	3949	3949		3949	3949	3949	3949	3949	3949	3949		3949	3949	

TEST LOG NO. 15619

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 9/11/12

JOB NO. 20-19675F

TEST TYPE(S) PERFORMED: Fm & Cd

ENVIRON Test Log No. 15619

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
15441	Outfall 001	9/9-10/12	9/11/12	264	475	20.02	1.76
15454	Outfall 001	9/11-12/12	9/13/12	268	470	2.06	1.74
15472	Outfall 001	9/13-14/12	9/15/12	300	500	20.02	1.97

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
15440	River Water	9/10/12	9/11/12	16	25	0.09	20.1
2011	MH	9/15/12	9/10/12	84	51	<0.02	
15461	River Water	9/11/12	9/14/12	32.8	35	0.03	20.1
2014	MH	9/19/12	9/13/12	81	52	<0.02	
15473	River water	9/14/12	9/15/12	16	22	0.06	20.1

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CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 1 of 2)
 Test Code: 15619cd | 15-2001-6642

ENVIRON International Corp

Ceriodaphnia 7-d Survival and Reproduction Test

Analysis ID: 06-7706-7024	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 19 Sep-12 17:25	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 05-0687-1539	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 17-9066-1688	Code: 6ABB5438	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

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

Fisher Exact/Bonferroni-Holm Test

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

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

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

7d Survival Rate Binomials

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

CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 2 of 2)
Test Code: 15619cd | 15-2001-6642

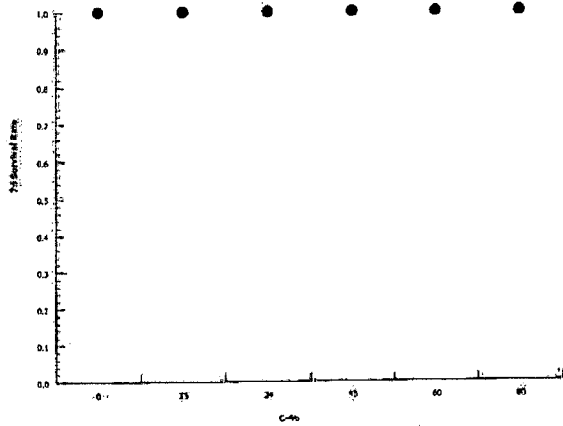
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 06-7706-7024 Endpoint: 7d Survival Rate
Analyzed: 19 Sep-12 17:25 Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 1 of 4)
 Test Code: 15619cd | 15-2001-6642

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 18-6846-5813	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 19 Sep-12 17:25	Analysis: Nonparametric-Multiple Comparison	Official Results: Yes
Batch ID: 05-0687-1539	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 17-9066-1688	Code: 6ABB5438	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	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	33.7%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	149.5	NA	1	18	1.0000	Exact	Non-Significant Effect
		34	112	NA	4	17	1.0000	Exact	Non-Significant Effect
		45	138.5	NA	1	18	1.0000	Exact	Non-Significant Effect
		60	132	NA	3	18	1.0000	Exact	Non-Significant Effect
		80	119.5	NA	1	18	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.6	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.3371	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxillary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	3.512	3.193	0.0122	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1122.42	224.4839	5	2.985	0.0190	Significant Effect
Error	3986.089	75.20922	53			
Total	5108.508		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.81	15.09	0.0169	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8695	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	27.6	20.54	34.66	29	2	41	3.121	35.75%	0.0%
25		10	40.1	36.95	43.25	41	32	46	1.394	10.99%	-45.29%
34		9	32.11	22.71	41.51	33	3	46	4.077	38.09%	-16.34%
45		10	37.1	33.7	40.5	37.5	26	43	1.501	12.8%	-34.42%
60		10	33.7	28.54	38.86	34	19	46	2.281	21.4%	-22.1%
80		10	29.1	21.31	36.89	34	7	39	3.443	37.42%	-5.44%

CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 2 of 4)
 Test Code: 15619cd | 15-2001-6642

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

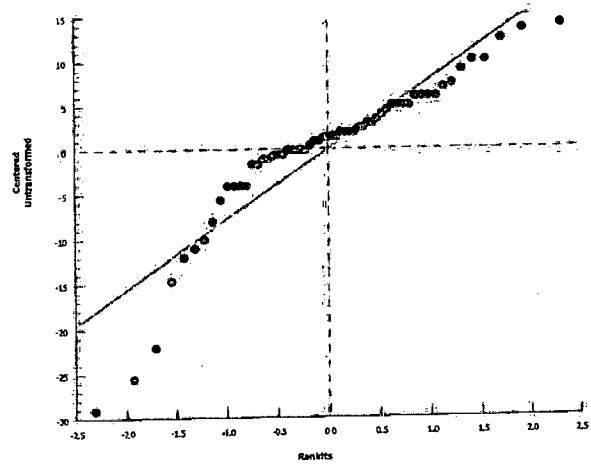
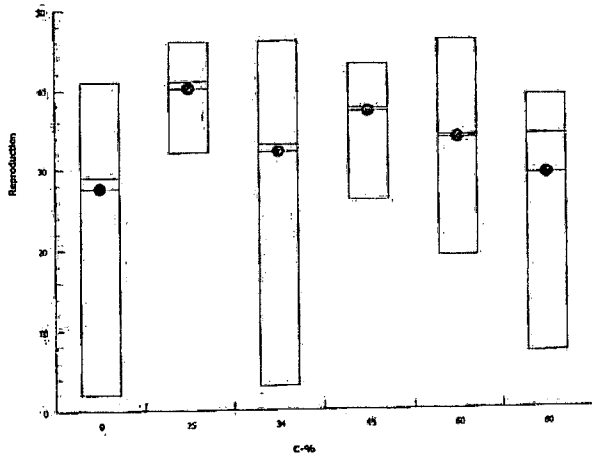
Analysis ID: 18-6846-5813 Endpoint: Reproduction
 Analyzed: 19 Sep-12 17:25 Analysis: Nonparametric-Multiple Comparison

CETIS Version: CETISv1.8.4
 Official Results: Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	2	30	27	29	31	29	27	32	28	41
25		40	46	36	45	43	36	42	32	42	39
34		33	32	3	41	46	28	31	37	38	
45		37	37	37	33	41	38	26	40	39	43
60		35	28	36	46	35	32	32	33	41	19
80		34	35	34	39	7	36	39	31	19	17

Graphics



CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 1 of 1)
 Test Code: 15619cd | 15-2001-6642

ENVIRON International Corp

Ceriodaphnia 7-d Survival and Reproduction Test

Analysis ID: 12-6158-2924	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 19 Sep-12 17:26	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 05-0687-1539	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 17-9066-1688	Code: 6ABB5438	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	838374	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.6	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

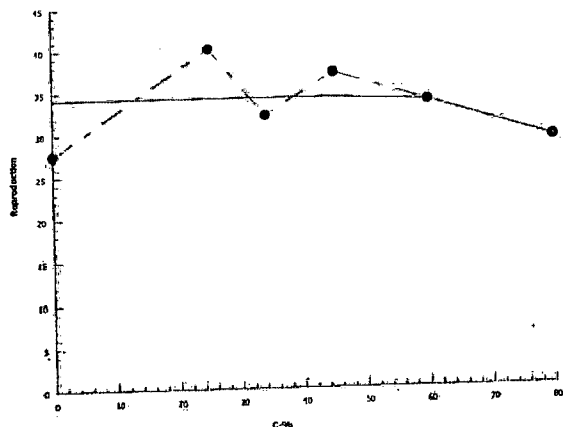
Reproduction Summary

C-%	Control Type	Count	Mean	Min	Max	Calculated Variate			
						Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	27.6	2	41	3.121	9.868	35.75%	0.0%
25		10	40.1	32	46	1.394	4.408	10.99%	-45.29%
34		9	32.11	3	46	4.077	12.23	38.09%	-16.34%
45		10	37.1	26	43	1.501	4.748	12.8%	-34.42%
60		10	33.7	19	46	2.281	7.212	21.4%	-22.1%
80		10	29.1	7	39	3.443	10.89	37.42%	-5.44%

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	2	30	27	29	31	29	27	32	28	41
25		40	46	36	45	43	36	42	32	42	39
34		33	32	3	41	46	28	31	37	38	
45		37	37	37	33	41	38	26	40	39	43
60		35	28	36	46	35	32	32	33	41	19
80		34	35	34	39	7	36	39	31	19	17

Graphics



CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 3 of 4)
 Test Code: 15619cd | 15-2001-6642

Ceriodaphnia 7-d Survival and Reproduction Test ENVIRON International Corp

Analysis ID: 02-6511-0536	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 19 Sep-12 17:27	Analysis: Nonparametric-Two Sample	Official Results: Yes
Batch ID: 05-0687-1539	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Sep-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 18 Sep-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: In-House Culture	Age:
Sample ID: 17-9066-1688	Code: 6ABB5438	Client: GPAC Crossett
Sample Date: 10 Sep-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (SEP)
Receive Date: 11 Sep-12	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result	PMSD
Untransformed	NA	C > T	NA	NA	Sample passes reproduction endpoint	25.7%

Wilcoxon Rank Sum Two-Sample Test

Control	vs Control	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	Lab Water	115.5	NA	2	18	0.7890	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.6	15 - NL	Yes	Passes Acceptability Criteria
Control Resp	28.4	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2574	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.871	2.708	0.0215	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.2	3.2	1	0.03813	0.8474	Non-Significant Effect
Error	1510.8	83.93333	18			
Total	1514		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.381	6.541	0.6380	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8083	0.866	0.0012	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	27.6	20.54	34.66	29.5	2	41	3.121	35.75%	0.0%
0	Lab Water	10	28.4	22.39	34.41	29.5	11	36	2.655	29.56%	-2.9%

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	Lab Water	11	28	36	33	28	30	34	16	33	35
0	Receiving Water	2	30	27	29	31	29	27	32	28	41

CETIS Analytical Report

Report Date: 19 Sep-12 17:28 (p 4 of 4)
Test Code: 15619cd | 15-2001-6642

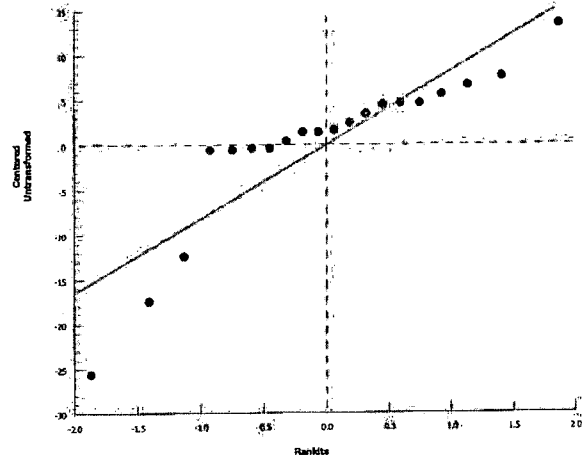
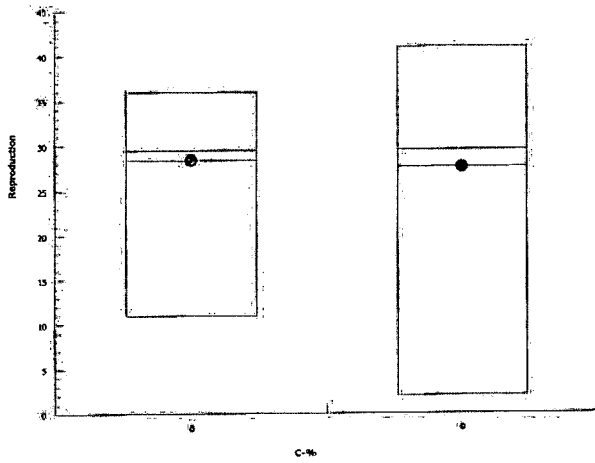
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 02-6511-0536 Endpoint: Reproduction
Analyzed: 19 Sep-12 17:27 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

TEST LOG NO.: 15619
 JOB NUMBER.: 20-19675F
 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): 9/10/12
 TEMP @ TEST START: 24.2
 RANDOMIZED BY: JM
 TEST START: 0956 DATE: 9/11/12
 TEST END: 1156 DATE: 9/18/12

SOURCE ID:	AGE (time):
10018	1200 - 1400
10016	1200 - 1400
10017	1200 - 1400

SURVIVAL AND REPRODUCTION DATA														Notes		
Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water		REPLICATES											
			Temp (°C)		1	2	3	4	5	6	7	8	9		10	
					Adult	7	7	11	11	18	17	12	3	20	9	
LMH 0956		9/11	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1211	9/12	24.1	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0945	9/13	24.4	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1205	9/14	24.1	24.5	Day 3	✓	✓	6	7	6	5	5	5	✓	✓	
	CR 1030	9/15	24.2	24.3	Day 4	✓	5	✓	✓	✓	✓	8	✓	✓	7	
	AW 441	9/16	24.0	24.2	Day 5	2	9	9	11	12	10	✓	12	✓	14	
	AT 1041	9/17	24.0	24.2	Day 6	✓	✓	12	11	13	14	14	✓	10	✓	SDC
ATH 1156		9/18		24.1	Day 7	✓	16	✓	17	✓	18	18	15	18	20	80%
					Day 8											
			Total			2	30	27	29	31	29	27	32	28	41	276

x.752 207

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

TEST LOG # 15619

JOB # 20-19675F

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											
AM 0956		9/11	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1211	9/12	24.1	24.0	Day 1	✓	✓	-	✓	-	✓	-	-	-	-	
	OK 0945	9/13	24.2	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	
	OK 1205	9/14	24.4	24.3	Day 3	7	6	✓	5	5	✓	6	6	✓	✓	
	OK 1030	9/15	24.5	24.7	Day 4	✓	✓	see	✓	✓	see	11	7	6	8	
	AW 1141	9/16	24.0	24.2	Day 5	14	16	14	15	15	16	✓	✓	12	14	
	AH 1041	9/17	24.0	24.2	Day 6	19	✓	17	✓	23	17	25	19	24	17	
AH 1156		9/18		24.3	Day 7	✓	24	23	25	20	21	24	26	✓	✓	
					Day 8											
			Total			40	46	36	46	43	36	42	32	42	39	401

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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AM 0956		9/11	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1211	9/12	24.0	24.0	Day 1	✓	-	-	-	-	✓	-	-	-	-	
	OK 0945	9/13	24.3	24.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1205	9/14	24.0	24.1	Day 3	✓	✓	✓	4	✓	7	5	6	✓	✓	
	OK 1030	9/15	24.4	24.5	Day 4	✓	4	✓	✓	✓	✓	6	8	✓	7	
	AW 1141	9/16	24.0	24.4	Day 5	12	12	✓	12	✓	15	17	✓	13	14	
	AH 1041	9/17	24.3	24.1	Day 6	✓	16	3	25	✓	24	✓	17	✓	17	
AH 1156		9/18		24.2	Day 7	21	20	✓	26	male	✓	21	18	24	✓	
					Day 8											
			Total			33	32	3	41	male	46	28	31	37	38	289/3

✓ = Test Organism Alive
 D = Test Organism Dead

0 = Live neonates
 (-0) = Dead neonates

Miss = Lost or Missing
 M = Male

TEST LOG # 15619

JOB # 20-19675F

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												
LM 0958		9/11	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1211	9/12	24.0	24.0	Day 1	✓	✓	-	-	-	-	-	-	-	-	-	
	CK 0945	9/13	24.2	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CK 205	9/14	24.2	24.4	Day 3	5	5	4	✓	6	6	7	5	✓	✓		
	CK 1030	9/15	24.6	24.5	Day 4	✓	✓	✓	✓	-	✓	8	✓	7	9		
	AW 1141	9/16	24.2	24.9	Day 5	13	13	12	14	15	15	11	15	14	15		
	AW 1041	9/17	24.1	24.3	Day 6	✓	8	16	20	18	17	✓	20	✓	19	OSW with green & blues	
AW 1156		9/18		24.1	Day 7	✓	20	20	24	18	21	23	✓	18	✓		
					Day 8												
			Total			37	37	37	33	41	38	26	40	39	43	37	

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		
					Day 0												
LM 0958		9/11	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1211	9/12	24.1	24.0	Day 1	✓	-	-	-	-	-	-	-	-	-	-	
	CK 0945	9/13	24.4	24.6	Day 2	✓	✓	✓	✓	✓	-	✓	✓	-	-		
	CK 1205	9/14	24.1	24.2	Day 3	6	6	7	✓	6	✓	5	6	✓	✓		
	CK 1030	9/15	24.2	24.4	Day 4	✓	✓	✓	8	✓	✓	✓	12	5	6		
	AW 1141	9/16	24.5	25.0	Day 5	9	14	13	✓	11	15	9	✓	15	13		
	AW 1041	9/17	24.4	24.2	Day 6	19	19	21	19	20	17	✓	15	✓	✓	OSW with beard in w/ blues	
AW 1156		9/18		24.0	Day 7	20	✓	✓	18	✓	✓	18	20	21	✓		
					Day 8												
			Total			35	28	36	46	35	32	32	33	41	19	33	37

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

TEST LOG # 15619

JOB # 20-19675F

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												
LW 0056		9/11	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 124	9/12	24.0	24.2	Day 1	-	-	-	-	-	-	-	-	-	-	-	
	CR 0945	9/13	24.5	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0205	9/14	24.1	24.3	Day 3	6	6	5	6	7	5	4	6	✓	✓		
	CR 1030	9/15	24.2	24.5	Day 4	✓	✓	✓	✓	✓	✓	13	8	✓	6		
	AW 1141	9/16	24.1	24.7	Day 5	13	14	12	11	✓	11	✓	✓	✓	11		
	AH 1041	9/17	24.3	24.2	Day 6	15	15	17	22	✓	✓	22	17	✓	✓		
AH 1156		9/18		24.1	Day 7	✓	✓	✓	✓	✓	20	✓	✓	19	✓		70%
					Day 8												
			Total			34	35	34	39	7	36	39	31	19	17	291	

SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH			REPLICATES										Notes	
				Temp (°C)		1	2	3	4	5	6	7	8	9	10		
					Day 0	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 124	9/12	24.5	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0945	9/13	24.4	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 0205	9/14	24.0	24.3	Day 3	4	7	6	✓	✓	✓	5	4	✓	✓		
	CR 1030	9/15	24.1	24.3	Day 4	✓	✓	✓	4	✓	✓	✓	✓	✓	6	7	
	AW 1141	9/16	25.4	25.1	Day 5	7	8	14	13	13	14	11	(-9)	10	11		
	AH 1041	9/17	24.1	24.3	Day 6	✓	13	16	16	15	16	18	12	✓	✓		
AH 1156		9/18		24.2	Day 7	✓	✓	20	18	✓	✓	16	✓	17	17		60%
					Day 8												
			Total			11	28	36	33	28	30	34	16	33	35	284	

✓ = Test Organism Alive
 D = Test Organism Dead

0 = Live neonates
 (-) = Dead neonates

Miss = Lost or Missing
 M = Male

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

TEST LOG NO.

15619

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675F

TEST ORGANISM: Cd

DATE: 9/11/12

ENVIRON Test Log No. 15619

28 of 37

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	14.5	8.5	8.7	8.2	8.0	8.1	8.0	8.0	8.4	7.9	8.0	7.9	7.5	7.8	7.8
25	14.5	8.5	8.6	8.1	8.7	8.0	8.7	7.9	8.7	8.0	8.0	8.3	8.4	7.9	7.9
34	14.5	8.5	8.7	8.2	8.0	8.1	8.0	7.9	8.6	8.1	7.8	8.5	8.4	7.9	7.9
45	14.5	8.5	8.6	8.2	8.7	8.0	8.5	7.9	8.6	8.2	8.1	8.4	8.5	7.8	7.8
60	14.5	8.5	8.5	8.0	8.5	8.0	8.5	7.9	8.8	8.2	8.2	8.5	8.9	7.8	7.8
80	14.5	8.5	8.9	8.2	8.5	8.2	8.4	7.9	8.7	8.0	8.3	8.4	8.9	7.7	7.7
MH	14.5	8.0	8.8	8.4	8.6	8.3	8.0	7.8	8.6	8.2	8.1	7.7	8.4	7.7	7.7

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	7.95	7.84	7.94	7.81	7.73	7.76	7.88	7.86	7.93	7.94	7.41	7.89	7.94	7.99	7.99
25	7.98	7.66	7.97	7.99	7.50	7.94	7.53	7.99	7.61	8.05	7.54	8.14	7.52	7.72	7.72
34	7.51	8.01	8.67	8.26	7.67	8.19	7.62	8.27	7.66	8.25	7.70	8.26	7.60	8.64	8.64
45	7.72	8.39	7.31	8.37	7.76	8.30	7.72	8.42	7.71	8.51	7.73	8.48	7.74	8.33	8.33
60	7.86	8.42	7.80	8.48	7.83	8.49	7.81	8.55	7.78	8.62	7.79	8.58	7.71	8.91	8.91
80	7.80	8.57	7.82	8.65	7.86	8.63	7.85	8.60	7.79	8.71	7.84	8.67	7.78	8.61	8.61
MH	7.54	7.65	7.83	7.71	7.94	7.71	7.91	7.91	7.91	7.74	7.95	7.90	7.70	7.68	7.68

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	95	114	93	102	92	115	93	107	89	105	101	105	95	109	109
25	675	656	675	690	679	698	704	693	713	714	705	725	684	720	720
34	1152	899	899	908	902	925	882	884	977	925	951	965	892	942	942
45	1460	1120	1138	1159	1190	1217	1147	1195	1183	1174	1171	1187	1139	1196	1196
60	1959	1455	1453	1480	1478	1511	1504	1496	1508	1496	1516	1551	1488	1596	1596
80	213	1885	1877	1893	1840	1932	1971	1997	1973	1944	1972	2020	1915	2040	2040
MH	213	225	209	230	214	226	212	247	214	234	242	233	208	230	230

Params: Intrl/Time:	AW 1941	AW 1239	AW 0837	AW 1000	AW 0900	AW 1315	AW 0845	AW 1131	AW 1005	AW 1240	AW 0900	AW 1155	AW 0917	AW 1239
Dilutions: Intrl/Time:	AW 0935	AW 0822	AW 0910	AW 0910	AW 0830	AW 0955	AW 0850	AW 0955	AW 0850	AW 0950	AW 0850	AW 0912	AW 0912	AW 1239
Control Water Batch:	5011	5011	5011	5011	5014	5014	5014	5014	5014	5014	5014	5014	5014	5014
Food Batch	4672, 59	4672, 59	4672, 59	4672, 59	82, 59	82, 59	82, 59	82, 59	82, 59	82, 59	82, 59	82, 59	82, 59	82, 59

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

ENVIRON Test Log No. 15619

Project Name:		Project Number:	
Industry: GEORGIA PACIFIC PAPER			
Phone: 870-567-8170 FAX: 870-364-9076			
County: NEALEY City: CROCKETT State: AR			
Sample Collected by (print): RACHEL DAWNT		NPDES Permit No.: AR 0001210	
Sample Collected by (signature): <i>[Signature]</i>		NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 377-4775
FAX: (615) 377-4976

Sample Location ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested								Description Definitive or Screen	Sample B# (lab only)		
								Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests			Other	
RIVER	GRAB	PLASTIC	NA	10:15AM	9-10-12	2	20											DILUTION WATER	3.6
OUTFALL 001	COMP	PLASTIC	YES	9-9-12 3:28am	9-10-12 6:29am	2	20											1540 1541	1.6

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

Remarks:

Measured TRC (if applicable): **000** mg/L

Relinquished by: (Signature) <i>[Signature]</i>	Date: 9-10-12	Time: 5:00pm	Received by: (Signature)	<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier	<input type="checkbox"/> UPS Hand Delivered <input type="checkbox"/> Condition: On ice (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp:	Containers/Volume Received: 40L
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 9/10/12	Time: 0840 pH upon arrival: 4.0 DO upon arrival: 9.5

41 7.95 8.8

Project Name: _____ Project Number: _____
 Industry: **GEORGIA PACIFIC PAPER**
 Phone: **870-567-8770** FAX: **870-34-9076**
 County: **ASHLEY** City: **CROSSETT** State: **AR**

Sample Collected by (print): **Rachel Duvvuri** NPDES Permit No.: **AR0001210**

Sample Collected by (signature): *Rachel Duvvuri* 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
OUTFALL 001	COMP	PLASTIC	YES	9-11-12 6:36am	9-12-12 6:40am	2 20

Total Volume in liters	Analysis Requested									
	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	
	<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"/>
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	<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"/>

CHAIN-OF-CUSTODY

ENVIRON
 201 Summit View Drive, Suite 300
 Brentwood, TN 37027
 PHONE: (615) 377-4775
 FAX: (615) 377-4976

* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____
 Remarks:
 Measured TRC (if applicable): **0.00** mg/L

Relinquished by: (Signature) <i>Rachel Duvvuri</i>	Date: 9-12-12	Time: 3:00pm	Received by: (Signature) _____	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered	Condition: (lab use only) on file		
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by: (Signature) _____		Receipt Temp: 10.2 Containers/Volume Received: 2 10L		
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received for lab by: (Signature) <i>Conroy</i>	Date: 9/13/12	Time: 10:35 AM	pH upon arrival: 7.8	DO upon arrival: 9.6

ENVIRON Test Log No. 15619

Project Name: _____ Project Number: _____

Industry: GEORGIA PACIFIC PAPER

Phone: 870-567-8170 FAX: 870-364-9076

County: ASALET City: CROSSETT State: _____

Sample Collected by (Print): Rachel Danny NPDES Permit No.: AR0001210

Sample Collected by (Signature): [Signature] NPDES Test: No Yes

Analysis Requested	Total Volume in liters	No. of Cntrs	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

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
 Brentwood, TN 37027
 PHONE: (615) 377-4775
 FAX: (615) 377-4976

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	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	Description	Sample B# (lab only)
<u>River</u>	<u>Grab</u>	<u>PLASTIC</u>	<u>NA</u>	<u>9-10-12</u>	<u>10:50</u>	<u>2</u>	<u>20</u>										<u>DILUTION</u>	<u>water</u>
																		<u>15761</u>

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

Remarks: _____

Measured TRC (if applicable): _____ mg/L

Relinquished by: (Signature) <u>[Signature]</u>	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 <input type="checkbox"/> Delivered	Condition: <u>On Ice</u> (lab use only)
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by: (Signature) _____	Receipt Temp: <u>1.8</u>	Containers/Volume Received: <u>20L</u>	
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received for lab by: (Signature) <u>[Signature]</u>	Date: <u>9/14/12</u>	Time: <u>0915</u>	pH upon arrival: <u>8.25</u> DO upon arrival: <u>10.1</u>

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ENVIRON Test Log No. 15619

Project Name:		Project Number:					Analysis Requested										CHAIN-OF-CUSTODY ENVIRON 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 377-4775 FAX: (615) 377-4976					
Industry:		Georgia-Pacific Paper Phone: 870-567-8170 FAX: 870-364-9076 County: Ashley City: Crossett State: AR					Total Volume in liters	Acute Fathead minnow	Acute Bannerrin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other						
Sample Collected by (print):		NPDES Permit No.:																				
Sample Collected by (signature):		NPDES Test:																				
		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																				
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs															Description	Sample B# (lab only)
Outfall 001	Comp	Plastic	Yes	9/13/12 6:36	9/14/12 6:40	2																
River	Grab	Plastic	NA	9/14/12 7:15am		2															Dilution Water	

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

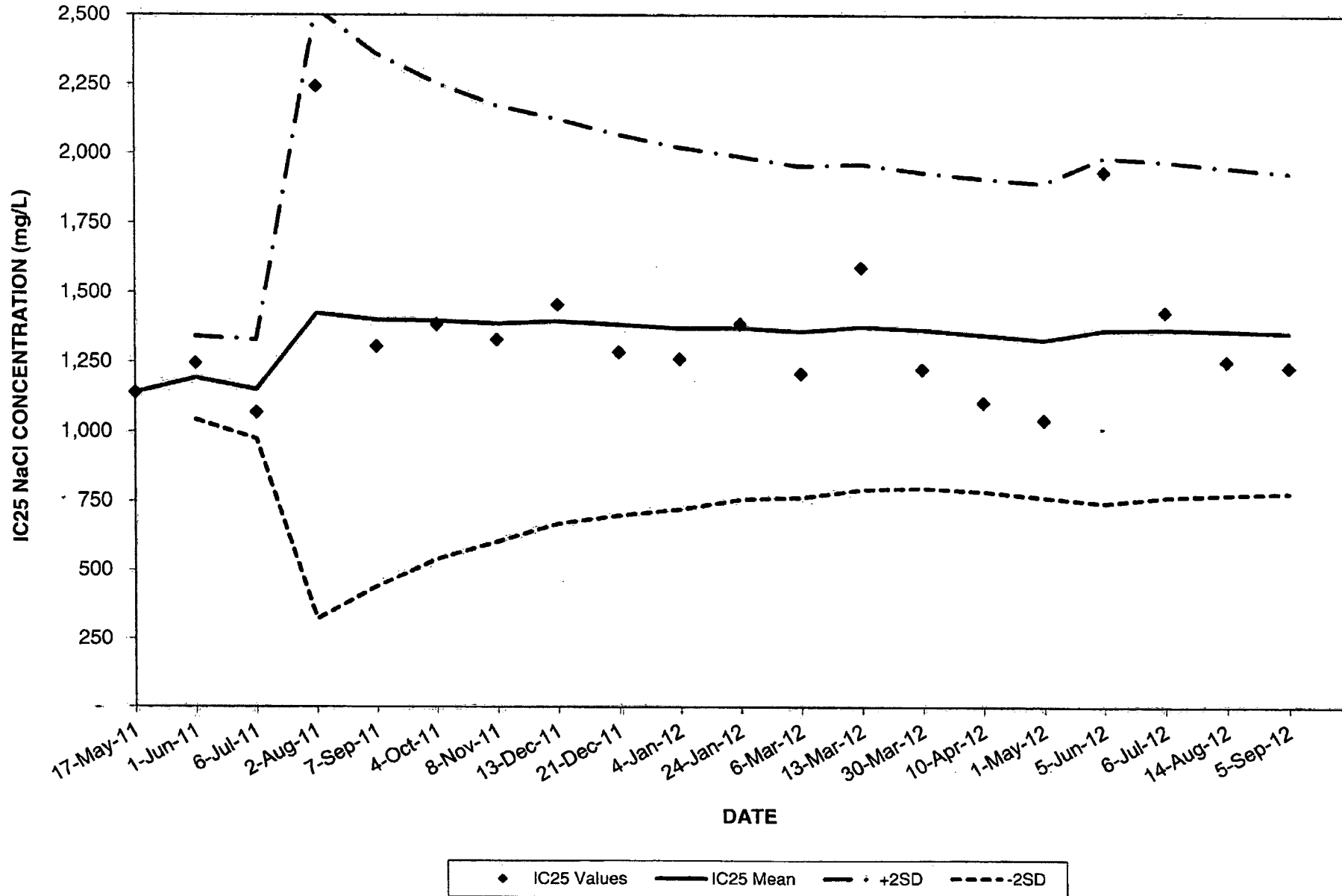
Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via:	Condition:
<i>Rachel John</i>	9/14/12	4:00pm		<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered	(lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp:	Containers/Volume Received:
				1.0/1.8	2 10L/1.8
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:
			<i>Christina Bryant - Wirth</i>	9/15/12	0920
				pH upon arrival:	DO upon arrival:
				7.3, 8.20	7.2, 7.5

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CHRONIC REFERENCE TOXICANT TEST (NaCl) 2011 - 2012 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2011 - 2012

ENVIRON Test Log No. 15619

35 of 37

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	13648	17-May-11	95	0.586	750	1,500	750	1,500	17.7	1,140	1,140				
2	13666	01-Jun-11	97.5	0.680	1,500	3,000	750	1,500	24.5	1,246	1,193	75	1,343	1,043	4
3	13725	06-Jul-11	100	0.565	750	1,500	750	1,500	26.5	1,069	1,152	89	1,330	974	6
4	13775	02-Aug-11	96	0.534	1,500	3,000	1,500	3,000	10.5	2,243	1,425	550	2,525	324	33
5	13828	07-Sep-11	97.5	0.571	3,000	6,000	750	1,500	17.4	1,306	1,401	480	2,360	441	31
6	13877	04-Oct-11	100	0.579	1,500	3,000	750	1,500	20.4	1,385	1,398	429	2,256	540	28
7	13967	08-Nov-11	100	0.586	1,500	3,000	750	1,500	22.6	1,331	1,389	393	2,174	604	26
8	14036	13-Dec-11	92.5	0.256	3,000	6,000	1,500	3,000	33.6	1,457	1,397	364	2,126	669	24
9	14047	21-Dec-11	100	0.270	750	1,500	750	1,500	30.3	1,286	1,385	343	2,070	699	23
10	14056	04-Jan-12	89	0.305	750	1,500	750	1,500	29.1	1,261	1,372	325	2,023	721	22
11	14095	24-Jan-12	97.5	0.476	1,500	3,000	750	1,500	25.6	1,387	1,374	309	1,991	756	21
12	15207	06-Mar-12	97.5	0.372	750	1,500	1,500	3,000	39.2	1,209	1,360	298	1,956	764	21
13	15225	13-Mar-12	85	0.290	6,000	>6,000	1,500	3,000	30.2	1,593	1,378	293	1,963	792	20
14	15248	30-Mar-12	100	0.383	750	1,500	750	1,500	28.1	1,225	1,367	284	1,935	799	20
15	15299	10-Apr-12	100	0.716	750	1,500	750	1,500	17.0	1,105	1,350	282	1,914	785	20
16	15343	01-May-12	100	0.562	750	1,500	750	1,500	25.0	1,042	1,330	283	1,897	764	21
17	15115	05-Jun-12	100	0.499	750	1,500	1,500	3,000	24.0	1,937	1,366	311	1,988	744	22
18	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,370	302	1,974	765	21
19	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,364	295	1,953	774	21
20	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,357	289	1,934	780	21
Avg			97	0.473	1425	2250	975	1950	24	1357	1343	315	1985	723	

Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

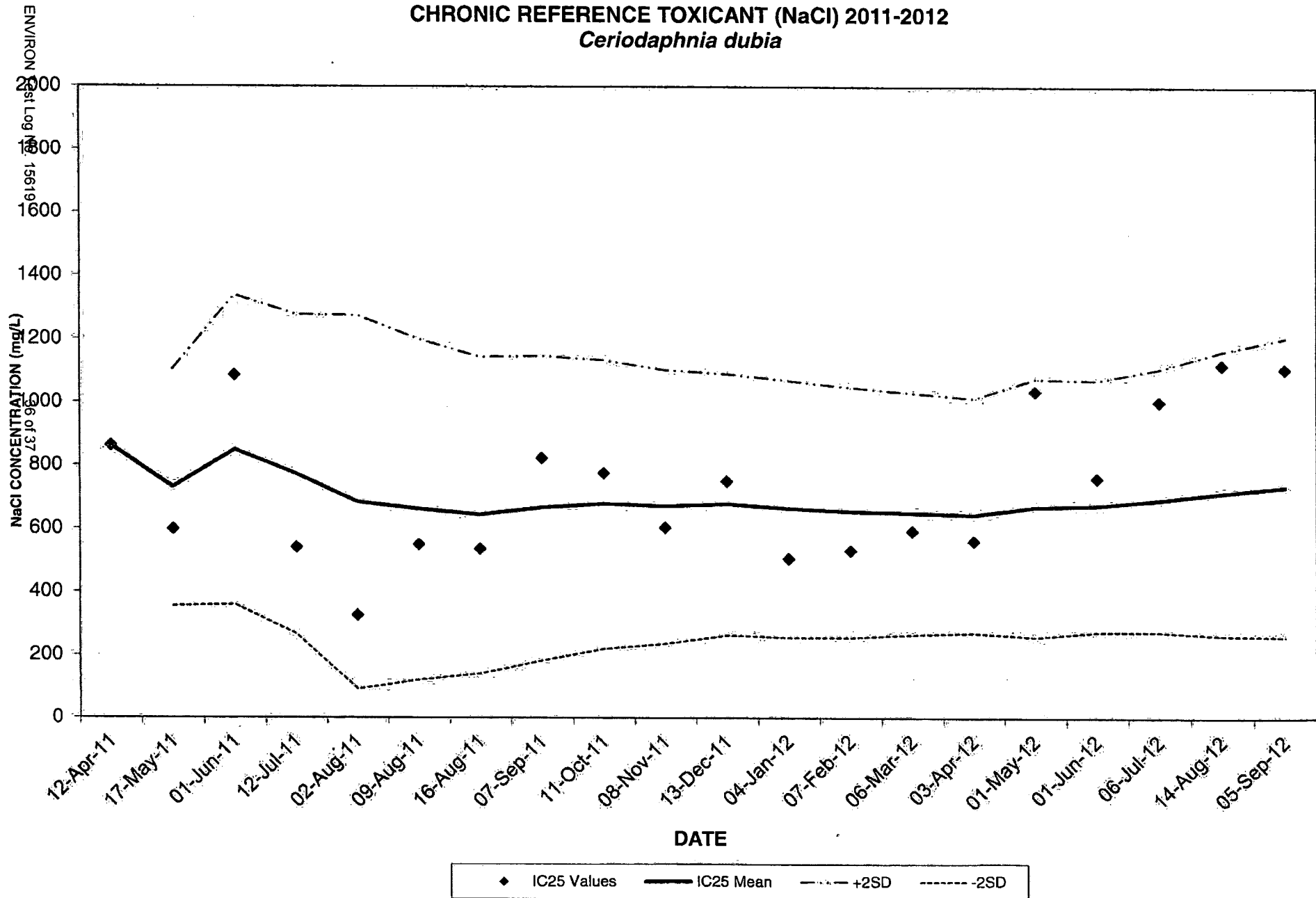
LOEC - Lowest Observable Effect Concentration (survival or growth)

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) 2011-2012
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2011-2012

ENVIRON Test Log No. 15619

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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	13583	12-Apr-11	100	90	33.2	2,000	>2,000	500	1,000	18.3	863	863				0
2	13649	17-May-11	100	90	30.0	1,000	2,000	500	1,000	24.5	598	731	187	1,105	356	18
3	13667	01-Jun-11	100	100	31.7	1,000	2,000	500	1,000	13.1	1087	849	245	1,339	360	24
4	13736	12-Jul-11	100	90	27.5	1,000	2,000	500	1,000	21.3	540	772	253	1,277	267	28
5	13776	02-Aug-11	100	100	29.9	1,000	2,000	250	500	28.4	326	683	296	1,275	91	39
6	13793	09-Aug-11	100	100	28.4	500	1,000	250	500	19.9	549	661	270	1,201	120	37
7	13804	16-Aug-11	100	100	28.0	1,000	2,000	250	500	14.2	535	643	251	1,145	140	36
8	13829	07-Sep-11	100	100	31.3	1,000	2,000	250	500	8.7	823	665	241	1,148	182	34
9	13887	11-Oct-11	100	100	28.3	2,000	>2,000	500	1,000	16.2	775	677	229	1,135	220	32
10	13963	08-Nov-11	100	90	17.9	2,000	>2,000	500	1,000	26.1	603	670	217	1,104	236	31
11	14306	13-Dec-11	100	100	21.4	1,000	2,000	500	1,000	16.8	750	677	207	1,092	263	29
12	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	663	204	1,070	255	29
13	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	653	199	1,050	255	29
14	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	648	191	1,031	265	28
15	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	642	186	1,014	271	28
16	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	667	205	1,076	257	30
17	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	672	200	1,071	273	29
18	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	691	209	1,108	273	29
19	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	713	226	1,164	262	31
20	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	733	237	1,206	260	31
Avg			99	97	29	1250	1300	450	900	20	733	699	224	1138	242	

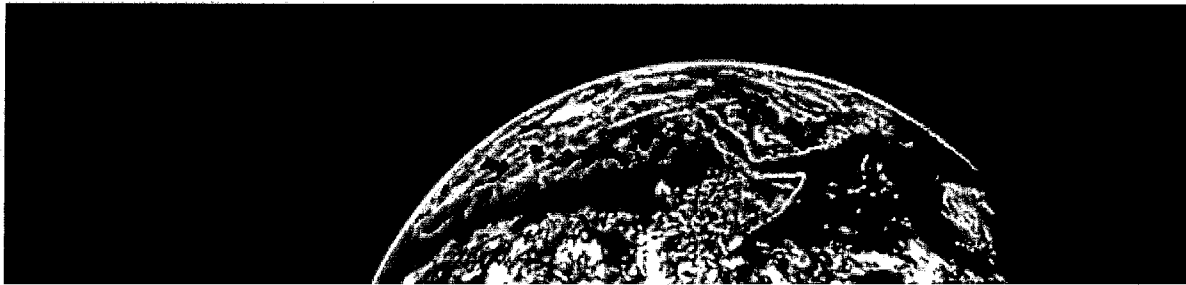
Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

ACCEPTABLE TEST RESULTS - A reproduction NOEC ranging from 250 mg/L to 1,000 mg/L.

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



Chronic *Ceriodaphnia dubia* Toxicity Test Results

Prepared for:
Georgia-Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
October 2012

Project Number:
20-19675E

October 24, 2012

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

**Re: Chronic *Ceriodaphnia dubia* Toxicity Test: October 2012
ENVIRON Job No. 20-19675E**

Dear Ms. Johnson:

ENVIRON conducted a chronic (7-day) whole effluent toxicity (WET) test for Georgia-Pacific in Crossett, AR. The test was conducted according to requirements in Arkansas NPDES permit AR0001210. This test was conducted for an accelerated test schedule in response to previous tests that failed to meet sublethal permit limits for *Ceriodaphnia dubia* (*C. dubia*) in February to April, 2011. Composite samples of Outfall 001 effluent were collected on October 8, 10, and 12, 2012. The samples were received at ENVIRON on October 9, 11, and 13, 2012, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab sample of river water was collected on October 8, and aliquots were received on the same days effluent was received. The test organism utilized for the chronic toxicity test was *C. dubia*. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

Tests were conducted as per EPA-821-R-02-013. 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)	80%

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

The river water control for the *C. dubia* test met USEPA criteria for test acceptability. The Coefficient of Variation (CV) values for reproduction in the control and critical dilution are 17.2 and

201 Summit View Drive, Suite 300, Brentwood, TN 37027
Tel: +1 615.277.7570 Fax: +1 615.377.4976

www.environcorp.com

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
ENVIRON Test Log No. 15671

23.4 percent respectively, which meet the control CV limit of 40 percent for findings of no toxicity. The PMSD value was 20.9 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction.

The effluent concentration-response curve is flat and not described in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A flat response is indicative of a lack of toxicity. The monthly reference toxicant test also met all the test acceptability criteria.

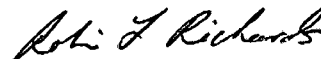
Copies of the laboratory bench sheets with statistical data are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 23 pages including 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



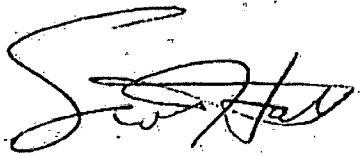
Richard E. Lockwood
Project Scientist



Robin L. Richards, REM
Principal

DATA REVIEW FORM
ACUTE AND CHRONIC WET TESTS
ENVIRON INTERNATIONAL

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 conducted¹.



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: 18 Oct-12 13:15 (p 1 of 2)
 Test Code: 15671cd | 12-5263-7848

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 03-4921-0019	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 18 Oct-12 13:09	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 01-8091-6978	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 09 Oct-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Oct-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 03-3170-8183	Code: 13C57717	Client: GPAC Crossett
Sample Date: 08 Oct-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (OCT)
Receive Date: 09 Oct-12	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%)
Dilution Water		25	1	1.0000	Exact	Non-Significant Effect
		34	1	1.0000	Exact	Non-Significant Effect
		45	1	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	1	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

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

7d Survival Rate Binomials

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

CETIS Analytical Report

Report Date: 18 Oct-12 13:15 (p 2 of 2)
Test Code: 15671cd | 12-5263-7848

Ceriodaphnia 7-d Survival and Reproduction Test

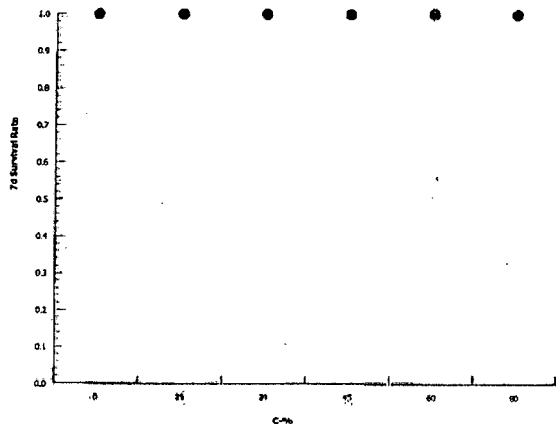
ENVIRON International Corp

Analysis ID: 03-4921-0019
Analyzed: 18 Oct-12 13:09

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

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 18 Oct-12 13:14 (p 1 of 2)
 Test Code: 15671cd | 12-5263-7848

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 13-0104-0721	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 18 Oct-12 13:09	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 01-8091-6978	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 09 Oct-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Oct-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 03-3170-8183	Code: 13C57717	Client: GPAC Crossett
Sample Date: 08 Oct-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (OCT)
Receive Date: 09 Oct-12	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	20.9%

Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Dilution Water	25	1.047	2.289	5.905	18	0.3956	CDF	Non-Significant Effect
	34	-0.6203	2.289	5.905	18	0.9559	CDF	Non-Significant Effect
	45	1.434	2.289	5.905	18	0.2395	CDF	Non-Significant Effect
	60	1.318	2.289	5.905	18	0.2823	CDF	Non-Significant Effect
	80	0.9692	2.289	5.905	18	0.4306	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.3	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2086	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.863	3.2	0.1845	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	222.6833	44.53667	5	1.339	0.2621	Non-Significant Effect
Error	1796.3	33.26482	54			
Total	2018.983		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.294	15.09	0.2786	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9513	0.9459	0.0178	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	10	28.3	24.81	31.79	28	16	33	1.542	17.23%	0.0%
25		10	25.6	20.7	30.5	28	15	33	2.166	26.76%	9.54%
34		10	29.9	27.39	32.41	29.5	24	35	1.11	11.74%	-5.65%
45		10	24.6	21.19	28.01	26	18	31	1.507	19.37%	13.07%
60		10	24.9	19.48	30.32	27	13	39	2.397	30.44%	12.01%
80		10	25.8	21.48	30.12	27	10	33	1.908	23.38%	8.83%

CETIS Analytical Report

Report Date: 18 Oct-12 13:14 (p 2 of 2)
 Test Code: 15671cd | 12-5263-7848

Ceriodaphnia 7-d Survival and Reproduction Test

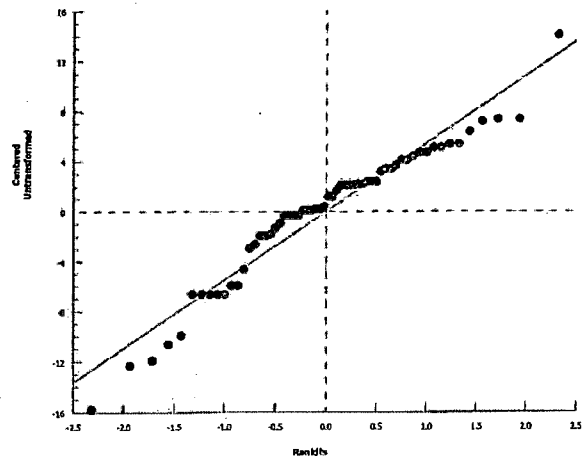
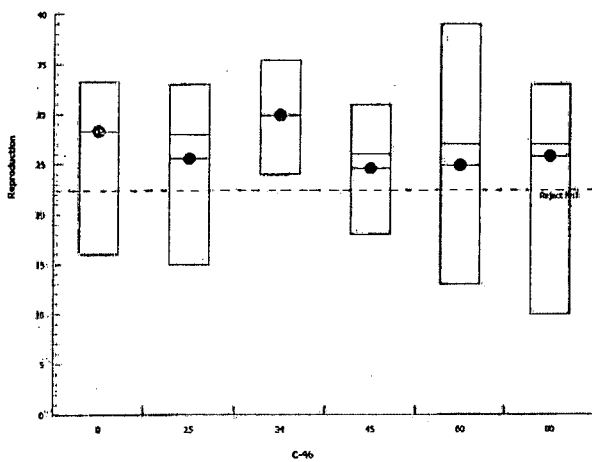
ENVIRON International Corp

Analysis ID: 13-0104-0721 Endpoint: Reproduction CETIS Version: CETISv1.8.4
 Analyzed: 18 Oct-12 13:09 Analysis: Parametric-Control vs Treatments Official Results: Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	30	28	27	28	33	33	28	28	32	16
25		31	28	28	19	19	31	19	33	33	15
34		28	30	30	34	27	28	35	24	34	29
45		28	25	18	18	28	27	22	29	31	20
60		15	27	39	27	30	27	25	27	19	13
80		28	29	33	10	28	26	26	27	27	24

Graphics



CETIS Analytical Report

Report Date: 18 Oct-12 13:14 (p 1 of 2)
 Test Code: 15671cd | 12-5263-7848

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 15-1032-6087	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 18 Oct-12 13:10	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 01-8091-6978	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 09 Oct-12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Oct-12	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 03-3170-8183	Code: 13C57717	Client: GPAC Crossett
Sample Date: 08 Oct-12	Material: Industrial Effluent	Project: WET Monthly Compliance Test (OCT)
Receive Date: 09 Oct-12	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	759642	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.3	15 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.863	3.2	0.1845	No Outliers Detected

Point Estimates

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

Reproduction Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	10	28.3	16	33	1.542	4.877	17.23%	0.0%
25		10	25.6	15	33	2.166	6.851	26.76%	9.54%
34		10	29.9	24	35	1.11	3.51	11.74%	-5.65%
45		10	24.6	18	31	1.507	4.766	19.37%	13.07%
60		10	24.9	13	39	2.397	7.578	30.44%	12.01%
80		10	25.8	10	33	1.908	6.033	23.38%	8.83%

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	Dilution Water	30	28	27	28	33	33	28	28	32	16
25		31	28	28	19	19	31	19	33	33	15
34		28	30	30	34	27	28	35	24	34	29
45		28	25	18	18	28	27	22	29	31	20
60		15	27	39	27	30	27	25	27	19	13
80		28	29	33	10	28	26	26	27	27	24

CETIS Analytical Report

Report Date: 18 Oct-12 13:14 (p 2 of 2)
Test Code: 15671cd | 12-5263-7848

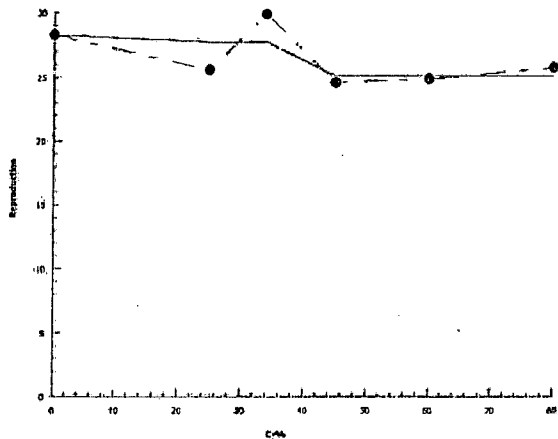
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 15-1032-6087 Endpoint: Reproduction
Analyzed: 18 Oct-12 13:10 Analysis: Linear Interpolation (ICPIN)

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**

TEST LOG NO.: 15671 PHOTOPERIOD: 16 hr light/8 hr dark
 JOB NUMBER.: 20-19675F 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): 10/8/12
 TEMP @ TEST START: 24.8
 RANDOMIZED BY: LM
 TEST START:
 HOURS: 1026 DATE: 10/9/12
 TEST END:
 HOURS: 1226 DATE: 10/15/12

SOURCE ID:	AGE (time):
10040	1233-2023

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding/End Initials/Time	Daily Renewal & Feeding Initials/Time	Date	Control River Water			REPLICATES										Notes
			Temp (°C)			1	2	3	4	5	6	7	8	9	10	
					Adult	11	19	13	1	4	14	12	10	15	5	
LM 1026		10/9	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 0925	10/10	24.1	24.6	Day 1	✓	-	-	-	-	-	-	-	-	-	
	LM 0944	10/11	24.2	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AL 1025	10/12	24.5	24.3	Day 3	6	5	4 ^{10/12}	5	6	6	4	5	7	✓	
	LM 1333	10/13	24.4	24.6	Day 4	12	10	✓	9	10	✓	9	✓	✓	6	
	LM 1025	10/14	24.8	25.6	Day 5	✓	13	10	✓	11	12	✓	10	12	10	
LM 1226		10/15		25.6	Day 6	12	✓	13	14	16	15	15	13	13	✓	
					Day 7											
					Day 8											
			Total			30	28	27	28	33	33	28	28	32	16	283

X.75 = 212

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

TEST LOG # 15671

JOB # 20-19675F

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												
LM 1026		10/9	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 0925	10/10	24.2	24.4	Day 1	-	-	-	-	-	-	-	-	-	-	-	-
	LM 0944	10/11	24.1	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AR 1025	10/12	24.3	24.1	Day 3	6	5	5	✓	6	5	5	5	6	✓	✓	✓
	HM 1333	10/13	24.3	24.6	Day 4	12	10	9	7	10	11	✓	10	✓	5		
	HM 1025	10/14	24.9	24.8	Day 5	11	✓	14	✓	✓	✓	✓	11	12	10		
LM 1226		10/15		25.9	Day 6	12	13	✓	12	13	15	14	17	15	✓		
					Day 7												
					Day 8												
			Total			31	28	28	19	19	31	19	33	33	15	256	

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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 0925	10/10	24.1	24.6	Day 1	-	-	-	-	-	-	-	-	-	-	-	-
	LM 0944	10/11	24.1	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AR 1025	10/12	24.3	24.5	Day 3	✓	4	5	6	6	5	6	✓	7	✓	✓	✓
	LM 1333	10/13	24.4	24.7	Day 4	✓	11	11	12	11	10	✓	8	11	6		
	HM 1025	10/14	24.7	24.5	Day 5	12	15	✓	11	✓	✓	13	✓	11	13		
LM 1226		10/15		25.8	Day 6	14	✓	14	15	10	13	14	16	15	10		
					Day 7												
					Day 8												
			Total			28	30	30	34	27	28	35	24	34	29	299	

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

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TEST LOG # 15671

JOB # 20-19675F

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												
LH 1026		10/9	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0925	10/10	24.6	24.4	Day 1	-	-	-	-	-	-	-	-	-	-	-	
	CH 0944	10/11	24.3	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1025	OK 0935	10/12	24.3	24.4	Day 3	6	4	✓	✓	5	4	✓	5	6	✓		
	LH 1333	10/13	24.2	24.5	Day 4	9	8	4	✓	10	9	8	✓	✓	7		
	LH 1025	10/14	24.9	24.8	Day 5	13	✓	✓	6	13	✓	✓	9	11	13	AH 1011	
LH 1226		10/15		25.4	Day 6	15	13	14	12	✓	14	14	15	14	✓		
					Day 7												
					Day 8												
			Total			28	25	18	18	28	27	22	29	31	20	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			
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LH 1026		10/9	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0925	10/10	24.4	24.2	Day 1	-	-	-	-	-	-	-	-	-	-	-	
	CH 0944	10/11	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1025	10/12	24.4	24.5	Day 3	✓	5	✓	6	6	5	✓	5	✓	✓		
	LH 1333	10/13	24.7	24.4	Day 4	✓	10	10	9	10	9	✓	11	8	4		
	LH 1025	10/14	24.8	24.8	Day 5	5	12	15	✓	14	✓	12	✓	✓	9		
LH 1226		10/15		25.7	Day 6	10	15	14	10	✓	13	13	11	11	✓		
					Day 7												
					Day 8												
			Total			15	27	39	27	30	27	25	27	19	13	249	

✓ = 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 # 15671

JOB # 20-19675F

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													
LM 1026		10/9	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0925	10/10	24.1	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 0944	10/11	24.2	24.3	Day 2		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1025	10/12	24.3	24.6	Day 3	✓	4	✓	✓	6	4	5	5	5	✓	✓	✓	
	LM 1333	10/13	24.4	24.0	Day 4	11	10	9	✓	10	✓	✓	✓	✓	4			
	LM 1025	10/14	24.7	24.8	Day 5	1	15	13	✓	12	9	8	9	10	9			
LM 1226		10/15		25.3	Day 6	16	✓	11	10	✓	13	13	13	18	11			
					Day 7													
					Day 8													
			Total			28	29	33	10	28	26	26	27	27	24	258		

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH		REPLICATES										Notes			
				Temp (°C)	1	2	3	4	5	6	7	8	9	10				
LM 1026		10/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0925	10/10	24.3	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 0944	10/11	24.1	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1025	10/12	24.4	24.7	Day 3	6	✓	7	✓	✓	5	5	8	6	5			
	LM 1333	10/13	24.5	24.6	Day 4	12	✓	6	10	✓	✓	10	10	12	11			
	LM 1025	10/14	24.8	24.8	Day 5	✓	4	✓	✓	2	2	✓	✓	✓	✓			
LM 1226		10/15			Day 6	14	10	12	15	11	10	14	14	12	16			
					Day 7													
					Day 8													
			Total			32	14	25	25	13	17	29	32	30	23	240		

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

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TEST LOG NO. 15671

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675F

TEST ORGANISM: Cd

DATE: 10/9/12

ENVIRON Test Log No. 15671

16 of 23

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	5.7	8.1	8.6	8.4	8.6	8.1	8.4	7.8	9.3	8.4	8.8	8.4			
25	5.7	8.0	8.3	8.1	8.4	8.3	8.6	8.7	9.0	8.5	9.0	8.5			
34	5.8	8.2	8.2	8.3	8.6	8.4	8.7	8.5	9.1	8.7	9.1	8.6			
45	5.8	8.2	8.5	8.2	8.6	8.2	8.5	8.4	9.3	8.8	9.0	8.0			
60	5.6	8.3	8.5	8.3	8.8	8.1	8.6	8.2	9.2	8.8	9.0	8.0			
80	5.5	8.1	8.2	8.2	8.7	8.3	8.6	8.1	9.2	8.7	8.8	8.6			
MH	5.8	8.1	8.3	8.2	8.2	8.4	8.5	8.2	9.1	8.7	8.4				

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	2.55	7.27	7.35	7.87	7.01	7.81	7.89	7.74	7.04	7.40	7.24	7.54			
25	2.22	7.27	7.45	8.16	7.38	8.17	7.66	8.14	7.63	8.23	7.73	8.17			
34	2.06	8.15	7.46	8.30	7.53	8.29	7.71	8.23	7.67	8.37	7.76	8.27			
45	2.51	8.34	7.49	8.41	7.58	8.40	7.75	8.38	7.76	8.46	7.78	8.39			
60	2.58	8.49	7.63	8.54	7.63	8.54	7.78	8.48	7.90	8.59	7.81	8.53			
80	2.62	8.58	7.63	8.60	7.68	8.62	7.79	8.59	7.82	8.60	7.82	8.66			
MH	2.76	7.72	7.72	7.92	7.71	7.88	7.94	7.76	7.86	7.76	7.92	7.93			

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	116	125	114	131	109	121	111	121	111	128	132	136			
25	607	596	593	639	613	633	619	634	601	657	641	654			
34	753	725	728	801	823	791	756	810	840	844	779	806			
45	467	954	941	968	971	950	998	1025	989	996	963	1006			
60	1264	1249	1315	1347	1381	1360	1290	1383	1319	1318	1282	1330			
80	1608	1509	1542	1605	1645	1645	1623	1707	1621	1621	1588	1659			
MH	215	224	217	234	211	235	214	230	220	226	235	244			

Params Int/Time:	AW 6937	AW 6944	AW 6975	AW 6950	AW 6910	AW 1160	AW 6932	AW 1161	AW 1165	AW 1165	AW 6935	AW 1166
Dilutions Int/Time:	AW 0915	AW 0915	AW 0910	AW 0950	AW 0918	AW 1160	AW 0920	AW 1161	AW 1165	AW 1165	AW 0925	AW 1166
Control Water Batches:	5035, 15566	5036, 15566	15574, 5036	15574, 5036	15574, 5036	15574, 5036	15584, 5039	15584, 5039	15584, 5039	15584, 5039	15584, 5039	15584, 5039
Food Batch	4110, 54	4110, 54	4115, 4115	4115, 4115	4115, 4115	4115, 4115	4095, 4115	4095, 4115	4095, 4115	4095, 4115	4095, 4115	4095, 4115

TEST LOG NO. 15671

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 10/9/12

JOB NO. 20-19675F

TEST TYPE(S) PERFORMED: Cd

ENVIRON Test Log No. 15671

17 of 23

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
15567	Outfall 001	10/7-8/12	10/9/12	296	340	<0.02	2.45
15573	outfall 001	10/9-10/12	10/11/12	280	400	<0.02	2.89
15585	outfall 001	10/11-12/12	10/13/12	272	425	0.02	3.35

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
15560	River Water	10/8/12	10/9/12	27.4	27	0.10	20.1
15574	River	10/8/12	10/11/12	22.4	25	0.04	20.1
15584	River	10/8/12	10/13/12	22.4	24	0.08	20.1
5035	MH	10/5/12	10/7/12	81.6	51	<0.02	-
5036	MH	10/6/12	10/9/12	86.4	52	<0.02	-
5039	MH	10/9/12	10/12/12	85	50	<0.02	-

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

ENVIRON Test Log No. 15671

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Project Name:				Project Number:				CHAIN-OF-CUSTODY ENVIRON 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 377-4775 FAX: (615) 377-4976																															
Industry: GEORGIA PACIFIC PAPER				Analysis Requested																																			
Phone: 870-567-8170 FAX: 870-364-9076				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">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> </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: ASALEY City: CROSSETT State: AR																																							
Sample Collected by (print): DANNY/RACHEL				NPDES Permit No.: AR0001210																																			
Sample Collected by (signature): <i>[Signature]</i>				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																																			
Sample Location ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)																					
RIVER	GRAB	PETALIC	NA	10-8-12	11:20am	1	10										DILUTION	WATER-15566																					
OVERFALL #01	COMP	PETALIC	YES	10-7-12	10-8-12	10	10											15567																					
				5:20am	6:38am																																		
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____ Remarks: Measured TRC (if applicable): 0.00 mg/L																																							
Relinquished by: (Signature) <i>[Signature]</i>				Date: 10-8-12		Time:		Received by: (Signature) <i>[Signature]</i>				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier				UPS <input type="checkbox"/> Hand Delivered <input type="checkbox"/>		Condition: (lab use only) OK																					
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Receipt Temp:		Containers/Volume Received: 6/10L																									
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) <i>[Signature]</i>				Date: 10/9/12		Time: 10:58		pH upon arrival: 6.5		DO upon arrival: 7.2																					

67 7.68 9.5

1.8
1.1

ENVIRO-TEST Log No. 15671

20 of 23

Project Name:		Project Number:		Analysis Requested										CHAIN-OF-CUSTODY ENVIRON 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 377-4775 FAX: (615) 377-4976			
Industry:		Phone:		FAX:		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.:															
Sample Collected by (signature):		NPDES Test:		No. of Cntrs													
		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes															
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time											Description	Sample B# (lab only)
Outfall 001	Comp	Plastic	YES	10/9/12 6:33am	10/10/12 6:37am												15573
River	Grab	Plastic	NA	10/2/12 11:00am												Dilution water	15574

* 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:	UPS	Condition: (lab use only)
<i>Rachel</i>	10/10/12	3:00pm		<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier	<input type="checkbox"/> Hand Delivered	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp:	Containers/Volumes Received:	
				0.8, 0.9	20.0L	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	pH upon arrival:
			<i>Jan</i>	10/10/12	9:03:00	7.68, 7.18
						DO upon arrival:
						9.90, 9.4

ENVIRON Test Log No. 15671

Project Name:		Project Number:	
Industry: <u>Georgia Pacific Paper</u>			
Phone: <u>810-567-8170</u>		FAX: <u>810-364-9074</u>	
County: <u>Asheley</u>		State: <u>AR</u>	
City: <u>Croyhet</u>			
Sample Collected by (print): <u>Rachel/Danny/Ross</u>		NPDES Permit No.: <u>AR0001210</u>	
Sample Collected by (signature): <u>Danny R.</u>		NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	

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Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested								Description Definitive or Screen	Sample B# (lab only)	
								Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests			Other
<u>RIVER</u>	<u>GRAB</u>	<u>PLASTIC</u>	<u>NA</u>	<u>10-8-12</u> <u>11:00am</u>		<u>1</u>	<u>10</u>	<input checked="" type="checkbox"/>									<u>Delution</u>	<u>15584</u>
<u>CITFALL CO1</u>	<u>COMP</u>	<u>PLASTIC</u>	<u>TES</u>	<u>10-11-12</u> <u>6:31am</u>	<u>10-12-12</u> <u>6:35am</u>	<u>1</u>	<u>10</u>						<input checked="" type="checkbox"/>				<u>Water</u>	<u>15555</u>

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

Remarks:

Measured TRC (if applicable): ND mg/L

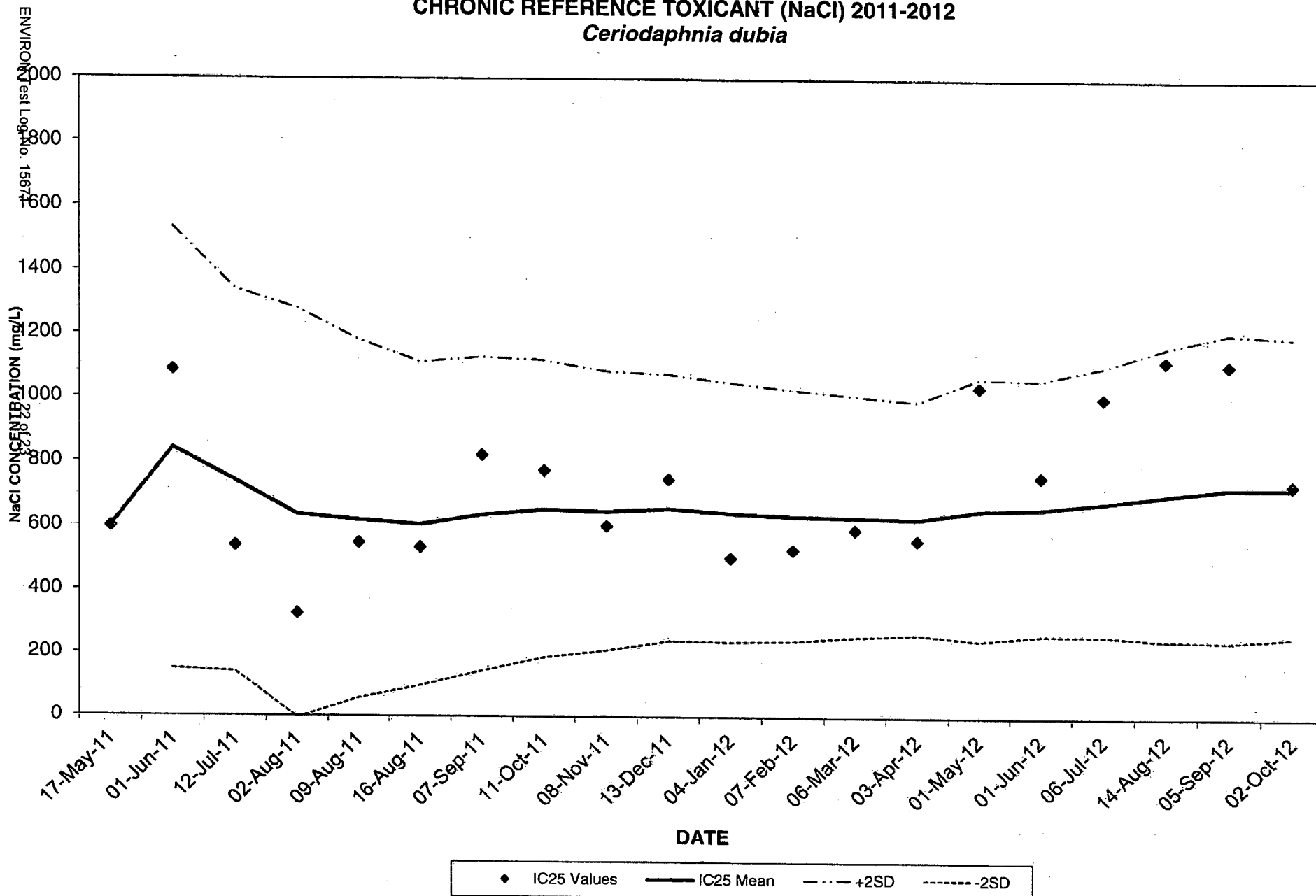
Relinquished by: (Signature) <u>Danny R.</u>	Date: <u>10-12-12</u>	Time: <u>3:00pm</u>	Received by: (Signature)	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier	UPS Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: <u>24.5</u>	Containers/Volume Received: <u>1-10L each</u>	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <u>Christa Bryant-wint</u>	Date: <u>10/13/12</u>	Time: <u>09:45</u>	pH upon arrival: <u>7.82</u> DO upon arrival: <u>8.5</u>

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 377-4775
FAX: (615) 377-4976

CHRONIC REFERENCE TOXICANT (NaCl) 2011-2012
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2011-2012

ENVIRON Test Log No. 15671

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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	13649	17-May-11	100	90	30.0	1,000	2,000	500	1,000	24.5	598	598				0
2	13667	01-Jun-11	100	100	31.7	1,000	2,000	500	1,000	13.1	1087	843	346	1,534	151	29
3	13736	12-Jul-11	100	90	27.5	1,000	2,000	500	1,000	21.3	540	742	300	1,343	141	33
4	13776	02-Aug-11	100	100	29.9	1,000	2,000	250	500	28.4	326	638	322	1,281	(5)	44
5	13793	09-Aug-11	100	100	28.4	500	1,000	250	500	19.9	549	620	281	1,183	57	41
6	13804	16-Aug-11	100	100	28.0	1,000	2,000	250	500	14.2	535	606	254	1,114	98	38
7	13829	07-Sep-11	100	100	31.3	1,000	2,000	250	500	8.7	823	637	246	1,129	145	36
8	13887	11-Oct-11	100	100	28.3	2,000	>2,000	500	1,000	16.2	775	654	233	1,120	188	33
9	13963	08-Nov-11	100	90	17.9	2,000	>2,000	500	1,000	26.1	603	648	218	1,085	211	32
10	14306	13-Dec-11	100	100	21.4	1,000	2,000	500	1,000	16.8	750	659	208	1,076	242	30
11	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	645	203	1,051	238	30
12	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	635	197	1,028	242	30
13	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	632	189	1,009	255	29
14	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	627	182	991	262	28
15	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	654	205	1,064	244	30
16	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	660	200	1,060	261	29
17	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	681	210	1,102	260	30
18	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	705	229	1,163	247	32
19	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	726	241	1,209	244	32
20	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	727	235	1,196	257	31

Avg	99	97	29	1250	1300	450	900	20	727	667	237	1144	197
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Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

ACCEPTABLE TEST RESULTS - A reproduction NOEC ranging from 250 mg/L to 1,000 mg/L.

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

LOPE

SS



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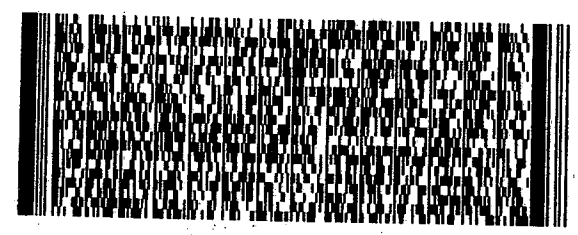


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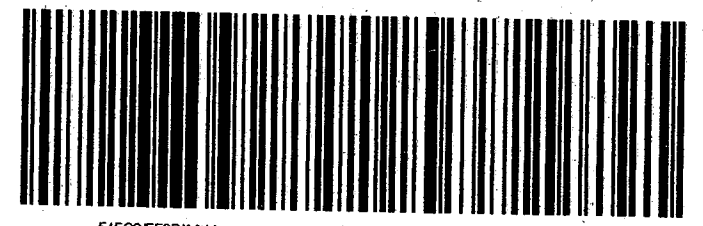
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