



Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
100 Mill Supply Rd.
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March 21, 2013

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

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

Dear Mr. Uyeda:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for February 2013. 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@gpac.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:
February 2013

Project Number:
20-19675E



March 5, 2013

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

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

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The tests were conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on February 18, 20, and 22, 2013. The samples were received at ENVIRON on February 19, 21, and 23, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on February 19, 21, and 23, 2013 in good condition. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). A testing event initiated on January 29, 2013 was not completed due to no arrival of the third test sample. The bench sheets and chain of custody documentation for the incomplete tests are attached. 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%	34%

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 34 percent, which demonstrates sub-lethal toxicity to *C. dubia*.

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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. 15944 2 of 56

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 5.7 and 7.2 percent respectively. The CV values for growth in the control and critical dilution are 13.5 and 15.0 percent respectively, and are below the CV limit of 40 percent for findings of no toxicity. The PMSD value was 25.6 percent, which is within the USEPA PMSD bounds of 12 to 30 percent for fathead minnow growth. The effluent concentration-response curve can be described as a Type 10 dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 10 response is an inverse response with progressively increasing fish growth with increasing effluent concentration. If the control response meets TAC then the test indicates 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 12.8 and 23.6 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity (even though the test demonstrates toxicity). The PMSD value was 11.6 percent, which is below the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction indicating high test sensitivity. The effluent concentration-response can be described as a Type 1 response in EPA 821-B-00-004: an ideal dose response. Although the test precision is high, the percent effects in the 45%, 60% and 80% test concentrations are within the range of acceptable precision values for *C. dubia* tests, and are not considered a false positive. 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 56 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



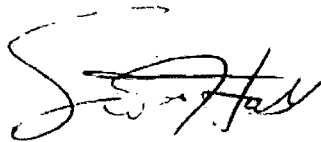
Richard Lockwood
Project Scientist



Robin L. Richards, REM
Principal

DATA REVIEW FORM
ACUTE AND CHRONIC WET TESTS
ENVIRON International Corporation

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



Scott Hall, Manager
Ecotoxicology Group

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

**Attachment 1:
Laboratory Bench Sheets with
Statistical Data**

CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 1 of 4)
 Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 01-2962-9073	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 28 Feb-13 17:29	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 11-1113-3380	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 19 Feb-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 26 Feb-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 16-1642-5118	Code: 6058B09E	Client: GPAC Crossett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	6.87%

Steel Many-One Rank Sum Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	30	16	1	8	0.9446	Asymp	Non-Significant Effect
	34	30	16	1	8	0.9446	Asymp	Non-Significant Effect
	45	30	16	1	8	0.9446	Asymp	Non-Significant Effect
	60	27.5	16	2	8	0.8333	Asymp	Non-Significant Effect
	80	25	16	2	8	0.6353	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.8 - NL	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.575	2.908	0.1932	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02248648	0.004497296	5	1.143	0.3653	Non-Significant Effect
Error	0.09444321	0.003935134	24			
Total	0.1169297		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	336.3	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.7616	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	0.975	0.9056	1	1	0.875	1	0.025	5.73%	0.0%
25		5	1	1	1	1	1	1	0	0.0%	-2.56%
34		5	1	1	1	1	1	1	0	0.0%	-2.56%
45		5	1	1	1	1	1	1	0	0.0%	-2.56%
60		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	0.0%
80		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	0.0%
25		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-2.71%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-2.71%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-2.71%
60		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	0.0%
80		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	2.71%

CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 2 of 4)
 Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 01-2962-9073 Endpoint: 7d Survival Rate
 Analyzed: 28 Feb-13 17:29 Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.8.4
 Official Results: Yes

7d Survival Rate Detail

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

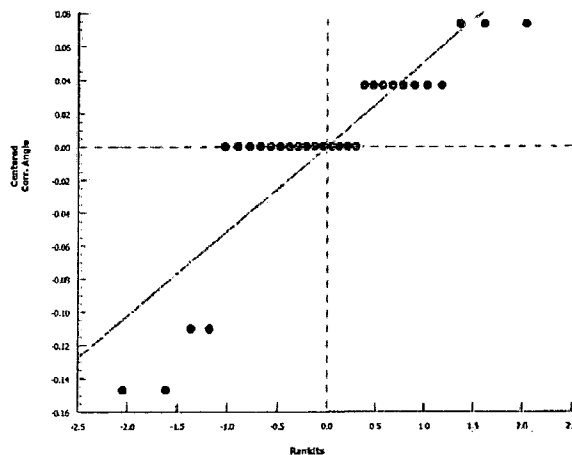
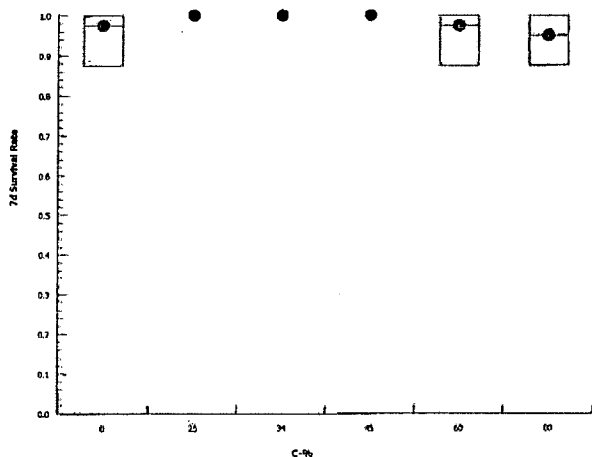
Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.209	1.393	1.393	1.393
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	1.393
80		1.393	1.393	1.393	1.209	1.209

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	8/8	7/8	8/8	8/8	8/8
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	8/8
80		8/8	8/8	8/8	7/8	7/8

Graphics



CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 3 of 4)
 Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 10-9116-0266	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 28 Feb-13 17:29	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 11-1113-3380	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 19 Feb-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 26 Feb-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 16-1642-5118	Code: 6058B09E	Client: GPAC Crossett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	25.6%

Dunnnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-2.751	2.362	0.16	8	0.9999	CDF	Non-Significant Effect
		34	-2.607	2.362	0.16	8	0.9999	CDF	Non-Significant Effect
		45	-4.96	2.362	0.16	8	1.0000	CDF	Non-Significant Effect
		60	-5.041	2.362	0.16	8	1.0000	CDF	Non-Significant Effect
		80	-2.825	2.362	0.16	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6235	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2564	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	2.424	2.908	0.3291	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.3951974	0.07903948	5	6.899	0.0004	Significant Effect
Error	0.2749739	0.01145725	24			
Total	0.6701714		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.343	15.09	0.6472	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9743	0.9031	0.6635	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	0.6235	0.5189	0.7281	0.6212	0.5275	0.7525	0.03766	13.51%	0.0%
25		5	0.8098	0.7404	0.8791	0.8388	0.7137	0.8475	0.02498	6.9%	-29.87%
34		5	0.8	0.6408	0.9592	0.8162	0.6463	0.9662	0.05735	16.03%	-28.31%
45		5	0.9593	0.8393	1.079	0.915	0.8825	1.118	0.04319	10.07%	-53.85%
60		5	0.9648	0.7993	1.13	1.009	0.7287	1.043	0.05961	13.82%	-54.73%
80		5	0.8147	0.6627	0.9668	0.8138	0.66	0.9637	0.05477	15.03%	-30.67%

CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 4 of 4)
 Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

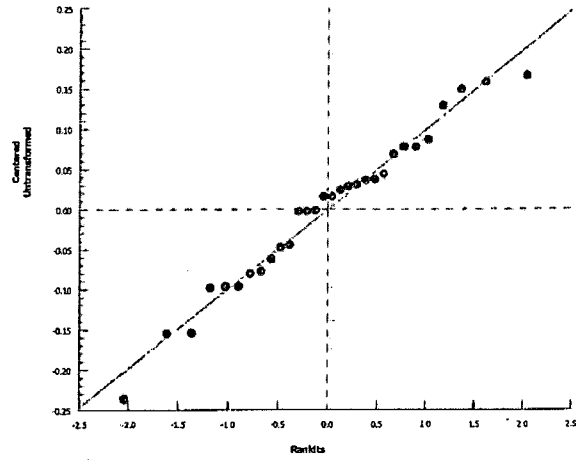
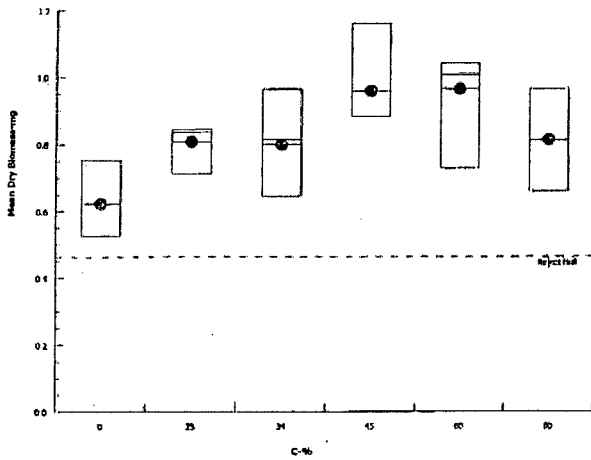
Analysis ID: 10-9116-0266 Endpoint: Mean Dry Biomass-mg
 Analyzed: 28 Feb-13 17:29 Analysis: Parametric-Control vs Treatments

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	0.5762	0.6212	0.5275	0.64	0.7525
25		0.8075	0.8412	0.7137	0.8475	0.8388
34		0.8162	0.8687	0.7025	0.6463	0.9662
45		0.8975	0.8825	0.915	0.9837	1.118
60		0.7287	1.042	1.009	1.001	1.043
80		0.66	0.9637	0.9012	0.735	0.8138

Graphics



CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 1 of 2)
 Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

ENVIRON International Corp

Analysis ID: 05-2845-8043	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 28 Feb-13 17:29	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 11-1113-3380	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 19 Feb-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 26 Feb-13	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 16-1642-5118	Code: 6058B09E	Client: GPAC Crossett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 24h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	695831	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6235	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.424	2.908	0.3291	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	0.6235	0.5275	0.7525	0.03766	0.08421	13.51%	0.0%
25		5	0.8098	0.7137	0.8475	0.02498	0.05586	6.9%	-29.87%
34		5	0.8	0.6463	0.9662	0.05735	0.1282	16.03%	-28.31%
45		5	0.9593	0.8825	1.118	0.04319	0.09658	10.07%	-53.85%
60		5	0.9648	0.7287	1.043	0.05961	0.1333	13.82%	-54.73%
80		5	0.8147	0.66	0.9637	0.05477	0.1225	15.03%	-30.67%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5762	0.6212	0.5275	0.64	0.7525
25		0.8075	0.8412	0.7137	0.8475	0.8388
34		0.8162	0.8687	0.7025	0.6463	0.9662
45		0.8975	0.8825	0.915	0.9837	1.118
60		0.7287	1.042	1.009	1.001	1.043
80		0.66	0.9637	0.9012	0.735	0.8138

CETIS Analytical Report

Report Date: 28 Feb-13 17:31 (p 2 of 2)
Test Code: 15944fhm | 17-7956-6603

Fathead Minnow 7-d Larval Survival and Growth Test

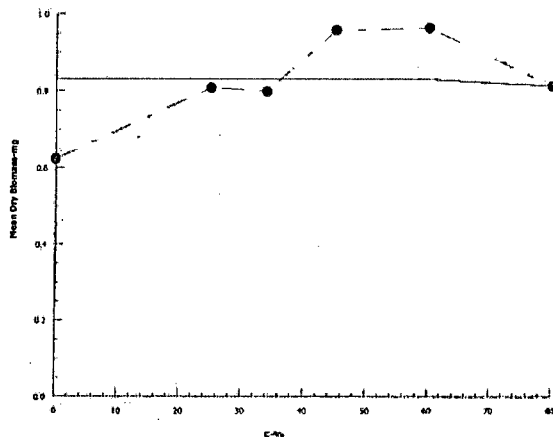
ENVIRON International Corp

Analysis ID: 05-2845-8043
Analyzed: 28 Feb-13 17:29

Endpoint: Mean Dry Biomass-mg
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.: 15944
 JOB NUMBER: 20-19675F
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: 4170

BEGINNING: HRS: 1115 DATE: 2/19/13
 ENDING: HRS: 1034 DATE: 2/26/13
 TEST DILUTIONS: 25, 34, 45, 60, 80
 ORGANISM AGE (date): 2/18/13
 ORGANISM SOURCE: ECT 4245
 SOURCE TEMP @ TEST START: 24.0
 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	8	8	8
	B	8	8	8	8	7	7	7	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.9	24.5/24.4	24.2/25.0	24.4/24.6	24.0/24.4	24.0/24.1	24.1/24.0	24.6
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	24.9	24.5/24.4	24.7/25.1	24.1/24.8	24.5/24.1	24.0/24.1	24.0/24.1	24.6
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	24.4	24.6/24.6	24.2/24.3	24.4/24.6	24.2/24.1	24.0/24.9	24.1/24.4	24.9
45	A	8	8	8 x	8	8	8	8	8
	B	8	8	8 r	8	8	8	8	8
	C	8	8	8 v	8	8	8	8	8
	D	8	8	8 r	8	8	8	8	8
	E	8	8	8 x	8	8	8	8	8
	Temp(°c):old/new	24.8	24.4/24.7	24.4/24.6	24.3/25.1	24.0/24.0	24.0/24.1	24.1/24.3	24.9
60	A	8	8	8 x	8	7	7	7	7
	B	8	8	8 x	8	8	8	8	8
	C	8	8	8 v	8	8	8	8	8
	D	8	8	8 y	8	8	8	8	8
	E	8	8	8 x	8	8	8	8	8
	Temp(°c):old/new	24.8	24.6/24.4	24.2/24.6	24.4/24.5	24.0/24.1	24.0/24.0	24.3/24.1	24.9
80	A	8	8 x	8 x	8	8	8	8	8
	B	8	8 x	8 y	8	8	8	8	8
	C	8	8 x	8 y	8	7	7	7	7
	D	8	8 y	8 y	7	7	7	7	7
	E	8	8 x	8 y	7	7	7	7	7
	Temp(°c):old/new	24.4	24.3/24.3	24.3/24.7	24.5/24.6	24.1/24.3	24.0/24.0	24.1/24.2	24.5
Test Renewal	Time	1115	0954	1000	1007	1135	1137	1732	1034
	Date	2/19/13	2/20/13	2/21/13	2/22/13	2/23/13	2/24/13	2/25/13	2/26/13
	Initials	CR	PH	AV	AW	HM	AW	AW	AW
morning feeding	In/Time		U10050	U10048	U10049	AW0730	AW0741	U10041	
afternoon feeding	In/Time	AW1515	M1515	HM1530	AW1555	AW1522	AW1518	AW1600	

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

TEST LOG NO.: 15944
 JOB NUMBER.: 20-19675F
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: _____

BEGINNING: HRS: 1115 DATE: 2/19/13
 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	24.10	24.7/24.2	24.2/24.1	24.6/24.4	24.3/24.2	24.1/24.2	24.1/24.0	24.7
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	In/Time								
afternoon feeding	In/Time								

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

TEST LOG NO.: 15944 BEGINNING: HRS: 115 DATE: 2/19/13
 JOB NO.: 20-19675F ENDING: HRS: 1634 DATE: 2/26/13
 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
RW	A	1	1.09389	1.09850	0.00461	8	0.576
	B	2	1.11431	1.11928	0.00497	7	0.710
	C	3	1.12701	1.13123	0.00422	8	0.528
	D	4	1.09865	1.10377	0.00512	8	0.640
	E	5	1.07664	1.08266	0.00602	8	0.753
AVG Control Fish wt. <u>0.641</u> (using final #)							
25	A	6	1.09719	1.10365	0.00646	8	
	B	7	1.06480	1.07153	0.00673	8	
	C	8	1.06400	1.06971	0.00571	8	
	D	9	1.10304	1.10982	0.00678	8	
	E	10	1.09760	1.10431	0.00671	8	
Oven ID: <u>2</u>							
34	A	11	1.10080	1.10733	0.00653	8	
	B	12	1.09755	1.10450	0.00695	8	
	C	13	1.12358	1.12920	0.00562	8	
	D	14	1.12062	1.12579	0.00517	8	
	E	15	1.08827	1.09600	0.00773	8	
Tins In: Date: <u>2/26/13</u> Time: <u>1142</u> Temp (°C): <u>100°</u> Initials: <u>AW</u>							
45	A	16	1.09713	1.10431	0.00716	8	
	B	17	1.09141	1.09847	0.00706	8	
	C	18	1.09170	1.09902	0.00737	8	
	D	19	1.09023	1.09810	0.00787	8	
	E	20	1.12298	1.13192	0.00894	8	
Tins Out: Date: <u>2/27/13</u> Time: <u>0815</u> Temp (°C): <u>103</u> Initials: <u>HM</u>							
60	A	21	1.10939	1.11522	0.00583	7	
	B	22	1.07163	1.07997	0.00834	8	
	C	23	1.08770	1.09577	0.00807	8	
	D	24	1.06642	1.07443	0.00801	8	
	E	25	1.10944	1.11778	0.00834	8	
FINAL WEIGHTS							
80	A	26	1.11625	1.11553	0.00528	8	
	B	27	1.10665	1.11436	0.00771	8	
	C	28	1.10852	1.11573	0.00721	8	
	D	29	1.07673	1.08261	0.00588	7	
	E	30	1.06128	1.06779	0.00651	7	
DATE: <u>2/27/13</u> INITIALS: <u>AR</u>							
MH	A	31	1.06120	1.06608	0.00518	8	
	B	32	1.07898	1.08627	0.00642	8	
	C	33	1.09060	1.09507	0.00447	8	
	D	34	1.09152	1.09620	0.00468	8	
	E	35	1.06128	1.06670	0.00542	8	
Initials / Date: <u>LM 1/27</u>							

TEST LOG NO.

15944

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO.

20-19675F

TEST ORGANISM: Fm

DATE: 159

2/19/13

ENVIRON Test Log No. 15944

15 OF 56

		D.O. (mg/L)																	
Concentration (%)		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW		8.2	8.8	8.8	8.5	8.4	8.6	8.3	8.6	8.3	8.5	8.7	8.6	8.8	8.6	8.6			
25		8.4	8.8	8.8	8.6	8.4	8.5	8.4	8.4	8.8	8.4	8.6	8.8	8.4	8.7	8.7			
34		8.6	8.8	8.6	8.5	8.5	8.6	8.5	8.2	8.7	8.4	8.5	8.6	8.0	8.7	8.7			
45		8.5	8.8	8.8	8.4	8.6	8.6	8.4	8.1	8.4	8.4	8.5	8.5	8.7	8.7	8.7			
60		8.4	8.6	8.8	8.3	8.6	8.5	8.3	8.0	8.5	7.8	8.6	8.5	8.0	8.4	8.4			
80		8.4	8.7	8.6	8.1	8.6	8.4	8.2	7.7	8.1	7.4	8.6	8.5	8.0	8.5	8.5			
MH		8.5	8.4	8.8	8.6	8.2	8.0	8.2	7.8	8.2	7.8	8.6	8.6	8.5	8.6	8.6			
		pH (s.u.)																	
Concentration (%)		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW		6.90	7.29	7.85	7.29	7.42	7.24	6.98	7.43	6.84	7.29	7.00	7.26	7.58	7.50	7.50			
25		7.77	7.61	7.66	7.24	7.53	7.26	7.80	7.98	7.36	7.82	7.72	7.50	7.74	7.62	7.62			
34		7.86	8.26	7.85	8.13	7.81	8.07	7.83	8.10	7.84	7.92	7.81	7.99	7.79	7.99	7.99			
45		7.93	8.44	7.92	8.30	7.87	8.24	7.89	8.12	7.87	8.01	7.84	8.11	7.83	8.09	8.09			
60		7.95	8.26	7.92	8.24	7.89	8.27	7.93	8.22	7.91	8.11	7.89	8.22	7.87	8.23	8.23			
80		8.09	8.48	7.99	8.26	7.93	8.23	7.94	8.33	7.91	8.33	7.91	8.22	7.89	8.35	8.35			
MH		7.87	7.24	7.89	7.95	7.85	7.26	7.88	7.80	7.82	7.74	7.93	7.73	7.95	7.66	7.66			
		Conductivity (µmhos/cm)																	
Concentration (%)		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
RW		90	91	97	94	94	95	96	118	94	152	130	110	94	96	96			
25		601	567	610	598	583	622	604	102	1072	1042	644	632	6104	646	646			
34		724	768	834	708	872	825	926	903	891	852	881	868	901	853	853			
45		1099	1035	1058	1011	1153	1052	1080	1010	1138	1110	1117	1082	1129	1044	1044			
60		1430	1252	1269	1210	1399	1321	1383	1359	1410	1394	1423	1284	1479	1370	1370			
80		1598	1688	1724	1705	1848	1758	1763	1706	1852	1751	1789	1462	1829	1780	1780			
MH		210	200	210	204	205	211	229	225	211	233	235	221	235	202	202			
Params In/Time:		AW0930	AW0935	AW0901	AW0959	AW0927	AW0749	AW0840	AW0742	AW1126	AW0802	AW0930	AW0920	AW0928	(AW060)				
Dilutions In/Time:		AW0915	AW0955	AW0955	AW0920	AW0930	AW0930	AW1118	AW0924	AW0924	AW0924	AW0924	AW0910	AW0910					
Control Water Batch:		RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133	RW15941 MH 5133			
Food Batch		4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170	4170			
					MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135	MH 5135			

TEST LOG NO. 15944
 JOB NO. 20-19675F

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

DATE OF TEST: 2/19/13

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
15942	Outfall 001	2/17/13	2/19/13	288	537	20.02	3.31
15953	001	2/19/13	2/19/13	244	511	20.02	3.21
15961	Outfall 001	2/19/13	2/19/13	268	537	20.02	3.17
				Avg = 267	Avg = 528		
				Ret. 02	2.0		

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
15941	River Water	2/18/13	2/19/13	18.4	15	0.04	20.1
5133	MH	2/14/13	2/18/13	84	47	20.02	-
15952	RW	2/20/13	2/19/13	80	15.14	0.04	20.1
5135	MH	2/16/13	2/19/13	80.8	48	20.02	-
15962	RW	2/19/13	2/19/13	24	15	0.04	20.1
5137	MH	2/18/13	2/19/13	80	44	20.02	-

CETIS Analytical Report

Report Date: 01 Mar-13 13:03 (p 1 of 2)

Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 12-7080-1909	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 01 Mar-13 13:00	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 12-6832-3911	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 19 Feb-13 10:47	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 25 Feb-13 12:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 2h	Source: In-House Culture	Age:
Sample ID: 02-1645-6220	Code: CE6DC1C	Client: GPAC Crosssett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

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

Fisher Exact/Bonferroni-Holm Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	1	1.0000	Exact	Non-Significant Effect
		34	1	1.0000	Exact	Non-Significant Effect
		45	0.4737	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	0.5	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

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

Data Summary

C-%	Control Type	NR	R	NR + R	Prop NR	Prop R	%Effect
0	Receiving Water	10	0	10	1	0	0.0%
25		10	0	10	1	0	0.0%
34		10	0	10	1	0	0.0%
45		8	1	9	0.8889	0.1111	11.11%
60		10	0	10	1	0	0.0%
80		9	1	10	0.9	0.1	10.0%

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	0	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		1	1	0	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	0/1	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	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 01 Mar-13 13:03 (p 2 of 2)
Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

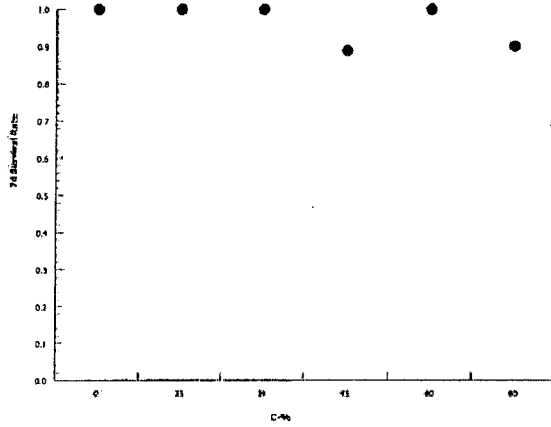
ENVIRON International Corp

Analysis ID: 12-7080-1909
Analyzed: 01 Mar-13 13:00

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

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 01 Mar-13 13:02 (p 1 of 2)
 Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 08-3635-3733	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 01 Mar-13 13:00	Analysis: Parametric-Multiple Comparison	Official Results: Yes
Batch ID: 12-6832-3911	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 19 Feb-13 10:47	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 25 Feb-13 12:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 2h	Source: In-House Culture	Age:
Sample ID: 02-1645-6220	Code: CE6DC1C	Client: GPAC Crossett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	34	45	39.12	2.941	11.6%

Bonferroni Adj t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	0.2444	2.399	3.925	18	1.0000	CDF	Non-Significant Effect
		34	2.017	2.399	3.925	18	0.1220	CDF	Non-Significant Effect
		45*	3.972	2.399	4.033	17	0.0005	CDF	Significant Effect
		60*	3.789	2.399	3.925	18	0.0010	CDF	Significant Effect
		80*	8.678	2.399	3.925	18	<0.0001	CDF	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	33.9	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1158	0.13 - 0.47	Yes	Below Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.373	3.193	0.9056	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1376.004	275.2007	5	20.56	<0.0001	Significant Effect
Error	709.5555	13.38784	53			
Total	2085.559		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.804	15.09	0.3258	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9818	0.9451	0.5203	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	33.9	30.8	37	33.5	29	41	1.37	12.78%	0.0%
25		10	33.5	31.53	35.47	34	29	38	0.8724	8.24%	1.18%
34		10	30.6	28.87	32.33	30	28	36	0.763	7.89%	9.74%
45		9	27.22	24.86	29.58	27	24	32	1.024	11.29%	19.7%
60		10	27.7	24.78	30.62	27.5	22	34	1.291	14.74%	18.29%
80		10	19.7	16.38	23.02	21	13	28	1.469	23.57%	41.89%

CETIS Analytical Report

Report Date: 01 Mar-13 13:02 (p 2 of 2)

Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 08-3635-3733

Endpoint: Reproduction

CETIS Version: CETISv1.8.4

Analyzed: 01 Mar-13 13:00

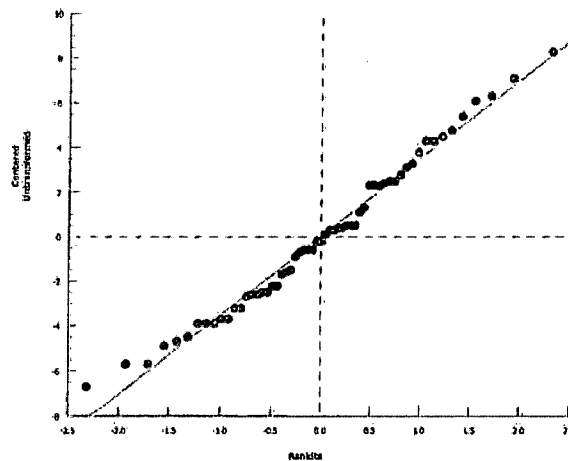
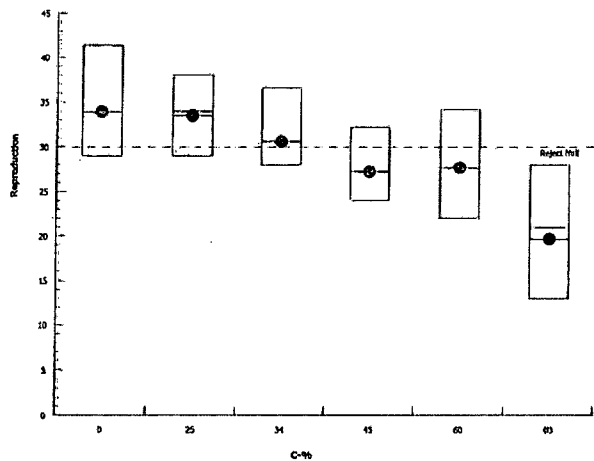
Analysis: Parametric-Multiple Comparison

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	41	40	37	30	29	34	35	30	30	33
25		34	34	29	36	31	31	34	32	36	38
34		36	28	31	28	31	30	30	29	33	30
45		25	31	24	27	24	32	25	27	30	
60		32	26	22	24	32	34	27	28	29	23
80		13	14	16	22	28	22	23	22	20	17

Graphics



CETIS Analytical Report

Report Date: 01 Mar-13 13:03 (p 1 of 2)
 Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 20-7525-5040	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 01 Mar-13 13:02	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 12-6832-3911	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 19 Feb-13 10:47	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 25 Feb-13 12:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 2h	Source: In-House Culture	Age:
Sample ID: 02-1645-6220	Code: CE6DC1C	Client: GPAC Crossett
Sample Date: 18 Feb-13	Material: Industrial Effluent	Project: WET Monthly Compliance Test (FEB)
Receive Date: 19 Feb-13	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1606707	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	33.9	15 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.373	3.193	0.9056	No Outliers Detected

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	65.25	44.74	70.41	1.533	1.42	2.235

Reproduction Summary

Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	33.9	29	41	1.37	4.332	12.78%	0.0%
25		10	33.5	29	38	0.8724	2.759	8.24%	1.18%
34		10	30.6	28	36	0.763	2.413	7.89%	9.74%
45		9	27.22	24	32	1.024	3.073	11.29%	19.7%
60		10	27.7	22	34	1.291	4.084	14.74%	18.29%
80		10	19.7	13	28	1.469	4.644	23.57%	41.89%

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	41	40	37	30	29	34	35	30	30	33
25		34	34	29	36	31	31	34	32	36	38
34		36	28	31	28	31	30	30	29	33	30
45		25	31	24	27	24	32	25	27	30	
60		32	26	22	24	32	34	27	28	29	23
80		13	14	16	22	28	22	23	22	20	17

CETIS Analytical Report

Report Date: 01 Mar-13 13:03 (p 2 of 2)

Test Code: 15944cd | 00-7777-4192

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 20-7525-5040

Endpoint: Reproduction

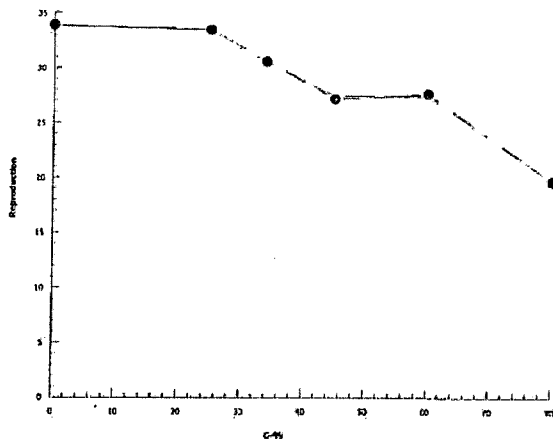
CETIS Version: CETISv1.8.4

Analyzed: 01 Mar-13 13:02

Analysis: Linear Interpolation (ICPIN)

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.: 15944 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): 2/18-19/13
 TEMP @ TEST START: ^{AW} 24.3 ~~24.5~~
 RANDOMIZED BY: AH
 TEST START:
 HOURS: 1033 DATE: 2/19/13
 TEST END:
 HOURS: 1233 DATE: 2/26/13

SOURCE ID:	AGE (time):
10166	2300-0647

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control		Temp (°C)	REPLICATES										Notes			
			River Water			Adult	1	2	3	4	5	6	7	8	9		10		
							11	15	19	3	6	4	8	12	16		7		
AH 1033		2/19	24.1		24.1	Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 0925	2/20	24.1	24.2	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0924	2/21	24.1	24.5	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 0928	2/22	24.0	24.4	24.4	Day 3	✓	✓	✓	5	5	✓	4	5	✓	✓	✓		
	AW 1045	2/23	24.8	24.7	24.7	Day 4	6	6	5	9	9	5	✓	2	5	5	5		
	AW 1045	2/24	24.0	24.1	24.1	Day 5	14	15	12	✓	✓	11	12	✓	11	13			
	AW 0925	2/25	24.0	24.7	24.7	Day 6	✓	✓	✓	16	15	✓	19	9	✓	✓			
AW 1233		2/26		24.1	24.1	Day 7	21	19	20	18	18	18	20	14	14	15			
						Day 8													
			Total				41	40	37	30	29	34	35	30	30	33	33	33	339

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

TEST LOG # 15944

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											
AH 1033		2/19	24.2		Day 0	✓	✓	-	-	-	-	-	-	-	-	
	AW 0935	2/20	24.2	24.0	Day 1	✓	✓	-	-	-	-	-	-	-	-	
	AH 0934	2/21	24.6	24.4	Day 2	✓	-	-	-	-	-	✓	✓	✓	✓	
	AW 0928	2/22	24.0	24.2	Day 3	5	✓	4	6	3	✓	4	5	✓	✓	
	AW 1000	2/23	24.0	24.6	Day 4	✓	5	9	10	10	5	✓	10	6	6	
	AW 1045	2/24	24.0	24.1	Day 5	12	13	✓	✓	✓	9	11	✓	12	13	
	AW 0925	2/25	24.0	24.4	Day 6	17	✓	16	19	18	17	19	17	✓	✓	
AW 1033		2/26		24.4	Day 7	✓	16	21	17	19	✓	22	20	18	19	
					Day 8											
			Total			34	34	29	30	31	31	34	32	36	38	335

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	
AH 1033		2/19	24.4		Day 0	✓	-	✓	-	-	-	-	-	-	✓	
	AW 0935	2/20	24.3	24.4	Day 1	✓	-	-	-	✓	-	✓	-	-	-	
	AH 0934	2/21	24.3	24.5	Day 2	✓	-	-	-	-	-	✓	✓	✓	✓	
	AW 0928	2/22	24.0	24.2	Day 3	✓	✓	4	5	5	✓	✓	4	✓	✓	
	AW 1000	2/23	24.6	24.6	Day 4	6	6	✓	8	✓	5	6	10	5	6	
	AW 1045	2/24	24.0	24.1	Day 5	12	7	11	✓	9	9	10	✓	11	8	
	AW 0925	2/25	24.0	24.4	Day 6	✓	✓	16	15	17	✓	14	15	17	16	
AW 1033		2/26		24.8	Day 7	18	15	✓	19	✓	16	✓	17	16	✓	
					Day 8											
			Total			36	28	31	28	31	30	30	29	33	30	306

✓ = 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 # 15944

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		Adult	REPLICATES										Notes
			45%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
AH 1033		2/19	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AH 0935	2/20	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AH 0934	2/21	24.3	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 0928	2/22	24.0	24.2	Day 3	3	✓	4	✓	4	✓	5	5	✓	✓	
	AW 1400	2/23	24.2	24.1	Day 4	✓	5	8	6	7	6	✓	✓	7	6	
	AW 1045	2/24	24.0	24.1	Day 5	7	9	✓	7	✓	9	8	9	8	9	
	AW 0925	2/25	24.0	24.3	Day 6	15	✓	12	14	13	✓	12	13	Miss	15	
AW 1233		2/26	24.1		Day 7	✓	17	✓	17	17	18	✓	✓	✓		
					Day 8											
			Total			25	31	24	27	24	32	25	27	NA	30	245

1/10
2272

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Adult	REPLICATES										Notes
			60%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
AH 1033		2/19	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AH 0935	2/20	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AH 0934	2/21	24.3	25.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 0928	2/22	24.1	24.6	Day 3	✓	✓	3	3	4	✓	✓	5	✓	✓	
	AW 1400	2/23	24.3	24.5	Day 4	7	5	7	7	13	6	6	✓	5	4	
	AW 1045	2/24	24.0	24.0	Day 5	8	6	✓	✓	✓	11	7	8	8	9	
	AW 0925	2/25	24.0	24.4	Day 6	✓	✓	12	14	15	✓	14	15	16	✓	
AW 1233		2/26	24.2		Day 7	17	15	✓	16	17	17	✓	16	12	10	
					Day 8											
			Total			32	20	22	24	32	34	27	28	29	23	277

277
287
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✓ = 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 # 15944

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		80% Temp (°C)	REPLICATES										Notes	
						1	2	3	4	5	6	7	8	9	10		
						Adult											
At 1023		2/19	24.1			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0935	2/20	24.4	24.3		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0934	2/21	24.0	24.5		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0928	2/22	24.1	24.8		Day 3	3	✓	4	5	5	✓	6	✓	✓		
	At 1020	2/23	24.1	24.2		Day 4	✓	5	4	✓	11	✓	4	8	6		
	At 1045	2/24	24.1	24.0		Day 5	5	✓	✓	6	✓	7	6	7	6	4	• pale
	At 0925	2/25	24.0	24.4		Day 6	5	✓	D/8	11	12	✓	6	11	9	7	
At 1233		2/26				Day 7	✓	9		✓	9	11	5	✓	4	7	
						Day 8							5				
			Total				13	14	10	22	28	22	14	22	20	17	192

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SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		MH Temp (°C)	REPLICATES										Notes	
						1	2	3	4	5	6	7	8	9	10		
At 1023		2/19	24.4			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0935	2/20	24.2	24.3		Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0934	2/21	24.3	25.1		Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	At 0928	2/22	24.0	24.1		Day 3	✓	✓	3	✓	6	✓	5	5	✓	✓	
	At 1020	2/23	24.0	24.3		Day 4	5	7	✓	5	12	10	✓	13	5	5	
	At 1045	2/24	24.0	24.2		Day 5	13	12	11	11	✓	17	12	✓	14	11	
	At 0925	2/25	24.0	24.1		Day 6	21	16	18	18	✓	✓	19	✓	✓	✓	
At 1233		2/26	24.4			Day 7	✓	✓	✓	✓	19	19	13	20	17	18	
						Day 8											
			Total				39	35	32	34	39	40	36	38	36	34	369

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

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TEST LOG NO. 15944

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675F

TEST ORGANISM: Cd

DATE: 2/19/13

ENVIRON Test Log No. 15944

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D.O. (mg/L)

Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	8.2	8.2	8.8	8.4	8.4	8.3	8.3	8.2	8.3	8.2	8.7	8.4	8.8	8.3	8.3
25	8.4	8.4	8.6	8.4	8.4	8.4	8.4	8.1	8.8	8.4	8.6	8.5	8.6	8.4	8.4
34	8.6	8.6	8.6	8.4	8.5	8.5	8.5	8.1	8.7	8.5	8.5	8.5	8.8	8.2	8.2
45	8.5	8.5	8.8	8.3	8.6	8.4	8.4	8.0	8.4	8.2	8.5	8.4	8.7	8.3	8.3
60	8.4	8.2	8.8	8.2	8.6	8.3	8.3	8.0	8.5	8.2	8.6	8.4	8.8	8.3	8.3
80	8.4	8.1	8.6	8.1	8.6	8.2	8.2	8.0	8.1	8.2	8.6	8.4	8.7	8.3	8.3
MH	8.5	8.4	8.8	8.1	8.2	8.0	8.0	8.0	8.2	8.2	8.6	8.5	8.7	8.3	8.4

pH (s.u.)

Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	6.97	7.38	7.65	7.10	7.42	7.33	7.98	7.46	7.84	7.26	7.00	7.88	7.88	7.59	7.59
25	7.77	8.28	7.66	8.31	7.53	8.30	7.80	8.37	7.76	8.38	7.72	8.89	7.94	8.35	8.35
34	7.50	8.44	7.85	8.49	7.81	8.44	7.83	8.62	7.84	8.51	7.81	8.46	7.79	8.49	8.49
45	7.93	8.57	7.92	8.60	7.97	8.52	7.99	8.59	7.97	8.68	7.84	8.60	7.83	8.59	8.59
60	7.95	8.10	7.92	8.69	7.89	8.52	7.93	8.69	7.91	8.69	7.84	8.75	7.87	8.70	8.70
80	8.09	8.74	7.99	8.77	7.93	8.78	7.94	8.77	7.93	8.76	7.91	8.77	7.89	8.78	8.78
MH	7.87	7.84	7.99	7.92	7.85	7.78	7.88	7.91	7.89	7.88	7.93	7.94	7.95	7.78	7.78

Conductivity (µmhos/cm)

Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	90	107	92	99	94	102	96	111	94	102	130	112	94	110	110
25	60	114	610	543	535	1278	604	652	1072	1087	1044	649	664	745	745
34	724	851	894	827	878	887	826	853	891	906	881	879	901	937	937
45	1099	1098	1058	1057	1153	1184	1080	1097	1138	1115	1117	1092	1129	1150	1150
60	1430	1417	1369	1342	1399	1328	1388	1423	1410	1487	1423	1421	1471	1488	1488
80	1699	1710	1324	1754	1848	1841	1763	1740	1882	1805	1786	1656	1886	1938	1938
MH	210	227	210	198	205	219	229	272	211	272	233	221	225	232	232

Params Int/Time: 04-0930 AM1025 AW0901 LM1045 LM1027 HM1030 AW0840 AW0840 LM1120 AM1022 AW0930 AM1119 AW0900 AL1300

Dilutions Int/Time: AM0915 AM0850 AM0850 AM0926 AM0830 AM0830 AM1118 AM0920 AM0916 AM0916

Control Water Batch: RW15941 MH5133 RW15941 MH5133 RW15942 MH5137 RW15942 MH5137 RW15942 MH5137 RW15942 MH5137 RW15942 MH5137

Food Batch: 4238,08 4238,08 38,08 41,21 41,21 38,08 41,21 41,21 41,21 41,21 41,21 41,21 41,21 41,21

MH 5135 MH 5135 MH 5135 MH 5137 MH 5137

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

TEST LOG NO.: 15894
 JOB NUMBER: 20-19675F
 INDUSTRY: Georgia Pacific Crossett
 EFFLUENT: Outfall 001
 DILUTION WATER: River Water
 NPDES: Yes No
 FOOD BATCH: 4170

BEGINNING: HRS: 1150 DATE: 1/29/13 PHOTOPERIOD: 16 hr light/8 hr dark
 ENDING: HRS: _____ DATE: _____ FEEDING REGIME: _____
 TEST DILUTIONS: 25, 34, 45, 60, 80 0.15 mL Artemia @ 2 times/day
 ORGANISM AGE (date): 1/28/13 TEST VESSEL CAPACITY: 450 mL
 ORGANISM SOURCE: ECT #4223 TEST SOLUTION VOLUME: 250 - 300 mL
 SOURCE TEMP @ TEST START: 24.1 NO. ORGANISMS/TREATMENT: 8
 RANDOMIZED BY: WR NO. REPLICATES: 5

No 3rd sample
Incomplete 2/5/13

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	7
	B	8	8	8	8	7	5	4	4	4
	C	8	8	8	8	8	8	8	7	7
	D	8	8	8	4	3	2	2	2	2
	E	8	8	8	8	8	8	8	8	8
	Temp(°c):old/new	25.0	24.6/24.4	24.8/24.9	24.0/24.1	24.2/24.1	24.0/24.1	24.9/24.8	24.3	
25	A	8	8	8	8	8	8	8	8	8
	B	8	8	8	8	7	7	7	7	7
	C	8	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	7	7	7	7
	Temp(°c):old/new	24.9	24.9/24.8	24.9/24.7	24.0/24.1	24.1/24.1	24.1/24.3	24.4/24.6	24.5	
34	A	8	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8	10
	D	8	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8	7
	Temp(°c):old/new	24.9	25.1/25.6	24.9/24.8	24.1/25.0	24.3/24.4	24.3/24.5	24.9/24.6	24.2	
45	A	8	8	8	8	8	8	8	8	8
	B	8	8	8	7	7	7	7	7	7
	C	8	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8	8
	Temp(°c):old/new	25.1	24.4/24.9	25.1/24.9	24.0/24.8	24.3/24.1	24.3/24.6	24.7/24.5	24.2	
60	A	8	8	7	7	7	7	7	7	7
	B	8	8	7	7	7	7	7	7	7
	C	8	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8	7
	E	8	8	8	8	8	8	8	8	8
	Temp(°c):old/new	25.0	24.4/25.2	24.9/24.7	24.6/25.1	24.3/24.1	24.3/24.1	24.8/24.6	24.3	
80	A	8	8	8	7	7	7	7	7	7
	B	8	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8	7
	Temp(°c):old/new	24.7	24.3/25.1	25.0/24.6	24.6/25.2	24.3/24.1	24.3/24.1	24.7/24.5	24.5	
Test Renewal	Time	1150	1024	1250	0925	1400	1130	1414	1230	
	Date	1/29/13	1/31/13	1/31/13	2/1/13	2/1/13	2/3/13	2/4/13	2/5/13	
	Initials	WR	AW	OK	AW	HM	HM	AW	OK	
morning feeding	Int/Time		LM0650	LM0700	LM0850	LM0950	LM0750	LM0700		
afternoon feeding	Int/Time	AW1600	AW1540	AW1530	AW1625	AW1625	AW1610	AW1645		

TEST LOG NO. 15894

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19875F

TEST ORGANISM: Frn

DATE: 1/29/13

ENVIRONMENTAL TEST LOG NO. 15894

30 of 50

D.O. (mg/L)

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	8.4	25	8.6	29	8.2	25	8.2	29	8.1	26	8.1	22	8.2	24
25	8.5	26	8.4	28	8.5	24	8.5	28	8.5	23	8.5	22	8.4	22
34	8.5	26	8.5	28	8.6	21	8.6	25	8.6	23	8.5	23	8.4	21
45	8.4	24	8.4	28	8.5	26	8.5	25	8.3	23	8.2	23	8.2	20
60	8.2	25	8.0	25	8.5	29	8.5	28	8.3	27	7.9	20	8.2	29
80	7.9	27	8.1	25	8.5	25	8.5	28	8.0	27	7.7	20	8.1	25
MH	7.5	25	7.6	26	7.8	27	7.8	23	7.5	26	7.5	25	7.9	24

pH (s.u.)

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	6.89	7.40	6.71	7.55	6.72	7.54	6.67	7.29	6.92	7.22	7.11	7.43	7.01	7.03
25	7.58	7.72	7.51	7.38	7.05	7.34	7.60	7.77	7.50	7.35	7.65	7.68	7.62	7.58
34	7.64	8.01	7.65	7.72	7.63	7.49	7.43	7.94	7.54	7.49	7.67	7.91	7.65	7.90
45	7.74	8.08	7.65	8.03	7.65	8.00	7.62	7.98	7.54	8.06	7.73	7.96	7.69	8.09
60	7.76	8.38	7.69	8.10	7.80	8.10	7.67	8.18	7.60	8.26	7.74	8.20	7.66	8.20
80	7.81	8.32	7.75	8.24	7.87	8.22	7.64	8.23	7.61	8.28	7.75	8.26	7.64	8.31
MH	7.91	7.78	7.89	7.23	7.62	7.67	7.86	7.72	7.91	7.78	7.98	7.07	7.84	7.69

Conductivity (µmhos/cm)

Concentration	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW	109	95	80	96	86	90	84	101	92	118	87	97	90	94
25	589	612	618	620	607	590	632	575	631	572	545	633	532	600
34	754	752	800	773	801	767	811	789	811	799	847	844	782	760
45	967	987	1032	793	1032	915	1032	987	1114	972	1044	1054	1033	957
60	1261	1250	1303	1319	1310	1308	1315	1263	1379	1302	1361	1353	1331	1263
80	1644	1646	1678	1735	1714	1676	1701	1668	1784	1663	1719	1708	1734	1518
MH	226	209	194	213	219	206	209	225	214	262	205	221	221	207

Params Int/Time:	AW1015	AW0241	AW0910	AW0724	AW0740	AW0745	AW0857	AW114	AW143	AW0817	AW0907	AW0740	AW1200	AW0821
Dilutions Int/Time:	AW1005		AW0900	AW1010		AW0847	AW0847		AW1407	AW0357	AW0357	AW1150		
Control Water Batch:	RW15861	NH5116	5110MH	511615873	511915873	511915873	511915873	511915873	511915873	511915873	511915873	511915873	511915873	511915873
Food Batch:	4176	4176	4176	4176	4176	4176	4176	4176	4176	4176	4176	4176	4176	4176

renewed with 2nd sample

renewed w/ second sample

TEST LOG NO. 15894
 JOB NO. 20-19675F

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

DATE OF TEST: 1/29/13

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
15860	Outfall 001	1/27-28/13	1/29/13	280	577	20.02	0.410
15872	Outfall 001	1/29-30/13	1/31/13	248	512	20.02	0.701

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
15861	River Water	1/28/13	1/29/13	19.2	20	0.06	20.1
15873	RW	1/30/13	1/31/13	176	110	0.05	20.1
5116	MH	1/23/13	1/29/13	808	47	20.02	-
5119	MH	1/29/13	2/1/13	824	43	20.02	-

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

TEST LOG NO.: 158 94 no
 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): 1/28/13
 TEMP @ TEST START: 24.4
 RANDOMIZED BY: LM
 TEST START: HOURS: 1024 DATE: 1/29/13
 TEST END: HOURS: 1224 DATE: 2/4/13

SOURCE ID:	AGE (time):
10143	1300-1500
10145	1302-1500
10148	1300-1502

No Zid safe
Test completed
2/5/13

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control		Temp (°C)	REPLICATES										Notes
			River Water			43			45				48			
Initials/ Time	Initials/ Time					1	2	3	4	5	6	7	8	9	10	
					Adult	20	8	9	14	10	13	18	1	3	11	
LM 1024		1/29	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	1/30	24.6	25.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1234	1/31	24.4	24.8	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	UR 1015	2/1	24.9	25.1	Day 3	✓	5	5	6	6	5	4	✓	✓	✓	
	AW 1435	2/2	24.8	25.0	Day 4	7	11	✓	12	8	7	9	4	3	5	*pale
	AW 1103	2/3	24.4	24.7	Day 5	13	✓	12	✓	✓	14	✓	✓	0	6	
	AW 1224	2/4	24.0	24.3	Day 6	15	17	14	16	18	✓	10	14	✓	70% ^o	
	1245	2/5			Day 7	12	18	18	16	20	21	16	✓	✓	8	
					Day 8											
					Total	35	33	31	34	32	26	23	18	13	15	254/75

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

TEST LOG # 15894

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		Adult	REPLICATES										Notes
			25%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LH 1024		1/29	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1010	1/30	24.9	25.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	PH 1224	1/31	24.8	25.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1015	2/1	24.8	25.0	Day 3	✓	✓	✓	5	5	5	4	6	✓		
	AW 1435	2/2	24.9	25.2	Day 4	✓	5	6	7	8	7	6	6	5	3	
	AW 1103	2/3	24.8	25.3	Day 5	13	15	13	✓	14	✓	✓	✓	✓	✓	
AW 1224		2/4	24.2	24.6	Day 6	13	12	✓	13	13	13	16	17	14	11	
	1245	2/5			Day 7	6	✓	✓	10	✓	18	17	✓	11	13	
					Day 8											
					Total	92	32	15	25	27	25	26	29	30	27	

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes
			34%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LH 1024		1/29	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1010	1/30	25.0	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	PH 1224	1/31	24.5	24.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1015	2/1	25.1	24.9	Day 3	✓	✓	5	4	✓	5	4	✓	✓	✓	
	AW 1435	2/2	24.9	25.1	Day 4	2	5	7	8	5	8	5	5	3	5	
	AW 1103	2/3	24.4	24.8	Day 5	15	✓	13	15	12	✓	7	✓	✓	11	
AW 1224		2/4	24.2	24.8	Day 6	17	14	15	8	15	11	10	11	11	✓	
	1245	2/5			Day 7	10	15	16	✓	✓	8	1	12	10	8	
					Day 8											
					Total	34	34	25	27	32	24	16	26	24	24	

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

TEST LOG # 15894

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		Adult	REPLICATES										Notes
			45%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1024		1/29	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1010	1/30	24.8	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 1234	1/31	24.6	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1015	2/1	24.7	25.2	Day 3	✓	6	4	✓	4	✓	✓	✓	3	✓	
	AW 1435	2/2	25.0	24.8	Day 4	4	8	8	✓	7	✓	✓	✓	6	✓	"pale"
	AW 1103	2/3	24.3	24.9	Day 5	✓	✓	✓	11	✓	9	7	6	9	10	
AW 1224		2/4	24.3	24.5	Day 6	11	17	15	13	16	13	14	15	11	11	
	1245	2/5			Day 7	10	13	12	8	11	0	8	0	✓	✓	
					Day 8											
			Total			25	31	27	32	27	22	29	21	23	22	

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes
			60%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1024		1/29	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1010	1/30	24.9	25.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 1234	1/31	24.5	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1015	2/1	25.1	25.0	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 1435	2/2	24.7	25.2	Day 4	3	5	4	5	5	4	4	5	4	2	
	AW 1103	2/3	24.8	24.8	Day 5	8	✓	✓	9	9	7	9	7	6	✓	"pale"
AW 1224		2/4	24.4	25.0	Day 6	9	12	12	✓	✓	8	13	13	14	5	
	1245	2/5			Day 7	✓	8	10	✓	✓	6	10	8	✓	✓	
					Day 8											
			Total			20	25	26	14	14	19	26	25	24	7	200

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

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

TEST LOG # 15894

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 1024		1/29	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1010	1/30	24.9	24.8	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 1224	1/31	25.1	24.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	CR 1015	2/1	24.7	25.0	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	AW 1435	2/2	25.2	25.3	Day 4	A	✓	3	5	3	✓	5	✓	4	2	
	AW 1103	2/3	24.8	25.1	Day 5	✓	4	6	✓	7	8	✓	6	✓	6	° pale
AW 1224		2/4	24.3	24.9	Day 6	D/O	6	✓	8	6	9	12	✓	8	7	
	1225	2/5			Day 7		8	✓	✓	✓	✓	6	5	7	✓	
					Day 8											
			Total			D/O	18	9	15	16	17	23	11	19	15	145

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES										Notes	
			MH	Temp (°C)	1	2	3	4	5	6	7	8	9	10		
LM 1024		1/29	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1010	1/30	24.9	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1224	1/31	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1015	2/1	24.9	25.0	Day 3	6	✓	5	✓	6	6	4	6	5	6	
	AW 1435	2/2	24.7	25.1	Day 4	✓	6	7	3	9	11	8	8	9	8	
	AW 1103	2/3	24.5	25.2	Day 5	13	✓	✓	8	✓	✓	✓	14	✓	✓	
AW 1224		2/4	24.4	24.6	Day 6	17	11	16	7	4	13	14	✓	15	14	
	1225	2/5			Day 7	5	16	14	13	✓	8	12	15	17	14	
					Day 8											
			Total			36	35	28	18	19	30	26	28	29	28	275

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

K.25 = 206

TEST LOG NO. 15894
 JOB NO. 20-19675F

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

DATE: 1/29/13

ENVIRONMENTAL Test Log No. 15944

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	
D.O. (mg/L)														
RW	8.4	8.0	8.4	7.9	8.3	7.8	8.3	8.1	8.1	8.6	8.7	7.8	8.2	
25	8.5	8.0	8.4	7.9	8.3	7.9	8.5	8.1	8.5	8.6	7.8	7.8	8.4	
34	8.5	8.0	8.5	7.9	8.0	8.0	8.6	8.2	8.6	8.5	7.9	7.6	8.4	
45	8.4	8.0	8.4	7.9	8.0	8.1	8.5	8.5	8.3	8.4	7.8	7.6	8.3	
60	8.2	8.0	8.0	7.9	8.0	8.0	8.3	8.5	8.1	8.3	7.7	7.6	8.2	
80	7.9	7.7	8.1	7.7	7.9	8.0	8.0	8.5	8.0	8.2	7.3	7.5	8.1	
MH	7.5	8.1	7.6	8.0	8.2	8.3	1.8	8.4	7.8	7.8	7.5	7.4	7.9	

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	
pH (s.u.)														
RW	6.89	7.54	6.71	7.32	6.72	7.34	6.67	7.60	6.92	7.67	7.11	6.98	7.01	
25	7.53	8.16	7.51	8.13	7.65	8.28	7.60	8.33	7.50	8.38	7.65	8.13	7.42	
34	7.64	8.25	7.65	8.36	7.68	8.40	7.63	8.45	7.54	8.44	7.67	8.42	7.67	
45	7.74	8.46	7.65	8.48	7.55	8.51	7.42	8.56	7.59	8.61	7.73	8.50	7.67	
60	7.76	8.57	7.69	8.60	7.80	8.65	7.67	8.63	7.60	8.65	7.74	8.62	7.60	
80	7.81	8.63	7.75	8.63	7.81	8.71	7.69	8.69	7.61	8.72	7.75	8.63	7.69	
MH	7.91	7.88	7.84	7.89	7.62	7.90	7.86	8.08	7.91	7.95	7.98	7.90	7.89	

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	
Conductivity (µmhos/cm)														
RW	109	97	82	107	80	112	84	112	92	137	55	111	90	
25	539	632	618	724	1007	712	632	693	637	884	595	1097	532	
34	754	822	800	863	801	926	811	895	817	864	847	911	782	
45	964	1011	1032	1105	1032	1141	1032	1140	1114	1157	1041	1152	1032	
60	1261	1314	1303	1466	1346	1526	1315	1489	1379	1454	1361	1519	1331	
80	1644	1742	1678	1870	1714	1930	1701	1869	1734	1867	1719	1819	1734	
MH	225	211	194	224	219	234	209	226	214	238	205	228	221	

Params Int/Time:	AW1015	AW1030	AW1040	AW1258	AW1167	AW1150	AW0857	AW1550	AW1437	AW0722	AW0907	AW1650	AW1200	
Dilutions Int/Time:	AW1005	AW1030	AW1000	AW1005	AW1000	AW1050	AW0347	AW1550	AW1427	AW0722	AW0857	AW1650	AW1150	
Control Water Batch:	RW15561	NH5116	5116, 15861	5116, 15878	5119, 15877	5119, 15877	5119, 15877	5119, 15873	5119, 15873	5119, 15873	5119, 15873	5119, 15873	5119, 15873	
Food Batch	219, 4397	19, 97	19, 97	19, 97	19, 97	19, 97	19, 97	22, 97	22, 97	25, 97	25, 97	25, 97	25, 97	

Renewed with 2nd sample
 Renewed with 2nd sample

CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 1 of 2)
 Test Code: 15894cd | 09-0489-4399

Ceriodaphnia 7-d Survival and Reproduction Test ENVIRON International Corp

Analysis ID: 11-7720-7647	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-13 15:34	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 01-3277-7701	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 29 Jan-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 04 Feb-13	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-0434-6338	Code: 4DBEBEE2	Client: GPAC Crossett
Sample Date: 28 Jan-13	Material: Industrial Effluent	Project: Special Studies
Receive Date: 29 Jan-13	Source: TIE	
Sample Age: 24h	Station: final effluent	

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

Fisher Exact/Bonferroni-Holm Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	1	1.0000	Exact	Non-Significant Effect
		34	1	1.0000	Exact	Non-Significant Effect
		45	0.5	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	0.7632	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.9	0.8 - NL	Yes	Passes Acceptability Criteria

Data Summary

C-%	Control Type	NR	R	NR + R	Prop NR	Prop R	%Effect
0	Receiving Water	9	1	10	0.9	0.1	0.0%
25		10	0	10	1	0	-11.11%
34		10	0	10	1	0	-11.11%
45		8	2	10	0.8	0.2	11.11%
60		10	0	10	1	0	-11.11%
80		9	1	10	0.9	0.1	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	0	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	0	1	0	1	1
60		1	1	1	1	1	1	1	1	1	1
80		0	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	0/1	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	0/1	1/1	0/1	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		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 2 of 2)
Test Code: 15894cd | 09-0489-4399

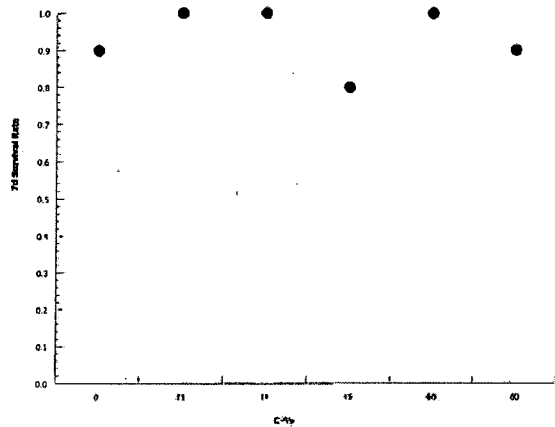
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 11-7720-7647 Endpoint: 7d Survival Rate
Analyzed: 18 Feb-13 15:34 Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 1 of 4)
 Test Code: 15894cd | 09-0489-4399

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 11-5752-6200	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-13 15:35	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 01-3277-7701	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 29 Jan-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 04 Feb-13	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-0434-6338	Code: 4DBEBEE2	Client: GPAC Crossett
Sample Date: 28 Jan-13	Material: Industrial Effluent	Project: Special Studies
Receive Date: 29 Jan-13	Source: TIE	
Sample Age: 24h	Station: final effluent	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	60	80	69.28	1.667	25.0%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	103	75	3	18	0.7843	Asymp	Non-Significant Effect
		34	105.5	75	2	18	0.8444	Asymp	Non-Significant Effect
		45	100.5	75	3	18	0.7129	Asymp	Non-Significant Effect
		60	84.5	75	2	18	0.1953	Asymp	Non-Significant Effect
		80*	69.5	75	3	18	0.0156	Asymp	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	25.4	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2504	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	3.769	3.2	0.0035	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1297.683	259.5367	5	6.723	<0.0001	Significant Effect
Error	2084.5	38.60185	54			
Total	3382.183		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	12.33	15.09	0.0305	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9403	0.9459	0.0056	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	25.4	18.24	32.56	28.5	3	35	3.166	39.42%	0.0%
25		10	27.2	24.42	29.98	27	19	32	1.227	14.27%	-7.09%
34		10	26.8	22.84	30.76	26	16	34	1.75	20.65%	-5.51%
45		10	26.4	23.76	29.04	27	21	32	1.166	13.97%	-3.94%
60		10	20	15.35	24.65	22	7	26	2.055	32.49%	21.26%
80		10	14.5	10.59	18.41	15.5	4	23	1.727	37.67%	42.91%

CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 2 of 4)
 Test Code: 15894cd | 09-0489-4399

Ceriodaphnia 7-d Survival and Reproduction Test

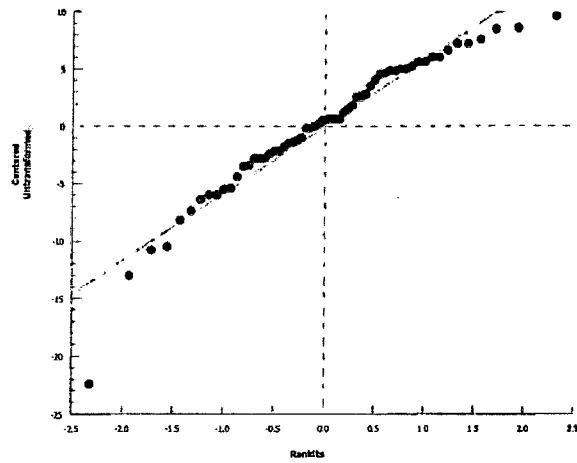
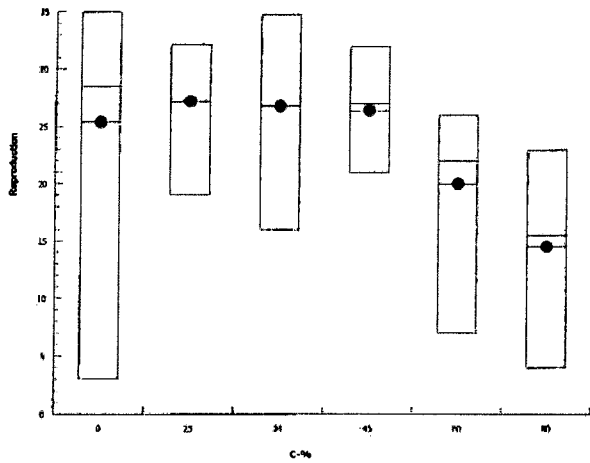
ENVIRON International Corp

Analysis ID: 11-5752-6200 Endpoint: Reproduction CETIS Version: CETISv1.8.4
 Analyzed: 18 Feb-13 15:35 Analysis: Nonparametric-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	Receiving Water	35	33	31	34	32	26	23	18	3	19
25		32	32	19	25	27	25	26	29	30	27
34		34	34	25	27	32	24	16	28	24	24
45		25	31	27	32	27	22	29	21	23	27
60		20	25	26	14	14	19	26	25	24	7
80		4	18	9	13	16	17	23	11	19	15

Graphics



CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 1 of 1)
 Test Code: 15894cd | 09-0489-4399

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 06-8073-5617 Endpoint: Reproduction CETIS Version: CETISv1.8.4
 Analyzed: 18 Feb-13 15:36 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Batch ID: 01-3277-7701 Test Type: Reproduction-Survival (7d) Analyst:
 Start Date: 29 Jan-13 Protocol: EPA/821/R-02-013 (2002) Diluent: Laboratory Water
 Ending Date: 04 Feb-13 Species: Ceriodaphnia dubia Brine: Not Applicable
 Duration: 6d 0h Source: In-House Culture Age:

Sample ID: 13-0434-6338 Code: 4DBEBEE2 Client: GPAC Crossett
 Sample Date: 28 Jan-13 Material: Industrial Effluent Project: Special Studies
 Receive Date: 29 Jan-13 Source: TIE
 Sample Age: 24h Station: final effluent

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	301485	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	25.4	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	60.55	50.95	70.54	1.652	1.418	1.963

Reproduction Summary

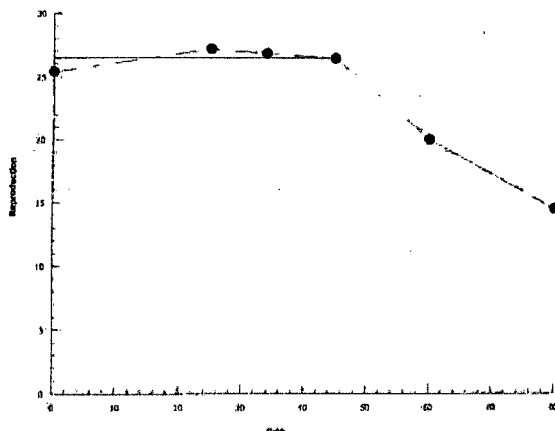
Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	25.4	3	35	3.166	10.01	39.42%	0.0%
25		10	27.2	19	32	1.227	3.882	14.27%	-7.09%
34		10	26.8	16	34	1.75	5.534	20.65%	-5.51%
45		10	26.4	21	32	1.166	3.688	13.97%	-3.94%
60		10	20	7	26	2.055	6.498	32.49%	21.26%
80		10	14.5	4	23	1.727	5.462	37.67%	42.91%

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	35	33	31	34	32	26	23	18	3	19
25		32	32	19	25	27	25	26	29	30	27
34		34	34	25	27	32	24	16	28	24	24
45		25	31	27	32	27	22	29	21	23	27
60		20	25	26	14	14	19	26	25	24	7
80		4	18	9	13	16	17	23	11	19	15

Graphics



CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 3 of 4)
 Test Code: 15894cd | 09-0489-4399

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID: 03-7845-0001	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 18 Feb-13 15:36	Analysis: Parametric-Two Sample	Official Results: Yes
Batch ID: 01-3277-7701	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 29 Jan-13	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 04 Feb-13	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-0434-6338	Code: 4DBEBEE2	Client: GPAC Crossett
Sample Date: 28 Jan-13	Material: Industrial Effluent	Project: Special Studies
Receive Date: 29 Jan-13	Source: TIE	
Sample Age: 24h	Station: final effluent	

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result	PMSD
Untransformed	NA	C > T	NA	NA	Sample passes reproduction endpoint	24.7%

Equal Variance t Two-Sample Test

Control	vs Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	Lab Water	-0.5802	1.734	6.276	18	0.7155	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.5	15 - NL	Yes	Passes Acceptability Criteria
Control Resp	25.4	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2471	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	2.844	2.708	0.0250	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	22.05	22.05	1	0.3367	0.5690	Non-Significant Effect
Error	1178.9	65.49445	18			
Total	1200.95		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	3.264	6.541	0.0929	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9015	0.866	0.0439	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	25.4	18.24	32.56	28	3	35	3.166	39.42%	0.0%
0	Lab Water	10	27.5	23.53	31.47	28	18	36	1.753	20.16%	-8.27%

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	36	33	28	18	19	30	26	28	29	28
0	Receiving Water	35	33	31	34	32	26	23	18	3	19

CETIS Analytical Report

Report Date: 18 Feb-13 15:37 (p 4 of 4)
Test Code: 15894cd | 09-0489-4399

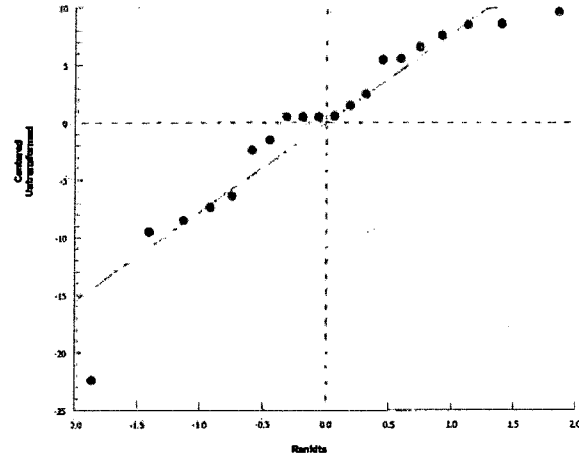
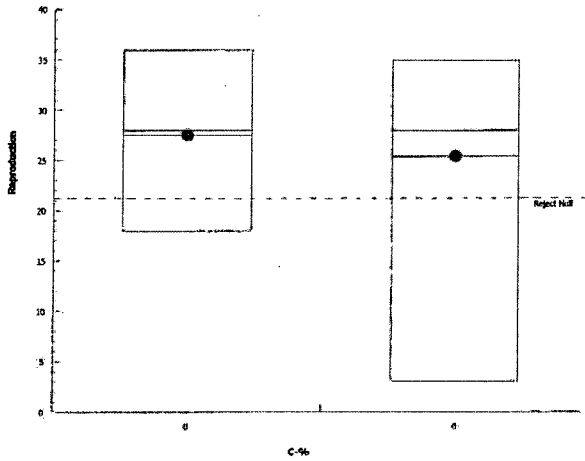
Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp


Analysis ID: 03-7845-0001 Endpoint: Reproduction
Analyzed: 18 Feb-13 15:36 Analysis: Parametric-Two Sample

CETIS Version: CETISv1.8.4
Official Results: Yes

Graphics



ENVIRON Test Log No. 15944

Project Name:				Project Number:				CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																											
Industry:				Analysis Requested																															
Phone:				Acute Fathead minnow														Acute Bannerfin shiner				Acute Ceriodaphnia dubia		Acute Daphnia pulex		Chronic Fathead minnow		Chronic Ceriodaphnia dubia		Continuous Batch Tests		Discrete Batch Tests		Other	
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	
County:				City:				State:				Sample Collected by (print):				NPDES Permit No.:				Sample Collected by (signature):				NPDES Test:				No. of Cntrs							
Ashley				Crossett				AR				Rachel Johnson / Robbie Phillips				AR0001210				<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	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description		Sample B# (lab only)																
Outfall 001		Comp	Plastic	Y	1/27/13	1/28/13											Dilution water		15860																
River		Grab	Plastic	NA	1/28/13	5:13am													15861																
						6:23am																													
						10:43am																													
				</																															

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

Sample Receipt Checklist:

Client: GPC

Date/Time received 2/19/13 0815 by Fred EX

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
15941	RW	0.1	7.12	9.6	0.04
15942	EFF	0.2	7.93	9.1	< 0.02

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Project Name: _____ Project Number: _____

Industry: **GEORGIA PACIFIC PAPER**

Phone: **870 567-8170** FAX: **870 344-9076**

County: **ASHLEY** City: **CROSSETT** State: **AR.**

Sample Collected by (print): **DANNY V. RICE** NPDES Permit No.: **AR0001210**

Sample Collected by (signature): _____ NPDES Test: No Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested								Description		
								Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Definitive or Screen	Sample B# (lab only)
RIVER	G	PLASTIC	NA	2-18-13	9:15am			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DILUTION	WATER
OUTFALL 001	C	PLASTIC	YES	2-17-13	2-18-13 4:51am 6:12am			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<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"/>		

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 277-7570
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) Danny Rice	Date: 2-18-13	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) GOOD
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by: (Signature) _____	Receipt Temp: 0.1, 0.2	Containers/Volume Received: 14 10.1	
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received for lab by: (Signature) Conroy A. B. Bets	Date: 2/19/13	Time: 08:15	pH upon arrival: 7.12, 7.98 DO upon arrival: 9.10, 9.11

ENVIRON TEST LOG # 1591

5941
15942

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 2/21/13 0846 by LM


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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
15952	LMC	1.6	790	24	0.06
15953	Butfall sul	0.6	790	28	<0.02

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ENVIRON Test Log No. 15944

Project Name:				Project Number:				CHAIN-OF-CUSTODY  201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																	
Industry:				Analysis Requested																					
Phone: 870-567-8170 FAX: 870-367-9076				Acute Fathead minnow														Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other
County: ASHLEY City: CROSSETT State: AR				Total Volume in liters																					
Sample Collected by (print): DANNY / JIM				NPDES Permit No.: AR001210				No. of Cntrs	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other								
Sample Collected by (signature): Danny W. Rice				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	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	G	PLASTIC	NA	2-20-13 9:15am	2-20-13 2:20pm	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		15952								
OUTFALL 001	C	PLASTIC	YES	2-19-13 6:18am	2-20-13 6:19am	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		15953								

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

Remarks:

Measured TRC (if applicable): 000 mg/L

Relinquished by: (Signature) <u>Danny W. Rice</u>	Date: <u>2-20-13</u>	Time: <u>3:00pm</u>	Received by: (Signature) <u>[Signature]</u>	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered	Condition: <u>Good</u> (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: <u>11.6°C, 0.1°C, 4°C, 20°C</u>	Containers/Volume Received: <u>4, 20L</u>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <u>[Signature]</u>	Date: <u>2/20/13</u>	Time: <u>6:30am</u>
				pH upon arrival: <u>5.1, 7.90</u>	DO upon arrival: <u>8.8</u>

5.1) 7.90 8.8

Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 2/23/13 10:34 by RW

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
159101	Outfall	2.3	7.88	7.4	<0.02
159102	RW	1.4	6.83	7.9	0.06

L:\Ecotox Lab\FORMS

Project Name: Georgian Pacific Paper Project Number: 2003-9074

Industry: Georgian Pacific Paper State: AR

Phone: 870-567-8170 FAX: 870-564-9074

County: Ashtelf City: Robbie

Sample Collected by (p/nt): D. W. K. Robbie NPDES Permit No.: AR0001210

Sample Collected by (signature): D. W. K. Robbie NPDES Test: No Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute <i>Ceriodaphnia dubia</i>	Acute <i>Daphnia pulex</i>	Chronic Fathead minnow	Chronic <i>Ceriodaphnia dubia</i>	Continuous Batch Tests	Discrete Batch Tests	Other	Description	Sample B# (lab only)
RIVER	CF	Plastic	NA	8/20/13	9:45am	2	20											15944
BATHNOL COL	G	Plastic	YES	8/21/13	2:22-13	2	20											15944

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

Remarks: Measured TRC (if applicable): 200 mg/L

Relinquished by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm

Received by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm


Relinquished by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm

Received by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm

Relinquished by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm

Received by: (Signature) [Signature] Date: 8-22-13 Time: 3:00pm

CHAIN-OF-CUSTODY

 **ENVIRON**

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

Samples shipped via: FedEx Other Courier

Containers Volume Received: 250L of each

UPS Hand Delivered:

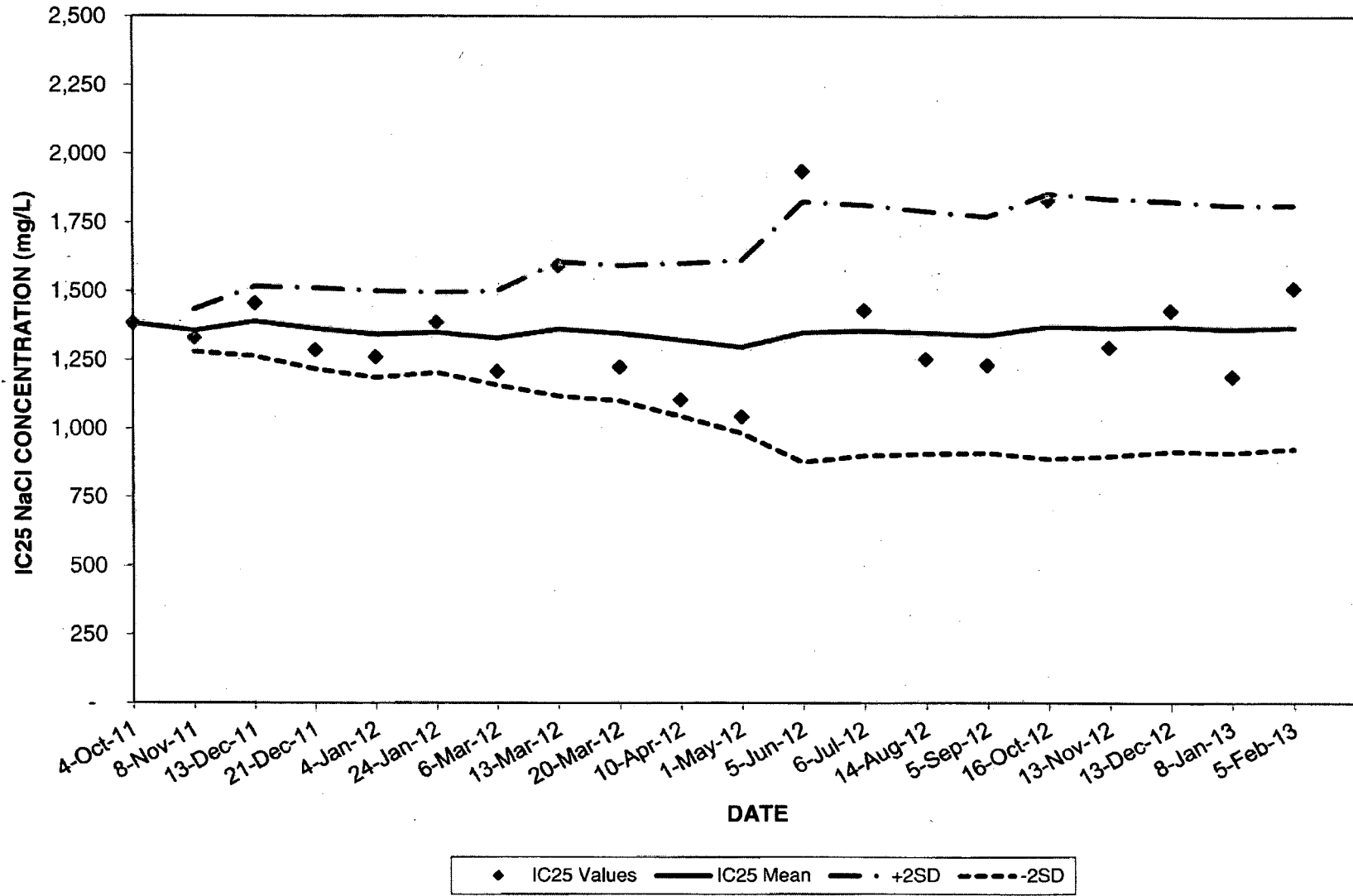
Condition: [Signature] (lab use only)

Received (Temp): 19.5°C Date: 8/22/13

Received (pH): 6.8 Date: 8/22/13

Received (DO): 1.9 Date: 8/22/13

CHRONIC REFERENCE TOXICANT TEST (NaCl) 2011 - 2013 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2011 - 2013

ENVIRON Test Log No. 15944

54 of 56

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	13877	04-Oct-11	100	0.579	1,500	3,000	750	1,500	20.4	1,385	1,385				
2	13967	08-Nov-11	100	0.586	1,500	3,000	750	1,500	22.6	1,331	1,358	38	1,434	1,282	2
3	14036	13-Dec-11	92.5	0.256	3,000	6,000	1,500	3,000	33.6	1,457	1,391	63	1,517	1,265	4
4	14047	21-Dec-11	100	0.270	750	1,500	750	1,500	30.3	1,286	1,365	74	1,512	1,218	5
5	14056	04-Jan-12	89	0.305	750	1,500	750	1,500	29.1	1,261	1,344	79	1,502	1,186	5
6	14095	24-Jan-12	97.5	0.476	1,500	3,000	750	1,500	25.6	1,387	1,351	73	1,497	1,206	5
7	15207	06-Mar-12	97.5	0.372	750	1,500	1,500	3,000	39.2	1,209	1,331	85	1,502	1,160	6
8	15225	13-Mar-12	85	0.290	6,000	>6,000	1,500	3,000	30.2	1,593	1,364	122	1,607	1,120	8
9	15248	20-Mar-12	100	0.383	750	1,500	750	1,500	28.1	1,225	1,348	123	1,594	1,102	9
10	15299	10-Apr-12	100	0.716	750	1,500	750	1,500	17.0	1,105	1,324	139	1,602	1,046	10
11	15343	01-May-12	100	0.562	750	1,500	750	1,500	25.0	1,042	1,298	157	1,612	984	12
12	15115	05-Jun-12	100	0.499	750	1,500	1,500	3,000	24.0	1,937	1,352	237	1,826	877	17
13	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,358	228	1,815	901	16
14	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,350	221	1,793	908	16
15	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,342	215	1,773	912	15
16	15683	16-Oct-12	97.5	0.447	1,500	3,000	1,500	3,000	19.0	1,832	1,373	241	1,856	890	17
17	15743	13-Nov-12	100	0.514	750	1,500	750	1,500	15.9	1,297	1,368	234	1,837	900	17
18	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,372	228	1,828	916	16
19	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,362	225	1,813	912	16
20	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,370	222	1,814	926	16

Avg	98	0.435	1275	1950	975	1950	24	1370	1355	158	1670	1037
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Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

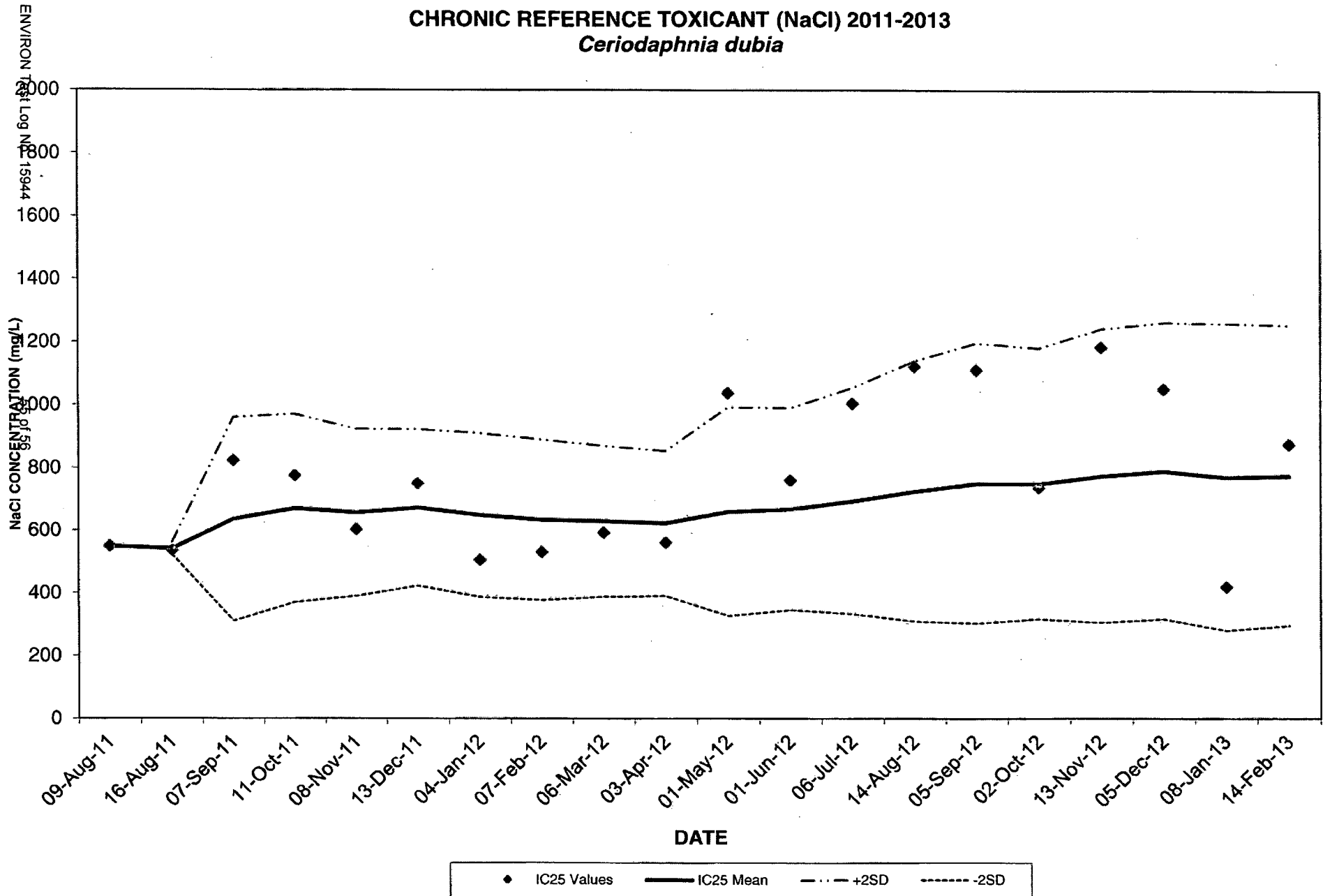
LOEC - Lowest Observable Effect Concentration (survival or growth)

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

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

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

CHRONIC REFERENCE TOXICANT (NaCl) 2011-2013
Ceriodaphnia dubia



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

ENVIRON Test Log No. 15944

56 of 56

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	13793	09-Aug-11	100	100	28.4	500	1,000	250	500	19.9	549	549				0
2	13804	16-Aug-11	100	100	28.0	1,000	2,000	250	500	14.2	535	542	10	562	522	1
3	13829	07-Sep-11	100	100	31.3	1,000	2,000	250	500	8.7	823	636	162	960	311	21
4	13887	11-Oct-11	100	100	28.3	2,000	>2,000	500	1,000	16.2	775	671	150	970	371	19
5	13963	08-Nov-11	100	90	17.9	2,000	>2,000	500	1,000	26.1	603	657	133	923	391	18
6	14306	13-Dec-11	100	100	21.4	1,000	2,000	500	1,000	16.8	750	673	125	923	422	17
7	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	648	131	910	387	19
8	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	634	128	890	378	19
9	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	629	121	870	388	18
10	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	622	116	854	391	18
11	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	660	166	992	327	24
12	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	668	161	990	346	23
13	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	694	180	1,054	334	25
14	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	724	207	1,139	310	28
15	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	750	223	1,196	304	29
16	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	749	216	1,180	318	28
17	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	775	234	1,242	307	29
18	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.6	1050	790	236	1,262	318	29
19	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	770	244	1,259	282	31
20	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	776	239	1,254	298	30

Avg	99	97	29	1450	900	475	950	19	776	681	167	1023	353
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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.

LETTERS



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Becky Blankenship
Georgia-Pacific
100 Supply Road
Drop Point 33
Crossett, AR 71635

Origin ID: ELDA



Ship Date: 22MAR13
ActWgt: 1.0 LB
CAD: 102787395/INET3370

RT 177 2
FZ 179
A 3995
03.25

SHIP TO: (501) 661-2623
CRAIG UYEDA
ADEQ
5301 NORTSHORE DR

NORTH LITTLE ROCK, AR 72118

BILL SENDER

Delivery Address Bar Code



Ref # dnr's
Invoice #
PO #
Dept #

1 of 3

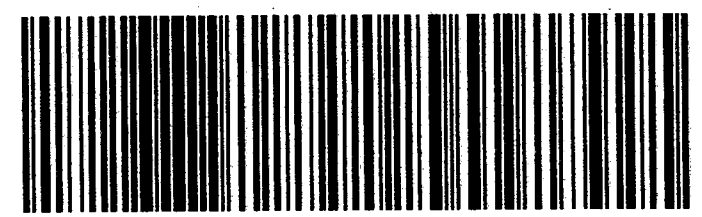
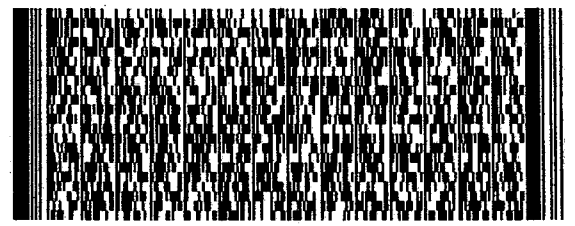
MON - 25 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 7993 4433 3995
0201

MASTER

X2 LITA

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518G2/DCF8/33AR

ope

Align bottom of peel and stick airbill here.