



Georgia-Pacific Crossett LLC  
Consumer Products

Crossett Paper Operations  
100 Mill Supply Road  
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(870) 567-8000  
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July 25, 2016

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

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

Dear Mr. Healey:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for June 2016.

If you have any questions or need additional information, please feel free to contact me at (870) 567-8170 or by email at [rachel.johnson2@gapac.com](mailto:rachel.johnson2@gapac.com) .

Sincerely,

A handwritten signature in black ink, appearing to read 'Rachel M. Johnson', written in a cursive style.

Rachel Johnson  
Environmental Engineer  
Crossett Paper Operations

Intended for  
**Georgia-Pacific Crossett Mill**  
**Crossett, Arkansas**

Date  
**May 2016**

# **CHRONIC TOXICITY TEST RESULTS – OUTFALL 001 EFFLUENT PROJECT NUMBER: 38-39396A**



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

**CHRONIC TOXICITY TEST RESULTS - OUTFALL 001 EFFLUENT  
 RAMBOLL ENVIRON PROJECT NO. 38-39396A**

Dear Ms. Johnson:

June 6, 2016

Ramboll Environ conducted chronic (7-day) whole effluent toxicity (WET) tests for the Georgia-Pacific Crossett, AR facility. The tests were conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on May 2, 4, and 6, 2016. The samples were received at Ramboll Environ on May 3, 5, and 7, 2016, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

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Tests were conducted in accordance with *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition (EPA-821-R-02-013). All controls met test acceptability criteria (TAC). The results of the chronic toxicity tests are as follows:

*NELAP Accredited and Laboratory Certification in the following United 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.*

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

The results of the chronic test with the fathead minnow indicated a No Observable Effect Concentration (NOEC) value for lethality and sub-lethality of 80 percent effluent. The results of the chronic test with *C. dubia* indicated NOEC values for lethality and sub-lethality of 80 percent effluent. These test results indicate no significant toxicity at the critical dilution (80 percent effluent) for the fathead minnow and *C. dubia* and the permit limit.

The Coefficient of Variation (CV) values for the fathead minnow survival in the river water control and critical dilution are zero and zero percent respectively. The CV values for growth in the control and critical dilution are 11.7 and 8.8 percent, respectively, and meet the CV limit of 40 percent for findings of no

toxicity. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 17.2 percent, which is within the USEPA PMSD bounds of 12 to 30 percent when alpha 0.05 is used for hypothesis testing. The effluent concentration-response curve can be described as a Type 10 response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 10 (inverse) concentration-response curve is indicative of a lack of toxicity, with effluent growth response exceeding control growth. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

The *C. dubia* reproduction CV values (for surviving adults) for the river water control and critical dilution are 10.6 and 14.5 percent respectively. The PMSD value was 18.0 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and not described in EPA 821-B-00-004. A flat concentration-response curve is indicative of a lack of toxicity. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 39 pages, including this cover letter, attachment pages and separator pages.

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

Yours sincerely



**Richard Lockwood**  
Project Manager  
Water Quality and Ecotoxicology

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**Robin L. Richards, REM**  
Department Head  
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**Data Review Form**

**Acute and Chronic WET Tests**

**Ramboll Environ**

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<sup>1</sup>.

*Robin L. Richards*

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**Robin L. Richards, REM**  
Department Head  
Water Management and Planning

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

**ATTACHMENT 1  
LABORATORY BENCH SHEETS AND  
STATISTICAL DATA**

**CETIS Analytical Report**

Report Date: 17 May-16 19:27 (p 1 of 4)  
 Test Code: 18203fm | 02-4878-1730

**Fathead Minnow 7-d Larval Survival and Growth Test**

Ramboll Environ

<b>Analysis ID:</b> 07-3978-9101	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv1.8.4
<b>Analyzed:</b> 17 May-16 19:25	<b>Analysis:</b> Nonparametric-Control vs Treatments	<b>Official Results:</b> Yes
<b>Batch ID:</b> 04-4293-8369	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 03 May-16	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Receiving Water
<b>Ending Date:</b> 09 May-16	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 0h	<b>Source:</b> Environmental Consult & Test	<b>Age:</b>
<b>Sample ID:</b> 13-4754-8690	<b>Code:</b> 5051F612	<b>Client:</b> GPAC Crossett
<b>Sample Date:</b> 03 May-16	<b>Material:</b> Industrial Effluent	<b>Project:</b> WET Monthly Compliance Test (MAY)
<b>Receive Date:</b> 09 May-16	<b>Source:</b> Discharge Monitoring Report	
<b>Sample Age:</b> NA	<b>Station:</b> 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	7.22%

**Steel Many-One Rank Sum Test**

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

**Test Acceptability Criteria**

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

**Auxiliary Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	4.817	2.908	<0.0001	Outlier Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01993977	0.003987954	5	1	0.4389	Non-Significant Effect
Error	0.0957109	0.003987954	24			
Total	0.1156507		29			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	566.5	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.4063	0.9031	<0.0001	Non-normal Distribution

**7d Survival Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	1	1	1	1	1	1	0	0.0%	0.0%
25		5	1	1	1	1	1	1	0	0.0%	0.0%
34		5	0.95	0.8112	1	1	0.75	1	0.05	11.77%	5.0%
45		5	1	1	1	1	1	1	0	0.0%	0.0%
60		5	1	1	1	1	1	1	0	0.0%	0.0%
80		5	1	1	1	1	1	1	0	0.0%	0.0%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
25		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
34		5	1.324	1.132	1.516	1.393	1.047	1.393	0.06918	11.68%	4.97%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%

**CETIS Analytical Report**

Report Date: 17 May-16 19:27 (p 2 of 4)  
 Test Code: 18203fm | 02-4878-1730

**Fathead Minnow 7-d Larval Survival and Growth Test**

Ramboll Environ

Analysis ID: 07-3978-9101      Endpoint: 7d Survival Rate      CETIS Version: CETISv1.8.4  
 Analyzed: 17 May-16 19:25      Analysis: Nonparametric-Control vs Treatments      Official Results: Yes

**7d Survival Rate Detail**

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

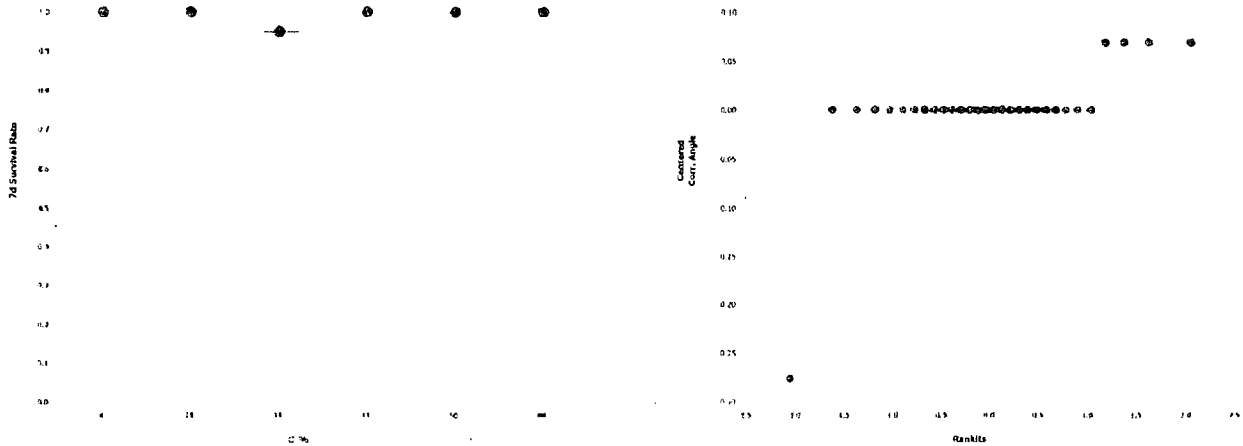
**Angular (Corrected) Transformed Detail**

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

**7d Survival Rate Binomials**

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

**Graphics**





# CETIS Analytical Report

Report Date: 17 May-16 19:27 (p 3 of 4)  
 Test Code: 18203fm | 02-4878-1730

## Fathead Minnow 7-d Larval Survival and Growth Test

Ramboll Environ

Analysis ID: 17-2834-1230	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 17 May-16 19:26	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 04-4293-8369	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 03 May-16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 09 May-16	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 13-4754-8690	Code: 5051F612	Client: GPAC Crossett
Sample Date: 03 May-16	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 09 May-16	Source: Discharge Monitoring Report	
Sample Age: NA	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	17.2%

### Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	-0.7141	2.362	0.101	8	0.9643	CDF	Non-Significant Effect
	34	-0.6613	2.362	0.101	8	0.9593	CDF	Non-Significant Effect
	45	0.316	2.362	0.101	8	0.7236	CDF	Non-Significant Effect
	60	-2.464	2.362	0.101	8	0.9999	CDF	Non-Significant Effect
	80	-4.513	2.362	0.101	8	1.0000	CDF	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5863	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1721	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	2.002	2.908	1.0000	No Outliers Detected

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.15251	0.03050201	5	6.689	0.0005	Significant Effect
Error	0.1094448	0.004560202	24			
Total	0.2619549		29			

### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	0.8313	15.09	0.9750	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9726	0.9031	0.6127	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	0.5863	0.5011	0.6714	0.5813	0.5025	0.6937	0.03066	11.7%	0.0%
25		5	0.6168	0.5334	0.7001	0.6025	0.5262	0.6862	0.03001	10.88%	-5.2%
34		5	0.6145	0.51	0.7189	0.6112	0.5062	0.7375	0.03762	13.69%	-4.82%
45		5	0.5728	0.5028	0.6427	0.55	0.505	0.645	0.02519	9.83%	2.3%
60		5	0.6915	0.6213	0.7617	0.7063	0.6313	0.755	0.02529	8.18%	-17.95%
80		5	0.779	0.6938	0.8642	0.7587	0.7025	0.865	0.03069	8.81%	-32.88%

# CETIS Analytical Report

Report Date: 17 May-16 19:27 (p 4 of 4)  
 Test Code: 18203fm | 02-4878-1730

## Fathead Minnow 7-d Larval Survival and Growth Test

Ramboll Environ

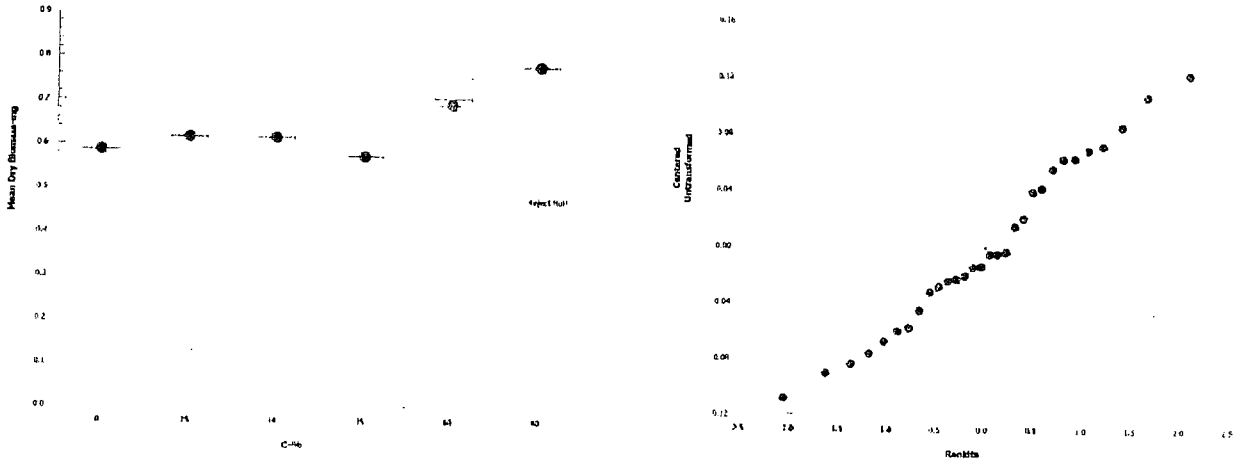
Analysis ID: 17-2834-1230      Endpoint: Mean Dry Biomass-mg  
 Analyzed: 17 May-16 19:26      Analysis: Parametric-Control vs Treatments

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	0.6937	0.5813	0.5725	0.5025	0.5813
25		0.6862	0.68	0.5887	0.5262	0.6025
34		0.6112	0.635	0.5062	0.5825	0.7375
45		0.615	0.645	0.505	0.55	0.5488
60		0.755	0.7312	0.7063	0.6337	0.6313
80		0.7587	0.7337	0.835	0.7025	0.865

### Graphics



**CETIS Analytical Report**

Report Date: 17 May-16 19:27 (p 1 of 2)  
 Test Code: 18203fm | 02-4878-1730

**Fathead Minnow 7-d Larval Survival and Growth Test**

Ramboll Environ

Analysis ID: 04-3397-0667	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4
Analyzed: 17 May-16 19:26	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 04-4293-8369	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 03 May-16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 09 May-16	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 0h	Source: Environmental Consult & Test	Age:
Sample ID: 13-4754-8690	Code: 5051F612	Client: GPAC Crossett
Sample Date: 03 May-16	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 09 May-16	Source: Discharge Monitoring Report	
Sample Age: NA	Station: 001	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1830092	1000	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5863	0.25 - NL	Yes	Passes Acceptability Criteria

**Residual Analysis**

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.002	2.908	1.0000	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	0.5863	0.5025	0.6937	0.03066	0.06857	11.7%	0.0%
25		5	0.6168	0.5262	0.6862	0.03001	0.0671	10.88%	-5.2%
34		5	0.6145	0.5062	0.7375	0.03762	0.08412	13.69%	-4.82%
45		5	0.5728	0.505	0.645	0.02519	0.05632	9.83%	2.3%
60		5	0.6915	0.6313	0.755	0.02529	0.05656	8.18%	-17.95%
80		5	0.779	0.7025	0.865	0.03069	0.06863	8.81%	-32.88%

**Mean Dry Biomass-mg Detail**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.6937	0.5813	0.5725	0.5025	0.5813
25		0.6862	0.68	0.5887	0.5262	0.6025
34		0.6112	0.635	0.5062	0.5825	0.7375
45		0.615	0.645	0.505	0.55	0.5488
60		0.755	0.7312	0.7063	0.6337	0.6313
80		0.7587	0.7337	0.835	0.7025	0.865

# CETIS Analytical Report

Report Date: 17 May-16 19:27 (p 2 of 2)  
Test Code: 18203fm | 02-4878-1730

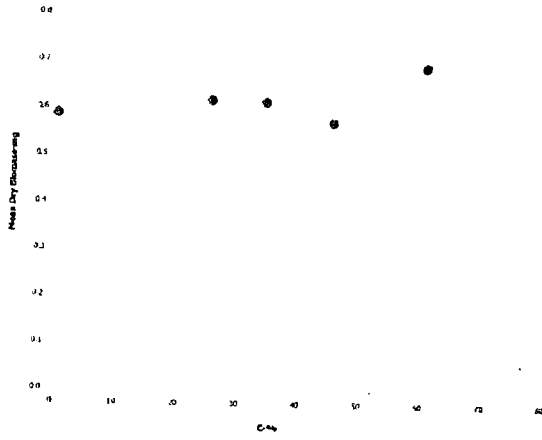
## Fathead Minnow 7-d Larval Survival and Growth Test

Ramboll Environ

Analysis ID: 04-3397-0667      Endpoint: Mean Dry Biomass-mg  
Analyzed: 17 May-16 19:26      Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.4  
Official Results: Yes

### Graphics



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

TEST LOG NO.: 18203  
 JOB NUMBER: 38-39396A  
 INDUSTRY: Georgia Pacific Crossett  
 EFFLUENT: Outfall 001  
 DILUTION WATER: River Water  
 NPDES: Yes  No   
 FOOD BATCH: 5440

BEGINNING HRS: 1400 DATE: 5/3/16 PHOTOPERIOD: 16 hr light/8 hr dark  
 ENDING HRS: 1400 DATE: 5/10/16 FEEDING REGIME:  
 TEST DILUTIONS: 25, 34, 45, 60, 80% 0.15 mL Artemia @ 2 times/day  
 ORGANISM AGE (date): 5/2/16 TEST VESSEL CAPACITY: 450 mL  
 ORGANISM SOURCE: ECT# 5552 TEST SOLUTION VOLUME: 250 - 300 mL  
 SOURCE TEMP @ TEST START: 24.2 NO ORGANISMS/TREATMENT: 8  
 RANDOMIZED BY: LM 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	8
	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	8
	Temp(°c):old/new	24.0	24.4/24.0	24.6/24.7	24.6/24.0	24.0	24.3/24.0	24.7/24	24.1/24.6	24.9
25	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	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	24.1	24.5/24.5	24.7/24.4	24.3/24.7	24.5/24.3	24.7/24.3	24.1/24.3	25.1	
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	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	24.0	24.2/24.5	24.6/24.7	24.8/24.8	24.3/24.6	24.3/24.1	24.1/24.6	24.6	
45	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	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	24.1	24.1/24.1	24.6/24.5	24.6/25.0	24.5/24.5	24.6/24.1	24.1/24.4	24.8	
60	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	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	24.0	24.6/24.4	24.3/24.7	24.3/24.2	24.9/24.3	24.7/24.2	24.1/24.4	25.3	
80	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	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	24.0	24.7/24.7	24.6/24.4	24.7/24.2	24.5/24.4	24.8/24.4	24.1/24.1	25.1	
Test Renewal	Time	1400	1400	1400	1400	1530	1635	1715	1400	
	Date	5/3/16	5/3/16	5/10/16	5/16/16	5/16/16	5/18/16	5/18/16	5/18/16	
	Initials	LM	LM	LM	LM	LM	LM	LM	LM	
morning feeding	Int/Time		MOR 10	MOR 10	MOR 10	LM 10:30	MOR 10:00	MOR 10:00		
afternoon feeding	Int/Time		MOR 10	MOR 10	MOR 10	PM 15:30	PM 16:45	LM 14:00		

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

TEST LOG NO.: 18203  
 JOB NUMBER.: 38-39396A  
 INDUSTRY: Georgia Pacific Crossett  
 EFFLUENT: 001  
 DILUTION WATER: River Water  
 NPDES: Yes  No   
 FOOD BATCH: JLU

BEGINNING: HRS: 1400 DATE: 5/31/10  
 ENDING: HRS: 1400 DATE: 6/10/10

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	24.0	24.5/24.1	24.6/24.1	24.6/24.6	24.5/24.6	25.0/24.0	24.0/24.0	25.4
	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								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	In/Time								
afternoon feeding	In/Time								

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

TEST LOG NO.: 18203 BEGINNING: HRS: 1400 DATE: 5/31/16  
 JOB NO.: 38-39396A ENDING: HRS: 1420 DATE: 5/10/16  
 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	1.08000	1.08500	0.00555	8	AVG Control Fish wt. (using final #)
	B	2	1.08048	1.08513	0.00465	8	
	C	3	1.10096	1.10554	0.00468	8	
	D	4	1.10587	1.10989	0.00402	8	
	E	5	1.08000	1.08390	0.00465	8	
25	A	6	1.05989	1.06508	0.00549	8	Oven ID: <u>1</u>
	B	7	1.12248	1.08545	0.00544	8	
	C	8	1.08074	1.08545	0.00471	8	
	D	9	1.09554	1.09975	0.00421	8	
	E	10	1.11485	1.11967	0.00432	8	
34	A	11	1.09330	1.09819	0.00489	6	Tins In: _____ Date: <u>5/10/16</u> Time: <u>1420</u> Temp (°C): <u>100</u> Initials: <u>LTA</u>
	B	12	1.09518	1.10026	0.00508	8	
	C	13	1.11004	1.11409	0.00405	8	
	D	14	1.07715	1.08181	0.00466	8	
	E	15	1.10484	1.11074	0.0059	8	
45	A	16	1.070873	1.07365	0.00492	8	Tins Out: _____ Date: <u>5/11/16</u> Time: <u>0937</u> Temp (°C): <u>97</u> Initials: <u>LM</u>
	B	17	1.08071	1.08587	0.00516	8	
	C	18	1.08326	1.08730	0.00404	8	
	D	19	1.06514	1.06954	0.0044	8	
	E	20	1.07590	1.08035	0.00439	8	
60	A	21	1.09375	1.07979	0.00604	8	FINAL WEIGHTS
	B	22	1.07125	1.07710	0.00585	8	
	C	23	1.05409	1.05974	0.00565	8	
	D	24	1.08899	1.09436	0.00507	8	
	E	25	1.05801	1.06366	0.00505	8	
80	A	26	1.10739	1.11346	0.00607	8	DATE: _____ INITIALS: _____
	B	27	1.08771	1.09358	0.00587	8	
	C	28	1.08491	1.09159	0.00665	8	
	D	29	1.09153	1.10215	0.00562	8	
	E	30	1.07106	1.07798	0.00692	8	
MH	A	31	1.10165	1.10728	0.00565	8	Initials / Date: <u>HUS/11/16</u> <u>KE/5/12/16</u> <u>KE/5/12/16</u>
	B	32	1.09540	1.10021	0.00481	8	
	C	33	1.10900	1.11318	0.00468	8	
	D	34	1.12080	1.12650	0.00597	8	
	E	35	1.08014	1.08511	0.00461	7	

TEST LOG NO. 18203

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 38-39396A

TEST ORGANISM: Fm

DATE: 5/3/16

Ramboll Environ Test Log#18203 fm/cd

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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																			
25																			
34																			
45																			
60																			
80																			
MH																			

		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																			
25																			
34																			
45																			
60																			
80																			
MH																			

		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																			
25																			
34																			
45																			
60																			
80																			
MH																			

Params Int/Time:	<u>111024</u>	<u>110700</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>
Dilutions Int/Time:	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>	<u>110630</u>
Control Water Batch:	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>	<u>197105</u>	<u>6214</u>
Food Batch:	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>	<u>5440</u>



TEST LOG NO. 18203

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 5/3/16

JOB NO. 38-39396A

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

**100% EFFLUENT**

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH <sub>3</sub> N mg/L
19706	Outfall 001	5/1-2/16	5/3/16	244	385	20.02	0.611
19712	Outfall 001	5/3-4/16	5/5/16	216	355	20.02	0.700
19720	Outfall 001	5/5-6/16	5/7/16	188	370	20.02	0.670

**CONTROL / DILUTION WATER**

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH <sub>3</sub> N mg/L
19705	River Water	5/2/16	5/3/16	21.6	28	0.03	20.1
19711	MH	4/27/16	5/2/16	20.8	46	20.02	-
19717	River Water	5/2/16	5/5/16	20.8	18	0.02	20.1
19719	MH	4/30/16	5/3/16	20.8	48	20.02	-
19713	River Water	5/2/16	5/7/16	20.0	18	0.05	20.1
19720	MH	5/3/16	5/5/16	24	44	20.02	-
			5/8/16				← 20.02 -

# CETIS Analytical Report

Report Date: 17 May-16 19:08 (p 1 of 2)  
 Test Code: 18203cd | 16-5535-8928

Ramboll Environ

## Ceriodaphnia 7-d Survival and Reproduction Test

Analysis ID: 20-9909-2629	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 17 May-16 19:07	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 10-0653-5540	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 03 May-16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 09 May-16	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-4754-8690	Code: 5051F612	Client: GPAC Crossett
Sample Date: 03 May-16	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 09 May-16	Source: Discharge Monitoring Report	
Sample Age: NA	Station: 001	

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

### Fisher Exact/Bonferroni-Holm Test

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

### Test Acceptability Criteria

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

### Data Summary

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

### 7d Survival Rate Detail

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

### 7d Survival Rate Binomials

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

# CETIS Analytical Report

Report Date: 17 May-16 19:09 (p 2 of 2)  
Test Code: 18203cd | 16-5535-8928

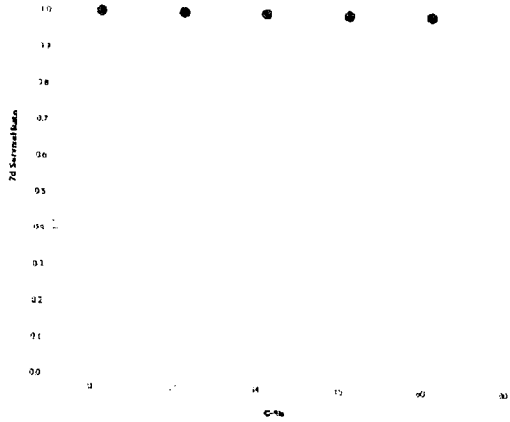
## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

Analysis ID: 20-9909-2629      Endpoint: 7d Survival Rate  
Analyzed: 17 May-16 19:07      Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4  
Official Results: Yes

### Graphics



# CETIS Analytical Report

Report Date: 17 May-16 19:08 (p 1 of 2)  
 Test Code: 18203cd | 16-5535-8928

Ramboll Environ

## Ceriodaphnia 7-d Survival and Reproduction Test

Analysis ID: 18-0191-2521	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 17 May-16 19:07	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Batch ID: 10-0653-5540	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 03 May-16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 09 May-16	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-4754-8690	Code: 5051F612	Client: GPAC Crossett
Sample Date: 03 May-16	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 09 May-16	Source: Discharge Monitoring Report	
Sample Age: NA	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	18.0%

### Steel Many-One Rank Sum Test

Control	vs C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	146.5	75	1	18	1.0000	Asymp	Non-Significant Effect
	34	153	75	0	18	1.0000	Asymp	Non-Significant Effect
	45	142.5	75	1	18	1.0000	Asymp	Non-Significant Effect
	60	153.5	75	1	18	1.0000	Asymp	Non-Significant Effect
	80	143	75	0	18	1.0000	Asymp	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	33.7	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1803	0.13 - 0.47	Yes	Passes Acceptability Criteria

### Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	4.086	3.2	0.0006	Outlier Detected

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	855.35	171.07	5	4.856	0.0010	Significant Effect
Error	1902.3	35.22778	54			
Total	2757.65		59			

### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	10.24	15.09	0.0686	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.917	0.9459	0.0006	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	33.7	31.15	36.25	35	28	40	1.126	10.57%	0.0%
25		10	43.9	39.6	48.2	45	34	52	1.9	13.69%	-30.27%
34		10	44.8	40.94	48.66	45.5	37	53	1.705	12.03%	-32.94%
45		10	41.2	34.72	47.68	45.5	18	48	2.867	22.0%	-22.26%
60		10	44.3	41.58	47.02	44.5	36	50	1.202	8.58%	-31.45%
80		10	42	37.66	46.34	41.5	30	50	1.921	14.46%	-24.63%

# CETIS Analytical Report

Report Date: 17 May-16 19:08 (p 2 of 2)  
 Test Code: 18203cd | 16-5535-8928

## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

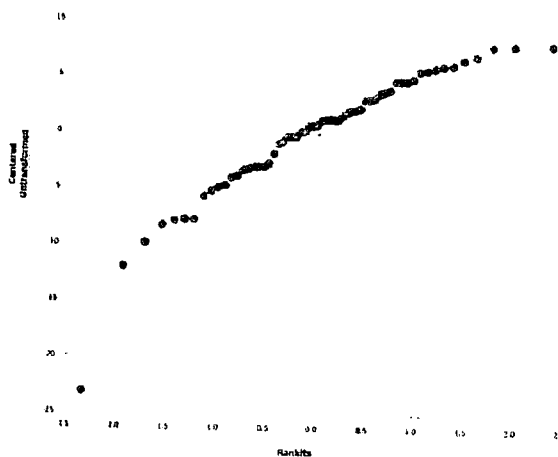
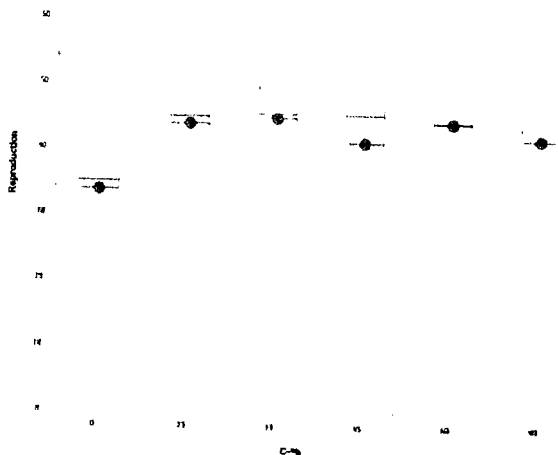
Analysis ID: 18-0191-2521      Endpoint: Reproduction  
 Analyzed: 17 May-16 19:07      Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.8.4  
 Official Results: Yes

### Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	36	31	40	35	28	35	29	33	35	35
25		44	47	36	34	51	43	39	46	47	52
34		45	37	37	51	47	53	46	43	48	41
45		46	42	38	46	18	46	48	47	45	36
60		44	41	45	48	46	44	36	44	45	50
80		39	30	38	46	50	47	44	39	48	39

### Graphics



**CETIS Analytical Report**

Report Date: 17 May-16 19:08 (p 1 of 1)  
 Test Code: 18203cd | 16-5535-8928

**Ceriodaphnia 7-d Survival and Reproduction Test**

Ramboll Environ

Analysis ID: 07-7768-3551	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 17 May-16 19:08	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 10-0653-5540	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 03 May-16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 09 May-16	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 0h	Source: In-House Culture	Age:
Sample ID: 13-4754-8690	Code: 5051F612	Client: GPAC Crossett
Sample Date: 03 May-16	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 09 May-16	Source: Discharge Monitoring Report	
Sample Age: NA	Station: 001	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	488795	1000	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	33.7	15 - NL	Yes	Passes Acceptability Criteria

**Point Estimates**

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

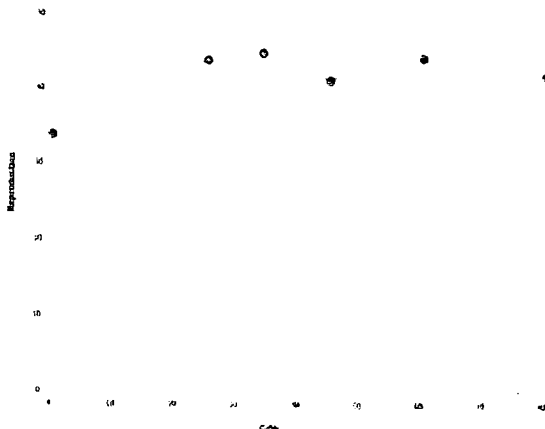
**Reproduction Summary**

C-%	Control Type	Count	Mean	Min	Calculated Variate				
					Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	33.7	28	40	1.126	3.561	10.57%	0.0%
25		10	43.9	34	52	1.9	6.008	13.69%	-30.27%
34		10	44.8	37	53	1.705	5.391	12.03%	-32.94%
45		10	41.2	18	48	2.867	9.065	22.0%	-22.26%
60		10	44.3	36	50	1.202	3.802	8.58%	-31.45%
80		10	42	30	50	1.921	6.074	14.46%	-24.63%

**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	36	31	40	35	28	35	29	33	35	35
25		44	47	36	34	51	43	39	46	47	52
34		45	37	37	51	47	53	46	43	48	41
45		46	42	38	46	18	46	48	47	45	36
60		44	41	45	48	46	44	36	44	45	50
80		39	30	38	46	50	47	44	39	48	39

**Graphics**



**RAMBOLL ENVIRON CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION 3-BROOD CHRONIC TOXICITY TEST**

EPA-821-R-02-013 Method 1002.0

TEST LOG NO.: 18203  
 JOB NUMBER: 3839396A  
 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 R. subcapitata per 15 mL  
 TEST VESSEL CAPACITY: 30 mL  
 TEST SOLUTION VOLUME: 15 mL  
 NO. ORGANISMS/REPLICATE: 1  
 NO. REPLICATES: 10

**ORGANISM SOURCE INFORMATION:**

AGE (date): 5/2/16  
 TEMP @ TEST START: 24.8  
 RANDOMIZED BY: LM  
 TEST START: HOURS: 1100 DATE: 5/3/16  
 TEST END: HOURS: 1200 DATE: 5/9/16

SOURCE ID:	AGE (time):
11350	1200-1513
11361	1201-1516

SURVIVAL AND REPRODUCTION DATA														Notes		
Test Start & Feeding/End Initials/Time	Daily Renewal & Feeding Initials/Time	Date	Control		REPLICATES											
			River Water		Sb					W1						
			Temp (°C)		1	2	3	4	5	6	7	8	9		10	
LM 1100	LM 1150	5/3	25.1		Adult	19	11	8	18	7	2	19	6	3	12	
LM 1103	LM 1052	5/4	24.6	25.4	Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1216	Y60	5/5	24.8	25.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Y60	Y60	5/6	24.0	24.3	Day 2	5	5	3	5	✓	4	5	4	✓	4	
Y60	Y60	5/7	28.2	25.7	Day 3	✓	12	✓	15	5	✓	7	11	9	✓	
Y60	Y60	5/8	25.2	25.2	Day 4	13	✓	17	15	8	12	✓	✓	19	13	
Y60	Y60	5/9	25.2		Day 5	18	14	20	✓	15	19	17	18	17	18	100%
					Day 6											
					Day 7											
					Day 8											
			Total			36	31	40	35	28	55	29	33	35	35	337

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

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K175E-25-3

TEST LOG # 18203

JOB # 3839396A

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: RAMBOLL ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA															Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES													
			25%															
			Temp (°C)		1	2	3	4	5	6	7	8	9	10				
					Adult													
LM 1100		5/3	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1150	5/4	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1103	5/5	24.6	24.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1052	5/6	24.1	24.1	Day 3	5	✓	5	5	6	5	4	6	5	4			
	<del>LM 1216</del>	<del>5/7</del>	<del>25.6</del>	<del>25.1</del>	Day 4	10	7	11	14	18	12	17	18	✓	✓			
	<del>LM 1450</del>	<del>5/8</del>	<del>25.1</del>	<del>25.0</del>	Day 5	✓	15	20	25	✓	17	17	22	21	20			
	LM 1300	5/9	25.6		Day 6	29	25	27	✓	27	26	41	✓	21	28			
					Day 7													
					Day 8													
					Total	44	47	36	34	51	43	39	46	47	52	43	43	43

SURVIVAL AND REPRODUCTION DATA															Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES													
			34%															
			Temp (°C)		1	2	3	4	5	6	7	8	9	10				
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1150	5/4	24.6	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1103	5/5	24.8	24.9	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1052	5/6	24.0	24.2	Day 3	5	✓	5	5	6	6	6	5	5	6			
	<del>LM 1216</del>	<del>5/7</del>	<del>25.3</del>	<del>24.8</del>	Day 4	✓	7	14	17	✓	18	17	13	17	✓			
	<del>LM 1450</del>	<del>5/8</del>	<del>25.1</del>	<del>25.2</del>	Day 5	15	10	18	✓	14	✓	✓	25	✓	15			
	LM 1300	5/9	24.8		Day 6	25	20	✓	29	27	29	23	✓	26	20			
					Day 7													
					Day 8													
					Total	45	37	37	51	47	53	46	43	48	41	44	48	48

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

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TEST LOG # 18203

JOB # 3839396A

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: RAMBOLL 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 1100		5/3	25.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HM 1150		5/4	24.7	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1103		5/5	25.1	25.7	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1052		5/6	24.0	24.6	Day 3	5	6	4	5	✓	5	6	6	5	5	✓	
LM 1235		5/7	25.2	25.8	Day 4	✓	16	16	✓	5	✓	18	✓	16	✓		
LM 1450		5/8	25.2	25.4	Day 5	18	20	18	13	✓	16	24	18	✓	15		
LM 1700		5/11	25.2		Day 6	23	✓	25	28	13	20	27	23	24	16		
					Day 7												
					Day 8												
			Total			46	42	38	46	18	46	48	47	45	36	4/12	

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 1100		5/3	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HM 1150		5/4	24.3	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1103		5/5	25.8	25.6	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1052		5/6	24.0	24.8	Day 3	4	4	6	6	6	6	6	6	5	✓		
LM 1235		5/7	27.1	26.0	Day 4	✓	16	16	17	16	X3	✓	15	✓	8		
LM 1450		5/8	25.0	25.2	Day 5	19	21	23	25	✓	✓	8	23	15	20		
LM 1300		5/9	24.8		Day 6	21	✓	18	✓	24	25	22	✓	25	22		
					Day 7												
					Day 8	44											
			Total			40	41	45	48	46	44	36	44	45	50	44	43

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

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TEST LOG # 18203

JOB # 3839396A

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: RAMBOLL ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA														Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES												
			80%	Temp (°C)	1	2	3	4	5	6	7	8	9		10		
					Adult												
LM 1100		5/3	24.8		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1150	5/4	24.8	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1103	5/5	25.0	24.8	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1052	5/6	24.6	25.4	Day 3	5	10	4	6	6	4	5	6	6	6	6	6
	5/7	5/7	25.8	26.0	Day 4	✓	15	14	13	16	✓	16	15	16	✓	✓	✓
	5/8	5/8	25.2	25.3	Day 5	15	15	20	27	✓	20	23	13	✓	16	16	16
	5/9	5/9	25.3		Day 6	19	26	21	✓	28	23	✓	15	26	17	✓	16 T-stay
					Day 7								15.4				
					Day 8												
			Total			39	30	38	46	50	47	44	39	48	39	42	420

SURVIVAL AND REPRODUCTION DATA														Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES												
			MH	Temp (°C)	1	2	3	4	5	6	7	8	9		10		
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LM 1100		5/3	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1150	5/4	24.2	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1103	5/5	24.8	25.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1052	5/6	25.3	25.6	Day 3	5	4	5	5	✓	5	6	2	✓	✓	✓	✓
	5/7	5/7	24.0	24.0	Day 4	✓	✓	8	✓	6	✓	8	6	6	6	6	6
	5/8	5/8	24.8	24.0	Day 5	9	8	✓	10	10	11	10	✓	7	9	9	9
	5/9	5/9	24.4		Day 6	14	11	15	17	✓	17	18	12	14	15	15	90%
					Day 7												
					Day 8												
			Total			28	23	28	32	16	33	34	24	27	30	27	275

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

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TEST LOG NO. 18203

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 38-39396A

TEST ORGANISM: Cd

DATE: 5/31/14

Ramboll Environ Test Log#18203 m/cd

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		D.O. (mg/L)													
Concentration (%)		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
25		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
34		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
45		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
60		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
80		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	
MH		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	

		pH (s.u.)													
Concentration (%)		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7
			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	
RW		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
25		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
34		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
45		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
60		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
80		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
MH		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	

		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		100	100	100	100	100	100	100	100	100	100	100	100	100	
25		100	100	100	100	100	100	100	100	100	100	100	100	100	
34		100	100	100	100	100	100	100	100	100	100	100	100	100	
45		100	100	100	100	100	100	100	100	100	100	100	100	100	
60		100	100	100	100	100	100	100	100	100	100	100	100	100	
80		100	100	100	100	100	100	100	100	100	100	100	100	100	
MH		100	100	100	100	100	100	100	100	100	100	100	100	100	

Params Int/Time:	Start	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Dilutions Int/Time:	1:100	1:100	1:100	1:100	1:100	1:100	1:100	1:100
Control Water Batch:	1000	1000	1000	1000	1000	1000	1000	1000
Food Batch	1000	1000	1000	1000	1000	1000	1000	1000

**ATTACHMENT 2  
CHAIN-OF-CUSTODY DOCUMENTATION AND  
REFERENCE TOXICANT DATA**

Project Name:		Project Number:		Analysis Requested												<b>CHAIN-OF-CUSTODY</b>  <b>RAMBOLL ENVIRON</b> 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																				
Industry: <b>GEORGIA PACIFIC PAPER</b>		<table border="1" style="width: 100%; height: 100%; text-align: center;"> <tr><td>Total Volume in liters</td><td>Acute Fathead minnow</td><td>Acute Bannerfin shiner</td><td>Acute Ceriodaphnia dubia</td><td>Acute Daphnia pulex</td><td>Chronic Fathead minnow</td><td>Chronic Ceriodaphnia dubia</td><td>Continuous Batch Tests</td><td>Discrete Batch Tests</td><td>Other</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>												Total Volume in liters	Acute Fathead minnow				Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other										
Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other																											
Phone: <b>870-567-8170</b>		FAX: <b>870-364-9076</b>																																		
County: <b>ASHLEY</b>		City: <b>CROSSETT</b>		State: <b>AR</b>																																
Sample Collected by (print): <b>CHRIS PAUL</b>				NPDES Permit No.: <b>AR0001210</b>																																
Sample Collected by (signature): <i>Chris Paul</i>				NPDES Test:				No. of Cntrs																												
				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																																
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time													Description Definitive or Screen	Sample B# (lab only)	Receipt Temp °C																
<b>RIVER</b>	<b>C</b>	<b>Plastic</b>	<b>NA</b>	<b>5-2-16 10:08am</b>															<b>19705</b>																	
<b>OUTFALL 00L</b>	<b>C</b>	<b>Plastic</b>	<b>YES</b>	<b>5-1-16 7:31am</b>	<b>5-2-16 6:33am</b>													<b>DILUTION NUMBER 157</b>		<b>19706 1.1</b>																
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____																																				
Remarks:																																				
Measured TRC (if applicable): <u>0.00</u> mg/L																																				
Relinquished by: (Signature) <i>P. Jordan</i>				Date: <b>5-2-16</b>		Time: <b>3:00pm</b>		Received by: (Signature)				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier				Condition: (lab use only) <input type="checkbox"/> UPS Hand Delivered <input type="checkbox"/>																				
Relinquished by: (Signature) <i>Chris Paul</i>				Date: <b>5-2-16</b>		Time: <b>4:00pm</b>		Received by: (Signature)				Containers/Volume Received: <b>20L of each</b>																								
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) <i>Justin Windsor</i>				Date: <b>5/3/16</b>		Time: <b>08:27</b>		pH upon arrival: <b>7.10, 7.72</b>		DO upon arrival: <b>9.2, 8.7</b>																		

**Sample Receipt Checklist:**

Client: GP Crossett

Date/Time received 5/3/16 0847 by AW

- 1. Cooler sealed and intact upon arrival?  Yes  No
- 2. Custody seals present?  Yes  No
- 3. Samples received below 6 °C?  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) in the RW

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
19705	River	1.5	7.70	9.2	0.03
19706	Wetfall 11001	1.1	7.72	8.7	20.02

Project Name:			Project Number:			<b>CHAIN-OF-CUSTODY</b>  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>RAMBOLL ENVIRON</b>                  201 Summit View Drive, Suite 300                  Brentwood, TN 37027                  PHONE: (615) 277-7570                  FAX: (615) 377-4976             </div>													
Industry: <b>GEORGIA PACIFIC PAPER</b>			Phone: <b>870-567-8170</b> FAX: <b>870-364-9076</b>																
County: <b>ASHLEY</b> City: <b>CROSSETT</b> State: <b>AR.</b>			Sample Collected by (print): <b>CHRIS/PAUL</b>													NPDES Permit No.: <b>AR0001210</b>			
Sample Collected by (signature):			NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes													No. of Cntrs			
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)	Receipt Temp °C	
<b>RIVER</b>	<b>G</b>	<b>PLASTIC</b>	<b>NA</b>	<b>5-2-16</b>	<b>10:08am</b>												<b>19911</b>		
<b>OUTFALL #01</b>	<b>C</b>	<b>PLASTIC</b>	<b>YES</b>	<b>5-3-16</b>	<b>5-16</b>					<b>✓</b>	<b>✓</b>					<b>DILLON WATER</b>	<b>27.3</b>	<b>1</b>	
																	<b>19912</b>	<b>15.2</b>	<b>2</b>
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other Remarks:																			
Measured TRC (if applicable): <b>0.00</b> mg/L																			
Relinquished by: (Signature)		Date: <b>5-4-16</b>	Time: <b>3:00pm</b>	Received by: (Signature)			Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier			UPS <input type="checkbox"/> Hand Delivered			Condition: <b>OK</b> (lab use only)						
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)			Containers/Volume Received: <b>20L/20L</b>												
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature)			Date: <b>5/5/16</b>	Time: <b>0840</b>	pH upon arrival: <b>6.93</b>			DO upon arrival: <b>8.7.8.2</b>							

7.76

**Sample Receipt Checklist:**

Client: OP Cussett

Date/Time received 5/5/14 6:20 by HR

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
19711	River	2.7.3.1	6.93	8.7	0.02
19712	001	1.5.12.2	7.76	8.2	10.02

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Project Name:		Project Number:																			
Industry: <i>Georgia Pacific Paper</i>																					
Phone: <i>870-567-870</i> FAX:																					
County: <i>Ashley</i> City: <i>Crosscut</i> State: <i>AR</i>																					
Sample Collected by (print): <i>Chris Row / Brittney Mcorre</i>				NPDES Permit No.: <i>AR 0001210</i>																	
Sample Collected by (signature): <i>Chris Row</i>				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																	
Sample Location / ID		Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	<b>CHAIN-OF-CUSTODY</b>  <b>RAMBOLL ENVIRON</b> 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976			
Description Definitive or Screen		Sample B# (lab only)	Receipt Temp °C																		
<i>River</i>		<i>G</i>	<i>Plastic</i>	<i>NA</i>	<i>5-2-16</i> <i>10:08 AM</i>													<i>dilution water</i>	<i>9719</i>	<i>17.4</i>	
<i>Outfall 001</i>		<i>C</i>	<i>Plastic</i>	<i>Yes</i>	<i>5-5-16</i> <i>6:27 AM</i>	<i>5-6-16</i> <i>6:31 AM</i>							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<i>9720</i>	<i>14.4</i>
* Matrix: <b>SS</b> - Soil <b>GW</b> - Groundwater <b>WW</b> - Wastewater <b>AW</b> - Ambient Water <b>ML</b> - Mixed Liquor <b>SL</b> - Sludge <b>SD</b> - Sediment <b>OT</b> - Other																					
Remarks:																					
Measured TRC (if applicable): <i>0.00</i> mg/L																					
Relinquished by: (Signature) <i>Chris Row</i>				Date: <i>5-6-16</i> Time: <i>4:00 PM</i>		Received by: (Signature)				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier <input type="checkbox"/> UPS Hand Delivered				Condition: (lab use only) <i>OK</i>							
Relinquished by: (Signature) <i>Paul Jordan</i>				Date: Time:		Received by: (Signature)				Containers/Volume Received: <i>2/10</i>											
Relinquished by: (Signature)				Date: Time:		Received for lab by: (Signature)				Date: <i>5/16/16</i> Time: <i>09:00</i>		pH upon arrival: <i>6.65</i>		DO upon arrival: <i>8.4, 8.4</i>							

*744*

**Sample Receipt Checklist:**

Client: COP Crossett

Date/Time received 5/21/16 0900 by HM

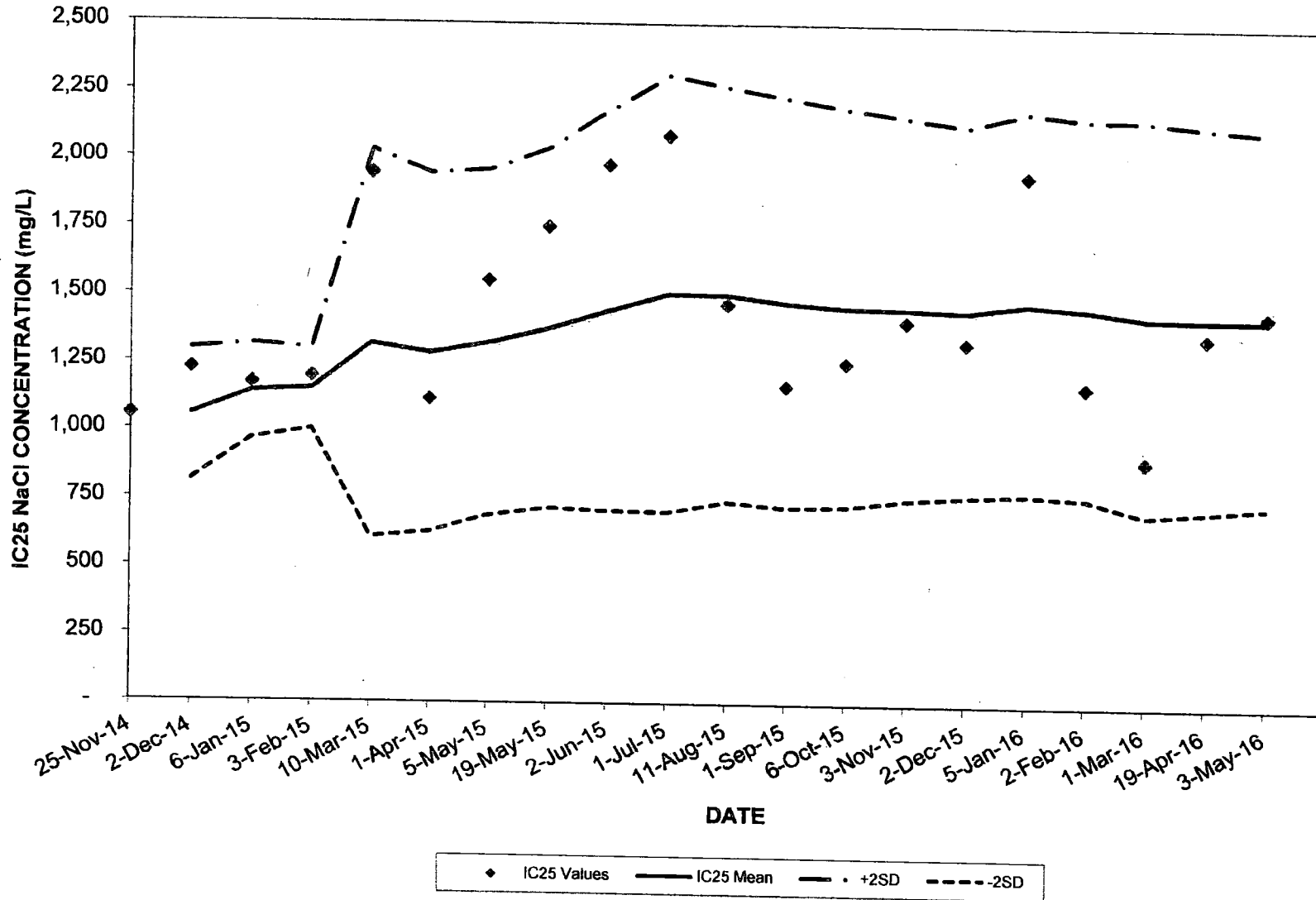
- 1. Cooler sealed and intact upon arrival?  Yes  No
- 2. Custody seals present?  Yes  No
- 3. Samples received below 6 degrees Celsius?  Yes  No
- 4. Was ice present?  Yes  No
- 5. Is the COC filled out correctly including the sample date/time and signed?  Yes  No
- 6. Was the sample received within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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
19719	RW	1.7, 1.4	6.68	8.1	0.05
19720	001	1.4, 1.6	7.44	8.4	20.02

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### CHRONIC REFERENCE TOXICANT TEST (NaCl) 2014 - 2016 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2014 - 2016

Ramboll Environ Test Log#18203 fm/cd

Page 37 of 39

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	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057					
2	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228					
3	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,057	121	1,299	815	7
4	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,143	88	1,318	967	6
5	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,154	75	1,304	1,003	6
6	17504	01-Apr-15	90	0.316	750	1,500	750	1,500	39.1	1,117	1,322	356	2,034	610	24
7	17570	05-May-15	95	0.346	750	1,500	1,500	3,000	32.6	1,556	1,288	329	1,946	629	23
8	17604*	19-May-15	97.5	0.284	1,500	3,000	1,500	3,000	24.3	1,753	1,326	317	1,960	692	22
9	17621*	02-Jun-15	95	0.335	1,500	3,000	1,500	3,000	24.8	1,978	1,379	330	2,040	719	22
10	17676	01-Jul-15	95	0.452	1,500	3,000	1,500	3,000	23.4	2,087	1,446	368	2,181	710	24
11	17740	11-Aug-15	97.5	0.402	1,500	3,000	1,500	3,000	32.8	1,473	1,510	402	2,313	707	25
12	17790	01-Sep-15	100	0.524	750	1,500	750	1,500	18.4	1,171	1,507	381	2,269	744	24
13	17848	06-Oct-15	95	0.406	750	1,500	750	1,500	18.4	1,171	1,479	376	2,231	726	24
14	17903	03-Nov-15	100	0.269	750	1,500	1,500	3,000	34.4	1,258	1,462	365	2,192	731	24
15	17946	02-Dec-15	100	0.330	750	1,500	1,500	3,000	30.0	1,411	1,458	351	2,161	756	23
16	17994	05-Jan-16	100	0.339	750	1,500	1,500	3,000	27.0	1,334	1,450	340	2,130	770	23
17	18025	02-Feb-16	100	0.377	750	1,500	750	1,500	19.8	1,948	1,481	351	2,183	778	23
18	18074	01-Mar-16	100	0.672	750	1,500	750	1,500	26.0	1,175	1,463	348	2,159	767	23
19	18185	19-Apr-16	100	0.516	750	1,500	750	1,500	22.0	904	1,432	362	2,157	707	25
20	18205	03-May-16	100	0.399	750	1,500	750	1,500	20.6	1,361	1,428	353	2,133	723	24
					750	1,500	750	1,500	27.5	1,444	1,428	343	2,115	742	23

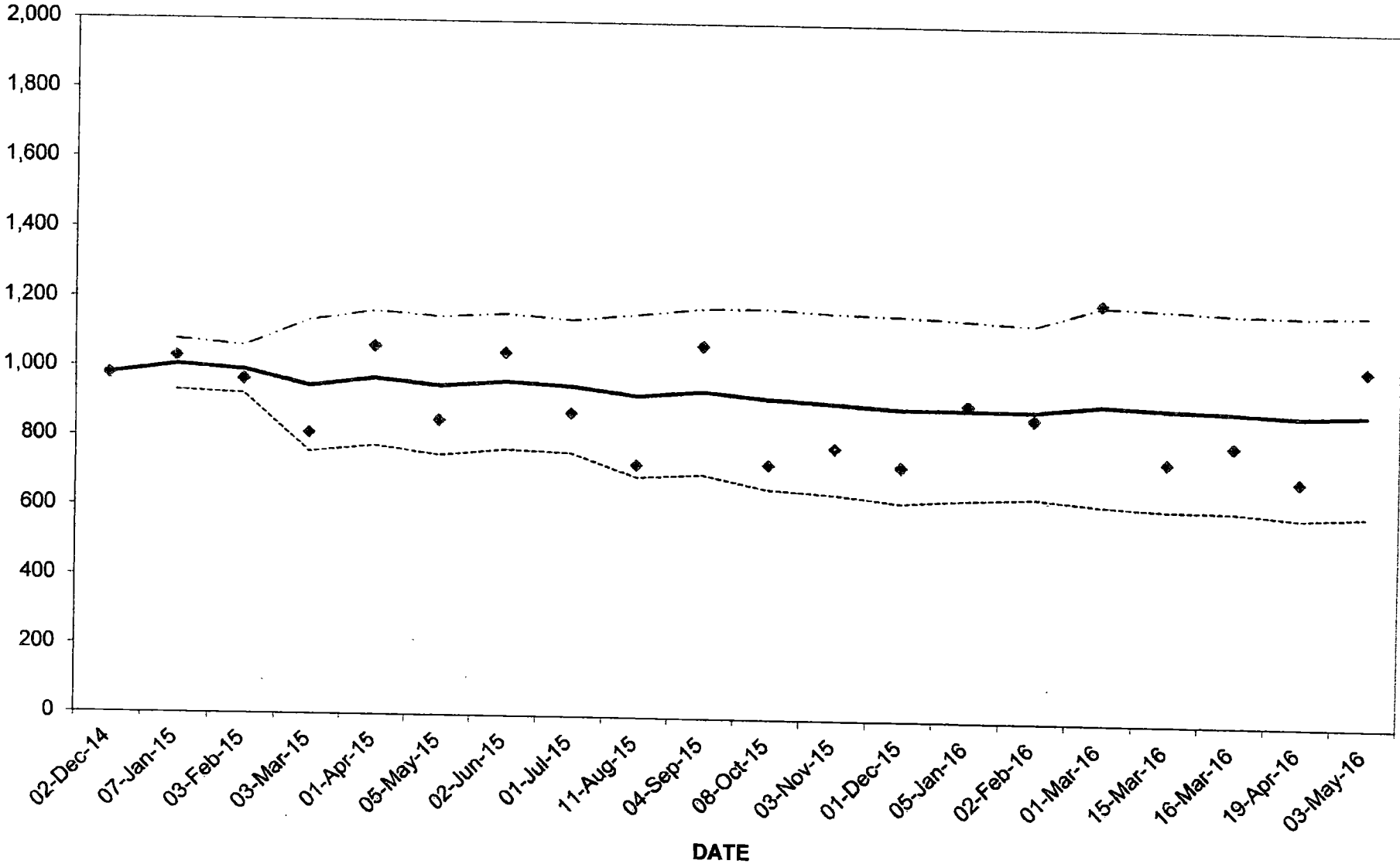
<b>Avg</b>	98	0.414	975	1950	1163	2325	28	1429	1380	314	2007	752
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**Notes:**  
 Dilution series - 0.375 g/L - 6.0 g/L  
 NOEC - No Observable Effect Concentration (survival or growth)  
 LOEC - Lowest Observable Effect Concentration (survival or growth)  
 ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.  
 (\*) used ABS fish  
 Minimum USEPA CONTROL CRITERIA - 80 percent survival and average dry weight of 0.25 mg (weight based on surviving number of fish).

**CHRONIC REFERENCE TOXICANT (NaCl) 2014-2016**  
*Ceriodaphnia dubia*

Ramboll Environ Test Log#18203 km/cd

Page 38 of 39  
 IC25 NaCl CONCENTRATION (mg/L)



Test Result
  Mean IC25
  +2 std deviations
  -2 std deviations

*Ceriodaphnia dubia* CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2014-2016

Ramboll Environ Test Log#18203 fml/cd

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Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repro (*)	Survival		Reproduction			IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)	PMSD						
1	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	980				
2	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	1,006	37	1,080	932	3
3	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	993	35	1,062	923	3
4	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	947	95	1,138	757	9
5	17504	01-Apr-15	100	90	24.5	1,000	2,000	1,000	2,000	24.9	1,064	971	98	1,166	775	9
6	17571	05-May-15	100	80	22.9	2,000	>2000	500	1,000	22.0	851	951	100	1,151	751	10
7	17622	02-Jun-15	100	80	27.4	1,000	2,000	1,000	2,000	22.3	1,048	965	98	1,161	768	9
8	17675	01-Jul-15	100	100	26.4	2,000	>2000	500	1,000	16.0	875	953	96	1,146	760	9
9	17746	11-Aug-15	100	80	20.6	2,000	>2000	500	1,000	33.1	728	928	117	1,163	694	12
10	17798	04-Sep-15	100	100	27.7	2,000	>2000	500	1,000	13.4	1,075	943	120	1,183	703	12
11	17856	08-Oct-15	100	80	25.5	2,000	>2000	500	1,000	22.0	733	924	130	1,184	663	13
12	17904	03-Nov-15	100	100	27.8	1,000	2,000	500	1,000	12.4	783	912	131	1,174	651	14
13	17947	01-Dec-15	100	100	26.0	2,000	>2,000	500	1,000	19.8	732	898	135	1,168	629	14
14	17995	05-Jan-16	100	90	30.4	2,000	>2,000	500	1,000	19.1	912	899	130	1,158	640	14
15	18024	02-Feb-16	100	100	27.7	1,000	2,000	500	1,000	23.5	873	898	125	1,148	648	13
16	18073	01-Mar-16	100	100	35.0	2,000	>2,000	500	1,000	7.4	1,210	917	144	1,205	629	15
17	18107	15-Mar-16	90	90	32.7	2,000	>2,000	500	1,000	22.6	753	907	145	1,197	618	15
18	18112	16-Mar-16	100	90	31.9	2,000	>2,000	500	1,000	16.4	802	902	143	1,187	616	15
19	18178	19-Apr-16	100	100	27.2	1,000	2,000	500	1,000	11.1	703	891	146	1,183	599	16
20	18206	03-May-16	100	100	29.3	1,000	2,000	500	1,000	13.4	1,026	898	145	1,188	607	16
<b>Avg</b>			99	91	28	1706	588	559	1118	19	891	941	108	1155	721	

**Notes:**

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

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



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Company GEORGIA PACIFIC/ENVIRONMENTAL

Address 100 SUPPLY RD

City CROSSETT State AR ZIP 71635

**2 Your Internal Billing Reference**

**3 To**  
Recipient's Name Richard Healey Phone \_\_\_\_\_

Company ADEQ

Address 5301 Northshore Drive

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City North Little Rock State AR ZIP 72118

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FID 356368 26JUL16 ELDA 539C1/5CBD/B9D2

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ST **2**  
**1**  
**10:30**  
**A**  
**1688**  
**07.26**

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