



Georgia-Pacific LLC  
Consumer Products

Crossett Paper Operations  
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P.O. Box 3333  
Crossett, AR 71635  
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(870) 364-9076 fax  
[www.gp.com](http://www.gp.com)

July 22, 2015

Mr. Richard Healey  
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. Healey:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for June 2015. 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 Rachel Johnson at (870) 567-8170 or by email at [rachel.johnson2@gapac.com](mailto:rachel.johnson2@gapac.com).

Sincerely,

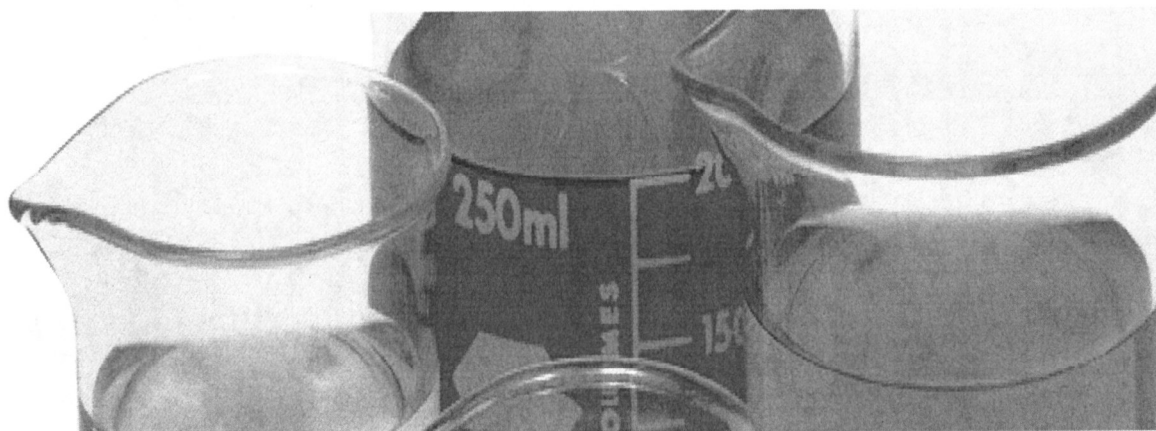
A handwritten signature in black ink that reads 'Sarah M. Ross'.

Sarah M. Ross  
Environmental Manager  
Crossett Paper Operations

Prepared for  
**Georgia-Pacific Crossett Mill**  
**Crossett, AR**

Date  
**June 2015**

# **CHRONIC TOXICITY TEST RESULTS – OUTFALL 001 PROJECT NUMBER: 20-19675I**



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. 20-19675I**

Dear Ms. Johnson:

Date July 3, 2015

Ramboll 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 May 18, 20, and 22, 2015. The samples were received at Ramboll Environ on May 19, 21, and 23, 2015, 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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The river water control for the May 2015 *C. dubia* test did not meet Test Acceptability Criteria (TAC). The test results demonstrated a reverse dose response, with a normal response for the secondary moderately hard water control, indicating that the river water was toxic to *C. dubia*. A re-test was initiated June 16, 2015 with samples collected on June 15, 17, and 19, 2015. Sample receipt holding times and temperatures met USEPA sample requirements. Laboratory soft water was used as the primary control and diluent for this test, while the river water was used as a secondary control.

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). Other than noted in the preceding paragraph, controls met TAC. The results of the chronic toxicity tests are as follows:

TEST RESULTS FOR OUTFALL 001 EFFLUENT		
Permit Limits	Fathead Minnow	<i>C. dubia</i>
	May 19, 2015 Test	June 16, 2015 Test
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 either fathead minnow or *C. dubia*.

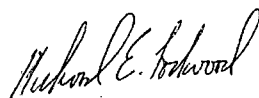
The Coefficient of Variation (CV) values for the fathead minnow survival in the river water control and critical dilution are 0 and 5.7 percent, respectively. The CV values for growth in the control and critical dilution are 15.9 and 8.6 percent, respectively, and meet the CV limit of 40 percent for findings of no toxicity. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 27.7 which is within the USEPA PMSD bounds of 12 to 30 percent when alpha 0.05 was 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 concentration-response curve is an inverse response curve with growth increasing with increasing effluent concentration. A Type 10 response is generally 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.

The *C. dubia* reproduction CV values for the laboratory soft water control and critical dilution are 12.5 and 22.0 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 27.0 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and cannot be 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 and the documentation of the invalidated test are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 54 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

D 615-277-7523  
RLOCKWOOD@ENVIRONCORP.COM



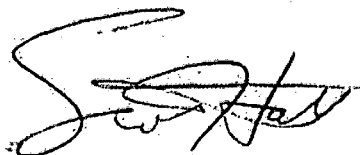
**Robin L. Richards, REM**  
Department Head  
Water Management and Planning

**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>.



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Scott Hall, Department Manager  
Water Quality and Ecotoxicology

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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 WITH  
STATISTICAL DATA AND  
DOCUMENTATION OF TERMINATED TESTS**

**CETIS Analytical Report**

Report Date: 04 Jun-15 17:21 (p 1 of 4)  
 Test Code: 17600fm | 12-7469-7689

<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>				<b>Ramboll Environ</b>	
<b>Analysis ID:</b> 07-6562-7095	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv1.8.4			
<b>Analyzed:</b> 04 Jun-15 17:19	<b>Analysis:</b> Nonparametric-Control vs Treatments	<b>Official Results:</b> Yes			
<b>Batch ID:</b> 11-4788-1608	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>			
<b>Start Date:</b> 19 May-15 13:30	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water			
<b>Ending Date:</b> 26 May-15 14:18	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable			
<b>Duration:</b> 7d 1h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b>			
<b>Sample ID:</b> 06-2662-8787	<b>Code:</b> 255998B3	<b>Client:</b> GPAC Crossett			
<b>Sample Date:</b> 18 May-15	<b>Material:</b> Industrial Effluent	<b>Project:</b> WET Monthly Compliance Test (MAY)			
<b>Receive Date:</b> 19 May-15	<b>Source:</b> Discharge Monitoring Report				
<b>Sample Age:</b> 38h	<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	9.91%

**Steel Many-One Rank Sum Test**

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		34	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		45	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		60	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		80	25	16	1	8	0.6353	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	2.763	2.908	0.0929	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03343166	0.006686332	5	0.7337	0.6053	Non-Significant Effect
Error	0.2187118	0.009112992	24			
Total	0.2521435		29			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	116.9	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8392	0.9031	0.0004	Non-normal Distribution

**7d Survival Rate Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	1	1	1	1	1	1	0	0.0%	0.0%
25		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
34		5	0.925	0.7862	1	1	0.75	1	0.05	12.09%	7.5%
45		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	5.0%
60		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
80		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%

**Angular (Corrected) Transformed Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
25		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
34		5	1.287	1.094	1.481	1.393	1.047	1.393	0.06974	12.12%	7.6%
45		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	5.27%
60		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
80		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%

**CETIS Analytical Report**

Report Date: 04 Jun-15 17:21 (p 2 of 4)  
 Test Code: 17600fm | 12-7469-7689

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

Ramboll Environ

Analysis ID: 07-6562-7095      Endpoint: 7d Survival Rate  
 Analyzed: 04 Jun-15 17:19      Analysis: Nonparametric-Control vs Treatments

CETIS Version: CETISv1.8.4  
 Official Results: Yes

**7d Survival Rate Detail**

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

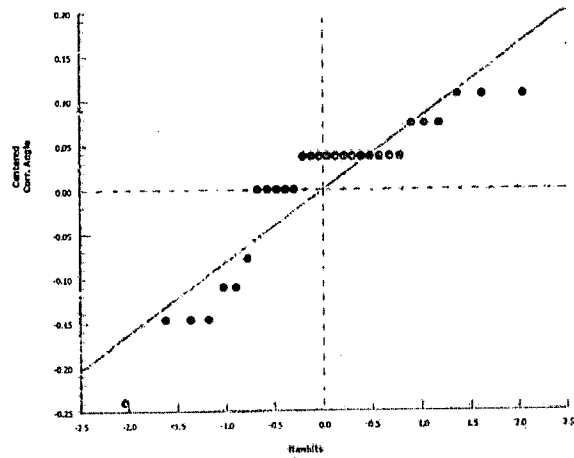
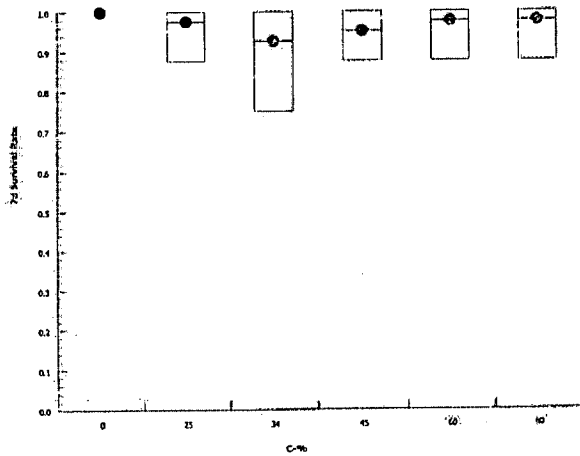
**Angular (Corrected) Transformed Detail**

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	1.209	1.393	1.393	1.393
34		1.393	1.047	1.393	1.393	1.209
45		1.209	1.393	1.393	1.393	1.209
60		1.393	1.393	1.209	1.393	1.393
80		1.393	1.209	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	7/8	8/8	8/8	8/8
34		8/8	6/8	8/8	8/8	7/8
45		7/8	8/8	8/8	8/8	7/8
60		8/8	8/8	7/8	8/8	8/8
80		8/8	7/8	8/8	8/8	8/8

**Graphics**





**CETIS Analytical Report**

Report Date: 04 Jun-15 17:21 (p 3 of 4)

Test Code: 17600fm | 12-7469-7689

Fathead Minnow 7-d Larval Survival and Growth Test Ramboll Environ

<b>Analysis ID:</b> 10-6652-1515	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv1.8.4
<b>Analyzed:</b> 04 Jun-15 17:20	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Official Results:</b> Yes
<b>Batch ID:</b> 11-4788-1608	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 19 May-15 13:30	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 26 May-15 14:18	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Duration:</b> 7d 1h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b>
<b>Sample ID:</b> 06-2662-8787	<b>Code:</b> 255998B3	<b>Client:</b> GPAC Crossett
<b>Sample Date:</b> 18 May-15	<b>Material:</b> Industrial Effluent	<b>Project:</b> WET Monthly Compliance Test (MAY)
<b>Receive Date:</b> 19 May-15	<b>Source:</b> Discharge Monitoring Report	
<b>Sample Age:</b> 38h	<b>Station:</b> 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	27.7%

**Dunnett Multiple Comparison Test**

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	-1.33	2.362	0.1	8	0.9936	CDF	Non-Significant Effect
	34	-2.057	2.362	0.1	8	0.9994	CDF	Non-Significant Effect
	45	-2.755	2.362	0.1	8	0.9999	CDF	Non-Significant Effect
	60	-1.933	2.362	0.1	8	0.9991	CDF	Non-Significant Effect
	80	-4.292	2.362	0.1	8	1.0000	CDF	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.36	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2774	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	2.614	2.908	0.1669	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.09171394	0.01834279	5	4.103	0.0078	Significant Effect
Error	0.1072953	0.004470638	24			
Total	0.1990093		29			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.086	15.09	0.6867	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9805	0.9031	0.8387	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	0.36	0.2891	0.4309	0.35	0.2825	0.425	0.02553	15.86%	0.0%
25		5	0.4163	0.34	0.4925	0.4038	0.3525	0.4875	0.02747	14.75%	-15.63%
34		5	0.447	0.3571	0.5369	0.4263	0.3788	0.5563	0.03236	16.19%	-24.17%
45		5	0.4765	0.3529	0.6001	0.4887	0.3175	0.5925	0.04452	20.89%	-32.36%
60		5	0.4417	0.3797	0.5038	0.4425	0.3712	0.4975	0.02233	11.31%	-22.71%
80		5	0.5415	0.4839	0.5991	0.525	0.4987	0.6163	0.02075	8.57%	-50.42%

# CETIS Analytical Report

Report Date: 04 Jun-15 17:21 (p 4 of 4)  
 Test Code: 17600fm | 12-7469-7689

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

Ramboll Environ

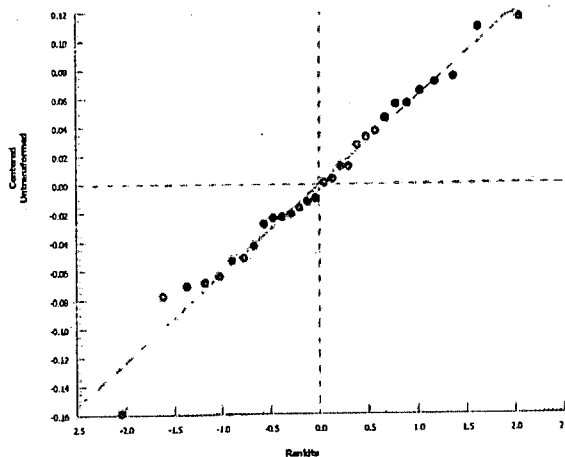
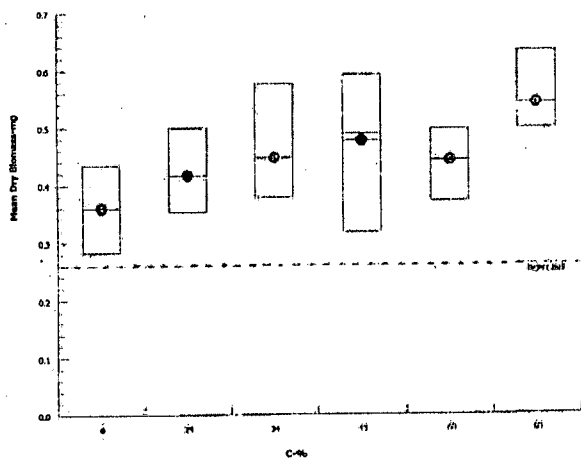
Analysis ID: 10-6652-1515      Endpoint: Mean Dry Biomass-mg  
 Analyzed: 04 Jun-15 17:20      Analysis: Parametric-Control vs Treatments

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	0.2825	0.4063	0.3362	0.35	0.425
25		0.365	0.3525	0.4038	0.4875	0.4725
34		0.3938	0.3788	0.4263	0.5563	0.48
45		0.3175	0.5037	0.4887	0.48	0.5925
60		0.3712	0.4787	0.4187	0.4975	0.4425
80		0.5537	0.4987	0.5137	0.525	0.6163

### Graphics



**CETIS Analytical Report**

Report Date: 04 Jun-15 17:21 (p 1 of 2)  
 Test Code: 17600fm | 12-7469-7689

Fathead Minnow 7-d Larval Survival and Growth Test				Ramboll Environ
Analysis ID: 07-5312-0132	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.4		
Analyzed: 04 Jun-15 17:20	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes		
Batch ID: 11-4788-1608	Test Type: Growth-Survival (7d)	Analyst:		
Start Date: 19 May-15 13:30	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water		
Ending Date: 26 May-15 14:18	Species: Pimephales promelas	Brine: Not Applicable		
Duration: 7d 1h	Source: Aquatic Biosystems, CO	Age:		
Sample ID: 06-2662-8787	Code: 255998B3	Client: GPAC Crossett		
Sample Date: 18 May-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)		
Receive Date: 19 May-15	Source: Discharge Monitoring Report			
Sample Age: 38h	Station: 001			

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1615880	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.36	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis					
Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.614	2.908	0.1669	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	0.36	0.2825	0.425	0.02553	0.05709	15.86%	0.0%
25		5	0.4163	0.3525	0.4875	0.02747	0.06141	14.75%	-15.63%
34		5	0.447	0.3788	0.5563	0.03236	0.07237	16.19%	-24.17%
45		5	0.4765	0.3175	0.5925	0.04452	0.09955	20.89%	-32.36%
60		5	0.4417	0.3712	0.4975	0.02233	0.04994	11.31%	-22.71%
80		5	0.5415	0.4987	0.6163	0.02075	0.04639	8.57%	-50.42%

Mean Dry Biomass-mg Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.2825	0.4063	0.3362	0.35	0.425
25		0.365	0.3525	0.4038	0.4875	0.4725
34		0.3938	0.3788	0.4263	0.5563	0.48
45		0.3175	0.5037	0.4887	0.48	0.5925
60		0.3712	0.4787	0.4187	0.4975	0.4425
80		0.5537	0.4987	0.5137	0.525	0.6163

# CETIS Analytical Report

Report Date: 04 Jun-15 17:21 (p 2 of 2)  
Test Code: 17600fm | 12-7469-7689

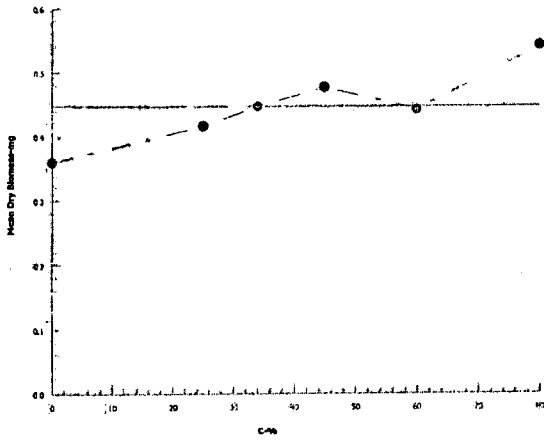
Fathead Minnow 7-d Larval Survival and Growth Test

Ramboll Environ

Analysis ID: 07-5312-0132      Endpoint: Mean Dry Biomass-mg  
Analyzed: 04 Jun-15 17:20      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.: 17600  
 JOB NUMBER.: 20-196751  
 INDUSTRY: Georgia Pacific Crossett  
 EFFLUENT: Outfall 001  
 DILUTION WATER: River Water  
 NPDES: Yes No  
 FOOD BATCH: 5018

BEGINNING: HRS: 1238 DATE: 5/19/15  
 ENDING: HRS: 1310 DATE: 5/26/15  
 TEST DILUTIONS: 25, 34, 45, 60, 80%  
 ORGANISM AGE (date): 5/18/15  
 ORGANISM SOURCE: ABS# 5102  
 SOURCE TEMP @ TEST START: 24.5  
 RANDOMIZED BY: AW

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

CONC (%)	REP ID	SURVIVAL (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
RW	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new		24.9	24.8/25.0	24.2/24.3	24.2/24.4	24.0/24.1	24.1/24.1	24.0/24.1
25	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	7	7	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new		24.8	24.3/24.9	24.2/24.2	24.2/24.7	24.1/24.5	24.0/24.2	24.1/24.7
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	6	6	6
	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	7	7
	Temp(°c):old/new		24.8	24.3/24.3	24.2/24.1	24.3/24.2	24.0/24.6	24.0/24.7	24.0/24.7
45	A	8	8	8	8	8	8	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	7
	Temp(°c):old/new		24.7	24.4/24.6	24.2/24.2	24.4/24.2	24.1/24.7	24.0/24.7	24.1/24.9
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	7	7	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new		24.6	24.3/24.6	24.1/24.2	24.2/24.4	24.1/24.6	24.1/24.1	24.1/24.3
80	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	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		24.6	24.6/24.9	24.1/24.2	24.3/24.2	24.1/24.4	24.0/24.4	24.0/24.6
Test Renewal	Time	1238	1238	1107	1011	1230	1120	1034	1310
	Date	5/19/15	5/20/15	5/21/15	5/21/15	5/23/15	5/24/15	5/25/15	5/26/15
	Initials	AW	AW	AW	AW	AW	AW	AW	AW
morning feeding	Int/Time	AW1535	AW10715	AW0715	AW0730	AW0735	AW0735	AW0733	AW0733
afternoon feeding	Int/Time	AW1535	AW1535	AW1540		AW1545	AW1530	AW1205	

5/24/15

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

TEST LOG NO.: 17600  
 JOB NUMBER: 20-196751  
 INDUSTRY: Georgia Pacific Crossett  
 EFFLUENT: 001  
 DILUTION WATER: River Water  
 NPDES: Yes  No   
 FOOD BATCH: SD18

BEGINNING: HRS: 1238 DATE: 5/19/15  
 ENDING: HRS: 1310 DATE: 5/20/15

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

CONC (%)	REP ID	SURVIVAL (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MH	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	7
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.4	24.8/24.4	24.2/24.1	24.7/24.2	24.1/24.3	24.0/24.2	24.1/24.1	24.0
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	Int/Time								
afternoon feeding	Int/Time								

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

TEST LOG NO.: 17600 BEGINNING: HRS: 1239 DATE: 5/19/15  
 JOB NO.: 20-196751 ENDING: HRS: 1310 DATE: 5/20/15  
 INDUSTRY: Georgia Pacific-Crossett  
 EFFLUENT: Outfall 001 NO. ORGANISMS/TREATMENT: 8  
 NPDES: Yes  No  NO. REPLICATES: 5

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

		GROWTH RESULTS						
CONC (%)	REP ID	Boat ID	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish	
		<u>24</u>						
RW	A	1	1.10858	1.11084	0.002210	8	0.283	
	B	2	1.10544	1.108109	0.00325	8	0.406	
	C	3	1.09403	1.09672	0.00269	8	0.336	
	D	4	1.10802	1.11082	0.00280	8	0.350	
	E	5	1.10241	1.10581	0.00340	8	0.425	
25	A	6	1.11322	1.11614	0.00292	8		
	B	7	1.09330	1.09612	0.00282	7		
	C	8	1.09470	1.09793	0.00323	8		
	D	9	1.08302	1.08692	0.00390	8		
	E	10	1.10030	1.10408	0.00378	8		
34	A	11	1.09957	1.10272	0.00315	8		
	B	12	1.10720	1.11079	0.00303	6		
	C	13	1.10477	1.10818	0.00341	8		
	D	14	1.10058	1.10503	0.00445	8		
	E	15	1.11486	1.11870	0.00384	7		
45	A	16	1.12461	1.12715	0.00254	7		
	B	17	1.11391	1.11794	0.00403	8		
	C	18	1.11680	1.12071	0.00391	8		
	D	19	1.10073	1.10457	0.00384	8		
	E	20	1.09428	1.09902	0.00474	7		
60	A	21	1.10739	1.110310	0.00297	8		
	B	22	1.11231	1.11614	0.00383	8		
	C	23	1.09686	1.10021	0.00335	7		
	D	24	1.10374	1.10772	0.00398	8		
	E	25	1.09691	1.10045	0.00354	8		
80	A	26	1.08566	1.09009	0.00443	8		
	B	27	1.07315	1.07714	0.00399	7		
	C	28	1.09799	1.10210	0.00411	8		
	D	29	1.09559	1.09979	0.00420	8		
	E	30	1.10238	1.10731	0.00493	8		
MH	A	31	1.09208	1.09475	0.00217	8		
	B	32	1.08476	1.08844	0.00318	8		
	C	33	1.10446	1.10768	0.00322	8		
	D	34	1.09358	1.09699	0.00341	7		
	E	35	1.08009	1.08349	0.00340	8		
Initials / Date:		<u>AH 5/21/15</u>						

AVG Control Fish wt. 0.360 (using final #)

Oven ID: 1  
 Tins In: 5/21/15  
 Date: 5/21/15  
 Time: 1310  
 Temp (°C): 101  
 Initials: AH  
 Tins Out: 5/21/15  
 Date: 5/21/15  
 Time: 1106  
 Temp (°C): 99  
 Initials: LM

FINAL WEIGHTS  
 DATE: 5/21/15  
 INITIALS: LM

2  
5/26/15  
1405  
100  
AH

TEST LOG NO. 17600

CLIENT/SAMPLE ID: Georgia Pacific Crossett

DATE: 5/19/15

JOB NO. 20-196751

TEST ORGANISM: Fm

Ramboll Environ Test Log No. 17600 and 17660

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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	7.9	8.5	8.1	8.6	8.7	8.4	8.4	7.8	8.2	8.3	8.4	8.3	8.6	8.3
25	7.7	8.3	8.0	8.4	8.4	8.1	8.6	7.8	8.2	8.3	8.3	8.3	8.4	8.4
34	7.8	8.1	8.1	8.3	8.2	8.0	8.9	7.7	8.4	8.2	8.1	8.2	8.2	8.3
45	8.0	7.9	8.2	8.1	8.3	7.9	9.0	7.7	8.4	8.1	8.1	8.0	8.2	8.4
60	7.8	7.7	8.5	7.9	8.3	8.2	8.6	7.8	8.3	8.0	8.0	8.0	8.4	8.3
80	7.3	7.6	8.5	7.9	8.3	8.2	8.7	7.6	8.1	8.1	8.2	8.1	8.6	8.1
MH	7.9	8.4	8.4	8.6	8.4	8.6	8.7	7.5	8.1	8.5	8.2	9.0	8.5	7.8

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	6.79	7.79	7.01	7.30	7.20	7.41	6.99	7.78	6.75	7.46	6.83	7.57	7.15	7.37
25	7.40	7.66	7.33	7.64	7.60	7.46	7.62	7.48	7.35	7.53	7.47	7.63	7.43	7.58
34	7.82	7.81	7.59	7.81	7.67	7.64	7.64	7.70	7.58	7.66	7.51	7.69	7.49	7.58
45	7.77	8.05	7.74	7.96	7.67	7.74	7.78	7.80	7.73	7.72	7.72	7.70	7.65	7.60
60	7.92	8.14	7.84	8.06	7.76	7.88	7.88	7.85	7.81	7.84	7.93	7.90	7.86	7.88
80	7.99	8.24	7.98	8.18	7.88	8.04	7.93	7.99	7.94	8.03	7.91	8.03	7.94	8.07
MH	7.86	7.77	7.82	7.80	7.82	7.55	7.90	7.56	8.03	7.91	8.01	7.94	8.03	7.94

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	69	167	105	103	105	108	109	68	62	104	122	61	61	57
25	440	460	525	487	539	488	511	445	514	47	514	437	454	443
34	531	710	820	753	718	692	710	646	672	630	619	587	651	616
45	554	820	854	830	933	864	865	810	847	799	801	773	873	843
60	1084	1072	1036	1070	1110	1094	1152	1065	1040	1002	1030	1004	1075	1029
80	1458	1417	1451	1411	1490	1410	1482	1370	1265	1311	1265	1312	1402	1353
MH	212	203	210	203	216	213	209	230	237	245	220	232	240	272

Params Int/Time:	AW 0850	AW 0704	AW 0828	AW 0700	AW 1072	AW 0847	AW 0812	AW 0830	AW 1058	AW 0751	AW 0858	AW 0751	AW 0907	AW 0815
Situations Int/Time:	AW 0814	AW 0829	AW 0829	AW 1007	AW 0850	AW 0850	AW 0850	AW 1048	AW 0848	AW 0848	AW 0848	AW 0857	AW 0857	AW 0857
Control Water Batch:	188245897	589018729	589018729	589218847	589617847	589617847	589617847	589617847	589718857	589718857	589718857	589718857	589718857	589718857
Food Batch	5018	5018	5018	5018	5018	5018	5018	5018	5018	5018	5018	5018	5018	5018



TEST LOG NO. 17600

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 5/19/15

JOB NO. 20-196751

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

Ramboll Environ Test Log No. 17600 and 17660

**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
18830	Outfall 001	5/16-17/15	5/19/15	204	355	20.02	0.852
18846	Outfall 001	5/19-20/15	5/21/15	160	325	20.02	0.141
18858	Outfall 001	5/21-22/15	5/23/15	176	360	20.02	1.07

**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
18829	River Water	5/17/15	5/19/15	20	23	0.05	20.1
18847	River Water	5/18/15	5/21/15	22.4	28	0.09	20.1
18857	River Water	5/18/15	5/23/15	20	26	0.08	0.116
5887	MW	5/14/15	5/16/15	81.6	44	20.02	
5890	MW	5/17/15	5/19/15	80	45	20.02	
5892	MW	5/18/15	5/20/15	84	55	20.02	
5896	MW	5/20/15	5/22/15	80	46	20.02	
5897	MW	5/21/15	5/23/15	84.8	46	20.02	

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**CETIS Analytical Report**

*Receiving Water  
as  
control*

Report Date: 04 Jun-15 16:48 (p 1 of 4)  
Test Code: 17600cd | 16-5526-9823

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

Ramboll Environ

Analysis ID: 13-3008-7470	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 04 Jun-15 16:45	Analysis: Parametric-Multiple Comparison	Official Results: Yes
Batch ID: 02-1197-8259	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 19 May-15 10:48	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 25 May-15 10:04	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 5d 23h	Source: In-House Culture	Age:
Sample ID: 06-6958-4582	Code: 27E90CC6	Client: GPAC Crossett
Sample Date: 18 May-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 19 May-15	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	42.8%

**Bonferroni Adj t Test**

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25		-0.2558	2.399	7.606	17	1.0000	CDF	Non-Significant Effect
	34		-0.5508	2.399	7.404	18	1.0000	CDF	Non-Significant Effect
	45		-1.458	2.399	7.404	18	1.0000	CDF	Non-Significant Effect
	60		-2.106	2.399	7.404	18	1.0000	CDF	Non-Significant Effect
	80		-2.916	2.399	7.404	18	1.0000	CDF	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	17.3	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.4279	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	2.547	3.193	0.5310	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	617.101	123.4202	5	2.591	0.0360	Significant Effect
Error	2524.289	47.62809	53			
Total	3141.39		58			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.84	15.09	0.2328	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9611	0.9451	0.0569	Normal Distribution

**Reproduction Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	17.3	10.74	23.86	20	5	30	2.898	52.98%	0.0%
25		9	18.11	13.49	22.73	20	7	25	2.003	33.18%	-4.69%
34		10	19	15.26	22.74	20	9	25	1.653	27.52%	-9.83%
45		10	21.8	15.94	27.66	25	7	32	2.59	37.57%	-26.01%
60		10	23.8	18.62	28.98	26.5	7	32	2.289	30.42%	-37.57%
80		10	26.3	23.3	29.3	25.5	22	35	1.325	15.94%	-52.02%

*Unacceptable*

# CETIS Analytical Report

Report Date: 04 Jun-15 16:48 (p 2 of 4)  
 Test Code: 17600cd | 16-5526-9823

## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

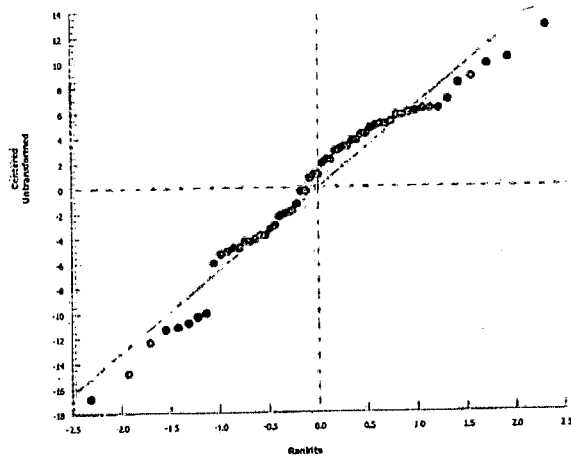
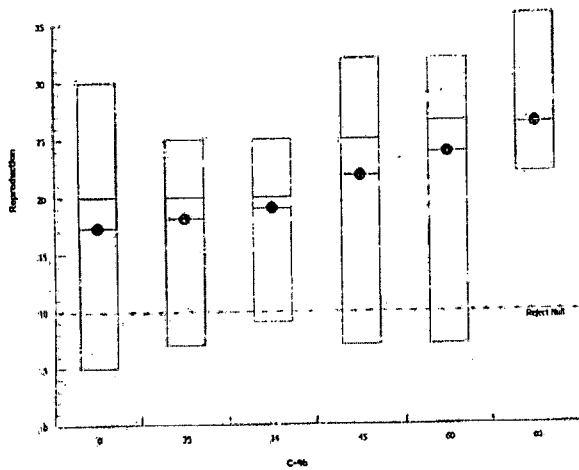
Analysis ID: 13-3008-7470      Endpoint: Reproduction  
 Analyzed: 04 Jun-15 16:45      Analysis: Parametric-Multiple Comparison

CETIS Version: CETISv1.8.4  
 Official Results: Yes

### Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	23	22	30	6	7	5	27	18	23	12
25		16	23	24	13	21	25	7	14	20	
34		22	25	24	17	16	20	13	20	24	9
45		27	32	18	26	11	28	28	17	24	7
60		28	22	30	26	27	27	20	7	32	19
80		22	22	25	30	30	26	35	24	26	23

### Graphics



**CETIS Analytical Report**

*MA vs All detections*

Report Date: 04 Jun-15 16:57 (p 1 of 2)  
 Test Code: 17600cd | 16-5526-9823

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

Ramboll Environ

Analysis ID: 06-7277-4473	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 04 Jun-15 16:56	Analysis: Parametric-Multiple Comparison	Official Results: Yes
Batch ID: 02-1197-8259	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 19 May-15 10:48	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 25 May-15 10:04	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 5d 23h	Source: In-House Culture	Age:
Sample ID: 06-6958-4582	Code: 27E90CC6	Client: GPAC Crossett
Sample Date: 18 May-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (MAY)
Receive Date: 19 May-15	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	<25	25	NA	>4	20.8%

**Bonferroni Adj t Test**

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water	25*	4.643	2.399	6.608	17	<0.0001	CDF	Significant Effect
	34*	4.438	2.399	6.432	18	0.0001	CDF	Significant Effect
	45*	3.394	2.399	6.432	18	0.0033	CDF	Significant Effect
	60*	2.648	2.399	6.432	18	0.0266	CDF	Significant Effect
	80	1.716	2.399	6.432	18	0.2302	CDF	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	30.9	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2081	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	2.931	3.193	0.1404	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1119.148	223.8297	5	6.227	0.0001	Significant Effect
Error	1905.089	35.94507	53			
Total	3024.237		58			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	7.285	15.09	0.2003	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9516	0.9451	0.0199	Normal Distribution

**Reproduction Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	10	30.9	28.11	33.69	32.5	22	36	1.233	12.62%	0.0%
25		9	18.11	13.49	22.73	20	7	25	2.003	33.18%	41.39%
34		10	19	15.26	22.74	20	9	25	1.653	27.52%	38.51%
45		10	21.8	15.94	27.66	25	7	32	2.59	37.57%	29.45%
60		10	23.8	18.62	28.98	26.5	7	32	2.289	30.42%	22.98%
80		10	26.3	23.3	29.3	25.5	22	35	1.325	15.94%	14.89%

# CETIS Analytical Report

Report Date: 04 Jun-15 16:57 (p 2 of 2)  
 Test Code: 17600cd | 16-5526-9823

## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

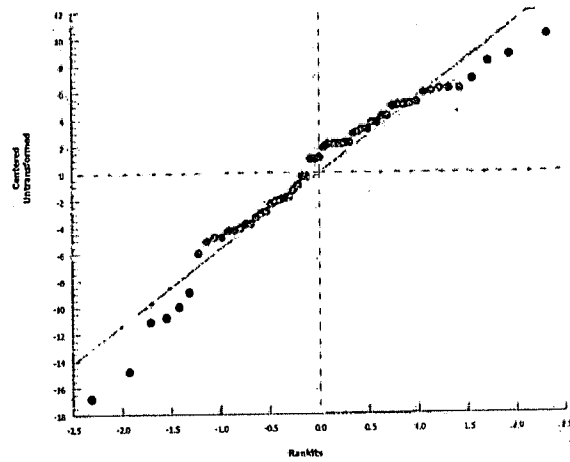
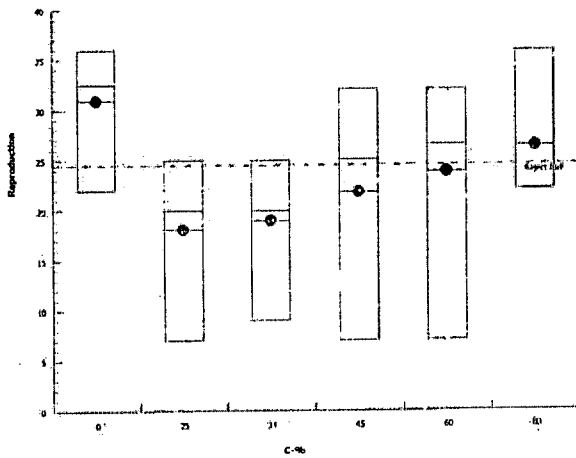
Analysis ID: 06-7277-4473      Endpoint: Reproduction  
 Analyzed: 04 Jun-15 16:56      Analysis: Parametric-Multiple Comparison

CETIS Version: CETISv1.8.4  
 Official Results: Yes

### Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab Water	28	33	33	33	22	33	30	32	29	36
25		16	23	24	13	21	25	7	14	20	
34		22	25	24	17	16	20	13	20	24	9
45		27	32	18	26	11	28	28	17	24	7
60		28	22	30	26	27	27	20	7	32	19
80		22	22	25	30	30	26	35	24	26	23

### Graphics



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

TEST LOG NO.: 17600 PHOTOPERIOD: 16 hr light/8 hr dark  
 JOB NUMBER.: 20-196751 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): 5/18/15  
 TEMP @ TEST START: 24.8  
 RANDOMIZED BY: lm  
 TEST START: \_\_\_\_\_  
 HOURS: 1020 DATE: 5/19/15  
 TEST END: \_\_\_\_\_  
 HOURS: 1100 DATE: 5/27/15

SOURCE ID:	AGE (time):
1213-1530	10984
10895 <sup>915</sup> <u>lm51k</u>	1214-1530
10896 <sup>915</sup>	1214-1530

**SURVIVAL AND REPRODUCTION DATA**

Test Start & Feeding/End Initials/Time	Daily Renewal & Feeding Initials/Time	Date	Control		River Water	Temp (°C)	REPLICATES										Notes	
							84		85		86							
							1	2	3	4	5	6	7	8	9	10		
LM 1020		5/19	24.9				Adult	15	1	2	4	14	8	16	1	2	7	
	PH 1057	5/20	24.3	24.2			Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1054	5/21	24.3	24.2			Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	5/22	24.2	24.0			Day 2	✓	6	✓	✓	5	✓	✓	5	1	4	
	PH 1133	5/23	24.1	24.7			Day 3	4	4	✓	1	✓	✓	1	✓	✓	✓	
	PH 1036	5/24	24.0	24.4			Day 4	✓	✓	5	✓	✓	✓	✓	5	6	7	
	PH 0939	5/25	24.8	24.2			Day 5	✓	12	10	3	✓	✓	✓	✓	✓	✓	
	PH 0929	5/26	25.1	25.0			Day 6	2	17	✓	1	✓	✓	11	8	✓	✓	
LM 1100		5/27	24.9				Day 7	17	✓	15	1	2	5	15	✓	16	1	70%
							Day 8	23	22	30	6	7	5	27	18	23	12	73
			Total															

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

TEST LOG # 17600

JOB # 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: 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 1020		5/19	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 1057	5/20	24.2	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 1054	5/21	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1200	5/22	24.1	24.2	Day 3	✓	6	4	6	5	✓	✓	4	✓	5	✓	✓
	AD 1133	5/23	24.5	24.9	Day 4	5	8	✓	✓	✓	2	5	✓	3	✓	✓	✓
	AD 1036	5/24	24.1	24.6	Day 5	✓	✓	9	2	4	✓	✓	5	✓	✓	✓	✓
	AD 0939	5/25	24.7	24.7	Day 6	✓	9	11	5	2	✓	✓	✓	1	✓	✓	✓
	AD 0929	5/26	25.3	24.5	Day 7	5	15	✓	✓	7	10	✓	✓	✓	Miss	✓	✓
LM 1100		5/27		24.9	Day 8	6	✓	✓	✓	4	13	2	5	16			
			Total			16	23	24	13	21	25	7	14	20	Miss	163	19

107  
2181

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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 1057	5/20	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AD 1054	5/21	24.2	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LM 1200	5/22	24.1	24.2	Day 3	✓	5	2	5	5	✓	✓	4	7	5	✓	✓
	AD 1133	5/23	24.8	24.9	Day 4	5	5	✓	✓	✓	7	6	7	5	✓	✓	✓
	AD 1036	5/24	24.1	24.3	Day 5	6	✓	9	5	✓	5	✓	✓	✓	✓	✓	✓
	AD 0939	5/25	24.7	24.6	Day 6	✓	✓	13	7	2	8	✓	✓	4	1	✓	✓
	AD 0929	5/26	24.8	25.1	Day 7	11	15	✓	✓	✓	✓	4	5	8	✓	✓	✓
LM 1100		5/27		24.8	Day 8	14	✓	6	6	9	3	3	4	✓	3		
			Total		Day 8	22	25	24	17	16	20	13	20	24	9	190	

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

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TEST LOG # 17600

JOB # 20-196751

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA														Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES												
			45%		1	2	3	4	5	6	7	8	9		10		
			Temp (°C)		Adult												
LM 1020		5/19	25.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1057	5/20	24.2	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	5/21	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	5/22	24.4	24.0	Day 3	✓	5	1	6	5	✓	✓	6	✓	✓	✓	
	AW 1133	5/23	24.8	25.0	Day 4	4	✓	✓	✓	✓	4	1	4	3	3	✓	
	AW 1036	5/24	24.4	24.4	Day 5	9	11	12	6	5	12	11	✓	8	✓	✓	
	AW 0939	5/25	24.5	24.8	Day 6	✓	16	5	✓	✓	✓	16	7	✓	4	✓	
	AW 0929	5/26	25.5	24.9	Day 7	14	17	✓	✓	✓	12	✓	12	13	✓	✓	
LM 1100		5/27		24.9	Day 8	✓	✓	17	14	1	15	14	✓	✓	✓	✓	
Total					28	27	32	18	26	11	28	28	17	24	27	218	1/0

SURVIVAL AND REPRODUCTION DATA														Notes			
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES												
			60%		1	2	3	4	5	6	7	8	9		10		
			Temp (°C)		Adult												
LM 1020		5/19	24.8		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1057	5/20	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	5/21	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	5/22	24.1	24.1	Day 3	✓	5	6	6	6	✓	✓	1	6	5	✓	
	AW 1133	5/23	24.7	25.4	Day 4	5	✓	✓	✓	✓	8	5	6	12	✓	✓	
	AW 1036	5/24	24.6	24.9	Day 5	9	8	5	9	4	4	6	✓	✓	8	✓	
	AW 0939	5/25	24.7	24.7	Day 6	✓	9	3	11	5	15	✓	6	14	✓	✓	
	AW 0929	5/26	25.0	24.9	Day 7	14	15	✓	✓	✓	✓	9	✓	16	✓	✓	
LM 1100		5/27		24.8	Day 8	16	✓	16	18	12	15	14	1	✓	6	✓	
Total					28	28	22	30	26	27	27	20	7	32	19	238	

✓ = 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 # 17600

JOB # 20-196751

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration		Adult	REPLICATES										Notes
			80%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1020		5/19	248		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1057	5/20	243	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	5/21	242	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1200		5/22	24.2	24.1	Day 3	✓	4	4	5	6	✓	✓	4	6	✓	
	AW 1133	5/23	24.4	24.7	Day 4	3	4	✓	✓	✓	5	4	6	✓	7	
	AW 1036	5/24	24.3	24.6	Day 5	6	1	11	10	8	8	13	✓	9	✓	
	AW 0939	5/25	24.9	24.8	Day 6	✓	13	10	15	16	✓	18	14	✓	2	
	AW 0929	5/26	25.0	24.7	Day 7	14	11	✓	✓	✓	13	✓	✓	11	✓	208
CM 1100		5/27		25.0	Day 8	16	2	12	19	16	14	16	✓	✓	14	1018
			Total	815		22	22	25	30	30	26	35	24	26	23	23203

279 (137)  
5/19/98 K.M.H.

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH		Adult	REPLICATES										Notes
			MH	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1020		5/19	25.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1057	5/20	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	5/21	24.2	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1200		5/22	24.9	24.4	Day 3	✓	5	5	4	✓	✓	✓	5	✓		
	AW 1133	5/23	24.1	24.5	Day 4	5	12	✓	✓	3	7	5	5	✓	5	
	AW 1036	5/24	24.4	24.5	Day 5	9	✓	11	12	9	13	10	11	6	13	
	AW 0939	5/25	24.1	24.7	Day 6	✓	16	17	17	10	13	✓	✓	18	✓	608
	AW 0929	5/26	24.6	24.7	Day 7	14	17	✓	✓	✓	2	15	16	✓	18	100
CM 1100		5/27		24.9	Day 8	14	✓	15	19	17	17	14	17	15	19	
			Total	0.7		28	33	33	33	22	33	30	32	29	36	309

✓ = 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. 17600  
 JOB NO. 20-196751

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

DATE: 5/19/15

Ramboll Environ Test Log No. 17600 and 17660

25 of 54

Concentration (%)	Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
RW	7.9	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	7.3	7.9
25	7.7	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	7.9	8.0
34	7.8	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	7.7	8.0
45	7.8	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	8.0	8.2
60	7.8	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	8.2	8.3
80	7.8	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	8.2	8.3
MH	7.9	8.2	8.1	8.7	8.7	8.9	8.9	8.2	8.2	8.7	8.4	8.2	8.4	8.0	8.1

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	6.74	7.10	7.01	7.09	7.20	7.06	7.09	7.11	6.75	7.13	6.83	7.15	7.15	7.46	7.01
25	7.40	7.77	7.51	7.49	7.60	7.07	7.47	7.09	7.35	7.41	7.41	7.43	7.51	7.96	7.18
34	7.82	8.18	7.99	7.30	7.62	7.11	7.64	7.21	7.48	7.37	7.59	7.64	7.64	8.18	7.50
45	7.77	8.22	7.94	7.36	7.63	7.11	7.68	7.37	7.53	7.47	7.72	7.69	7.50	8.28	8.40
60	7.92	8.32	7.94	7.44	7.63	7.11	7.68	7.51	7.81	7.43	7.86	7.86	7.58	8.40	8.55
80	7.94	8.34	7.98	7.46	7.66	7.11	7.68	7.51	7.94	7.94	7.94	7.94	7.94	8.55	8.03
MH	7.36	7.95	7.56	7.10	7.32	7.90	7.90	7.77	8.05	7.86	8.01	8.05	8.06	8.06	8.03

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	6.9	125	115	112	107	110	109	111	107	125	125	125	125	125	125
25	440	451	455	457	459	453	454	457	454	457	454	457	457	457	457
34	431	480	450	454	459	457	459	459	459	457	457	457	457	457	457
45	854	830	854	834	833	843	845	840	847	808	801	801	801	801	801
60	1089	1031	1076	1004	1128	1071	1152	1002	1040	1016	1036	1036	1036	1036	1036
80	1458	1358	1457	1096	1420	1387	1482	1302	1265	1341	1265	1265	1265	1265	1265
MH	210	248	210	219	210	210	210	204	237	213	220	220	220	220	220

Params Int/Time:	AW 0958	AW 1106	AW 0839	AW 1106	AW 1070	AW 1216	AW 1057	AW 1116	AW 1050	AW 1057	AW 0958	AW 0950	AW 0907	AW 0854	AW 0854	AW 0941
Dilutions Int/Time:	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940	AW 0940
Control Water Batch#:	18829	5887	5801	5801	5801	5801	5801	5801	5801	5801	5801	5801	5801	5801	5801	5801
Food Batch	5895	5800	95160	95160	95160	95160	95160	95160	95160	95160	95160	95160	95160	95160	95160	95160

new  
 Old  
 7.9  
 8.0  
 8.0  
 8.1  
 8.2  
 8.3  
 8.4  
 8.5  
 8.6  
 8.7  
 8.8  
 8.9  
 9.0  
 9.1  
 9.2  
 9.3  
 9.4  
 9.5  
 9.6  
 9.7  
 9.8  
 9.9  
 10.0

Day 8 old DO  
 RW 8.3  
 8.2  
 8.3  
 8.2  
 8.2  
 8.2  
 KH 8.6

pH  
 7.47  
 8.10  
 8.20  
 8.31  
 8.49  
 8.60  
 7.84

Cond  
 73  
 438  
 627  
 817  
 1064  
 1396  
 220

**CETIS Analytical Report**

Report Date: 24 Jun-15 11:28 (p 1 of 2)  
 Test Code: 17660 cd | 20-4300-2579

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

Ramboll Environ

Analysis ID: 18-0274-5524	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.4
Analyzed: 24 Jun-15 11:27	Analysis: STP 2x2 Contingency Tables	Official Results: Yes
Batch ID: 11-4999-4452	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 16 Jun-15 11:07	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 23 Jun-15 10:06	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 23h	Source: In-House Culture	Age:
Sample ID: 14-9228-3209	Code: 58F26F49	Client: GPAC Crossett
Sample Date: 15 Jun-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 16 Jun-15	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%)
Lab 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	Lab Water	10	0	10	1	0	0.0%
25		10	0	10	1	0	0.0%
34		10	0	10	1	0	0.0%
45		10	0	10	1	0	0.0%
60		10	0	10	1	0	0.0%
80		10	0	10	1	0	0.0%

**7d Survival Rate Detail**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab 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	Lab 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: 24 Jun-15 11:28 (p 2 of 2)  
Test Code: 17660 cd | 20-4300-2579

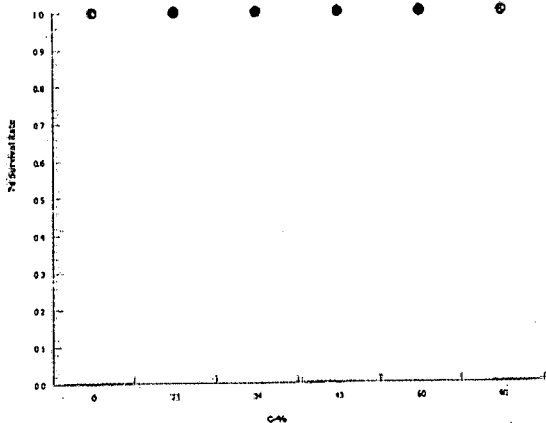
## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

Analysis ID: 18-0274-5524      Endpoint: 7d Survival Rate  
Analyzed: 24 Jun-15 11:27      Analysis: STP 2x2 Contingency Tables

CETIS Version: CETISv1.8.4  
Official Results: Yes

### Graphics



**CETIS Analytical Report**

Report Date: 24 Jun-15 11:28 (p 1 of 2)  
 Test Code: 17660 cd | 20-4300-2579

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

Ramboll Environ

Analysis ID: 19-6369-7389	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 24 Jun-15 11:27	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 11-4999-4452	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 16 Jun-15 11:07	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 23 Jun-15 10:06	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 23h	Source: In-House Culture	Age:
Sample ID: 14-9228-3209	Code: 58F26F49	Client: GPAC Crossett
Sample Date: 15 Jun-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 16 Jun-15	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	27.0%

**Dunnett Multiple Comparison Test**

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water	25	-1.171	2.289	5.866	18	0.9906	CDF	Non-Significant Effect
	34	-0.8196	2.289	5.866	18	0.9738	CDF	Non-Significant Effect
	45	-0.8196	2.289	5.866	18	0.9738	CDF	Non-Significant Effect
	60	-1.054	2.289	5.866	18	0.9866	CDF	Non-Significant Effect
	80	-0.8586	2.289	5.866	18	0.9765	CDF	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	21.7	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2703	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	2.882	3.2	0.1722	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	55.48333	11.09667	5	0.338	0.8877	Non-Significant Effect
Error	1772.7	32.82778	54			
Total	1828.183		59			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	9.714	15.09	0.0837	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9488	0.9459	0.0138	Normal Distribution

**Reproduction Summary**

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	10	21.7	19.76	23.64	21.5	17	26	0.857	12.49%	0.0%
25		10	24.7	19.65	29.75	25.5	13	33	2.231	28.57%	-13.82%
34		10	23.8	19.87	27.73	24.5	11	31	1.737	23.08%	-9.68%
45		10	23.8	18.27	29.33	26.5	8	34	2.444	32.47%	-9.68%
60		10	24.4	21.02	27.78	26	16	30	1.492	19.34%	-12.44%
80		10	23.9	20.14	27.66	26	11	29	1.663	22.0%	-10.14%

# CETIS Analytical Report

Report Date: 24 Jun-15 11:28 (p 2 of 2)  
 Test Code: 17660 cd | 20-4300-2579

## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

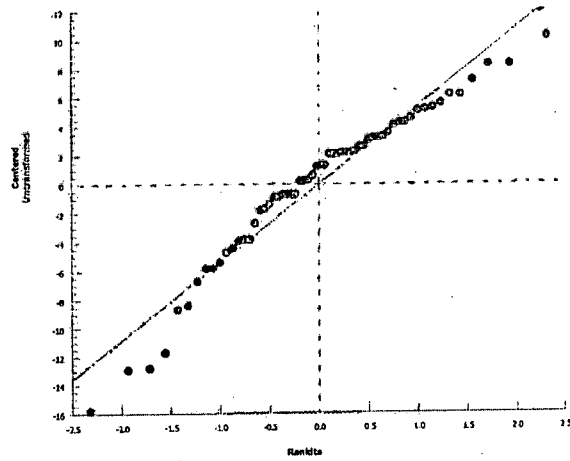
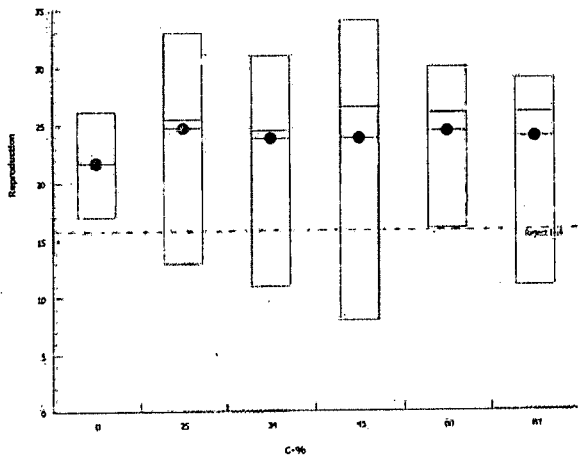
Analysis ID: 19-6369-7389      Endpoint: Reproduction  
 Analyzed: 24 Jun-15 11:27      Analysis: Parametric-Control vs Treatments

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	Lab Water	19	22	20	26	23	21	23	21	25	17
25		33	24	16	18	13	30	24	33	29	27
34		24	11	20	24	25	26	31	29	22	26
45		26	27	8	18	34	20	18	27	30	30
60		30	19	27	27	16	23	20	25	29	28
80		27	11	23	23	26	29	28	20	26	26

### Graphics



**CETIS Analytical Report**

Report Date: 24 Jun-15 11:28 (p 1 of 2)  
 Test Code: 17660 cd | 20-4300-2579

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

Ramboll Environ

Analysis ID: 07-8302-1137	Endpoint: Reproduction	CETIS Version: CETISv1.8.4
Analyzed: 24 Jun-15 11:27	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 11-4999-4452	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 16 Jun-15 11:07	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 23 Jun-15 10:06	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 23h	Source: In-House Culture	Age:
Sample ID: 14-9228-3209	Code: 58F26F49	Client: GPAC Crossett
Sample Date: 15 Jun-15	Material: Industrial Effluent	Project: WET Monthly Compliance Test (JUN)
Receive Date: 16 Jun-15	Source: Discharge Monitoring Report	
Sample Age: 35h	Station: 001	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	174616	1000	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	21.7	15 - NL	Yes	Passes Acceptability Criteria

**Residual Analysis**

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.882	3.2	0.1722	No Outliers Detected

**Point Estimates**

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

**Reproduction Summary**

**Calculated Variate**

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	21.7	17	26	0.857	2.71	12.49%	0.0%
25		10	24.7	13	33	2.231	7.056	28.57%	-13.82%
34		10	23.8	11	31	1.737	5.493	23.08%	-9.68%
45		10	23.8	8	34	2.444	7.729	32.47%	-9.68%
60		10	24.4	16	30	1.492	4.719	19.34%	-12.44%
80		10	23.9	11	29	1.663	5.259	22.0%	-10.14%

**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	19	22	20	26	23	21	23	21	25	17
25		33	24	16	18	13	30	24	33	29	27
34		24	11	20	24	25	26	31	29	22	26
45		26	27	8	18	34	20	18	27	30	30
60		30	19	27	27	16	23	20	25	29	28
80		27	11	23	23	26	29	28	20	26	26

# CETIS Analytical Report

Report Date: 24 Jun-15 11:28 (p 2 of 2)  
Test Code: 17660 cd | 20-4300-2579

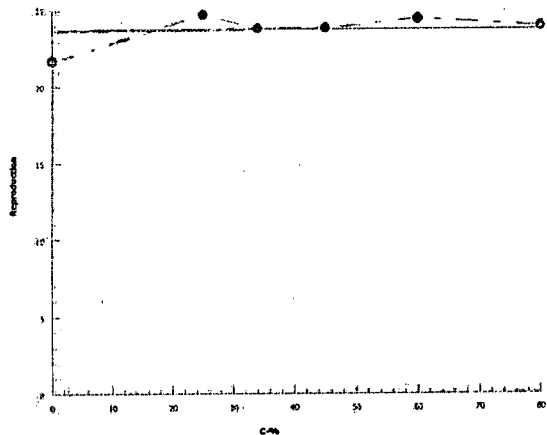
## Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

Analysis ID: 07-8302-1137      Endpoint: Reproduction  
Analyzed: 24 Jun-15 11:27      Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.4  
Official Results: Yes

### Graphics





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

TEST LOG NO.: 17660 PHOTOPERIOD: 16 hr light/8 hr dark  
 JOB NUMBER: 20-196751 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: Soft Water NO. ORGANISMS/REPLICATE: 1  
 NPDES (Y/N): Yes NO. REPLICATES: 10

**ORGANISM SOURCE INFORMATION:**

AGE (date): 6/15/15  
 TEMP @ TEST START: 24.8  
 RANDOMIZED BY: UM  
 TEST START: 1119 DATE: 6/16/15  
 TEST END: 1319 DATE: 6/23/15

SOURCE ID:	AGE (time):
11018	1514-2218
11020	1517-2220

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control Soft Water		REPLICATES										Notes	
			Temp (°C)		18					20						
					Adult	1	2	3	4	5	6	7	8	9	10	
UM 1119		6/16	24.8		Adult	3	8	14	17	2	3	9	8	15	16	
UM 1208		6/17	24.9	25.3	Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UM 1052		6/18	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UM 1010		6/19	24.0	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AW 1045		6/20	24.1	24.5	Day 3	3	4	4	3	5	5	4	5	3	3	
AW 0944		6/21	24.0	24.3	Day 4	6	7	8	10	9	5	8	7	✓	5	
AW 0909		6/22	24.0	24.1	Day 5	✓	✓	✓	✓	✓	✓	✓	9	9	✓	
UM 1319		6/23		24.7	Day 6	10	11	8	13	9	11	11	✓	13	9	100%
					Day 7											
					Day 8											
			Total			19	22	20	26	23	21	23	21	25	17	217

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

TEST LOG # 17660

JOB # 20-196751

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes
			25%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1119		6/16	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1208	6/17	25.1	24.8	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	24.3	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	24.1	24.0	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Aw 1045	6/20	24.1	24.7	Day 4	5	2	7	4	5	5	6	6	4	5	
	Aw 0949	6/21	24.1	24.2	Day 5	13	9	✓	7	4	11	13	11	9	9	
	Aw 0909	6/22	24.0	24.1	Day 6	✓	✓	9	✓	✓	14	15	✓	✓	13	
LM 1319		6/23		24.6	Day 7	15	13	✓	7	4	16	✓	16	16	✓	
					Day 8											
			Total			33	24	16	18	13	30	24	33	29	27	247

SURVIVAL AND REPRODUCTION DATA																
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes
			34%	Temp (°C)		1	2	3	4	5	6	7	8	9	10	
LM 1119		6/16	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1208	6/17	24.6	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	24.1	24.6	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	24.1	24.0	Day 3	✓	✓	✓	✓	✓	✓	✓	5	✓	✓	
	Aw 1045	6/20	24.2	24.5	Day 4	4	3	2	2	3	5	6	✓	6	3	
	Aw 0949	6/21	24.0	24.1	Day 5	6	✓	✓	✓	✓	11	12	7	✓	9	
	Aw 0909	6/22	24.1	24.0	Day 6	✓	8	4	7	6	9	12	17	15	14	
LM 1319		6/23		25.3	Day 7	14	✓	14	15	16	10	10	✓	10	✓	
					Day 8											
			Total			24	11	20	24	25	26	31	29	22	26	238

✓ = 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 # 17660

JOB # 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

ENVIRON / TN  
LAB/STATE: \_\_\_\_\_

SURVIVAL AND REPRODUCTION DATA																	
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		Adult	REPLICATES										Notes	
			45%	Temp (°C)		1	2	3	4	5	6	7	8	9	10		
LM 1119		6/16	246		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1208	6/17	248	248	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	242	241	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	245	243	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Aw 1045	6/20	241	245	Day 4	4	3	1	3	6	3	4	4	5	5		
	Aw 0949	6/21	240	243	Day 5	9	10	✓	✓	11	7	✓	10	8	11		
	Aw 0909	6/22	240	240	Day 6	✓	✓	✓	4	17	9	14	✓	✓	14		
LM 1319		6/23		240	Day 7	13	14	7	11	✓	10	✓	13	17	✓		
					Day 8												
Total						26	27	8	18	34	20	18	27	30	30	238	

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 1119		6/16	247		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1208	6/17	249	250	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	243	243	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	245	244	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Aw 1045	6/20	240	245	Day 4	4	3	4	5	1	4	1	5	6	7		
	Aw 0949	6/21	241	243	Day 5	✓	✓	✓	9	5	✓	7	8	8	9		
	Aw 0909	6/22	240	242	Day 6	12	4	8	11	10	4	✓	10	13	✓		
M 1319		6/23		252	Day 7	14	12	15	2	✓	15	12	2	2	12		
					Day 8												
Total						30	19	27	27	16	23	20	25	29	28	244	

✓ = 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 # 17660

JOB # 20-19675I

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 1119		6/16	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 120Y	6/17	25.1	24.8	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	24.8	24.9	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	24.5	24.5	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1045	6/20	24.2	25.1	Day 4	4	1	2	2	4	5	6	4	3	3			
	AW 0949	6/21	24.0	24.2	Day 5	7	✓	7	8	✓	9	9	7	7	10			
	AW 0909	6/22	24.0	24.0	Day 6	✓	10	✓	12	9	✓	13	9	16	13			
LM 1319		6/23		25.2	Day 7	16	✓	14	15	13	15	✓	✓	✓	✓			
					Day 8													
			Total			27	11	23	23	26	29	28	20	26	26	23	9	

SURVIVAL AND REPRODUCTION DATA																		
Test Start & Feeding / End Initials / Time	Daily Renewal & Feeding Initials / Time	Date	Concentration		REPLICATES										Notes			
			RW <sup>MHT</sup>	Temp (°C)		1	2	3	4	5	6	7	8	9		10		
					Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LM 1119		6/16	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 120Y	6/17	24.4	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1052	6/18	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1010	6/19	24.9	24.7	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1045	6/20	25.4	25.3	Day 4	6	4	6	5	3	4	6	6	3	6			
	AW 0949	6/21	25.0	24.8	Day 5	10	11	3	13	9	8	13	14	11	13			
	AW 0909	6/22	24.1	24.3	Day 6	14	17	12	✓	✓	16	18	17	✓	15			
LM 1319		6/23		25.0	Day 7	✓	✓	15	18	22	✓	✓	✓	17	✓			
					Day 8													
			Total			30	32	22	36	34	28	37	37	31	34	32	1	

✓ = 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. 17660

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-196751

TEST ORGANISM: Cd

DATE: 01/16/11

Ramboll Environ Test Log No. 17600 and 17660

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		D.O. (mg/L)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
Soft	8.5	8.1	8.3	8.4	8.1	8.2	8.2	8.2	8.2	8.2	8.4	8.4	8.1	8.2	8.3	8.3			
25	8.6	8.4	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.4	8.4			
34	8.5	8.4	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.4	8.4			
45	8.4	8.4	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.4	8.4			
60	8.3	8.4	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.4	8.4			
80	8.4	8.4	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.4	8.4			
RW MFA	8.0	8.1	8.3	8.4	8.1	8.2	8.2	8.2	8.2	8.2	8.4	8.4	8.1	8.2	8.3	8.3			

		pH (s.u.)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
Soft	7.73	7.68	7.87	7.80	7.71	7.62	7.72	7.68	7.64	7.85	7.99	7.96	7.99	7.96	7.60	7.70			
25	7.77	7.98	7.88	7.80	7.61	7.70	7.98	7.76	8.12	7.76	7.92	7.93	7.92	7.93	7.85	7.85			
34	7.80	8.08	7.90	8.09	7.99	7.84	8.15	7.81	8.70	7.81	8.01	7.80	8.01	7.80	7.85	7.85			
45	7.86	8.19	7.91	8.16	8.25	7.82	8.29	7.83	8.05	7.80	8.17	7.89	8.17	7.89	8.04	8.04			
60	7.86	8.32	7.90	8.26	8.35	7.92	8.39	7.82	8.38	7.88	8.29	7.80	8.29	7.80	8.29	8.29			
80	7.86	8.44	7.90	8.42	8.40	7.92	8.52	7.81	8.52	7.86	8.52	7.86	8.52	7.86	8.47	8.47			
RW MFA	7.40	7.34	7.60	7.80	7.78	7.44	7.81	7.72	7.71	7.41	7.69	8.07	7.69	8.07	7.71	7.71			

		Conductivity (µmhos/cm)																	
		Start	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7				
Concentration (%)			Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New			
Soft	165	126	116	110	110	118	117	117	120	127	113	140	179	162	128	128			
25	544	406	426	434	453	474	453	474	495	525	492	460	385	513	528	528			
34	682	606	629	608	606	618	606	618	651	646	592	577	520	682	660	660			
45	842	801	806	794	791	780	791	780	805	798	750	751	654	747	814	814			
60	1050	1026	1020	1012	981	1012	981	1012	1032	1006	950	990	802	1066	1062	1062			
80	1330	1279	1291	1274	1305	1290	1305	1290	1326	1299	1202	1260	1291	1325	1370	1370			
RW MFA	106	72	58	64	64	63	64	63	65	87	67	85	60	112	70	70			

		Params Int/Time:																	
Params Int/Time:	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111	074 1111		
Dilutions Int/Time:	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100	072 1100		

		Control Water Batch:																	
Control Water Batch:	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922	5922		
Food Batch:	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139	08, 139		

TEST LOG NO. 17660

CLIENT: Georgia Pacific Crossett

DATE OF TEST: 6/14/15

JOB NO. 20-19675I

TEST TYPE(S) PERFORMED: Fm & Cd Chronic

Ramboll Environ Test Log No. 17600 and 17660

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**100% EFFLUENT**

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH <sub>3</sub> N mg/L
18929	Outfall 001	6/14-15/15	6/16/15	216	305	<0.02	1.50
18937	Outfall 001	6/16-17/15	6/18/15	248	300	<0.02	1.37
18944	Outfall 001	6/18-19/15	6/20/15	236	310	<0.02	1.68

**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
18930	River Water	6/15/15	6/16/15	32	23	0.05	20.1
50ET	5922	6/14/15	6/16/15	43.2	33	<0.02	-
18936	River Water	6/15/15	6/18/15	21.1	22	0.04	20.1
18945	River Water	6/15/15	6/20/15	23.2	21	0.08	20.1

**ATTACHMENT 2**

**CHAIN OF CUSTODY DOCUMENTATION AND  
REFERENCE TOXICANT DATA**

Project Name:				Project Number:				Analysis Requested										CHAIN-OF-CUSTODY												
Industry: <b>GEORGIA PACIFIC PAPER</b>								<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Fathead minnow</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Bannerfin shiner</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Ceriodaphnia dubia</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Daphnia pulex</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Chronic Fathead minnow</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Chronic Ceriodaphnia dubia</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Continuous Batch Tests</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Discrete Batch Tests</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Other</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	 201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976		
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>														Description			Sample B# (lab only)			Receipt Temp °C						
County: <b>Ashley</b>				City: <b>CROSSED</b>														State: <b>AR</b>				Definitive or Screen								
Sample Collected by (print): <b>DANNY PAUL</b>				NPDES Permit No.: <b>AR0001210</b>																										
Sample Collected by (signature): <i>Danny Paul</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																							
<b>RIVER</b>		<b>G</b>	<b>PLASTIC</b>	<b>NA</b>	<b>5/15 9:38am</b>	<b>5/15 2:20</b>	<b>2</b>											<b>18829 23</b>												
<b>ATFALL001</b>		<b>C</b>	<b>PLASTIC</b>	<b>YES</b>	<b>5/15 5/15</b>	<b>5/15 2:20</b>	<b>2</b>											<b>18830 25</b>												
							<i>Incorrect date</i>																							
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____																														
Remarks:																														
Measured TRC (if applicable): <b>0.00</b> mg/L																														
Relinquished by: (Signature) <i>Danny Paul</i>				Date: <b>5-18-15</b>		Time: <b>3:00PM</b>		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)														
Relinquished by: (Signature) _____				Date: _____		Time: _____		Received by: (Signature) _____				Containers/Volume Received: <b>20L of each</b>																		
Relinquished by: (Signature) _____				Date: _____		Time: _____		Received for lab by: (Signature) <i>Antonia W...</i>				Date: <b>5/15</b>		Time: <b>0833</b>		pH upon arrival: <b>7.1, 7.96</b>		DO upon arrival: <b>8.4, 8.6</b>												



**Sample Receipt Checklist:**

Client: GP Crossett

Date/Time received 5/19/15 0833 by AW

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


- 7. Did the sample(s) arrive in good condition?  Yes  No
- 8. Was pH and DO measured and in range?  Yes  No
- 9. Was residual chlorine present?  
 > 1.0 mg/L? (did dechlor occur)  Yes  No *in river water*

**Comments:**

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18829	River	2.3	7.11	8.4	0.05
18830	Outfallool	2.5	7.96	8.6	20.02

Ramboll Environ Test Log No. 17600 and 17660

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Project Name:				Project Number:				<b>CHAIN-OF-CUSTODY</b>   201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																									
Industry: <b>GEORGIA PACIFIC PAPER</b>																																	
Phone: <b>800-567-8170</b>				FAX: <b>810-244-9074</b>																													
County: <b>ASHLEY</b>		City: <b>CROSSETT</b>		State: <b>AR</b>																													
Sample Collected by (print): <b>DANNY PAUL</b>				NPDES Permit No.: <b>AR0001210</b>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Fathead minnow</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Bannerfin shiner</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Ceriodaphnia dubia</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Daphnia pulex</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Chronic Fathead minnow</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Chronic Ceriodaphnia dubia</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Continuous Batch Tests</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Discrete Batch Tests</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Other</td> <td colspan="3">Description</td> </tr> <tr> <td colspan="3">Definitive or Screen</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	Description			Definitive or Screen		
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								Definitive or Screen																									
Sample Collected by (signature): <i>Danny Paul</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																											
<b>RIVER</b>	<b>G</b>	<b>PLASTIC</b>	<b>NA</b>	<b>5-18-15</b> <b>9:22am</b>		<b>2 20</b>																											
<b>WPAUL 001</b>	<b>C</b>	<b>PLASTIC</b>	<b>YES</b>	<b>5-19-15</b> <b>6:19am</b>	<b>5-20-15</b> <b>6:22am</b>	<b>2 20</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>Danny Paul</i>				Date: <b>5-20-15</b>		Time: <b>3:00pm</b>		Received by: (Signature) <i>[Signature]</i>				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier		UPS <input type="checkbox"/> Hand Delivered <input type="checkbox"/>		Condition: (lab use only) <b>OK</b>																	
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Containers/Volume Received: <b>200 L</b>																					
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) <i>[Signature]</i>				Date: <b>5/20/15</b>		Time: <b>08:00</b>		pH upon arrival: <b>4.7</b>		DO upon arrival: <b>8.1</b>															

46) 292      83

**Sample Receipt Checklist:**

Client: CEP Crosscut

Date/Time received Stallik 08/11 by HA


- 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
18847	River	2.8	8.03	2.1	0.09
18846	Outfall	4.1	7.92	2.3	0.02

Project Name:				Project Number:				<b>CHAIN-OF-CUSTODY</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%; border-collapse: collapse;"> <tr> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</td> <td>Acute Fathead minnow</td> <td>Acute Bannerfin shiner</td> <td>Acute Ceriodaphnia dubia</td> <td>Acute Daphnia pulex</td> <td>Chronic Fathead minnow</td> <td>Chronic Ceriodaphnia dubia</td> <td>Continuous Batch Tests</td> <td>Discrete Batch Tests</td> <td>Other</td> </tr> <tr> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> </tr> <tr> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</td> <td style="text-align: center;">■</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	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																						
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Sample Collected by (print): <b>DANNY / PAUL</b>				NPDES Test: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Sample Location / ID</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Comp/Grab</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Container Type</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Chilled During Collection (Y/N)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Start Date/Time</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">End Date/Time</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">No. of Cntrs</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Acute Fathead minnow</td> <td style="writing-mode: vertical-rl; 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transform: rotate(180deg);"><b>RIVER</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>G</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>PLASTIC</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>NA</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>5:18:15</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>9:30am</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>2</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>20</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; 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transform: rotate(180deg);"><b>2</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>20</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">■</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>18858</b></td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>1.67</b></td> </tr> </table>										Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)	Receipt Temp °C	<b>RIVER</b>	<b>G</b>	<b>PLASTIC</b>	<b>NA</b>	<b>5:18:15</b>	<b>9:30am</b>	<b>2</b>	<b>20</b>	■	■	■	■	■	■	■	■	■		<b>18857</b>	<b>0.9</b>	<b>OUTFALL 001</b>	<b>C</b>	<b>PLASTIC</b>	<b>YES</b>	<b>5:24:15</b>	<b>6:18am</b>	<b>2</b>	<b>20</b>	■	■	■	■	■	■	■	■	■		<b>18858</b>	<b>1.67</b>
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters											Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)	Receipt Temp °C																																																
<b>RIVER</b>	<b>G</b>	<b>PLASTIC</b>	<b>NA</b>	<b>5:18:15</b>	<b>9:30am</b>	<b>2</b>	<b>20</b>	■	■	■	■	■	■	■	■	■		<b>18857</b>	<b>0.9</b>																																																										
<b>OUTFALL 001</b>	<b>C</b>	<b>PLASTIC</b>	<b>YES</b>	<b>5:24:15</b>	<b>6:18am</b>	<b>2</b>	<b>20</b>	■	■	■	■	■	■	■	■	■		<b>18858</b>	<b>1.67</b>																																																										
Sample Collected by (signature): <b>Danny Paul</b>				NPDES Permit No.: <b>AR0000210</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): **0.00** mg/L

Relinquished by: (Signature) <b>Danny Paul</b>	Date: <b>5/22/15</b>	Time: <b>3:00pm</b>	Received by: (Signature) _____	Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier <input type="checkbox"/> UPS Hand Delivered	Condition: _____ (lab use only)		
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by: (Signature) _____	Containers/Volume Received: <b>20L of each</b>			
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received for lab by: (Signature) <b>Anita Whator</b>	Date: <b>5/22/15</b>	Time: <b>10:20</b>	pH upon arrival: <b>7.55-7.88</b>	DO upon arrival: <b>8.2-9.1</b>

RW) 001 RW) 001

**Sample Receipt Checklist:**

Client: G.P. Crossett

Date/Time received 5/23/15 1020 by AW

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


- 7. Did the sample(s) arrive in good condition?  Yes  No
- 8. Was pH and DO measured and in range?  Yes  No
- 9. Was residual chlorine present?  Yes  No
- 1.0 mg/L? (did dechlor occur)  Yes  No *in River water*

**Comments:**

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18857	River	0.9	7.55	8.2	0.08
18858	Duffalo	1.2	7.88	9.1	0.02

Ramboll Environ Test Log No. 17600 and 17660

45 of 64

Project Name:				Project Number:				Analysis Requested										<b>CHAIN-OF-CUSTODY</b>   201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976					
Industry: <u>GEORGIA PACIFIC PAPER</u>				Phone: <u>870-567-8170</u> FAX: <u>870-244-9074</u>				Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other						
County: <u>ASALEY</u> City: <u>CROCKETT</u> State: <u>AR</u>				Sample Collected by (print): <u>DAWN BOBBIE</u>																NPDES Permit No.: <u>AR000210</u>			
Sample Collected by (signature): <u>Dawn Bobbie</u>				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																		
<u>RIVER</u>	<u>G</u>	<u>PASTIC</u>	<u>NA</u>	<u>6-15-15</u> <u>9:20am</u>												<u>5.6°C</u>	<u>189130</u>						
<u>OUTFALL OOL</u>	<u>C</u>	<u>PASTIC</u>	<u>YES</u>	<u>6-14-15</u> <u>6:55</u>												<u>5.7°C</u>	<u>18929</u>						
				<u>Nothing</u>																			
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____ Remarks: <u>Measured TRC (if applicable): 0.00 mg/L River Water for 2nd label</u>																							
Relinquished by: (Signature) <u>Dawn Bobbie</u>				Date: <u>6-15-15</u>	Time: <u>3:00PM</u>	Received by: (Signature) <u>[Signature]</u>				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other Courier				UPS <input type="checkbox"/> Hand Delivered		Condition: (lab use only)							
Relinquished by: (Signature)				Date:	Time:	Received by: (Signature)				Receipt Temp: <u>5.7°C</u>		Containers/Volume Received:											
Relinquished by: (Signature)				Date:	Time:	Received for lab by: (Signature) <u>[Signature]</u>				Date: <u>6/16/15</u>	Time: <u>9:35</u>	pH upon arrival: <u>7.93</u>	DO upon arrival: <u>9.83</u>										

**Sample Receipt Checklist:**

Client: Georgia Pacific


Date/Time received 6/16/15 0934 by RLL

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 <sup>ew</sup> RW
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
18929	001	5.7	7.93	9.8	0.02
18930	RW	5.6	7.55	9.7	0.03

L:\Ecotox Lab\FORMS

Project Name:		Project Number:										<b>CHAIN-OF-CUSTODY</b>   201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976							
Industry:		GEORGIA PACIFIC PAPER																	
Phone:		870-567-8170		FAX:		870-34-9014													
County:		ASALET		City:		CROSSEA		State:		AR.									
Sample Collected by (print):				NPDES Permit No.:															
DANNY / BOBBE				AR0001210															
Sample Collected by (signature):				NPDES Test:															
[Signature]				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes															
Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute Ceriodaphnia dubia	Acute Daphnia pulex	Chronic Fathead minnow	Chronic Ceriodaphnia dubia	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)	Receipt Temp °C
RIVER	G	PLASTIC	NA	6-15-15 9:20am				■	■	■	■	■	■	■	■	■		19936	3.6
OUTFALL 001	C	PLASTIC	YES	6-16-15 6:15am	6-17-15 6:16am			■	■	■	■	■	■	■	■	■		8937	5.8
* 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)				Date:		Time:		Received by: (Signature)				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier				<input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered		Condition: (lab use only) <u>Good</u>	
[Signature]				6-17-15		3:30pm		[Signature]				Containers/Volume Received: <u>110L/10L</u>							
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature)				Date:		Time:		pH upon arrival:		DO upon arrival:	
[Signature]								[Signature]				6/18/15		10:45 AM		7.8		8.6	

784 86



**Sample Receipt Checklist:**


Client: COP Crossett

Date/Time received 6/18/15 0847 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 <sup>in cool</sup>
- 1.0 mg/L? (did dechlor occur)  Yes  No

**Comments:**

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18936	River	3.6	7.14	8.7	0.06
18937	Quail	5.8	7.84	8.6	<0.02

Project Name:				Project Number:				<b>CHAIN-OF-CUSTODY</b>   201 Summit View Drive, Suite 300 Brentwood, TN 37027 PHONE: (615) 277-7570 FAX: (615) 377-4976																												
Industry: <u>Georgia-Pacific Paper</u>																																				
Phone: <u>870-567-8170</u> FAX: <u>870-364-9070</u>																																				
County: <u>Ashley</u>		City: <u>Crossett</u>		State: <u>AR</u>																																
Sample Collected by (print): <u>Danny/Bobbie</u>				NPDES Permit No.: <u>AR000010</u>				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Volume in liters</td> <td>Acute Fathead minnow</td> <td>Acute Bannertin shiner</td> <td>Acute <i>Ceriodaphnia dubia</i></td> <td>Acute <i>Daphnia pulex</i></td> <td>Chronic Fathead minnow</td> <td>Chronic <i>Ceriodaphnia dubia</i></td> <td>Continuous Batch Tests</td> <td>Discrete Batch Tests</td> <td>Other</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>										Total Volume in liters	Acute Fathead minnow	Acute Bannertin 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Volume in liters	Acute Fathead minnow	Acute Bannertin 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																
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																											
Sample Collected by (signature): <u>Rachelle</u>				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																														
<u>Outfall 001</u>	<u>Comp</u>	<u>Plastic</u>	<u>Yes</u>	<u>4/15/15</u>	<u>4/17/15</u>	<u>10</u>																														
<u>River</u>	<u>Grab</u>	<u>Plastic</u>	<u>NR</u>	<u>4/15/15</u>	<u>9:20am</u>	<u>1</u>																														
* Matrix: SS - Soil GW - Groundwater WW - Wastewater AW - Ambient Water ML - Mixed Liquor SL - Sludge SD - Sediment OT - Other _____																																				
Remarks:																																				
Measured TRC (if applicable): <u>0.0</u> mg/L																																				
Relinquished by: (Signature) <u>Rachelle</u>				Date: <u>4/15/15</u>		Time: <u>4:00pm</u>		Received by: (Signature) _____				Samples shipped via: <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/> Courier <input type="checkbox"/> UPS <input type="checkbox"/> Hand Delivered																								
Relinquished by: (Signature) _____				Date: _____		Time: _____		Received by: (Signature) _____				Containers/Volume Received: <u>10 L of each</u>																								
Relinquished by: (Signature) _____				Date: _____		Time: _____		Received for lab by: (Signature) <u>Andrew</u>				Date: <u>6/20/15</u>		Time: <u>0854</u>		pH upon arrival: <u>7.75, 7.95</u>		DO upon arrival: <u>9.1, 9.0</u>																		

**Sample Receipt Checklist:**

Client: GP Cussett

Date/Time received 6/20/15 0854 by AW/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 *no col time*
6. Was the sample received within 36 hours of collection?  Yes  No

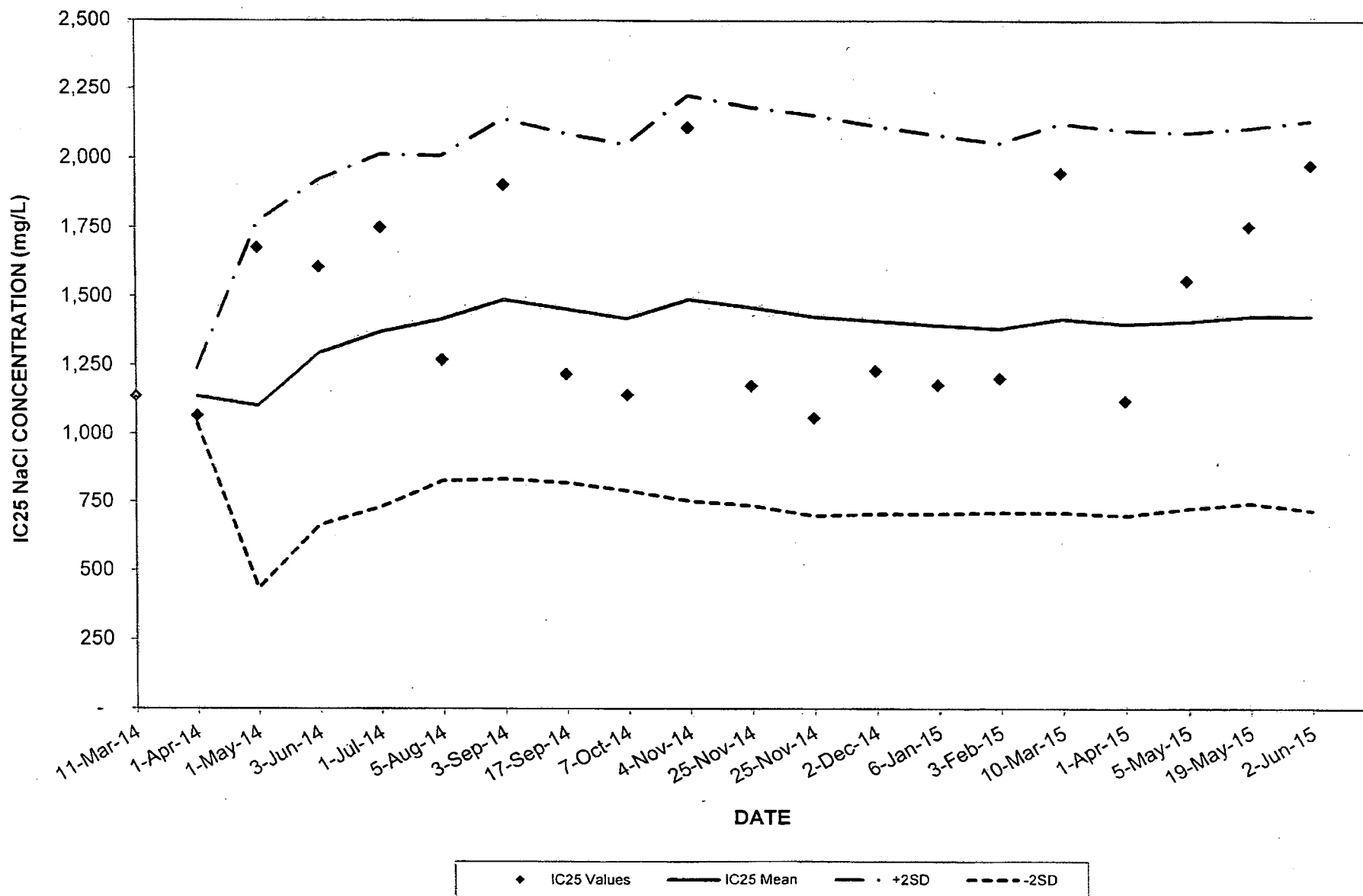
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7. Did the sample(s) arrive in good condition?  Yes  No
8. Was pH and DO measured and in range?  Yes  No
9. Was residual chlorine present?  Yes *in river*  No
  - 1.0 mg/L? (did dechlor occur)  Yes  No

**Comments:**

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18944	Outfall001	2.8	7.75	9.1	0.08
18945	river	2.0	7.95	9.0	0.02

### CHRONIC REFERENCE TOXICANT TEST (NaCl) 2014 - 2015 FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2014 - 2015

Ramboll Environ Test Log No. 17600 and 17660

52 of 54

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	16684	11-Mar-14	100	0.543	750	1,500	750	1,500	28.8	1,138					
2	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067	1,138	50	1,238	1,038	3
3	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,103	334	1,771	434	21
4	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,294	314	1,923	665	20
5	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,373	321	2,014	731	20
6	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270	1,419	296	2,010	827	19
7	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,488	327	2,143	834	20
8	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,455	318	2,090	819	20
9	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,420	315	2,050	790	21
10	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,489	369	2,226	751	23
11	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,460	362	2,185	736	24
12	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,427	365	2,156	697	24
13	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,411	353	2,118	705	24
14	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,395	345	2,085	704	24
15	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,382	337	2,055	709	24
16	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,417	355	2,126	708	24
17	17504	01-Apr-15	90	0.316	750	1,500	750	1,500	39.1	1,117	1,399	351	2,101	697	24
18	17570	05-May-15	95	0.346	750	1,500	1,500	3,000	32.6	1,556	1,408	342	2,093	723	24
19	17604*	19-May-15	97.5	0.284	1,500	3,000	1,500	3,000	24.3	1,753	1,426	342	2,110	742	23
20	17621*	02-Jun-15	95	335.000	1,500	3,000	1,500	3,000	24.8	1,978	1,426	355	2,136	716	24

Avg	98	17.156	975	1950	1125	2250	28	1454	1386	324	2033	738
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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)

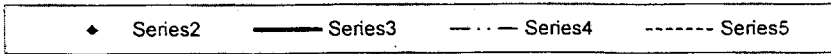
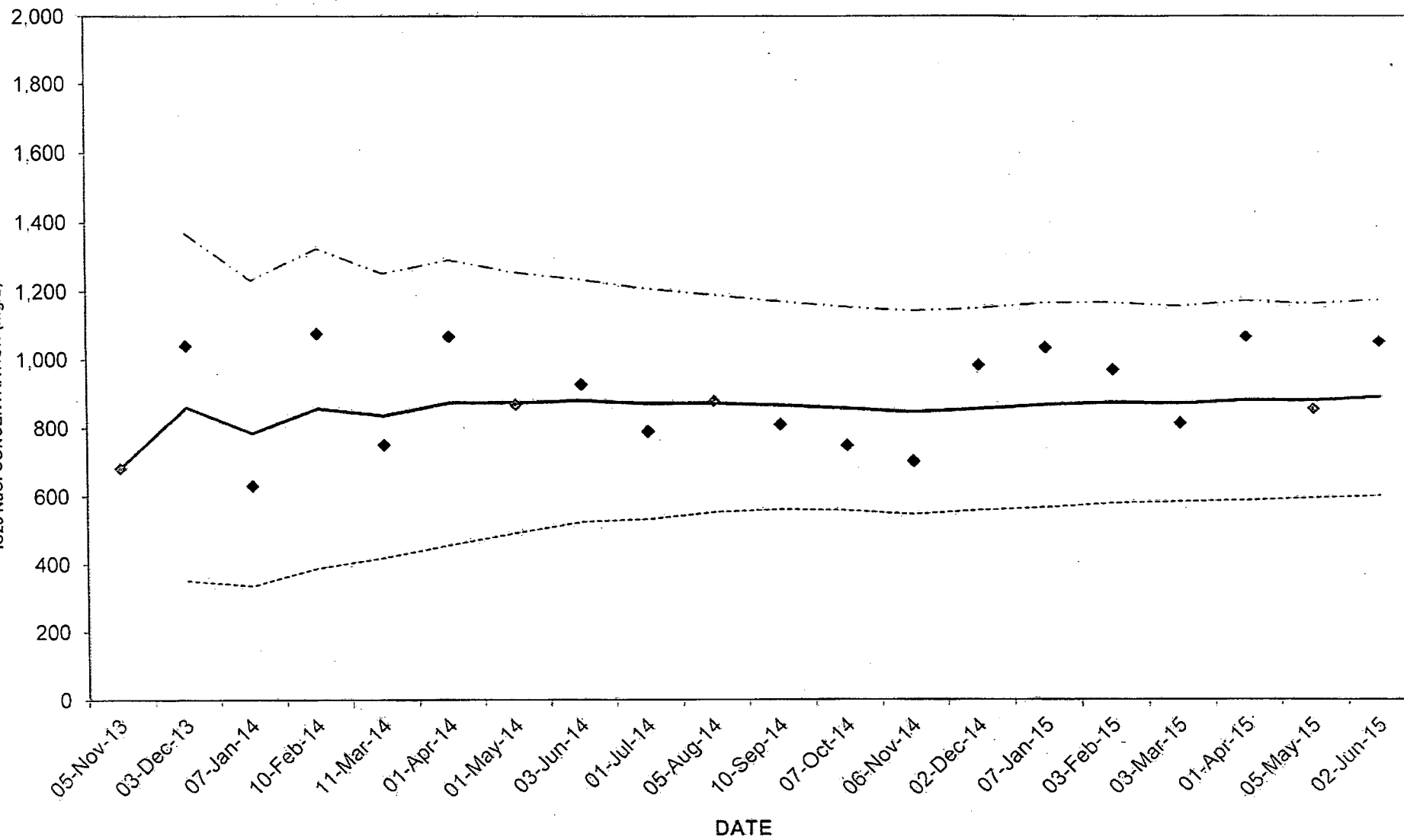
ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.

(\*) 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) 2013-2015  
*Ceriodaphnia dubia*

Ramboll Environ Test Log No. 17600 and 17660  
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*Ceriodaphnia dubia* CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2013-2015

Ramboll Environ Test Log No. 17600 and 17660

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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	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	681				
2	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	861	255	1,370	352	21
3	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	784	224	1,232	336	23
4	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	857	234	1,325	389	24
5	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	836	208	1,252	419	22
6	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	874	209	1,292	456	22
7	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	873	191	1,255	492	20
8	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	880	178	1,235	525	19
9	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	870	169	1,207	532	18
10	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	871	159	1,189	552	17
11	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	865	152	1,169	561	17
12	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	855	149	1,153	557	17
13	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	843	149	1,141	545	17
14	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	853	148	1,148	557	17
15	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	865	150	1,164	565	17
16	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	871	147	1,165	577	16
17	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	868	143	1,153	582	16
18	17504	01-Apr-15	100	90	24.5	1,000	2,000	1,000	2,000	24.9	1,064	879	146	1,171	586	16
19	17571	05-May-15	100	80	22.9	2,000	>2000	500	1,000	22.0	851	877	142	1,161	593	16
20	17622	02-Jun-15	100	80	27.4	1,000	2,000	1,000	2,000	22.3	1,048	886	144	1,173	598	16

Avg	100	91	28	1444	1111	542	1083	19	877	849	177	1213	505
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Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

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

ORIGIN ID:ELDA (870) 567-8812  
BECKY BLANKENSHIP  
GEORGIA-PACIFIC  
100 SUPPLY ROAD  
DROP POINT 33  
CROSSETT, AR 71635  
UNITED STATES US

SHIP DATE: 24 JUL 15  
ACTWGT: 1.00 LB  
CAD: 102787395/INET3670

BILL SENDER

TO RICHARD HEALEY  
ADEQ  
5301 NORTSHORE DR

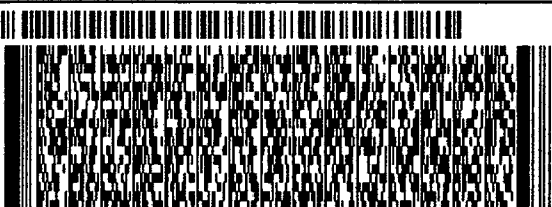
539,GM1A15,0100

NORTH LITTLE ROCK AR 72118

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INV:  
PO:

REF:

DEPT:



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Express



#1231962394111

MON - 27 JUL 10:30A  
PRIORITY OVERNIGHT

1 of 2

TRK# 7741 3184 0340  
0201

## MASTER ##

X2 LITA

72118

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