Georgia-Pacific

Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
100 Mill Supply Rd.
P.O. Box 3333
Crossett, AR 71635
(870) 567-8000
(870) 364-9076 fax
www.gp.com

September 24, 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 August 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.

Sincerely,

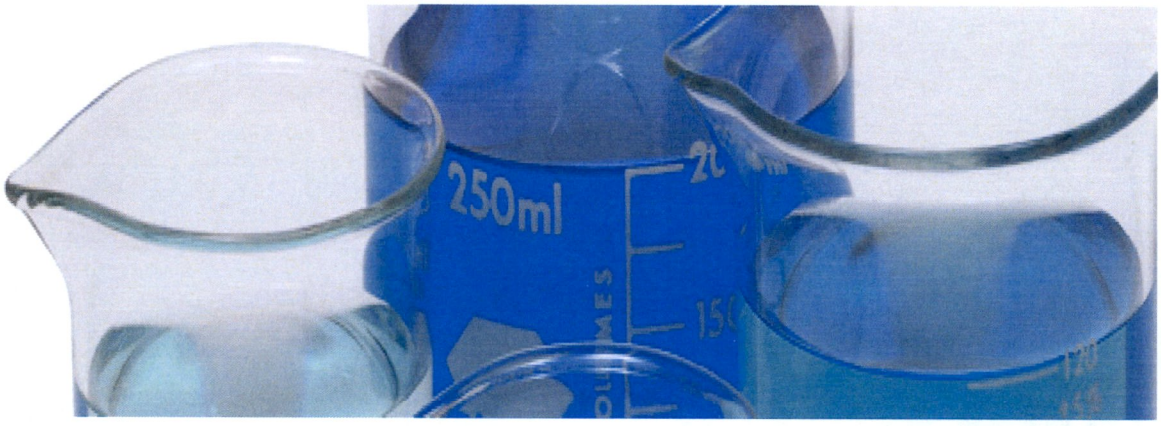
Sarah M. Ross
Environmental Manager
Crossett Paper Operations

Prepared for
Georgia-Pacific Crossett Mill
Crossett, AR

Date
July 2015

CHRONIC TOXICITY TEST RESULTS – OUTFALL 001 EFFLUENT

PROJECT NUMBER: 20-19675I



RAMBOLL ENVIRON

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:

July 28, 2015

Ramboll Environ
201 Summit View Dr Ste 300
Brentwood, TN 37027
USA

T +1 615 277 7570
F +1 615 377 4976
www.ramboll-environ.com

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 July 13, 15, and 17, 2015. The samples were received at Ramboll Environ on July 14, 16, and 18, 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.

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

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

NELAP Accredited and Laboratory Certification in the following United States: AR (02-008-0), AZ (0751), CA (2465), FL (E87896), IA (386), KS (E-10391), LA (02061), MN, NC (003), OK (9973), SC (84015), TX (T104704410-11-2), VA (460171), WI (399050850), WV (351). Test Results contained in this report meet NELAP requirements.

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 5.7 and 7.2 percent, respectively. The CV values for growth in the control and critical dilution are 12.3 and 7.3 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 21.3 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 is flat and not described in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A flat concentration-response 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.

The *C. dubia* reproduction CV values (for surviving adults) for the laboratory river water control and critical dilution are 23.2 and 24.7 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 27.7 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 are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 39 pages, including this cover letter, attachment pages and separator pages.

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

Yours sincerely,

Richard Lockwood
Project Manager
Water Quality and Ecotoxicology

D 615-277-7523
RLOCKWOOD@ENVIRONCORP.COM

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

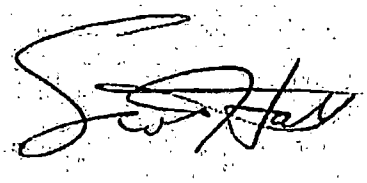
2/2

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[1].



Scott Hall, Department Manager
Water Quality and Ecotoxicology

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

ATTACHMENT 1

LABORATORY BENCH SHEETS WITH STATISTICAL DATA

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

Analysis ID:	01-8178-1284	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:17	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	00-4113-2468	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	14 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	20-8561-6601	**Code:**	7C4FFBD9	**Client:**	GPAC Crossett
Sample Date:	13 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	14 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	11.4%

Steel Many-One Rank Sum Test

Control vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water	25	27	16	1	8	0.8003	Asymp	Non-Significant Effect
	34	30	16	1	8	0.9446	Asymp	Non-Significant Effect
	45	27.5	16	2	8	0.8333	Asymp	Non-Significant Effect
	60	27	16	1	8	0.8003	Asymp	Non-Significant Effect
	80	25	16	2	8	0.6353	Asymp	Non-Significant Effect

Test Acceptability Criteria

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

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.787	2.908	0.0842	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02051032	0.004102063	5	0.3444	0.8807	Non-Significant Effect
Error	0.285865	0.01191104	24			
Total	0.3063753		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	118.2	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.7175	0.9031	<0.0001	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	0.0%
25		5	0.95	0.8112	1	1	0.75	1	0.05	11.77%	2.56%
34		5	1	1	1	1	1	1	0	0.0%	-2.56%
45		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	0.0%
60		5	0.95	0.8112	1	1	0.75	1	0.05	11.77%	2.56%
80		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	0.0%
25		5	1.324	1.132	1.516	1.393	1.047	1.393	0.06918	11.68%	2.39%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-2.71%
45		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	0.0%
60		5	1.324	1.132	1.516	1.393	1.047	1.393	0.06918	11.68%	2.39%
80		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	2.71%

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

Analysis ID:	01-8178-1284	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:17	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

7d Survival Rate Detail

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

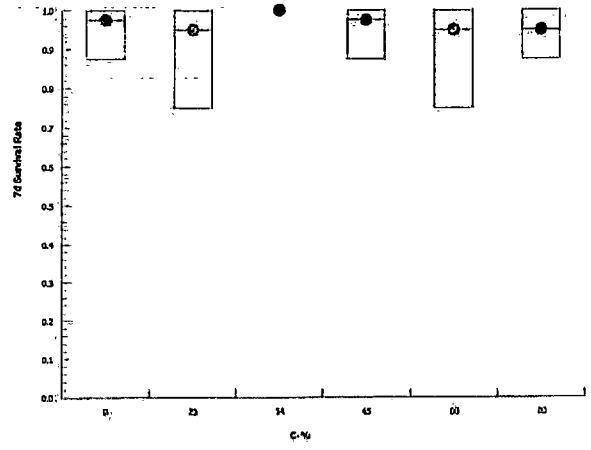
Angular (Corrected) Transformed Detail

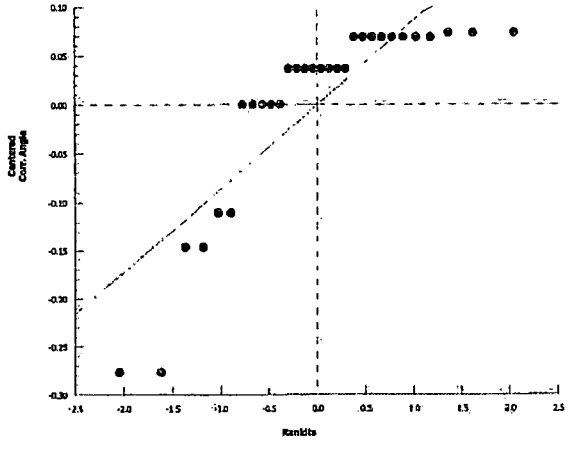
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.209	1.393	1.393	1.393	1.393
25		1.047	1.393	1.393	1.393	1.393
34		1.393	1.393	1.393	1.393	1.393
45		1.393	1.209	1.393	1.393	1.393
60		1.047	1.393	1.393	1.393	1.393
80		1.209	1.393	1.393	1.209	1.393

7d Survival Rate Binomials

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

Graphics





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

Analysis ID:	19-9579-8563	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:18	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	00-4113-2468	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	14 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	20-8561-6601	**Code:**	7C4FFBD9	**Client:**	GPAC Crossett
Sample Date:	13 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	14 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	21.3%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-1.085	2.362	0.128	8	0.9869	CDF	Non-Significant Effect
		34	-2.281	2.362	0.128	8	0.9997	CDF	Non-Significant Effect
		45	-2.152	2.362	0.128	8	0.9996	CDF	Non-Significant Effect
		60	-1.55	2.362	0.128	8	0.9968	CDF	Non-Significant Effect
		80	-2.709	2.362	0.128	8	0.9999	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6017	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2134	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	1.966	2.908	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.07122617	0.01424523	5	1.928	0.1268	Non-Significant Effect
Error	0.1773256	0.007388565	24			
Total	0.2485517		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.079	15.09	0.5381	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9778	0.9031	0.7635	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	0.6017	0.5099	0.6936	0.5625	0.5462	0.7238	0.0331	12.3%	0.0%
25		5	0.6608	0.5541	0.7674	0.6913	0.5163	0.7363	0.03841	13.0%	-9.81%
34		5	0.7258	0.6287	0.8229	0.7	0.65	0.85	0.03497	10.78%	-20.61%
45		5	0.7187	0.5499	0.8876	0.6512	0.5887	0.8725	0.06081	18.92%	-19.44%
60		5	0.686	0.6089	0.7631	0.7125	0.5938	0.7513	0.02777	9.05%	-14.0%
80		5	0.749	0.6808	0.8172	0.7438	0.6725	0.805	0.02456	7.33%	-24.47%

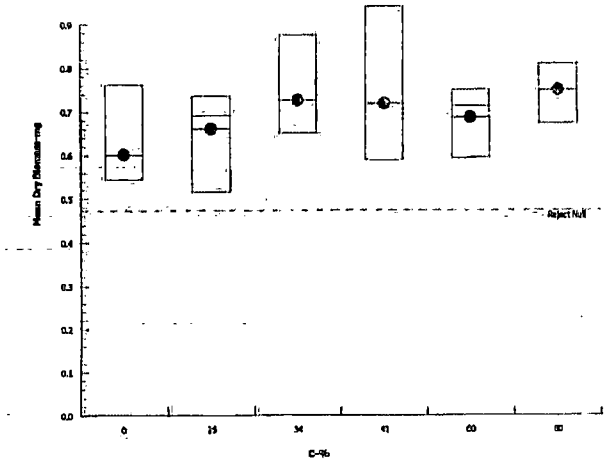
Fathead Minnow 7-d Larval Survival and Growth Test — **Ramboll Environ**

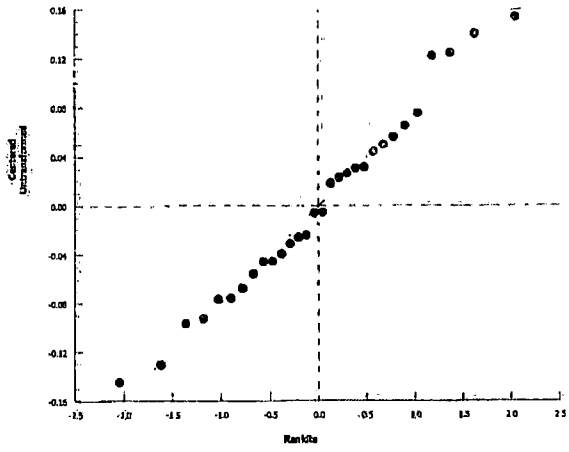
Analysis ID:	19-9579-8563	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:18	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5462	0.62	0.7238	0.5625	0.5562
25		0.5163	0.7363	0.655	0.6913	0.705
34		0.85	0.7	0.7487	0.65	0.68
45		0.6225	0.6512	0.8587	0.5887	0.8725
60		0.655	0.7125	0.7513	0.5938	0.7175
80		0.6725	0.725	0.7988	0.805	0.7438

Graphics





CETIS Analytical Report

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

Analysis ID:	20-4621-6314	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:18	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	00-4113-2468	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	14 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	20-8561-6601	**Code:**	7C4FFBD9	**Client:**	GPAC Crossett
Sample Date:	13 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	14 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1428688	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.6017	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	1.966	2.908	1.0000	No Outliers Detected

Point Estimates

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

Mean Dry Biomass-mg Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.6017	0.5462	0.7238	0.0331	0.07401	12.3%	0.0%
25		5	0.6608	0.5163	0.7363	0.03841	0.08588	13.0%	-9.81%
34		5	0.7258	0.65	0.85	0.03497	0.0782	10.78%	-20.61%
45		5	0.7187	0.5887	0.8725	0.06081	0.136	18.92%	-19.44%
60		5	0.686	0.5938	0.7513	0.02777	0.06209	9.05%	-14.0%
80		5	0.749	0.6725	0.805	0.02456	0.05493	7.33%	-24.47%

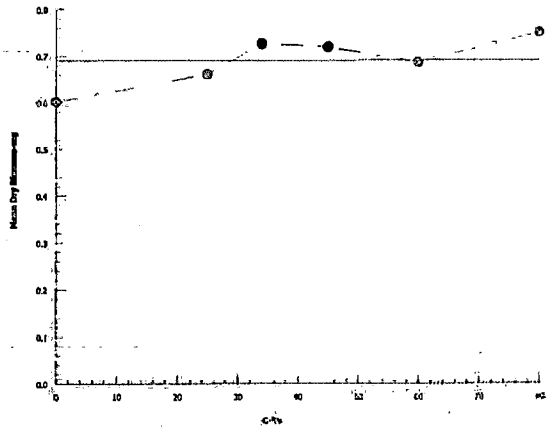
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5462	0.62	0.7238	0.5625	0.5562
25		0.5163	0.7363	0.655	0.6913	0.705
34		0.85	0.7	0.7487	0.65	0.68
45		0.6225	0.6512	0.8587	0.5887	0.8725
60		0.655	0.7125	0.7513	0.5938	0.7175
80		0.6725	0.725	0.7988	0.805	0.7438

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

Analysis ID:	20-4621-6314	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Jul-15 11:18	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



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

TEST LOG NO.: 17694
JOB NUMBER.: 20-19675I
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes _____ No _____
FOOD BATCH: S104

BEGINNING: HRS: 1234 DATE: 7/14/15
ENDING: HRS: 1147 DATE: 7/21/15
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 7/13/15
ORGANISM SOURCE: ECT# 51745
SOURCE TEMP @ TEST START: 24.7 °C
RANDOMIZED BY: AW 7/14/15

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
RW	A	8	8	7	87	7	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.6	24.2/24.7	24.6/25.1	24.4/24.6	24.5/24.9	24.8/25.1	24.4/24.3	24.5
25	A	8	8	8	8	6	6	6	6
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.5	24.3/24.3	25.3/25.3	24.2/24.5	25.2/24.9	25.0/25.1	24.5/24.4	24.7
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.8	24.4/24.3	24.5/24.4	24.3/24.2	25.0/24.4	24.8/24.6	24.4/24.3	24.4
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	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	24.3/24.2	24.4/24.4	24.2/24.4	24.9/24.4	24.8/24.5	24.3/24.2	25.0
60	A	8	8	8	8	8/6	6	6	6
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.5	24.4/24.3	24.4/24.5	24.3/24.4	25.0/24.8	24.7/24.8	24.3/24.2	24.5
80	A	8	8	8	8	7	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	7	7	7	7
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.4	24.2/24.4	24.7/24.4	24.3/24.4	25.1/25.0	24.8/25.0	24.6/24.3	24.2
Test Renewal	Time	1234	1020	1200	1213	1128	1035	0934	1147
	Date	7/14/15	7/15/15	7/16/15	7/17/15	7/18/15	7/19/15	7/20/15	7/21/15
	Initials	AW	AW	AH	AH	AW	AW	AW	AW
morning feeding	Int/Time		LM0720	LM0712	LM0720	AW0735	AH0720	LM0700	
afternoon feeding	Int/Time	AH/1500	AH/1445	AH/1441	AH/1441	AH/1440	AH/1400	AH/1500	

QAC 7/18/15 AW

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

TEST LOG NO.: 17694
JOB NUMBER.: 20-19675I
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes ______ No ______
FOOD BATCH: ______

BEGINNING: HRS: 1234 DATE: 7/14/15
ENDING: HRS: 1147 DATE: 7/21/15

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	7	7	7	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	7
	Temp(°c):old/new	24.8	24.4/24.4	24.2/24.4	25.1/25.4	25.4/24.1	25.1/24.4	24.4/24.4	25.1
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	Int/Time								
afternoon feeding	Int/Time								

RAMBOLL ENVIRON FATHEAD MINNOW SURVIVAL AND GROWTH 7-DAY CHRONIC TOXICITY TES
EPA-821-R-02-013 Method 1000.C

TEST LOG NO.: 17694 BEGINNING: HRS: 1234 DATE: 7/14/15
JOB NO.: 20-19675I ENDING: HRS: 1147 DATE: 7/21/15
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 77	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish	
RW	A	1	1.097276	1.09713	0.00437	7	0.1620	
	B	2	1.10067	1.10563	0.00496	8	0.1020	AVG Control
	C	3	1.09175	1.09754	0.00579	8	0.723	Fish wt 0.1016
	D	4	1.05187	1.05637	0.00450	8	0.560	(using final #)
	E	5	1.09142	1.09587	0.00445	8	0.556	
25	A	6	1.09309	1.09722	0.00413	6		
	B	7	1.07278	1.07867	0.00589	8		
	C	8	1.10537	1.11061	0.00524	8		Oven ID: 2
	D	9	1.10521	1.11074	0.00553	8		
	E	10	1.10474	1.11038	0.00564	8		Tins In:
34	A	11	1.06025	1.06705	0.00680	8		Date: 7/24/15
	B	12	1.06026	1.06596	0.00560	8		Time: 1238
	C	13	1.09593	1.10192	0.00599	8		Temp (°C): 100
	D	14	1.07360	1.07880	0.00520	8		Initials: AW
	E	15	1.10215	1.10759	0.00544	8		
45	A	16	1.09621	1.09519	0.00498	8		Tins Out:
	B	17	1.09965	1.10486	0.00521	7		Date: 7/22/15
	C	18	1.10118	1.10805	0.00687	8		Time: 0955
	D	19	1.08254	1.08725	0.00471	8		Temp (°C): 100
	E	20	1.10429	1.11127	0.00698	8		Initials: UM
60	A	21	1.10172	1.10696	0.00524	6		
	B	22	1.10602	1.11172	0.00570	8		
	C	23	1.10007	1.10608	0.00601	8		
	D	24	1.07967	1.08442	0.00475	8		
	E	25	1.09374	1.09948	0.00574	8		
80	A	26	1.09819	1.10357	0.00538	7		FINAL WEIGHTS
	B	27	1.08199	1.08779	0.00580	8		
	C	28	1.05108	1.05747	0.00639	8		DATE: 7/22/15
	D	29	1.08659	1.09303	0.00644	7		INITIALS: AW
	E	30	1.05535	1.06130	0.00595	8		
MH	A	31	1.05636	1.06176	0.00540	7		
	B	32	1.09816	1.10370	0.00554	8		
	C	33	1.06856	1.07376	0.00520	8		
	D	34	1.08918	1.09509	0.00591	8		
	E	35	1.08463	1.08900	0.00437	7		
	Initials / Date:		AH 7/13/15	MW 7/22/15				

TEST LOG NO. 17694

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675I

TEST ORGANISM: Fm

DATE: 7/14/15

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.2	8.4	8.2	8.4	8.2	8.2	8.4	8.3	8.2	8.2	8.4	8.6	7.9	8.1
25	8.2	8.4	8.4	8.3	8.3	8.3	8.4	8.4	8.1	8.3	8.4	8.6	8.0	8.1
34	8.3	8.4	8.4	8.2	8.3	8.3	8.3	8.2	8.2	8.2	8.4	8.5	8.0	8.2
45	8.2	7.6	8.3	8.2	8.3	8.3	8.5	8.4	8.2	8.3	8.4	8.5	8.0	8.5
60	8.2	8.4	8.2	8.2	8.2	8.2	8.1	8.5	8.1	8.3	8.3	8.5	8.2	8.2
80	8.2	8.4	8.4	8.3	8.1	8.2	8.2	8.3	8.4	8.2	8.2	8.4	8.2	8.3
MH	8.1	8.1	8.3	8.2	8.4	8.2	8.3	8.2	8.4	8.2	8.4	8.5	8.2	8.2

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.04	7.87	8.11	8.26	7.93	8.40	7.75	7.75	8.45	8.34	8.01	8.12	7.48	7.56
25	7.87	7.70	7.70	8.01	7.36	7.84	7.50	7.42	6.91	7.46	7.69	7.80	7.40	7.70
34	7.57	7.86	7.64	7.80	7.51	7.79	7.44	7.40	7.04	7.89	7.66	7.77	7.59	7.77
45	7.57	7.93	7.62	7.68	7.50	7.76	7.45	7.41	7.32	7.83	7.32	7.77	7.74	7.94
60	7.86	8.02	7.69	7.94	7.51	7.82	7.50	7.62	7.49	7.84	7.55	7.80	7.82	7.96
80	7.65	8.24	7.70	7.97	7.61	7.89	7.60	7.47	7.67	7.90	7.85	7.85	7.89	7.99
MH	7.67	7.86	7.99	8.06	7.74	7.96	7.85	7.67	7.78	8.21	7.82	7.99	7.94	7.83

Conductivity (µmhos/cm)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	1050	56	115	109	111	107	110	93	62	98	105	117	65	54
25	480	470	490	466	463	469	522	440	475	475	501	479	443	458
34	625	608	607	639	657	614	661	566	605	510	620	672	649	681
45	713	744	822	732	826	820	849	755	759	714	787	805	783	788
60	1036	981	1082	954	1081	1005	1018	938	980	930	822	1005	1027	1000
80	1279	1350	1307	1295	1341	1310	1326	1228	1301	1227	1275	1306	1252	1302
MH	215	206	257	240	249	250	251	228	230	173	237	250	204	214

Params Intl/Time:	AM 1020	AM	AM 0830	AM 0726	AM 1027	AM 0728	AM 0839	AM 0801	AM 0939	AM 0815	AM 0855	AM 0750	AM 0842	AM 0940
Dilutions Intl/Time:	AM 1014		AM 0825		PM 1020		AM 0835		AM 0929		AM 0847		AM 0837	
Control Water Batch#:	5943		5943		5943		5946		5946		5946		5946	
Food Batch	~~5164~~ 5164		5164		5164		5164		5164		5164		5164	

L:\Ecotox Lab\LABFORMS\Client Test Sheets\Georgia Pacific - Crossett\

TEST LOG NO. 17694 CLIENT: Georgia Pacific Crossett DATE OF TEST: 7/14/15

JOB NO. 20-19675I TEST TYPE(S) PERFORMED: Fm & Cd Chronic

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
18982	Outfall 001	7/12-13/15	7/14/15	228	275	<0.02	0.625
18988	Outfall 001	7/14-15/15	7/16/15	228	250	<0.02	0.544
18998	Outfall 001	7/16-17/15	7/18/15	236	300	<0.02	0.878

CONTROL / DILUTION WATER

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
18981	River Water	7/13/15	7/14/15	18.4	19	0.07	<0.1
18987	River Water	7/13/15	7/15/15	19.2	16	<0.02	<0.1
18997	River Water	7/13/15	7/18/15	24	26	0.06	<0.1
5943	MH	7/19/15	7/14/15	80.8	45	<0.02	—
5946	MH	7/13/15	7/14/15	86.8	45	<0.02	

CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

Analysis ID:	07-4931-2800	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 15:59	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	04-6664-4993	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	12 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	9d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	10-7904-9904	**Code:**	4050FEB0	**Client:**	GPAC Crossett
Sample Date:	11 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	12 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

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

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

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

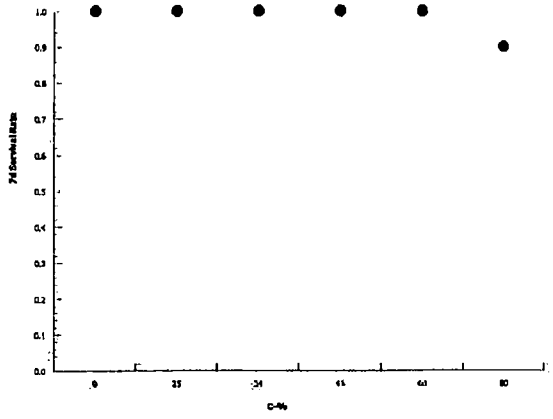
7d Survival Rate Binomials

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

Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

Analysis ID:	07-4931-2800	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 15:59	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

Analysis ID:	05-0856-0425	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 15:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	04-6664-4993	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	12 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	9d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	10-7904-9904	**Code:**	4050FEB0	**Client:**	GPAC Crossett
Sample Date:	11 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	12 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

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

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	0.03413	2.289	6.707	18	0.8230	CDF	Non-Significant Effect
		34	-0.7508	2.289	6.707	18	0.9685	CDF	Non-Significant Effect
		45	0.7167	2.289	6.707	18	0.5476	CDF	Non-Significant Effect
		60	0.1706	2.289	6.707	18	0.7777	CDF	Non-Significant Effect
		80	0.9897	2.289	6.707	18	0.4212	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	24.2	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2772	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	3.398	3.2	0.0212	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	159.9333	31.98667	5	0.7452	0.5932	Non-Significant Effect
Error	2318	42.92593	54			
Total	2477.933		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	7.622	15.09	0.1783	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9514	0.9459	0.0182	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	24.2	20.18	28.22	25.5	13	31	1.775	23.2%	0.0%
25		10	24.1	19.07	29.13	25.5	11	32	2.223	29.17%	0.41%
34		10	26.4	23.57	29.23	26	20	32	1.249	14.96%	-9.09%
45		10	22.1	17.05	27.15	21.5	6	33	2.233	31.96%	8.68%
60		10	23.7	20.15	27.25	23.5	15	32	1.571	20.96%	2.07%
80		10	21.3	14.65	27.95	23.5	0	35	2.94	43.65%	11.98%

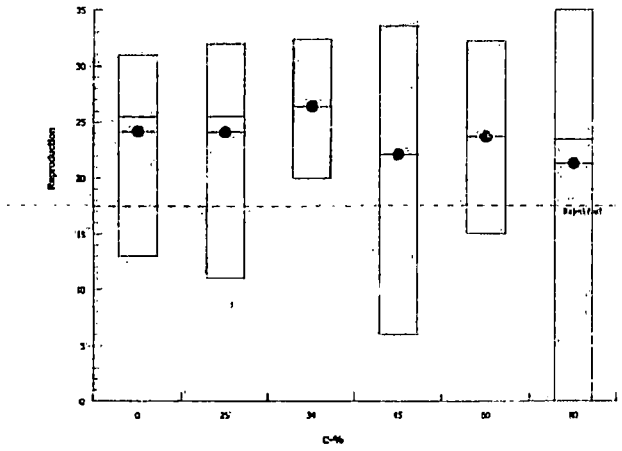
Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

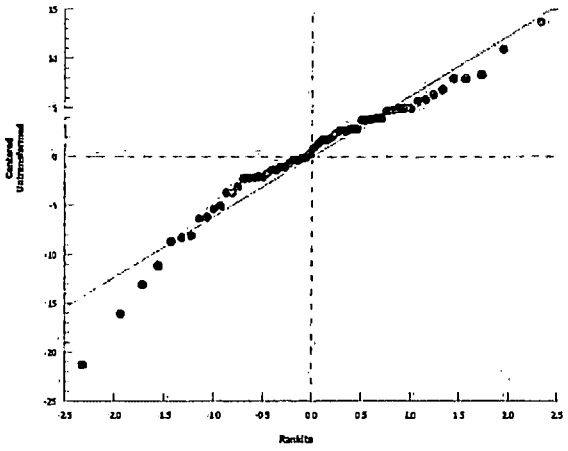
Analysis ID:	05-0856-0425	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 15:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	30	27	22	24	28	22	13	27	31	18
25		11	26	29	22	32	29	32	25	19	16
34		32	21	25	29	20	31	25	26	26	29
45		20	21	19	21	26	27	26	6	22	33
60		15	20	20	32	30	23	24	22	25	26
80		0	25	23	23	35	24	19	26	13	25

Graphics





Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

Analysis ID:	03-5843-3898	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 16:00	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	04-6664-4993	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	12 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	9d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	10-7904-9904	**Code:**	4050FEB0	**Client:**	GPAC Crossett
Sample Date:	11 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	12 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	26.6%

Bonferroni Adj t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	0.03822	2.399	6.276	18	1.0000	CDF	Non-Significant Effect
		34	-0.8409	2.399	6.276	18	1.0000	CDF	Non-Significant Effect
		45	0.8027	2.399	6.276	18	1.0000	CDF	Non-Significant Effect
		60	0.1911	2.399	6.276	18	1.0000	CDF	Non-Significant Effect
		80	0.1984	2.399	6.448	17	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	24.2	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2664	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	2.879	3.193	0.1704	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	96.0322	19.20644	5	0.5612	0.7292	Non-Significant Effect
Error	1813.9	34.22453	53			
Total	1909.932		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.882	15.09	0.5666	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9761	0.9451	0.2963	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	24.2	20.18	28.22	25.5	13	31	1.775	23.2%	0.0%
25		10	24.1	19.07	29.13	25.5	11	32	2.223	29.17%	0.41%
34		10	26.4	23.57	29.23	26	20	32	1.249	14.96%	-9.09%
45		10	22.1	17.05	27.15	21.5	6	33	2.233	31.96%	8.68%
60		10	23.7	20.15	27.25	23.5	15	32	1.571	20.96%	2.07%
80		9	23.67	19.17	28.17	24	13	35	1.951	24.73%	2.2%

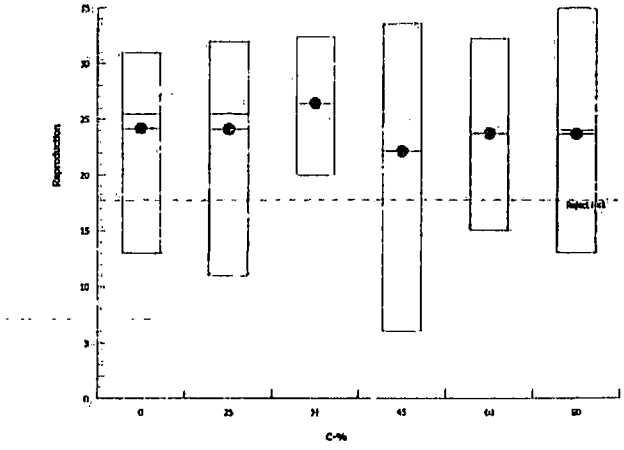
Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

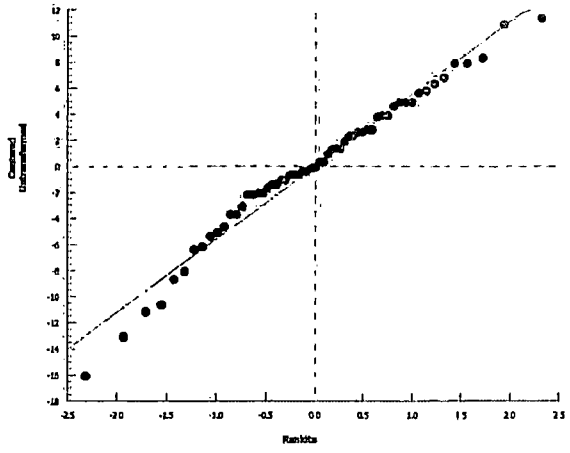
Analysis ID:	03-5843-3898	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 16:00	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	30	27	22	24	28	22	13	27	31	18
25		11	26	29	22	32	29	32	25	19	16
34		32	21	25	29	20	31	25	26	26	29
45		20	21	19	21	26	27	26	6	22	33
60		15	20	20	32	30	23	24	22	25	26
80		25	23	23	35	24	19	26	13	25	

Graphics





CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Ramboll Environ**

Analysis ID:	03-1147-8128	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	22 Jul-15 15:59	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	04-6664-4993	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	12 Jul-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	9d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	10-7904-9904	**Code:**	4050FEB0	**Client:**	GPAC Crossett
Sample Date:	11 Jul-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	12 Jul-15	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	694287	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	24.2	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

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

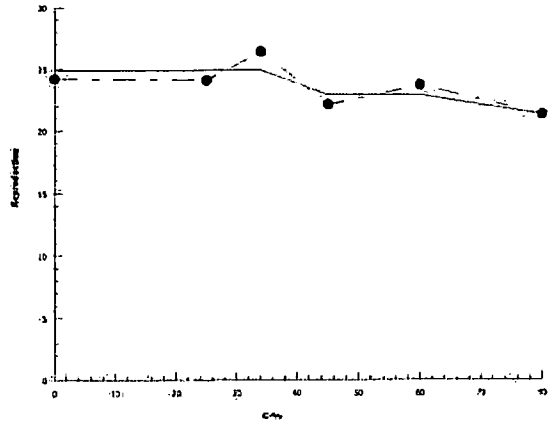
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	24.2	13	31	1.775	5.613	23.2%	0.0%
25		10	24.1	11	32	2.223	7.031	29.17%	0.41%
34		10	26.4	20	32	1.249	3.95	14.96%	-9.09%
45		10	22.1	6	33	2.233	7.062	31.96%	8.68%
60		10	23.7	15	32	1.571	4.968	20.96%	2.07%
80		10	21.3	0	35	2.94	9.298	43.65%	11.98%

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	30	27	22	24	28	22	13	27	31	18
25		11	26	29	22	32	29	32	25	19	16
34		32	21	25	29	20	31	25	26	26	29
45		20	21	19	21	26	27	26	6	22	33
60		15	20	20	32	30	23	24	22	25	26
80		0	25	23	23	35	24	19	26	13	25

Graphics



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

EPA-821-R-02-013 Method 1002.0

TEST LOG NO.:	17694	PHOTOPERIOD:	16 hr light/8 hr dark
JOB NUMBER.:	20-19675I	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): 7/13/15

TEMP @ TEST START: 24.4

RANDOMIZED BY: AB

TEST START:

HOURS: 1035 DATE: 7/14/15

TEST END:

HOURS: 1235 DATE: 7/21/15

SOURCE ID:	AGE (time):
1043	1204-1406
1044	1204-1408

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			Replicates (43) 1	2	3	4	5	6	7	8	9 (44)	10 (44)	Notes
					Adult	2	5	6	9	11	14	17	18	1	5	
AB 1035		7/14	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0908	7/15	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1046	7/16	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ 0	Opale
	AB 1010	7/17	24.3	24.4	Day 3	3	4	3	✓	✓	2	4	4	✓	✓	
	AW 1020	7/18	24.1	24.1	Day 4	✓	✓	✓	4	4	✓	✓	✓	3	5	
	AW 0917	7/19	25.0	25.1	Day 5	11	10	3	8	11	7	9	6	13	✓	
	AW 0900	7/20	24.1	24.1	Day 6	✓	13	✓	11	13	11	✓	15	✓	✓	
JH 1235		7/21		24	Day 7	16	✓	16	1	✓	2 big	✓	2 big	15	13	SOE
					Day 8											
			Total			30	27	22	24	28	22	13	27	31	18	242

x78=182

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

TEST LOG # 17694 JOB # 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific - Crossett LAB/STATE: RAMBOLL ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1035		7/14	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 0900	7/15	24.4	24.3	Day 1	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
	AW 1046	7/16	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.3	24.2	Day 3	3	3	4	✓	3	5	4	5	4	✓	
	AW 1020	*7/18	24.1	24.1	Day 4	✓	✓	✓	4	✓	✓	4	✓	4	3	
	AW 0917	7/19	25.1	24.6	Day 5	8	7	11	7	13	9	8	✓	11	8	
	AW 0900	*7/20	24.2	24.2	Day 6	✓	✓	14	11	16	15	16	✓	13	3	
LH 1235		7/21		24.6	Day 7	✓	16	✓	✓	✓	✓	✓	20	✓	2	
					Day 8											
			Total			11	26	29	22	32	29	32	25	19	16	241

*i.e. 7/18/15 AW
*i.e. 7/20/15 AW

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 34% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1035		7/14	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 0900	7/15	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1046	7/16	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.3	24.2	Day 3	3	4	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1020	7/18	24.1	24.2	Day 4	✓	✓	3	6	3	6	5	3	5	3	
	AW 0917	7/19	24.3	24.9	Day 5	11	6	8	✓	7	✓	7	9	10	12	
	AW 0900	7/20	24.3	24.5	Day 6	✓	11	14	9	10	11	11	14	11	14	
LH 1235		7/21		25.0	Day 7	18	✓	✓	14	✓	16 big, (3 small)	2 big	✓	✓	✓	
					Day 8											
			Total			32	21	25	29	20	31	25	26	26	29	264

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

L/Ecotoxlab/Labforms/ToxTestSheets/7DchronicCD.doc

TEST LOG # 17694 JOB # 20-19675

CLIENT/SAMPLE ID: Georgia Pacific - Crossett LAB/STATE: RAMBOLL ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1035		7/14	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AW 0900	7/15	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1046	7/16	24.3	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.3	24.3	Day 3	✓	✓	1	✓	3	4	✓	✓	✓	✓	
	AW 1020	7/18	24.1	24.1	Day 4	3	2	✓	7	✓	✓	3	6	3	4	
	AW 0917	7/19	24.7	24.8	Day 5	7	8	4	✓	11	10	7	✓	8	✓	
	AW 0900	7/20	24.1	24.2	Day 6	10	11	14	✓	12	13	16	✓	11	12	
LH 1235		7/21		25.4	Day 7	✓	✓	✓	14	✓	✓	✓	✓	✓	17	
					Day 8											
			Total			20	21	19	21	26	27	26	6	22	33	221

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 60% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1035		7/14	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 0900	7/15	24.4	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1046	7/16	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.2	24.4	Day 3	✓	5	3	✓	3	4	3	4	4	4	
	AW 1020	7/18	24.2	24.3	Day 4	✓	✓	✓	7	✓	✓	✓	7	✓	✓	
	AW 0917	7/19	25.0	24.7	Day 5	✓	7	8	✓	13	11	5	✓	12	8	
	AW 0900	7/20	24.2	24.6	Day 6	✓	8	9	12	14	7	✓	11	9	✓	
LH 1235		7/21		25.4	Day 7	15	✓	✓	13	17	big	16	13	17	14	
					Day 8											
			Total			15	20	20	32	30	23	24	22	25	26	237

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

L/Ecotoxlab/Labforms/ToxTestSheets/7DchronicCD.doc

TEST LOG # 17694 JOB # 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific - Crossett LAB/STATE: RAMBOLL ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AB 1035		7/14	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 0905	7/15	24.4	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1046	7/16	24.3	24.3	Day 2	D/0	✓	✓		✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.3	24.2	Day 3		3	4	4	✓	2	✓	✓	✓	✓	
	AW 1020	7/18	24.2	24.4	Day 4		✓	✓	✓	5	✓	3	3	✓	2	
	AW 0917	7/19	24.8	25.0	Day 5		5	7	8	✓	9	8	9	✓	9	
	AW 0900	7/20	24.2	24.8	Day 6		✓	12	11	12	✓	8	13	3	12	
LM 1235				24.3	Day 7		17	✓	✓	18	13	✓	big	10	3 big	
					Day 8											
			Total			D/0	25	23	23	25	24	19	26	13	25	213

1/D

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AB 1035		7/14	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 0905	7/15	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1046	7/16	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1010	7/17	24.2	24.3	Day 3	3	4	✓	✓	5	5	4	4	4	4	
	AW 1020	7/18	24.0	24.1	Day 4	✓	✓	3	4	✓	✓	4	✓	6	5	
	AW 0917	7/19	24.1	24.3	Day 5	11	13	7	4	13	9	7 Exp	9	11	✓	
	AW 0900	7/20	24.1	24.1	Day 6	8	✓	6	13	✓	10	✓	11	✓	9	
LM 1235		7/21		24.7	Day 7	10	17	✓	✓	13	✓	14	2 13 Small	13	9	
					Day 8											
			Total			23	34	16	21	31	24	29	26	21	18	243

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

TEST LOG NO. 17694

JOB NO. 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 7/14/15

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.2	8.4	8.2	8.0	8.2	8.1	8.4	8.3	8.2	8.3	8.4	8.2	7.9	8.4
25	8.2	8.2	8.4	8.0	8.2	8.2	8.4	8.2	8.1	8.3	8.4	8.2	8.0	8.4
34	8.3	8.2	8.4	8.0	8.3	8.2	8.3	8.3	8.2	8.3	8.4	8.2	8.0	8.5
45	8.2	8.3	8.3	8.4	8.2	8.3	8.3	8.0	8.2	8.4	8.4	8.3	8.0	8.4
60	8.2	8.3	8.2	8.3	8.2	8.3	8.3	8.4	8.1	8.4	8.3	8.2	8.2	8.3
80	8.1	8.3	8.4	8.2	8.1	8.2	8.2	8.3	8.4	8.5	8.2	8.2	8.2	8.4
MH	8.1	8.3	8.3	8.0	8.4	8.3	8.3	8.1	8.4	8.2	8.4	8.2	8.2	8.2

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.09	8.02	8.11	7.94	7.93	7.89	7.95	7.55	6.45	8.07	8.01	8.06	7.48	7.89
25	7.87	7.79	7.90	7.80	7.86	7.87	7.90	7.45	6.91	7.94	7.69	7.80	7.40	7.88
34	7.87	7.89	7.64	8.07	7.81	7.85	7.84	7.83	7.04	8.01	7.66	7.81	7.59	7.91
45	7.82	7.67	7.62	8.17	7.80	7.77	7.75	7.91	7.32	8.05	7.72	8.00	7.74	8.12
60	7.80	8.18	7.63	8.23	7.81	7.93	7.80	8.07	7.49	8.18	7.55	8.17	7.82	8.21
80	7.63	8.03	7.70	8.09	7.61	8.13	7.60	8.23	7.62	2.35	7.63	8.13	7.89	8.17
MH	7.67	7.77	8.57 7.94	7.83	7.74	7.64	7.55	7.80	7.78	7.94	7.62	7.83	7.99	7.95

Conductivity (µmhos/cm)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	108	123	115	102	111	123	110	61	62	5140	105	121	65	61
25	480	505	490	440	465	471	522	456	475	535	541	495	443	422
34	695	653	667	606	657	644	661	646	605	638	620	653	645	609
45	773	867	892	780	846	760	849	794	759	809	767	814	783	769
60	1046	1080	1029	981	1031	1024	1018	982	930	1060	992	1046	1027	985
80	1375	1348	1307	1277	1341	1316	1326	1232	1301	1316	1275	1339	1282	1277
MH	253	259	257	208	249	253	251	224	230	250	237	269	302	223

Params Init/Time:	AH 1020	AH 0916	AH 0916	AH 1056	AH 1624	AH 1020	AH 0835	AH 1035	AH 0939	AH 0924	AH 0855	AH 1624	AH 0843	AH
Dilutions Init/Time:	AH 1016	0916	AH 0923		AH 1020		AH 0830		AH 0924		AH 0847		AH 0833	
Control Water Batch#:	5945	5945	5945	5945	5945	5945	5946	5946	5946	5946	5946	5946	5946	
Food Batch	5169,547		5169,547		5169,47		6947		5171,47		5171,47		5171,47	

ATTACHMENT 2

CHAIN OF CUSTODY DOCUMENTATION AND REFERENCE TOXICANT DATA

Ramboll Environ Test Log No. 1764

CHAIN-OF-CUSTODY

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

Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

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

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY PAUL

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested: 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	7-13-15 10:16am		2	20											18981	6.0
OUTFALL 001	C	PLASTIC	TB	7-12-15 4:19Am	7-13-15 6:16am	2	20					✓	✓					18982	6.0

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other ☐ UPS ☐ Courier ☐ Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 20L 1 each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winton	Date: 7/14/15 *i.e. 7/14/15	Time: 0857

pH upon arrival:	DO upon arrival:
7.74, 7.73	8.2, 7.9

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 7/14/15 0857 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) barely 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 in River (No)

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18981	River	6.0	7.74	8.2	0.07
18982	buffalloul	6.0	7.73	7.9	<0.02

L:\Ecotox Lab\FORMS

Ramboll Environ Test Log No. 17694

32 of 39

CHAIN-OF-CUSTODY

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

Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-564-7870 FAX: 870-364-9076

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY PAUL

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

Analysis Requested

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	7-13-15 10:10am		1	10					✓	✓					18982	5.4
OUTFALL 001	C	PLASTIC	YES	7-14-15 6:10am	7-15-15 6:10am	1	10					✓	✓					18983	5.6

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 10L	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/16/15	Time: 0840

pH upon arrival: 8.1) 7.50 (8.1) 7.73

DO upon arrival: 6.3 6.4

Sample Receipt Checklist:

Client: COP Crossett

Date/Time received 7/11/2018 by DRB

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
18987	River	5.4	7.50	8.3	<0.02
18988	Outfall 001	6.0	7.73	8.4	<0.02

L:\Ecotox Lab\FORMS

Project Name:	Project Number:
Industry: GEORGIA PACIFIC PAPER	
Phone: 870-567-8170	FAX: 870-364-9076
County: ASHLEY	City: CROSSETT State: AR.
Sample Collected by (print): DANNY / PAUL	NPDES Permit No.: AR0001210
Sample Collected by (signature): [signature]	NPDES Test: ☐ No ☑ Yes

CHAIN-OF-CUSTODY

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

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute 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	7-13-15 10:16am								✓	✓					18997	5.7
OUTFALL 001	C	Plastic	YES	7-16-15 6:19am	7-17-15 6:17am							✓	✓					18998	5.6

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature) [signature]	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 10 L of each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winton	Date: 7/18/15 / Time: 0839	pH upon arrival: 6.54, 7.51 (RW, 001) / DO upon arrival: 8.4, 8.6 (RW, 001)

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 7/18/15 0839 by AW

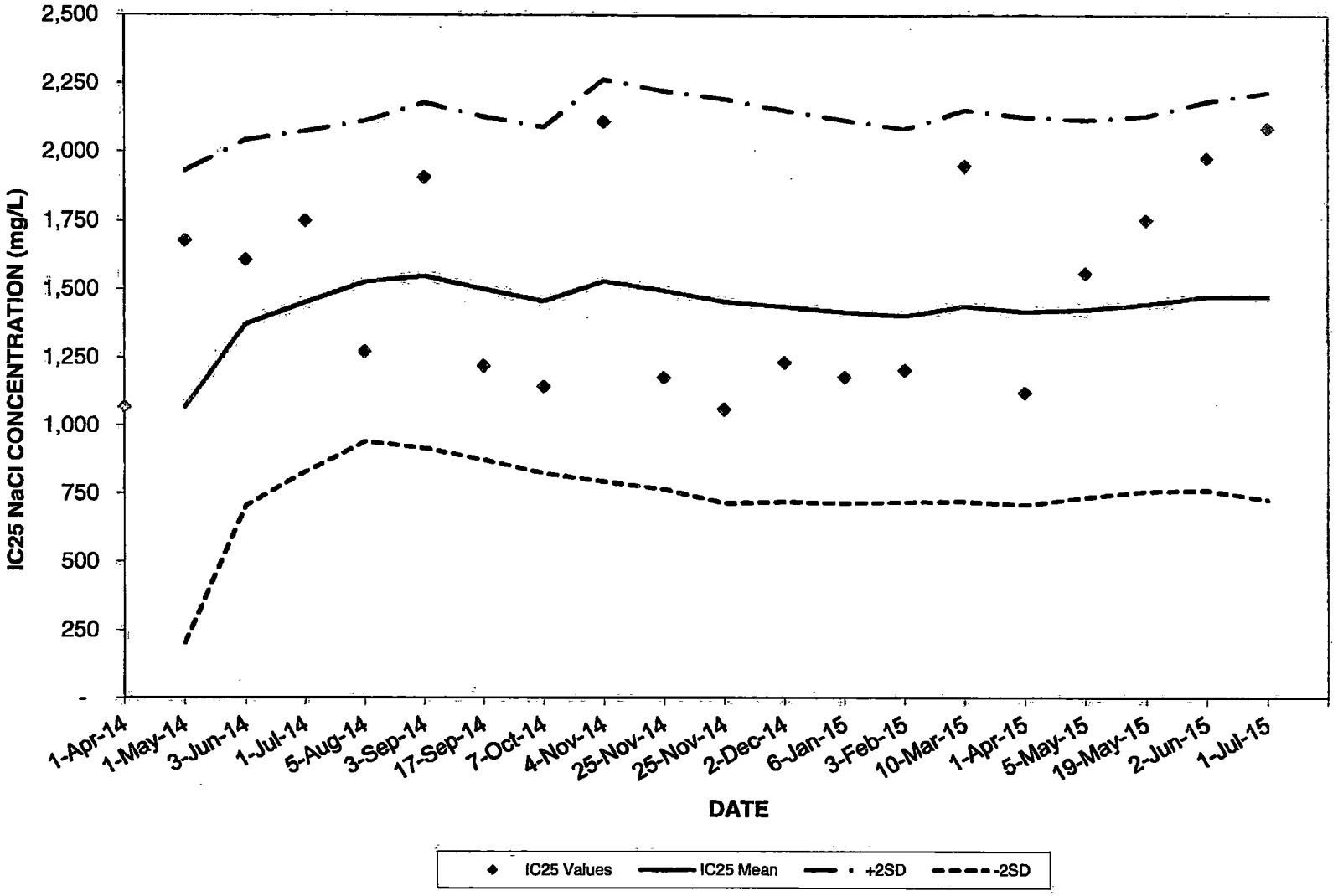
1. Cooler sealed and intact upon arrival? (Yes) No
2. Custody seals present? Yes (No)
3. Samples received below 6 degrees Celsius? (Yes) No
4. Was ice present? (Yes) No
5. Is the COC filled out correctly including the sample date/time and signed? (Yes) No
6. Was the sample received within 36 hours of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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18997	River	5.7	6.54	8.4	0.06
18998	Outfall 004	5.6	7.51	8.6	<0.02

L:\Ecotox Lab\FORMS

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



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

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	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067					
2	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,067	432	1,931	203	22
3	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,373	334	2,041	704	19
4	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,451	311	2,074	828	18
5	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270	1,526	293	2,112	940	18
6	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,547	316	2,179	915	19
7	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,500	314	2,128	872	19
8	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,455	317	2,089	820	20
9	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,528	369	2,265	791	23
10	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,493	365	2,222	763	23
11	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,453	370	2,194	712	24
12	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,434	359	2,152	716	24
13	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,414	351	2,117	712	24
14	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,399	342	2,083	715	24
15	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,436	359	2,153	718	24
16	17504	01-Apr-15	90	0.316	750	1,500	750	1,500	39.1	1,117	1,416	356	2,127	704	24
17	17570	05-May-15	95	0.346	750	1,500	1,500	3,000	32.6	1,556	1,424	346	2,116	732	24
18	17604*	19-May-15	97.5	0.284	1,500	3,000	1,500	3,000	24.3	1,753	1,442	345	2,131	753	23
19	17621*	02-Jun-15	95	0.335	1,500	3,000	1,500	3,000	24.8	1,978	1,470	357	2,184	757	24
20	17676	01-Jul-15	95	0.452	1,500	3,000	1,500	3,000	23.4	2,087	1,470	374	2,218	723	24
		Avg	98	0.418	1013	2025	1163	2325	28	1501	1437	348	2132	741	

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)

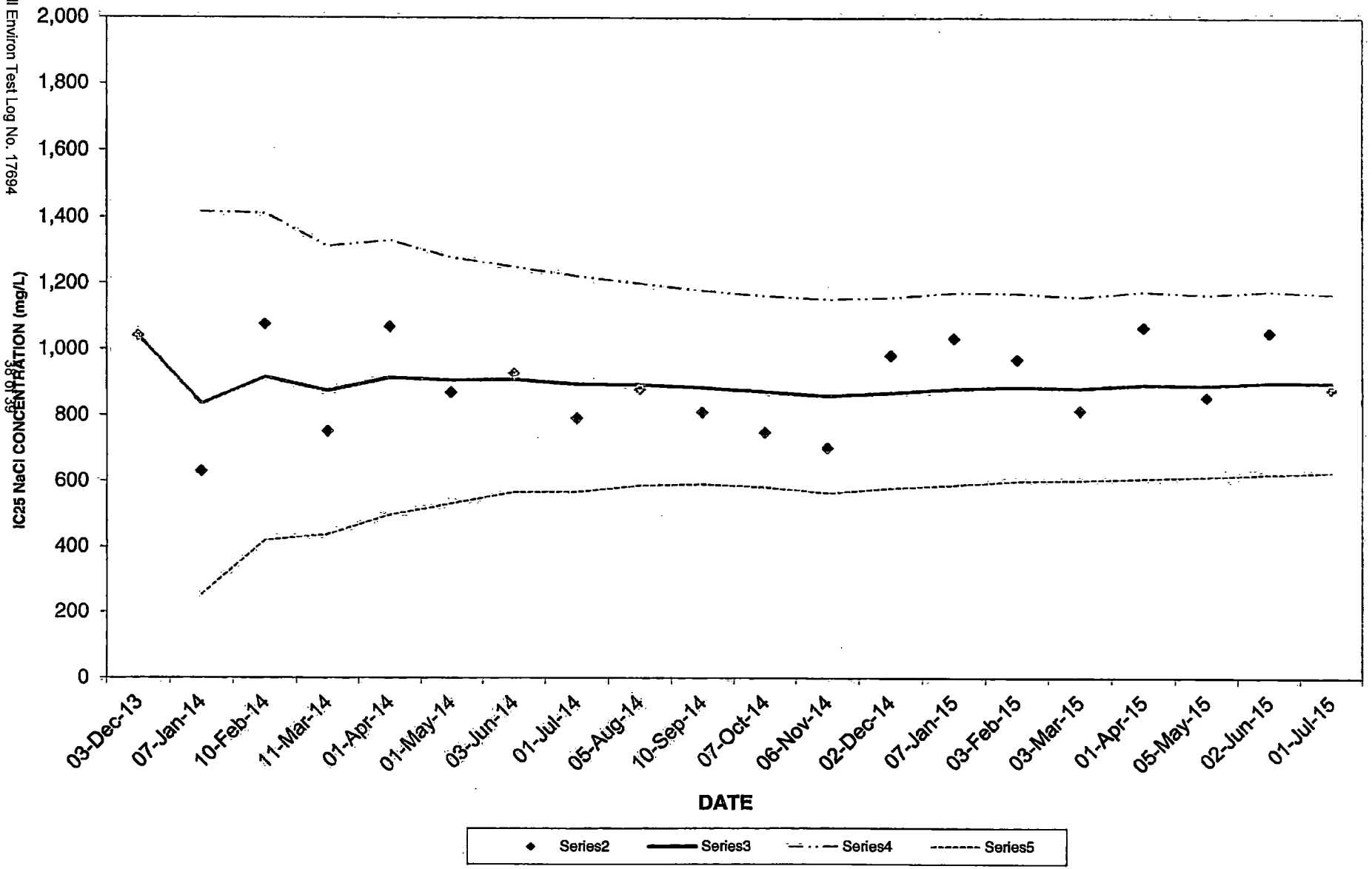
ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.

(*) 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).

Ramboll Environ Test Log No. 17694

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2015
Ceriodaphnia dubia



L:\Ecotox Lab\9003\2015 Reftox\cdchronic

7/27/2015

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2013-2015

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	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	1,041				
2	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	836	291	1,417	254	25
3	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	916	248	1,412	420	22
4	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	874	219	1,312	437	22
5	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	913	208	1,329	496	20
6	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	905	187	1,279	531	19
7	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	908	171	1,250	566	17
8	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	893	164	1,221	566	17
9	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	892	153	1,198	585	16
10	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	883	147	1,177	589	16
11	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	871	145	1,161	580	16
12	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	857	147	1,151	562	16
13	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	866	145	1,156	576	16
14	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	878	146	1,170	586	16
15	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	884	143	1,169	599	16
16	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	879	139	1,157	601	15
17	17504	01-Apr-15	100	90	24.5	1,000	2,000	1,000	2,000	24.9	1,064	890	142	1,174	606	15
18	17571	05-May-15	100	80	22.9	2,000	>2000	500	1,000	22.0	851	888	138	1,164	612	15
19	17622	02-Jun-15	100	80	27.4	1,000	2,000	1,000	2,000	22.3	1,048	896	139	1,174	618	15
20	17675	01-Jul-15	100	100	26.4	2,000	>2000	500	1,000	16.0	875	895	135	1,166	625	15
		Avg	100	91	28	1444	1111	556	1111	19	896	893	173	1229	539	

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: 24SEP15
ACTWGT: 1.00 LB
CAD: 102787395/INET3670

BILL SENDER

TO **RICHARD HEALEY**
ADEQ
5301 NORTHSHORE DR

NORTH LITTLE ROCK AR 72118
(501) 682-0718 REF:
INV:
PO: DEPT:

539J2/CBB9/31D0

FedEx Express

E

J153915091801uv

FRI - 25 SEP 10:30A
PRIORITY OVERNIGHT

1 of 2
TRK# 0201 **7745 9088 6732**
MASTER

X2 LITA

72118
AR-US **LIT**

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.