Georgia-Pacific

Georgia-Pacific Crossett LLC
Consumer Products

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

January 21, 2016

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

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

Dear Mr. Healey:

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

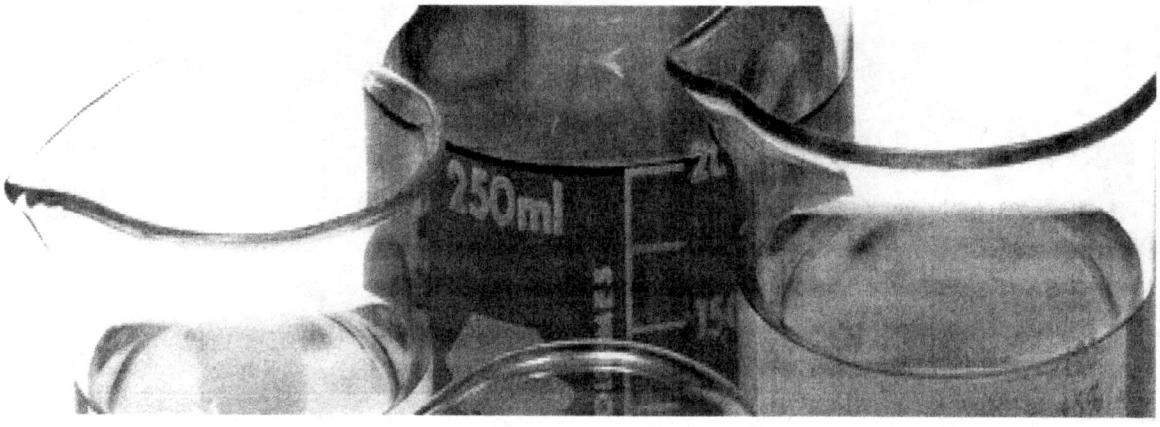
Sarah M. Ross
Environmental Manager
Crossett Paper Operations

Prepared for
Georgia-Pacific Crossett Mill
Crossett, AR

Date
November 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

November 30, 2015

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

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

Dear Ms. Johnson:

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 November 9, 11, and 13, 2015. The samples were received at Ramboll Environ on November 10, 12, and 14, 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%

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 both 0.0 percent. The CV values for growth in the control and critical dilution are 20.1 and 12.0 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 20.8 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 is flat and cannot be 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 37.6 and 27.2 percent respectively, which meets the CV limit of 40 percent for a finding of no toxicity. The PMSD value was 35.5 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 36 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@RAMBOLL.COM

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

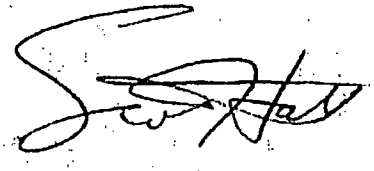
2/2

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

CETIS Analytical Report

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

Analysis ID:	13-6110-8096	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	23 Nov-15 13:24	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes
Batch ID:	07-8160-2355	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	10 Nov-15 13:55	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	17 Nov-15 11:56	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 22h	Source:	Environmental Consult & Test	Age:	
Sample ID:	17-6508-0760	Code:	6934FEB8	Client:	GPAC Crossett
Sample Date:	09 Nov-15	Material:	Industrial Effluent	Project:	WET Monthly Compliance Test (NOV)
Receive Date:	10 Nov-15	Source:	Discharge Monitoring Report		
Sample Age:	38h	Station:	Outfall 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	5.55%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Water		25	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		34	22.5	16	1	8	0.3937	Asymp	Non-Significant Effect
		45	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		60	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		80	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect

Test Acceptability Criteria

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

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02374363	0.004748726	5	2.93	0.0334	Significant Effect
Error	0.0388982	0.001620758	24			
Total	0.06264183		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	453.2	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.5928	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	Lab Water	5	1	1	1	1	1	1	0	0.0%	0.0%
25		5	1	1	1	1	1	1	0	0.0%	0.0%
34		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	5.0%
45		5	1	1	1	1	1	1	0	0.0%	0.0%
60		5	1	1	1	1	1	1	0	0.0%	0.0%
80		5	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
25		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
34		5	1.317	1.195	1.439	1.381	1.209	1.393	0.04403	7.48%	5.45%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
80		5	1.391	1.384	1.397	1.393	1.381	1.393	0.002481	0.4%	0.18%

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

Analysis ID:	13-6110-8096	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	23 Nov-15 13:24	**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	Lab Water	1	1	1	1	1
25		1	1	1	1	1
34		1	0.875	0.875	1	1
45		1	1	1	1	1
60		1	1	1	1	1
80		1	1	1	1	1

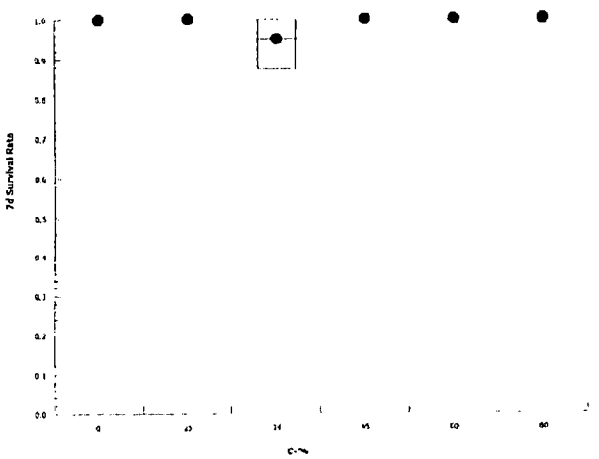
Angular (Corrected) Transformed Detail

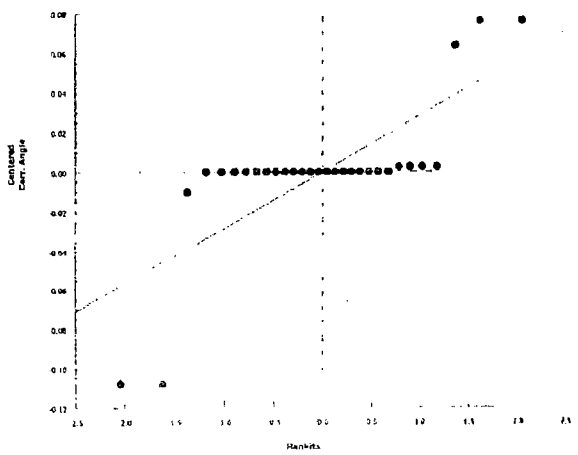
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	1.393	1.393	1.393	1.393	1.393
25		1.393	1.393	1.393	1.393	1.393
34		1.393	1.209	1.209	1.381	1.393
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.393	1.393	1.393	1.381	1.393

7d Survival Rate Binomials

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

Graphics





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

Analysis ID:	20-1338-0217	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1 8 4
Analyzed:	23 Nov-15 13:24	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes
Batch ID:	07-8160-2355	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	10 Nov-15 13:55	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	17 Nov-15 11:56	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 22h	Source:	Environmental Consult & Test	Age:	
Sample ID:	17-6508-0760	Code:	6934FEB8	Client:	GPAC Crossett
Sample Date:	09 Nov-15	Material:	Industrial Effluent	Project:	WET Monthly Compliance Test (NOV)
Receive Date:	10 Nov-15	Source:	Discharge Monitoring Report		
Sample Age:	38h	Station:	Outfall 001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	20.8%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water		25	-2.097	2.362	0.118	8	0.9995	CDF	Non-Significant Effect
		34	-1.717	2.362	0.118	8	0.9981	CDF	Non-Significant Effect
		45	-1.243	2.362	0.118	8	0.9917	CDF	Non-Significant Effect
		60	-1.273	2.362	0.118	8	0.9924	CDF	Non-Significant Effect
		80	-1.731	2.362	0.118	8	0.9982	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5695	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2077	0.12 - 0.3	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03357722	0.006715444	5	1.071	0.4010	Non-Significant Effect
Error	0.1504918	0.006270492	24			
Total	0.184069		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.856	15.09	0.5704	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9849	0.9031	0.9351	Normal Distribution

Mean Dry Biomass-mg Summary

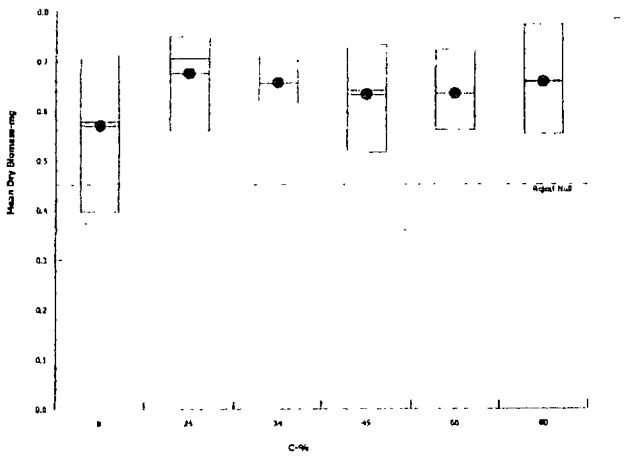
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	5	0.5695	0.4276	0.7114	0.5775	0.3963	0.7137	0.0511	20.07%	0.0%
25		5	0.6745	0.5819	0.7671	0.705	0.5587	0.75	0.03337	11.06%	-18.44%
34		5	0.6555	0.6047	0.7063	0.6488	0.6125	0.705	0.01831	6.25%	-15.1%
45		5	0.6317	0.5259	0.7376	0.64	0.5163	0.7325	0.03814	13.5%	-10.93%
60		5	0.6332	0.5564	0.7101	0.625	0.56	0.7137	0.02767	9.77%	-11.19%
80		5	0.6562	0.5583	0.7541	0.6588	0.5513	0.7725	0.03527	12.02%	-15.23%

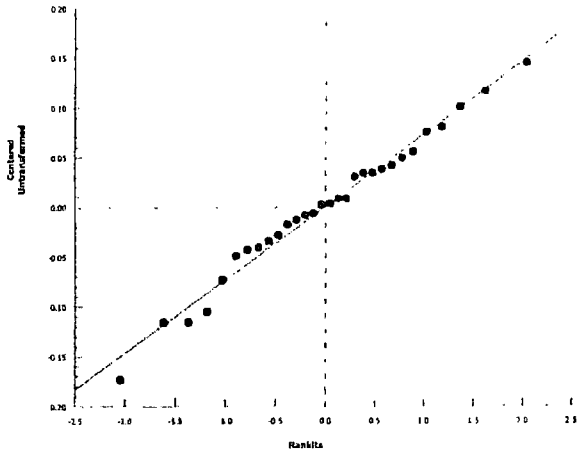
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.5775	0.7137	0.5563	0.3963	0.6037
25		0.6463	0.7125	0.5587	0 75	0.705
34		0.6488	0.6125	0.705	0 69	0.6213
45		0.64	0.6875	0.5163	0.7325	0.5825
60		0.625	0.7137	0.56	0.5925	0.675
80		0.7725	0.6588	0.5513	0.6386	0 66

Analysis ID:	20-1338-0217	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	23 Nov-15 13:24	**Analysis:**	Parametric-Control vs Treatments	**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 17923
JOB NUMBER : 20-196751
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes ______ No ______
FOOD BATCH: 5287

BEGINNING: HRS: 1355 DATE: 11/10/15
ENDING: HRS: 1156 DATE: 11/17/15

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	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	24.2	24.3/24.0	24.1/24.3	24.0/24.0	24.0/24.6	24.0/24.1	24.1/24.3	24.1
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
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	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 TEST
EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: 17923 BEGINNING: HRS: 1355 DATE: 11/10/15
JOB NO.: 20-19675I ENDING: HRS: 1156 DATE: 11/17/15
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 24	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish	
RW	A	1	1.06157	1.066619	0.00462	8	0.578	
	B	2	1.07193	1.07759	0.00571	8	0.714	AVG Control
	C	3	1.05757	1.062072	0.00445	8	0.5556	Fish wt. 0.569
	D	4	1.060860	1.064D3	0.00317	8	0.3962	(using final #)
	E	5	1.07638	1.08121	0.00483	8	0.1004	
25	A	6	1.061670	1.07187	0.00517	8		
	B	7	1.06342	1.069912	0.00570	8		2
	C	8	1.05041	1.05488	0.00447	8		Oven ID:
	D	9	1.07088	1.076688	0.00600	8		
	E	10	1.09184	1.09748	0.00564	8		Tins In:
34	A	11	1.07808	1.083227	0.00519	8		Date: 11/17/15
	B	12	1.09100	1.09590	0.00490	7		Time: 1230
	C	13	1.04737	1.053D1	0.005064	7		Temp (°C): 10.5
	D	14	1.08387	1.08870	0.00483	7		Initials: AM
	E	15	1.05942	1.064928	0.00500	8		
45	A	16	1.08346	1.08858	0.00512	8		Tins Out:
	B	17	1.05618	1.061168	0.00550	8		Date: 11/18/15
	C	18	1.05774	1.061187	0.00413	8		Time: 1418
	D	19	1.05043	1.056229	0.005586	8		Temp (°C): 10.1
	E	20	1.02530	1.029960	0.004466	8		Initials: LM
60	A	21	1.06594	1.07094	0.00500	8		
	B	22	1.04204	1.04775	0.00571	8		
	C	23	1.08177	1.086625	0.00448	8		
	D	24	1.060078	1.065552	0.00474	8		
1.07108	E	25	~~1.070~~	1.07668	0.00550	8		
80	A	26	1.07037	1.076655	0.006618	8		FINAL WEIGHTS
	B	27	1.07484	1.08011	0.00527	8		
	C	28	1.05589	1.060030	0.00441	8		DATE: 11/20/15
	D	29	1.08848	1.09295	0.00447	7		INITIALS: LM
	E	30	1.05549	1.060077	0.00528	8		
MH	A	31	1.05308	1.05938	0.00570	7		
	B	32	1.05085	1.05522	0.00437	7		
	C	33	1.08849	1.093360	0.00487	8		
	D	34	1.06831	1.07331	0.00500	8		
	E	35	1.10229	1.106928	0.00463	8		
	Initials / Date:		HH 11/15/15					

RENUMBER HH

D LE. LM 11/20/15

L:\Ecotox Lab\LABFORMS\Client Test Sheets\Georgia Pacific - Crossett\7DCHRONICfm1

TEST LOG NO. 17923

JOB NO. 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Fm

DATE: 11/10/15

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	8.4	8.0	8.5	9.0	8.4	8.1	8.5	7.7	7.8	8.4	8.1	8.4	7.7	8.3
25	8.5	7.9	8.6	9.6	8.2	7.9	8.5	7.7	7.9	8.3	7.8	8.3	7.8	8.3
34	8.5	7.9	8.6	8.8	8.4	7.7	8.2	7.7	7.8	8.4	7.7	8.3	7.7	8.4
45	8.4	7.6	8.4	8.6	8.6	7.5	8.2	8.0	7.8	8.2	8.0	8.3	7.9	8.4
60	8.7	7.9	8.7	8.9	8.3	7.1	8.1	8.2	7.9	8.2	8.1	8.2	8.0	8.3
80	8.3	7.8	8.1	8.6	8.3	7.1	8.2	8.3	8.0	8.4	8.0	8.2	8.5	8.2
MH	8.2	7.9	8.1	8.5	8.2	8.1	8.4	8.2	8.0	8.4	8.1	8.4	7.9	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	7.31	7.22	7.35	7.71	6.98	7.19	7.19	7.47	7.59	7.66	7.65	8.07	7.13	7.95
25	7.23	7.19	7.37	7.55	6.98	7.60	7.54	7.62	7.42	7.54	7.52	7.74	7.40	7.21
34	7.23	7.30	7.30	7.67	7.26	7.83	7.58	7.84	7.49	7.74	7.63	7.71	7.62	7.24
45	7.48	7.37	7.32	7.73	7.44	7.77	7.65	7.91	7.58	7.79	7.73	7.80	7.71	7.35
60	7.68	7.48	7.35	7.91	7.71	7.81	7.72	7.99	7.68	7.84	7.79	7.87	7.76	7.61
80	7.83	7.76	7.77	7.94	7.72	7.91	7.79	8.00	7.71	7.86	7.73	7.94	7.83	7.82
MH	8.02	7.94	7.94	7.65	7.99	7.63	7.92	7.78	7.99	7.95	8.00	8.00	7.95	7.94

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	198	160	216	198	217	201	216	186	200	233	204	254	213	267
25	562	540	604	573	622	571	590	555	553	560	548	615	576	627
34	732	719	801	745	780	727	800	715	745	884	709	791	719	768
45	898	866	984	918	948	903	916	858	920	930	837	912	889	916
60	1112	1098	1210	1151	1197	1134	1180	1079	1120	1097	1065	1111	1072	1094
80	1367	1350	1530	1471	1411	1369	1510	1373	1422	1381	1370	1410	1425	1399
MH	246	220	219	196	242	210	215	252	232	238	244	285	235	258

Params Init/Time:	AW 1035	LH0719	HM 1057	LH0640	AW 0930	LH0700	HM 1057	AW0807	AW 1016	AW0814	AW0930	AW0955	AW1050	AW 0725
Dilutions Init/Time:	AW 1025		HM 1047		AW 0922		HM 1037		AW 1006		AW 0920		AW 1040	
Control Water Batch#:	6073, 19269	6075, 19294						6080, 19301		6079, 19301		6082, 19301		
Food Batch	5284	5284						5284		5284		5284		

TEST LOG NO. 17923 CLIENT: Georgia Pacific Crossett DATE OF TEST: 11/10/15

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
19288	Outfall 001	11/8-9/15	11/10/15	272	280	0.05	0.802
19295	Outfall 001	11/10-11/15	11/12/15	256	270	<0.02	0.739
19300	Outfall 001	11/12-13/15	11/14/15	264	260	0.02	0.549

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
19289	River Water	11/9/15	11/10/15	36.8	44	0.08	<0.1
19296	River Water	11/9/15	11/12/15	30.4	26	0.07	<0.1
19301	River Water	11/9/15	11/14/15	32.8	23	0.09	<0.1
6073	MH	11/8/15	11/9/15	~~83.2~~ 84.8 ①	~~40~~ 44 46	<0.02	NA
6075	MH	11/9/15	11/10/15	84.8	46	<0.02	
6078	MH	11/11/15	11/12/15	80.8	43	<0.02	
6079	MH	11/11/15	11/14/15	~~84.8~~	44	<0.02	
6080	MH	11/11/15	11/13/15	89.4	47	<0.02	
6082	MH	11/14/15	11/16/15	81.6	45	<0.02	

① I.E AW 1/6/16

CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — Ramboll Environ

Analysis ID:	19-4600-5255	**Endpoint:**	6d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	23 Nov-15 12:47	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	00-4647-0705	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Nov-15 10:40	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Nov-15 12:40	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 2h	**Source:**	In-House Culture	**Age:**	
Sample ID:	07-9305-6809	**Code:**	2F451629	**Client:**	GPAC Crossett
Sample Date:	09 Nov-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	10 Nov-15	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**Station:**	Outfall 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	0.5	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

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		9	1	10	0.9	0.1	10.0%
45		10	0	10	1	0	0.0%
60		10	0	10	1	0	0.0%
80		10	0	10	1	0	0.0%

6d 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	0	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

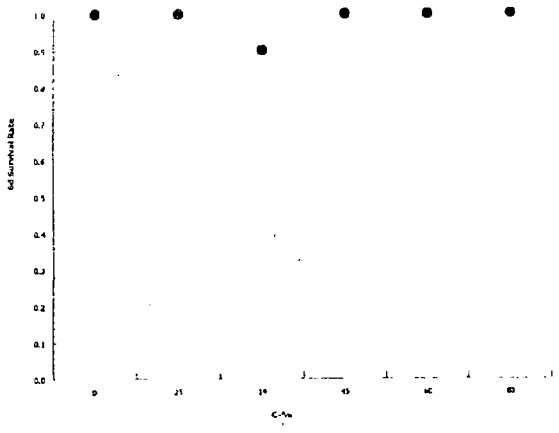
6d Survival Rate Binomials

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	0/1	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

Ceriodaphnia 7-d Survival and Reproduction Test — Ramboll Environ

Analysis ID:	19-4600-5255	Endpoint:	6d Survival Rate	CETIS Version:	CETISv1.8.4
Analyzed:	23 Nov-15 12:47	Analysis:	STP 2x2 Contingency Tables	Official Results:	Yes

Graphics



CETIS Analytical Report

Report Date: 23 Nov-15 12:48 (p 1 of 1)
Test Code: 17923cd | 03-9698-9035

Ceriodaphnia 7-d Survival and Reproduction Test

Ramboll Environ

Analysis ID:	18-5515-0233	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1 8 4
Analyzed:	23 Nov-15 12:48	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	00-4647-0705	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Nov-15 10:40	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Nov-15 12:40	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 2h	**Source:**	In-House Culture	**Age:**	
Sample ID:	07-9305-6809	**Code:**	2F451629	**Client:**	GPAC Crossett
Sample Date:	09 Nov-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	10 Nov-15	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**Station:**	Outfall 001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1123504	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28	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

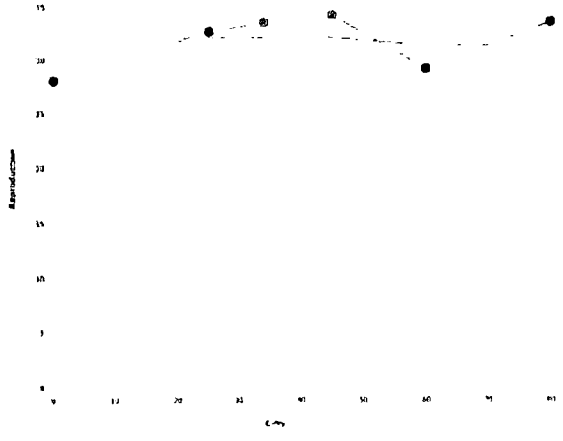
Reproduction Summary

			Calculated Variate						
C-%	**Control Type**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**
0	Receiving Water	10	28	12	41	3.327	10.52	37.57%	0.0%
25		10	32.6	13	44	3.246	10.27	31.49%	-16.43%
34		10	33.4	15	46	3.056	9.663	28.93%	-19.29%
45		10	34.1	15	42	2.397	7.578	22.22%	-21.79%
60		10	29.1	13	43	3.404	10.76	36.99%	-3.93%
80		10	33.4	17	44	2.872	9.082	27.19%	-19.29%

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	38	41	12	32	34	40	19	27	16	21
25		36	13	27	36	44	41	42	35	34	18
34		43	15	20	32	37	34	46	31	36	40
45		36	42	33	33	39	36	39	15	38	30
60		14	31	20	37	39	43	13	30	39	25
80		32	34	17	37	44	38	40	34	40	18

Graphics



CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — Ramboll Environ

Analysis ID:	20-0497-7801	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	23 Nov-15 12:48	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	00-4647-0705	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Nov-15 10:40	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Nov-15 12:40	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 2h	**Source:**	In-House Culture	**Age:**	
Sample ID:	07-9305-6809	**Code:**	2F451629	**Client:**	GPAC Crossett
Sample Date:	09 Nov-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	10 Nov-15	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**Station:**	Outfall 001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	35.5%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	119.5	75	3	18	0.9889	Asymp	Non-Significant Effect
		34	118.5	75	3	18	0.9860	Asymp	Non-Significant Effect
		45	120.5	75	1	18	0.9913	Asymp	Non-Significant Effect
		60	107	75	0	18	0.8746	Asymp	Non-Significant Effect
		80	119	75	4	18	0.9875	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.3549	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	327.7333	65.54667	5	0.6958	0.6289	Non-Significant Effect
Error	5087	94.2037	54			
Total	5414.733		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	1.348	15.09	0.9300	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9229	0.9459	0.0010	Non-normal Distribution

Reproduction Summary

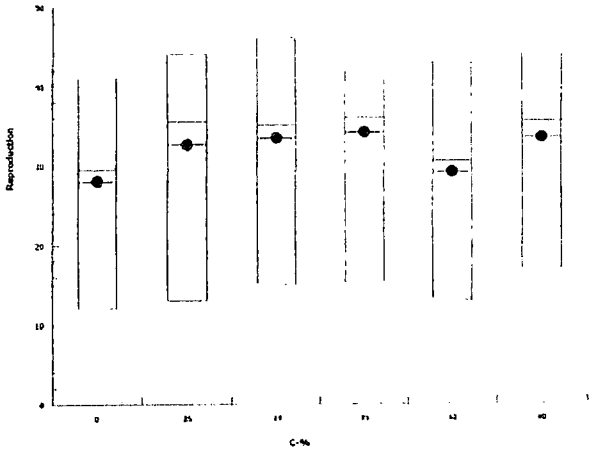
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	28	20.47	35.53	29.5	12	41	3.327	37.57%	0.0%
25		10	32.6	25.26	39.94	35.5	13	44	3.246	31.49%	-16.43%
34		10	33.4	26.49	40.31	35	15	46	3.056	28.93%	-19.29%
45		10	34.1	28.68	39.52	36	15	42	2.397	22.22%	-21.79%
60		10	29.1	21.4	36.8	30.5	13	43	3.404	36.99%	-3.93%
80		10	33.4	26.9	39.9	35.5	17	44	2.872	27.19%	-19.29%

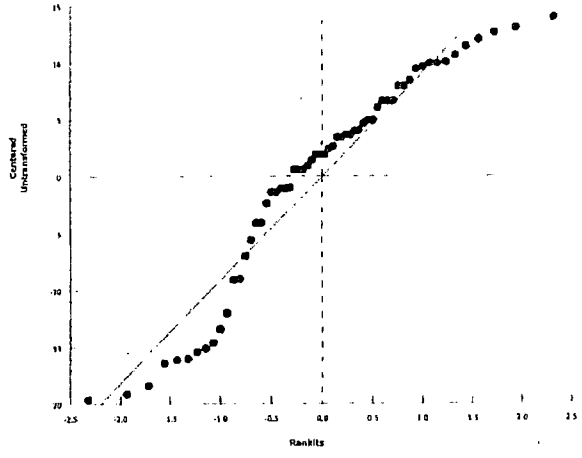
Reproduction Detail

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	38	41	12	32	34	40	19	27	16	21
25		36	13	27	36	44	41	42	35	34	18
34		43	15	20	32	37	34	46	31	36	40
45		36	42	33	33	39	36	39	15	38	30
60		14	31	20	37	39	43	13	30	39	25
80		32	34	17	37	44	38	40	34	40	18

Analysis ID:	20-0497-7801	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8 4
Analyzed:	23 Nov-15 12:48	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





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

EPA-821-R-02-013 Method 1002.0

TEST LOG NO.: 17923

JOB NUMBER.: 20-19675I

INDUSTRY: Georgia Pacific-Crossett

EFFLUENT: Outfall 001

DILUTION WATER: River Water

NPDES (Y/N) : Yes

PHOTOPERIOD: 16 hr light/8 hr dark

FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL

TEST VESSEL CAPACITY: 30 mL

TEST SOLUTION VOLUME: 15 mL

NO. ORGANISMS/REPLICATE: 1

NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 11/09/15

TEMP @ TEST START: 24.2°C

RANDOMIZED BY. AW

SOURCE ID:	AGE (time):
11169	1604-2304
11170	1607-2306
11171	1608-2308

TEST START:

HOURS: 1040 DATE: 11/10/15

TEST END:

HOURS: 1240 DATE: 11/16/15

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 169						170			171	Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	13	18	20	8	17	7	1	17	13	9	
AW 1040		11/10	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 1156	11/11	24.4	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1028	11/12	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	✓ 1113	11/13	24.0	23.3	Day 3	✓	6	✓	4	4	D AW	✓	✓	✓	✓	
	AW 1021	11/14	24.1	24.5	Day 4	5	✓	4	✓	✓	5	6	3	4	4	
	AW 1032	11/15	24.0	24.9	Day 5	14	15	8	13	14	14	13	10	✓	2	
AW 1240		11/16		25.2	Day 6	19	20	✓	15	16	21	✓	14	12	15	706
					Day 7											
					Day 8											
				Total		38	41	12	32	34	40	19	27	16	21	280

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

TEST LOG # 17923 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 1046		11/10	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1156	11/11	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1028	11/12	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1113	11/13	24.0	25.5	Day 3	5	✓	5	4	7	8	✓	✓	✓	✓	
	AW 1021	11/14	24.1	24.7	Day 4	✓	5	✓	✓	✓	✓	5	3	4	6	
	AW 1032	11/15	24.3	24.8	Day 5	13	8	10	13	15	15	16	9	13	12	
AW 1240		11/16		24.9	Day 6	18	✓	12	19	22	21	21	23	17	✓	
					Day 7											
					Day 8											
			Total			36	13	27	36	44	41	42	35	34	18	326

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 1040		11/10	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1156	11/11	24.5	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	—	—	✓	
	AW 1028	11/12	24.1	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1113	11/13	24.0	25.6	Day 3	✓	✓	✓	6	✓	5	✓	✓	✓	✓	
	AW 1021	11/14	24.0	24.7	Day 4	9	6	3	✓	4	✓	7	4	4	6	
	AW 1032	11/15	24.3	24.4	Day 5	13	✓	8	12	13	8	16	9	15	16	
AW 1240		11/16		25.3	Day 6	21	9	D/9	14	20	21	23	18	17	18	
					Day 7											
					Day 8			D								334 (1)
			Total			43	15	20	32	37	34	46	31	36	40	300

CAH 1.5.RC 1/23/15

✓ = 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 # 17923 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 1040		11/10	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1156	11/11	24.1	24.3	Day 1	✓	✓	—	—	✓	✓	—	—	—	—	
	AW 1028	11/12	24.1	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LL 13	11/13	24.1	25.8	Day 3	4	6	5	5	6	✓	2	D	✓	✓	
	AW 1021	11/14	24.0	25.0	Day 4	✓	✓	11	✓	✓	3	✓	4	5	2	
	AW 1032	11/15	24.3	25.0	Day 5	13	15	17	10	12	15	13	11	14	10	
AW 1340		11/16		25.2	Day 6	19	21	19	18	21	18	24	✓	19	18	
					Day 7											
					Day 8											
			Total			36	42	33	33	39	36	39	15	38	30	341

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 1040		11/10	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1156	11/11	24.2	24.4	Day 1	✓	✓	✓	✓	✓	✓	—	—	—	—	
	AW 1028	11/12	24.3	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LL 13	11/13	24.1	25.5	Day 3	✓	✓	3	5	4	6	✓	✓	✓	✓	
	AW 1021	11/14	24.0	25.0	Day 4	3	4	✓	✓	✓	✓	5	4	6	4	
	AW 1032	11/15	24.4	24.4	Day 5	11	10	17	12	16	16	8	9	14	✓	
AW 1240		11/16		24.0	Day 6	✓	17	✓	20	19	21	✓	17	19	21	
					Day 7											
					Day 8											
			Total			14	31	20	37	39	43	13	30	39	25	291

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

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TEST LOG # 17923 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											
AW 1040		11/10	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1156	11/11	24.1	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1028	11/12	24.2	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	[illegible]	11/13	24.0	25.3	Day 3	5	✓	✓	6	4	✓	✓	✓	✓	✓	# Small Mysid but won Grid?
	AW 1024	11/14	24.0	25.1	Day 4	✓	3	4	✓	✓	6	7	5	5	5	
	AW 1032	11/15	24.4	25.3	Day 5	13	11	✓	14	16	9	14	11	14	13	
AW 1240		11/16		25.3	Day 6	14	20	13	17	24	23	19	18	21	✓	
					Day 7											
					Day 8											
			Total			32	34	17	37	44	38	40	34	40	18	334

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
AW 1040		11/10	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1156	11/11	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	AW 1028	11/12	24.2	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	[illegible]	11/13	24.0	25.9	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1024	11/14	24.0	25.3	Day 4	3	4	5	6	4	7	5	4	6	6	
	AW 1032	11/15	24.1	24.7	Day 5	14	13	16	14	14	16	14	8	11	12	
AW 1240		11/16		24.9	Day 6	15	14	17	14	18	17	16	17	18	16	
					Day 7											
					Day 8											
			Total			32	31	38	34	36	40	35	29	35	34	344

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

TEST LOG NO. 17923

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675I

TEST ORGANISM: Cd

DATE: 11/10/15

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	8.4	8.5	8.5	8.1	8.4	8.6	8.3	8.3	7.8	8.2	8.1	7.8		
25	8.5	8.4	8.6	8.2	8.2	8.6	8.3	8.4	7.9	8.2	7.8	7.8		
34	8.5	8.4	8.6	8.4	8.4	8.7	8.7	8.4	7.8	8.1	7.7	8.0		
45	8.4	8.2	8.4	8.1	8.36	8.6	8.7	8.5	7.8	8.2	8.0	8.1		
60	8.4	8.2	8.4	8.4	8.3	8.6	8.1	8.4	7.9	8.2	8.1	7.6		
80	8.3	8.2	8.4	8.2	8.3	8.6	8.2	8.1	8.0	8.3	8.3	7.6		
MH	8.2	8.2	8.1	8.3	8.2	8.4	8.4	8.1	8.0	8.2	8.1	7.7		

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	7.31	7.61	7.35	7.67	6.96	7.65	7.19	7.75	7.59	7.78	7.65	7.80		
25	7.23	7.99	7.57	8.08	6.93	7.94	7.34	8.12	7.42	8.04	7.52	8.02		
34	7.23	8.13	7.70	8.20	7.26	8.20	7.38	8.26	7.49	8.21	7.63	8.15		
45	7.48	8.21	7.72	8.39	7.44	8.35	7.48	8.41	7.58	8.36	7.73	8.30		
60	7.69	8.30	7.75	8.44	7.71	8.44	7.52	8.50	7.65	8.43	7.75	8.40		
80	7.83	8.49	7.77	8.50	7.72	8.51	7.54	8.58	7.71	8.46	7.73	8.49		
MH	8.02	7.80	7.94	7.98	7.99	7.97	7.92	7.99	7.69	7.97	8.00	8.02		

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	198	203	216	203	217	203	216	204	200	203	208	202		
25	562	1004	1064	605	1624	579	590	571	580	1016	548	591		
34	734	780	801	775	780	747	800	798	745	757	703	761		
45	890	974	984	958	948	919	910	920	920	941	837	906		
60	1112	1067	1210	1198	1194	1155	1130	1170	1130	1180	1065	1166		
80	1667	1837	1530	1504	1411	1369	1530	1410	1422	1402	1370	1424		
MH	246	218	219	240	243	210	213	208	232	214	246	240		

Params Init/Time:	AW 1035	HH 1210	HH 1057	AW 1043	AW 0930	HH 1122	HH 1057	AW 1030	AW 1010	HH 1050	AW 0930	AW 1255		
Dilutions Init/Time:	AW 1029		HH 1049		AW 0923		HH 1052		AW 1006		AW 0920			
Control Water Batch#:	6073, 19289	6073, 19289		6073, 19296		6073, 19296		6080, 19301		6079, 19301				
Food Batch	5321, 5285	21185		21, 85		23, 85		23, 85		23, 85				

NM RW

ATTACHMENT 2

CHAIN OF CUSTODY DOCUMENTATION AND REFERENCE TOXICANT DATA

Ramboll Environ Test Log No. 17923

27 of 36

Project Name: | Project Number:

Industry: Georgia-Pacific Crossett LLC

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

County: Ashley | City: Crossett | State: AR

Sample Collected by (print): Rachel Johnson | NPDES Permit No.: AR0001210

Sample Collected by (signature): Rachel Johnson | 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	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
Outfall 001	Comp	Plastic	Y	11/8/15 4:06am	11/9/15 6:18am	2						✓	✓					19288	3.6°
River	Grab	Plastic	NA	11/9/15 10:56am		2											Dilution Water	19289	2.4°

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Rachel Johnson	11/9/15	4:00pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered

Condition: OK (lab use only)

Containers/Volume Received: 2 DL 2 DL

Date: 11/10/15 | Time: 0843 | pH upon arrival: 7.44 | DO upon arrival: 9.18 mg

7.09 - 8.0 EC

Sample Receipt Checklist:

Client: COP Crossfit

Date/Time received 11/10/15 0843 by HM

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
9288	001	3.6	7.69	9.1	0.05
9289	Dion	2.4	7.44	8.5	0.08

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Ramboll Environ Test Log No. 17923

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Project Name:	Project Number:
Industry: Georgia Pacific Crossett LLC	
Phone: 870-567-8170 FAX: 870-364-9076	
County: Ashley City: Crossett State: AR	
Sample Collected by (print): Rachel Johnson	NPDES Permit No.: AR0001210
Sample Collected by (signature): Rachel Johnson	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	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
Outfall 001	Comp	Plastic	Y	11/10/15	11/11/15	2						✓	✓					19295	1.2
River	Grab	Plastic	NA	11/9/15 10:56am		2											Dilution Water	19296	1.8

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☒ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Rachel Johnson	11/11/15	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 2 L of each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winton	Date: 11/12/15	Time: 0837	pH upon arrival: 7.73, 8.02	DO upon arrival: 8.7, 9.1

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/12/15 0837 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 water) No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
19295	Outfall 001	1.2	7.73	8.7	<0.02
19296	River	1.8	8.02	9.1	0.07

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Ramboll Environ Test Log No. 17923

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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 Crossett LLC

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

County: Ashley City: Crossett State: AR

Sample Collected by (print): Rachel Johnson

NPDES Permit No.: AR0001210

Sample Collected by (signature): Rachel Johnson

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *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
Outfall 001	Comp	Plastic	Y	11/12/15	11/13/15							✓	✓					19300	2.0
River	Grab	Plastic	NA	11/7/15 10:56 am													Dilution Water	19301	3.2

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☐ UPS ☑ FedEx ☐ Other Courier ☐ Hand Delivered	Condition: (lab use only)
Rachel Johnson	11/13/15	4:00 pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 20L of each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winter	Date: 11/14/15 Time: 0904 pH upon arrival: 7.76, 7.51	DO upon arrival: 9.4, 9.0

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/14/15 0904 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)

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
19300	Outfall 001	2.0	7.70	9.4	0.02
19301	River	3.2	7.51	9.0	0.09

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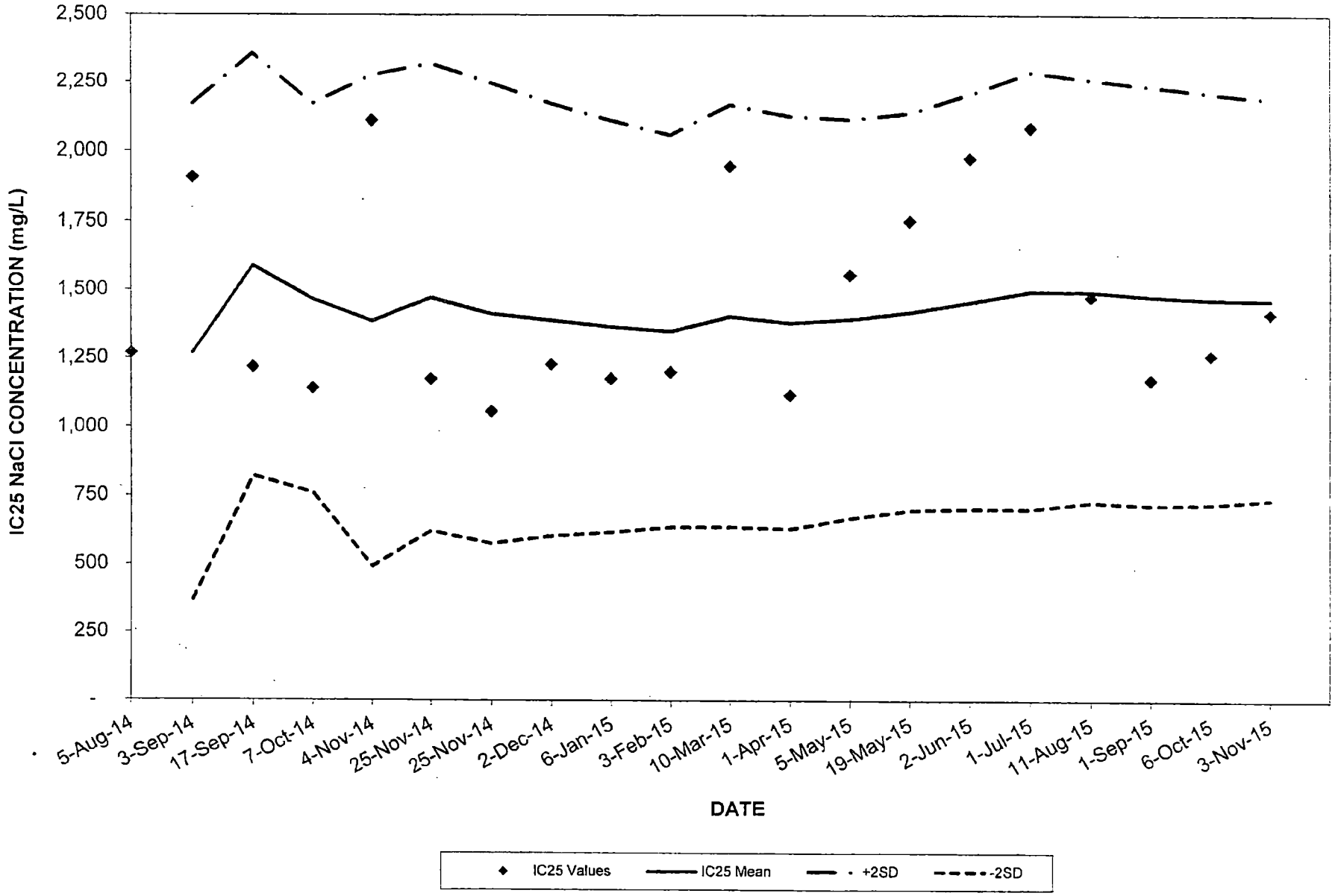
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2014 - 2015
FATHEAD MINNOWS

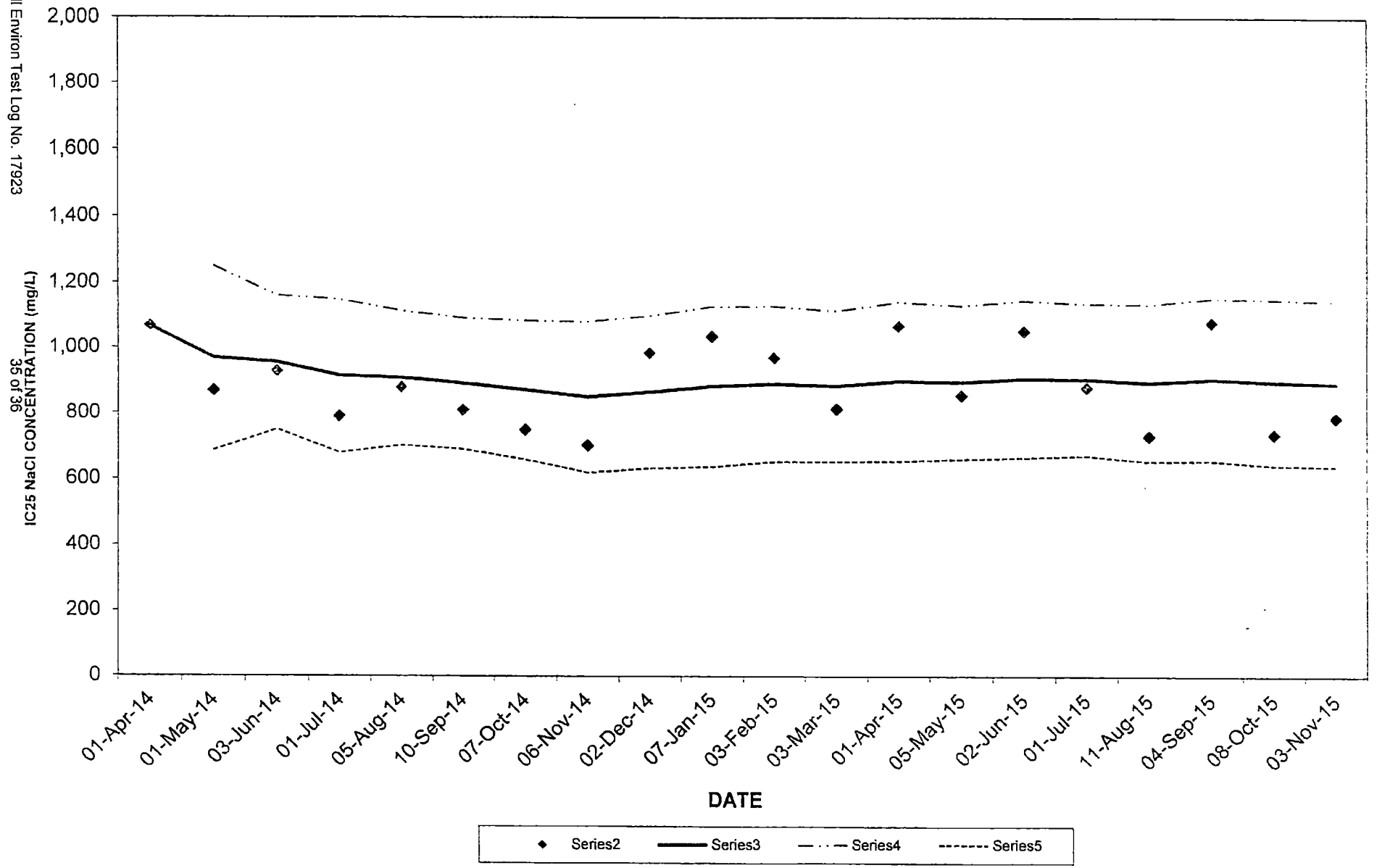


Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2014 - 2015

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	Control Mean Dry Weight (mg/fish) (*)	SURVIVAL NOEC (mg/L)	SURVIVAL LOEC (mg/L)	GROWTH NOEC (mg/L)	GROWTH LOEC (mg/L)	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 (%)
1	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270					
2	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,270	450	2,171	369	20
3	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,589	384	2,356	821	21
4	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,465	353	2,170	760	22
5	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,384	446	2,276	492	26
6	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,470	424	2,319	622	26
7	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,411	418	2,247	576	27
8	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,388	392	2,173	604	26
9	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,365	374	2,112	618	26
10	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,348	356	2,060	636	25
11	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,403	383	2,169	637	26
12	17504	01-Apr-15	90	0.316	750	1,500	750	1,500	39.1	1,117	1,379	375	2,128	630	26
13	17570	05-May-15	95	0.346	750	1,500	1,500	3,000	32.6	1,556	1,393	362	2,116	669	25
14	17604*	19-May-15	97.5	0.284	1,500	3,000	1,500	3,000	24.3	1,753	1,418	361	2,140	697	25
15	17621*	02-Jun-15	95	0.335	1,500	3,000	1,500	3,000	24.8	1,978	1,456	377	2,209	703	25
16	17676	01-Jul-15	95	0.452	1,500	3,000	1,500	3,000	23.4	2,087	1,495	397	2,288	702	26
17	17740	11-Aug-15	97.5	0.402	1,500	3,000	1,500	3,000	32.8	1,473	1,494	384	2,262	726	25
18	17790	01-Sep-15	100	0.524	750	1,500	750	1,500	18.4	1,171	1,476	380	2,236	716	25
19	17848	06-Oct-15	95	0.406	750	1,500	1,500	3,000	34.4	1,258	1,464	373	2,210	719	25
20	17903	03-Nov-15	100	0.269	750	1,500	1,500	3,000	30.0	1,411	1,462	363	2,188	736	24
		Avg	98	0.412	975	1950	1163	2325	29	1462	1428	387	2202	654	

Notes:
Dilution series - 0.375 g/L - 6.0 g/L
NOEC - No Observable Effect Concentration (survival or growth)
LOEC - Lowest Observable Effect Concentration (survival or growth)
ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.
(*) used ABS fish
Minimum USEPA CONTROL CRITERIA - 80 percent survival and average dry weight of 0.25 mg (weight based on surviving number of fish).

CHRONIC REFERENCE TOXICANT (NaCl) 2014-2015
Ceriodaphnia dubia



Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2014-2015

Ramboll Environ Test Log No. 17923

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	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	1,067				
2	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	968	141	1,249	686	10
3	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	954	102	1,158	749	9
4	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	913	117	1,147	678	11
5	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	905	103	1,111	700	10
6	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	889	100	1,090	689	10
7	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	869	106	1,081	657	11
8	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	848	115	1,078	618	13
9	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	862	116	1,095	630	13
10	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	879	122	1,123	635	13
11	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	887	119	1,125	650	13
12	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	881	115	1,111	650	13
13	17504	01-Apr-15	100	90	24.5	1,000	2,000	1,000	2,000	24.9	1,064	895	121	1,138	652	13
14	17571	05-May-15	100	80	22.9	2,000	>2000	500	1,000	22.0	851	892	117	1,126	657	13
15	17622	02-Jun-15	100	80	27.4	1,000	2,000	1,000	2,000	22.3	1,048	902	120	1,142	662	13
16	17675	01-Jul-15	100	100	26.4	2,000	>2000	500	1,000	16.0	875	901	116	1,133	668	12
17	17746	11-Aug-15	100	80	20.6	2,000	>2000	500	1,000	33.1	728	890	120	1,130	650	13
18	17798	04-Sep-15	100	100	27.7	2,000	>2000	500	1,000	13.4	1,075	901	124	1,149	652	13
19	17856	08-Oct-15	100	80	25.5	2,000	>2000	500	1,000	22.0	733	892	127	1,145	638	14
20	17904	03-Nov-15	100	100	27.8	1,000	2,000	500	1,000	12.4	783	886	126	1,138	635	14
Avg			100	90	27	1556	889	583	1167	20	886	906	116	1129	664	

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.

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.

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