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

May 22, 2015

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

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

Dear Mr. Healey:

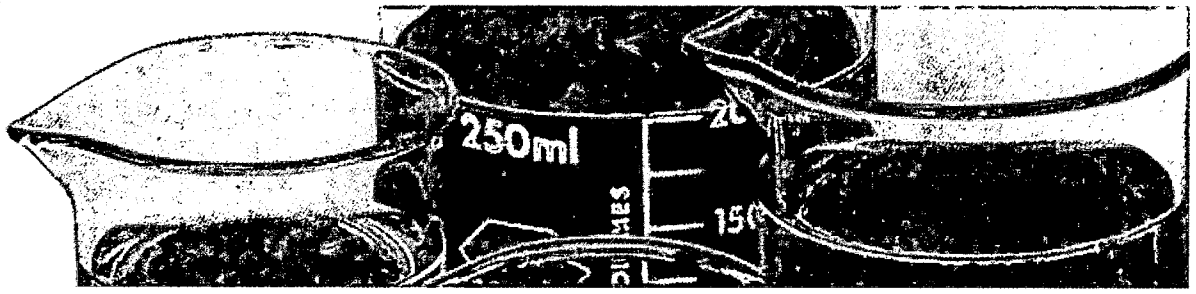
Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for April 2015. As required by Part III, Section 4 paragraph a, of our NPDES Permit, a full report of the chronic toxicity testing has also been included with this submittal.

Please note that during the April 2015 monitoring period, analysis was not conducted for Nitrate Nitrogen. This was due to an administrative error on the Chain of Custody form provided to the contract laboratory. Nitrate is required to be tested monthly; however, there are no permit limits, only a monitoring and reporting requirement. The mill is working to implement preventative measures to ensure that this does not occur in the future. Preventative measures would include a peer review of samples and associated paperwork for shipments to outside laboratories. Additionally, two samples will be collected during the month of May 2015 and reported on the next DMR 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



Chronic Toxicity Test Results
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
March 2015

Project Number:
20-19675I

ENVIRON

ENVIRON

March 30, 2015

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

Re: Chronic Toxicity Test Results – Outfall 001 Effluent
ENVIRON Project No. 20-19675I

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The tests were conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on March 9, 11, and 13, 2015. The samples were received at ENVIRON on March 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. A test initiated March 3, 2015 was terminated after shipping problems caused delay of the second sample. The bench sheets for the terminated test are attached.

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 for the *C. dubia* test met test acceptability criteria (TAC), therefore, the river water control was used for statistical analyses. However the river water control for the fathead minnow test did not meet survival TAC, therefore, the moderately hard water control was used for statistical analyses. 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 for either fathead minnow or *C. dubia*.

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The Coefficient of Variation (CV) values for the fathead minnow survival in the laboratory water control and critical dilution are 0 and 5.7 percent, respectively. The CV values for growth in the control and critical dilution are 11.7 and 14.7 percent, respectively, and meet the CV limit of 40 percent for findings of no toxicity. The effluent concentration-response curve 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. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 19.6 which is within the USEPA PMSD bounds of 12 to 30 percent when alpha 0.05 was used for hypothesis testing. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

The *C. dubia* reproduction CV values for the control and critical dilution are 12.0 and 18.9 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 18.7 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 and the documentation of the terminated tests 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 48 pages, including this cover letter, attachment pages and separator pages.

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

Sincerely,
ENVIRON International Corporation

Richard e. Lockwood
Project Manager

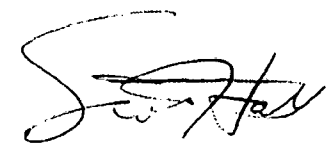
Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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



Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Laboratory Bench Sheets with Statistical Data and Documentation of the Terminated Tests

CETIS Analytical Report

Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

Analysis ID:	13-5526-7575	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 13:57	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	00-1476-6495	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-3254-1498	**Code:**	13D22E3A	**Client:**	GPAC Crossett
Sample Date:	09 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	10 Mar-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	6.83%

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	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		45	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		60	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		80	25	16	1	8	0.6353	Asymp	Non-Significant Effect

Test Acceptability Criteria

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

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.781	2.908	0.0864	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01011892	0.002023783	5	0.6	0.7003	Non-Significant Effect
Error	0.08095133	0.003372972	24			
Total	0.09107024		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	334.4	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.5978	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	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
45		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
60		5	1	1	1	1	1	1	0	0.0%	0.0%
80		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	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	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
45		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
80		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%

Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

Analysis ID:	13-5526-7575	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 13:57	**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	1	1	1	0.875
45		1	0.875	1	1	1
60		1	1	1	1	1
80		0.875	1	1	1	1

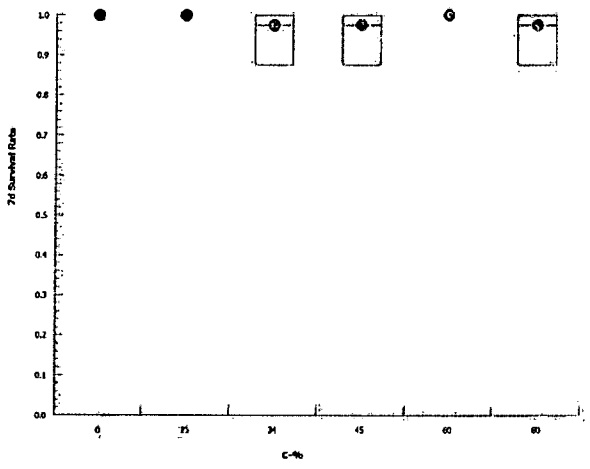
Angular (Corrected) Transformed Detail

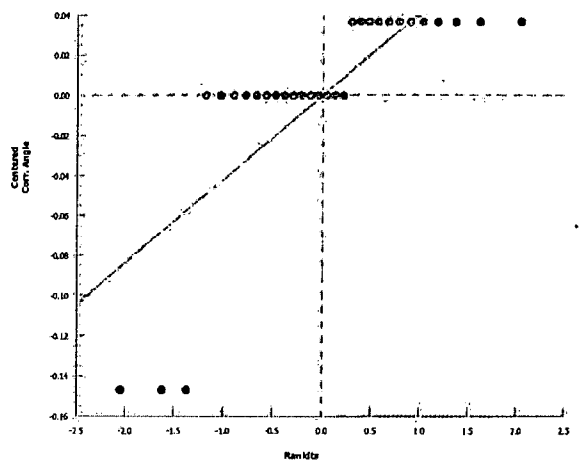
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	1.393	1.393	1.393	1.393	1.393
25		1.393	1.393	1.393	1.393	1.393
34		1.393	1.393	1.393	1.393	1.209
45		1.393	1.209	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.209	1.393	1.393	1.393	1.393

7d Survival Rate Binomials

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

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

Analysis ID:	09-0611-5074	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 13:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	00-1476-6495	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-3254-1498	**Code:**	13D22E3A	**Client:**	GPAC Crossett
Sample Date:	09 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	10 Mar-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	19.6%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Water		25	-0.323	2.362	0.112	8	0.9112	CDF	Non-Significant Effect
		34	-0.4503	2.362	0.112	8	0.9329	CDF	Non-Significant Effect
		45	-1.515	2.362	0.112	8	0.9964	CDF	Non-Significant Effect
		60	-1.764	2.362	0.112	8	0.9984	CDF	Non-Significant Effect
		80	-1.467	2.362	0.112	8	0.9958	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5688	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.196	0.12 - 0.3	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.18	2.908	0.7136	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0310643	0.006212861	5	1.115	0.3786	Non-Significant Effect
Error	0.133673	0.005569707	24			
Total	0.1647373		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.943	15.09	0.7088	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9723	0.9031	0.6053	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	0.5688	0.486	0.6515	0.5513	0.4813	0.65	0.02979	11.71%	0.0%
25		5	0.584	0.4743	0.6937	0.575	0.4775	0.7188	0.03951	15.13%	-2.68%
34		5	0.59	0.5424	0.6376	0.5963	0.5525	0.6425	0.01713	6.49%	-3.74%
45		5	0.6402	0.5482	0.7323	0.6087	0.5775	0.7663	0.03314	11.57%	-12.57%
60		5	0.652	0.5605	0.7435	0.6125	0.585	0.7375	0.03295	11.3%	-14.64%
80		5	0.638	0.5216	0.7544	0.645	0.49	0.7188	0.04193	14.7%	-12.18%

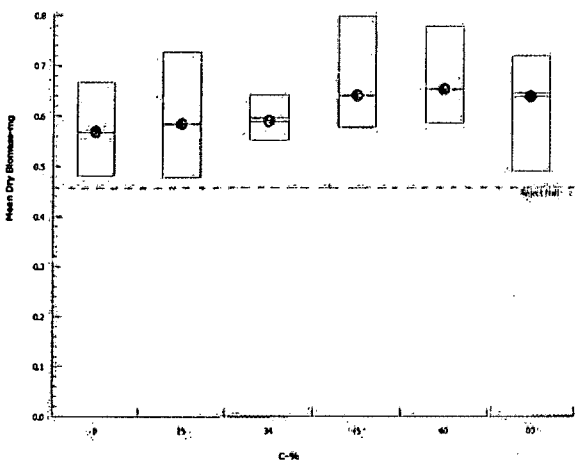
Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

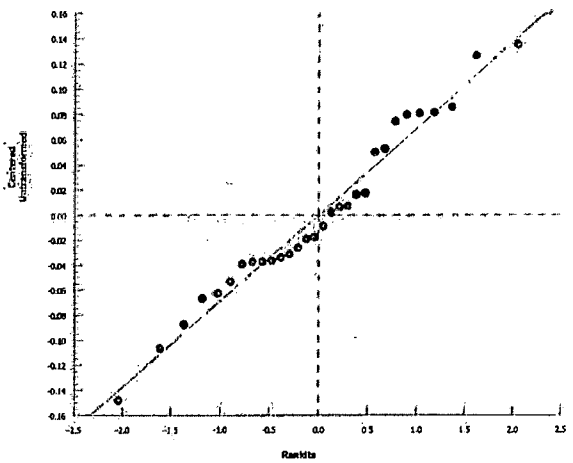
Analysis ID:	09-0611-5074	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 13:59	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.65	0.5513	0.4813	0.5425	0.6187
25		0.6013	0.5475	0.4775	0.7188	0.575
34		0.5963	0.5525	0.5525	0.6062	0.6425
45		0.5775	0.6425	0.6087	0.7663	0.6062
60		0.5988	0.6125	0.585	0.7375	0.7263
80		0.6188	0.7188	0.7175	0.645	0.49

Graphics





CETIS Analytical Report

Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

Analysis ID:	13-1472-3825	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 14:00	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	00-1476-6495	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-3254-1498	**Code:**	13D22E3A	**Client:**	GPAC Crossett
Sample Date:	09 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	10 Mar-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	561727	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5688	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.18	2.908	0.7136	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	Lab Water	5	0.5688	0.4813	0.65	0.02979	0.06661	11.71%	0.0%
25		5	0.584	0.4775	0.7188	0.03951	0.08834	15.13%	-2.68%
34		5	0.59	0.5525	0.6425	0.01713	0.03831	6.49%	-3.74%
45		5	0.6402	0.5775	0.7663	0.03314	0.07411	11.57%	-12.57%
60		5	0.652	0.585	0.7375	0.03295	0.07367	11.3%	-14.64%
80		5	0.638	0.49	0.7188	0.04193	0.09376	14.7%	-12.18%

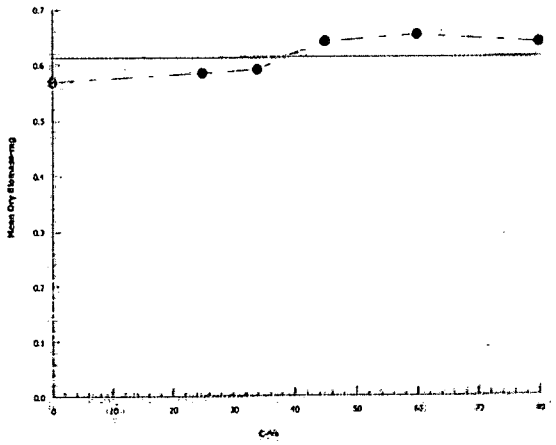
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.65	0.5513	0.4813	0.5425	0.6187
25		0.6013	0.5475	0.4775	0.7188	0.575
34		0.5963	0.5525	0.5525	0.6062	0.6425
45		0.5775	0.6425	0.6087	0.7663	0.6062
60		0.5988	0.6125	0.585	0.7375	0.7263
80		0.6188	0.7188	0.7175	0.645	0.49

Fathead Minnow 7-d Larval Survival and Growth Test — **ENVIRON International Corp**

Analysis ID:	13-1472-3825	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Mar-15 14:00	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



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

TEST LOG NO.: 17450
JOB NUMBER.: 20-19675I
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes ✓ No
FOOD BATCH: 4900

BEGINNING: HRS: 1500 DATE: 3/10/15
ENDING: HRS: 1300 DATE: 3/17/15
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 3/9/15
ORGANISM SOURCE: ECT # 5006
SOURCE TEMP @ TEST START: 24.1
RANDOMIZED BY: LM

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

CONC (%)	REP ID	SURVIVAL (#) START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
RW	A	8	8	8	7	4	4	4	4
	B	8	8	8	8	7	6	6	6
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	6	6	5	5
	E	8	8	8	7	3	3	3	3
	Temp(°C):old/new	24.7	24.2/24.3	24.3/24.4	24.3/24	24.0/24.1	24.1/24.0	24.0/24.1	24.0
25	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.8	24.4/24.3	24.3/24.6	24.4/24.7	24.1/24.2	24.0/24.1	24.0/24.1	24.0
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	7 RC 3/15/15	8 / 7 RC 3/16/15	7
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	25.1	24.3/24.4	24.1/24.4	24.3/24.1	24.0/24.1	24.0/24.0	24.0/24.1	24.2
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8 7 RC 3/14/15	7	7	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.8	24.4/24.3	24.3/24.2	24.3/24.4	24.1/24.0	24.0/24.1	24.1/24.0	24.4
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°C):old/new	24.4	24.3/24.4	24.3/24.4	24.3/24.3	24.1/24.0	24.1/24.2	24.1/24.3	24.1
80	A	8	8	8	8	8	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	24.7	24.6/24.3	24.2/24.2	24.3/24.4	24.0/24.1	24.0/24.1	24.1/24.2	24.3
Test Renewal	Time	1500	1032	1343	1244	1300	1143	1216	1300
	Date	3/10/15	3/11/15	3/12/15	3/13/15	3/14/15	3/15/15	3/16/15	3/17/15
	Initials	LM	AH	LM	LM	AW	AW	AW	AW
morning feeding	Int/Time	[redacted]	LM0710	LM0720	LM0700	AW0740	AW0728	LM0700	[redacted]
afternoon feeding	Int/Time	AH1615	AH1550	AH1530	AH1570	AW1545	AW1517	AW1554	[redacted]

1 killed & not present at test TAC

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

TEST LOG NO.: 17450
JOB NUMBER.: 20-196751
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes ✓ No
FOOD BATCH: 4900

BEGINNING: HRS: 1500 DATE: 3/10/15
ENDING: HRS: 1300 DATE: 3/17/15

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	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	24.1	24.2/24.7	24.3/24.6	24.3/24.1	24.2/24.1	24.1/24.0	24.3/24.1	24.6
	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								

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

TEST LOG NO.: 17450 BEGINNING: HRS: 1500 DATE: 3/10/15
JOB NO.: 20-19675I ENDING: HRS: 1300 DATE: 3/17/15
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 16	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish (LH 3/20/15 cc)
RW	A	1	1.09341	1.09512	0.00171	4	0.214
	B	2	1.11746	1.12026	0.00280	6	0.467
	C	3	1.09848	1.10164	0.00316	8	0.395
	D	4	1.10760	1.11045	0.00285	5	0.570
	E	5	1.09575	1.09813	0.00238	3	0.793
25	A	6	1.09760	1.10241	0.00481	8	
	B	7	1.09606	1.10044	0.00438	8	
	C	8	1.09538	1.09920	0.00382	8	
	D	9	1.09797	1.10372	0.00575	8	
	E	10	1.08764	1.09224	0.00460	8	
34	A	11	1.11150	1.11627	0.00477	8	
	B	12	1.09663	1.10105	0.00442	8	
	C	13	1.10392	1.10836	0.00442	8	
	D	14	1.10730	1.11215	0.00485	7	
	E	15	1.10199	1.10713	0.00514	8	
45	A	16	1.09452	1.09914	0.00462	8	
	B	17	1.10222	1.10736	0.00514	7	
	C	18	1.09121	1.09608	0.00487	8	
	D	19	1.09824	1.10437	0.00613	8	
	E	20	1.10290	1.10775	0.00485	8	
60	A	21	1.09875	1.10354	0.00479	8	
	B	22	1.10405	1.10895	0.00490	8	
	C	23	1.10996	1.11464	0.00468	8	
	D	24	1.10400	1.10990	0.00590	8	
	E	25	1.09874	1.10455	0.00581	8	
80	A	26	1.09411	1.09906	0.00495	7	
	B	27	1.11109	1.11684	0.00575	8	
	C	28	1.09725	1.10299	0.00574	8	
	D	29	1.10801	1.11317	0.00516	8	
	E	30	1.11533	1.11925	0.00392	1	
MH	A	31	1.11917	1.12437	0.00520	8	
	B	32	1.10294	1.10735	0.00441	8	
	C	33	1.10021	1.10406	0.00385	8	
	D	34	1.09099	1.09533	0.00434	8	
	E	35	1.10381	1.10876	0.00495	8	
	Initials / Date:		LH 3/13				

0.428
AVG Control Fish wt. 0.53 (using final #)

Oven ID: 2

Tins In:
Date: 3/17/15
Time: 1335
Temp (°C): 101
Initials: AW

Tins Out:
Date: 3/18/15
Time: 1335
Temp (°C): 100
Initials: LM

FINAL WEIGHTS
DATE: 3/20/15
INITIALS: LM

TEST LOG NO. 17450

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675I

TEST ORGANISM: Fm

DATE: 3/10/15

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	8.2	8.0	8.2	8.3	8.2	8.3	8.2	8.6	8.4	8.6	8.5	7.9	8.4	7.6
25	8.3	7.9	8.3	8.3	8.3	8.1	8.3	8.6	8.5	8.6	8.4	7.8	8.4	7.8
34	8.3	7.9	8.3	8.0	8.3	8.1	8.2	8.7	8.6	8.6	8.5	7.9	8.6	8.1
45	8.3	7.7	8.4	7.8	8.4	8.0	8.2	8.6	8.5	8.5	8.2	7.9	8.3	7.6
60	8.2	7.6	8.3	7.4	8.4	7.6	8.2	8.4	8.4	8.3	8.4	7.9	8.4	7.7
80	8.3	7.4	8.3	6.9	8.3	7.1	8.2	8.0	8.4	8.0	8.3	7.6	8.3	7.5
MH	8.2	8.0	8.2	8.2	8.2	8.6	8.4	7.7	8.1	7.7	8.4	7.6	8.3	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	7.98	6.94	7.92	6.89	7.20	6.84	7.65	7.60	6.59	7.61	6.70	7.00	7.12	6.98
25	7.86	7.48	7.44	6.88	7.40	7.47	7.29	7.35	6.97	7.44	6.84	7.19	7.21	7.26
34	7.75	7.605	7.50	7.38	7.42	7.606	7.42	7.62	7.24	7.46	7.35	7.26	7.52	7.32
45	7.54	7.62	7.59	7.55	7.53	7.62	7.50	7.73	7.45	7.56	7.55	7.60	7.60	7.66
60	7.55	7.76	7.66	7.73	7.59	7.76	7.53	7.78	7.56	7.70	7.56	7.69	7.72	7.70
80	7.61	7.51	7.72	7.76	7.65	7.60	7.65	7.82	7.65	7.78	7.61	7.69	7.74	7.71
MH	7.81	7.72	7.69	7.64	7.73	7.66	7.82	7.75	7.89	7.40	7.92	7.81	7.94	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	125	605	136	605	773	64	125	81	68	81	82	72	67	69
25	525	489	535	497	555	464	544	473	498	438	509	446	497	486
34	765	640	737	607	725	648	684	668	648	604	665	649	672	669
45	941	829	910	832	825	788	836	802	813	769	809	809	822	819
60	1,194	1093	1153	1083	1083	1049	1150	1032	1038	986	1045	996	1035	1026
80	1576	1387	1499	1228	1400	1232	1494	1369	1318	1247	1308	1297	1346	1336
MH	260	200	259	201	252	195	251	222	224	246	224	239	214	210

Params Init/Time:	AN 1515	LH0649 AH 0627		LH0644	AH 1101	LH0654	AH 0917	AW0759	AW1216	AW0758	AW1012	LH0655	AW0920	HQ643
Dilution's Init/Time:	AW 1510	AH 0817			Fm 1057		AH 0910		AT 1206		AH 1002		AH 0919	
Control Water Batch#:	5811		5814		5814		5814		5820		5820		5820	
Food Batch	4900		4900		4900		4900		4900		4900		4900	

ENVIRON Test Log No. 17450

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TEST LOG NO. 17450 CLIENT: Georgia Pacific Crossett DATE OF TEST: 3/10/15

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
18584	Outfall 001	3/8-9/15	3/10/15	312	275	<0.02	1.12
18592	Outfall 001	3/10-11/15	3/12/15	344	280	<0.02	0.863
18600	Outfall 001	3/12-13/15	3/14/15	300	265	<0.02	1.46

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
18583	River Water	3/9/15	3/10/15	20.8	17	0.03	<0.1
18591	River Water	3/9/15	3/12/15	16.8	23	0.06	<0.1
18599	River Water	3/9/15	3/14/15	22.4	15	0.08	<0.1
5811	MH	3/3/15	3/7/15	84	46	<0.02	—
5819	MH	3/9/15	3/11/15	81.6	45	<0.02	—
5814	MH	3/6/15	3/12/15	87.2	44	<0.02	—
5820	MH	3/10/15	3/14/15	82.4	45	<0.02	—

CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	05-2636-8116	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Mar-15 12:56	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	15-1745-6252	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-3873-1480	**Code:**	1A2682D8	**Client:**	GPAC Crossett
Sample Date:	10 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	17 Mar-15	**Source:**	Discharge Monitoring Report		
Sample Age:	NA	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

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

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

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

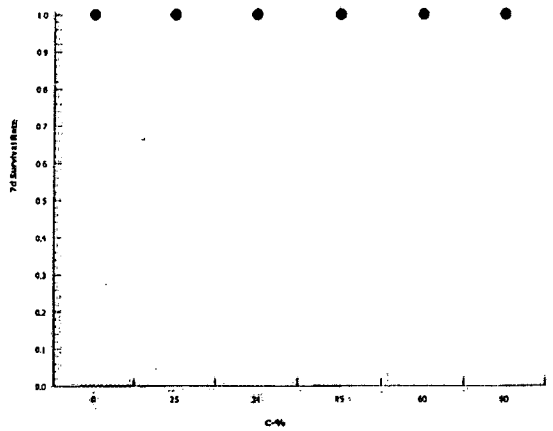
7d Survival Rate Binomials

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

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	05-2636-8116	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Mar-15 12:56	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	12-8436-8270	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Mar-15 12:56	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	15-1745-6252	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-3873-1480	**Code:**	1A2682D8	**Client:**	GPAC Crossett
Sample Date:	10 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	17 Mar-15	**Source:**	Discharge Monitoring Report		
Sample Age:	NA	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	18.7%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	133	75	4	18	0.9998	Asymp	Non-Significant Effect
		34	121	75	4	18	0.9924	Asymp	Non-Significant Effect
		45	134.5	75	3	18	0.9999	Asymp	Non-Significant Effect
		60	112	75	1	18	0.9455	Asymp	Non-Significant Effect
		80	103.5	75	3	18	0.7973	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	30.8	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1866	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	220.2833	44.05667	5	1.398	0.2398	Non-Significant Effect
Error	1701.9	31.51667	54			
Total	1922.183		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	11.34	15.09	0.0451	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9257	0.9459	0.0013	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	30.8	28.15	33.45	32	25	35	1.172	12.03%	0.0%
25		10	34.6	32.66	36.54	34.5	30	39	0.8589	7.85%	-12.34%
34		10	31.1	25.81	36.39	34	16	37	2.34	23.8%	-0.97%
45		10	35	31.28	38.72	35.5	23	43	1.647	14.88%	-13.64%
60		10	30.9	25.68	36.12	32.5	15	38	2.307	23.61%	-0.32%
80		10	30.3	26.2	34.4	29	21	39	1.814	18.93%	1.62%

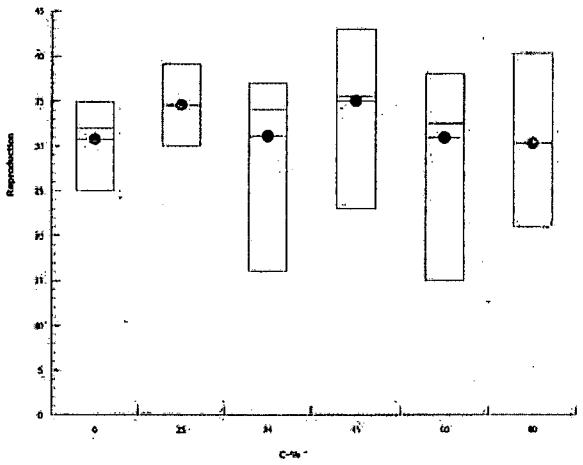
Reproduction Detail

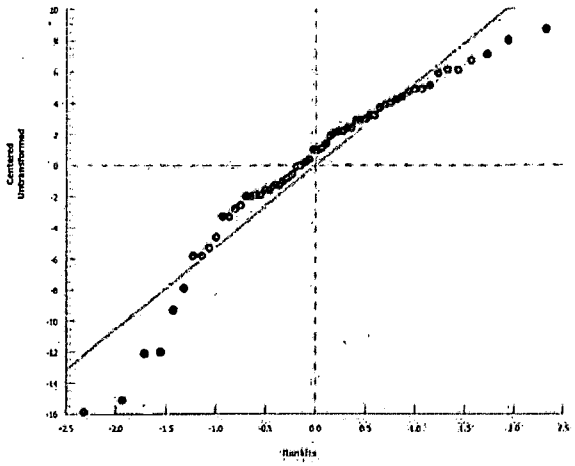
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	34	28	31	25	35	34	25	33	33	30
25		39	37	30	33	34	35	33	32	37	36
34		31	35	16	33	34	19	34	36	36	37
45		36	36	35	33	33	43	34	39	23	38
60		15	37	38	23	29	29	32	37	33	36
80		27	29	27	21	35	39	25	29	34	37

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	12-8436-8270	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Mar-15 12:56	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	14-2596-1423	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	19 Mar-15 12:57	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	15-1745-6252	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	10 Mar-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	17 Mar-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-3873-1480	**Code:**	1A2682D8	**Client:**	GPAC Crossett
Sample Date:	10 Mar-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (MAR)
Receive Date:	17 Mar-15	**Source:**	Discharge Monitoring Report		
Sample Age:	NA	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	16534	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	30.8	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

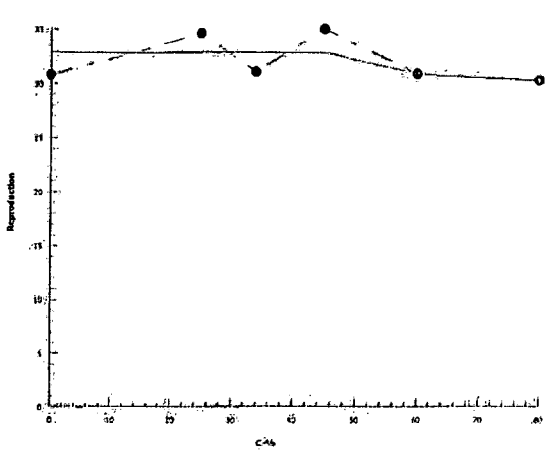
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	30.8	25	35	1.172	3.706	12.03%	0.0%
25		10	34.6	30	39	0.8589	2.716	7.85%	-12.34%
34		10	31.1	16	37	2.34	7.4	23.8%	-0.97%
45		10	35	23	43	1.647	5.207	14.88%	-13.64%
60		10	30.9	15	38	2.307	7.295	23.61%	-0.32%
80		10	30.3	21	39	1.814	5.736	18.93%	1.62%

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	34	28	31	25	35	34	25	33	33	30
25		39	37	30	33	34	35	33	32	37	36
34		31	35	16	33	34	19	34	36	36	37
45		36	36	35	33	33	43	34	39	23	38
60		15	37	38	23	29	29	32	37	33	36
80		27	29	27	21	35	39	25	29	34	37

Graphics



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

TEST LOG NO.: 17450

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): 3/9/15

TEMP @ TEST START: (ie) ~~1518~~ 24.3 AW 3/10

RANDOMIZED BY: AH

TEST START:

HOURS: 1518 DATE: 3/10/15

TEST END:

HOURS: 1328 DATE: 3/17/15

SOURCE ID:	AGE (time):
10909	1511 - 2051
10910	1511 - 2051
10911	1516 - 2100

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 3/10/15 AW 1027 10909 10910 10911										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	20	16	10	6	11	8	2	4	7	10	
AH 1618		3/10	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1027	3/11	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	/	✓	✓	✓	
	AH 1152	3/12	24.2	24.3	Day 2	✓	✓	✓	✓	✓	/	/	✓	✓	✓	
	AH 1103	3/13	24.1	24.4	Day 3	3	4	4	3	5	✓	✓	5	5	4	
	AW 1227	3/14	24.8	24.7	Day 4	✓	✓	✓	✓	✓	5	2	✓	✓	✓	
	AW 1058	3/15	24.1	24.2	Day 5	12	9	11	6	11	10	6	10	11	8	
	AW 1111	3/16	24.1	24.5	Day 6	19	15	✓	16	19	✓	✓	18	✓	✓	508
AW 1328		3/17		24.4	Day 7	✓	18	16	✓	✓	19	17	✓	17	18	100%
					Day 8											
			Total			34	28	31	25	35	34	25	33	33	30	308

✓ = Test Organism Alive (ie) Look wrong info on line.
D = Test Organism Dead
0 = Live neonates
(-0) = Dead neonates
Miss = Lost or Missing
M = Male

TEST LOG # 17450 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult										✓	
AH 1518		3/10	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1027	3/11	24.3	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1452	3/12	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓		✓		✓	✓
	HH 1103	3/13	24.1	24.3	Day 3	6	4	4	5	4	5	✓	✓	✓	3	
	AW 1227	3/14	24.4	24.1	Day 4	✓	✓	✓	✓	✓	✓	5	5	6	✓	
	AW 1058	3/15	24.3	24.7	Day 5	12	13	11	13	12	11	8	10	13	14	
	AW 1111	3/16	24.3	24.8	Day 6	21	20	15	15	18	19	17	17	18	✓	
AW 1328		3/17		24.6	Day 7	23	✓	18	✓	20	✓	3	22	✓	19	
					Day 8											
			Total			39	37	30	33	34	35	33	32	37	36	346

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
AH 1518		3/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1027	3/11	24.2	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 1452	3/12	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1103	3/13	24.4	24.2	Day 3	4	5	4	5	✓	3	✓	4	5	7	
	AW 1227	3/14	24.3	24.8	Day 4	✓	✓	✓	✓	2	4	5	✓	✓	✓	
	AW 1058	3/15	24.4	24.4	Day 5	12	13	12	7	12	12	13	14	12	13	
	AW 1111	3/16	24.6	24.5	Day 6	15	17	✓	21	2	19	16	18	19	17	
AW 1328		3/17		25.2	Day 7	19	19	✓	23	18	✓	✓	23	✓	✓	
					Day 8											
			Total			31	35	16	33	34	19	34	36	36	37	311

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

TEST LOG # 17450 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AH 1518		3/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1027	3/11	24.1	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1152	3/12	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1103	3/13	24.5	24.2	Day 3	5	5	5	✓	✓	6	4	5	3	✓	
	AW 1227	3/14	24.4	24.7	Day 4	✓	✓	✓	4	4	✓	✓	✓	6	6	
	AW 1058	3/15	24.8	24.8	Day 5	13	12	13	11	12	15	14	12	14	14	
	AW 1111	3/16	24.5	24.4	Day 6	18	19	17	✓	17	✓	16	✓	17	18	
AW 1328		3/17		25.3	Day 7	19	22	18	18	23	22	✓	22	✓	✓	
					Day 8											
			Total			36	36	35	33	33	43	34	39	23	38	350

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
AH 1518		3/10	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1027	3/11	24.1	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1152	3/12	24.2	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1103	3/13	24.5	24.4	Day 3	4	5	5	✓	✓	5	✓	✓	7	4	
	AW 1227	3/14	24.4	24.2	Day 4	✓	✓	✓	6	3	✓	4	5	✓	✓	
	AW 1058	3/15	24.4	25.0	Day 5	11	14	14	3	8	11	10	14	11	13	
	AW 1111	3/16	24.2	24.6	Day 6	✓	18	19	14	18	13	✓	18	15	✓	
AW 1328		3/17		24.9	Day 7	✓	20	21	19	20	✓	18	✓	23	19	
					Day 8											
			Total			15	37	38	23	29	29	32	37	33	36	309

✓ = 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 # 17450 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AH 1518		3/10	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1027	3/11	24.2	24.9	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1452	3/12	24.2	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1103	3/13	24.1	24.6	Day 3	6	✓	4	5	6	✓	✓	6	6	5	
	AW 1227	3/14	24.2	24.6	Day 4	✓	3	✓	6	✓	3	4	✓	✓	✓	
	AW 1058	3/15	24.5	24.9	Day 5	11	11	11	10	13	14	6	11	11	13	
	AW 1111	3/16	24.6	24.5	Day 6	10	15	13	16	16	✓	15	12	17	19	
AW 1328		3/17		24.9	Day 7	19	23	20	18	21	22	✓	20	✓	✓	
					Day 8											
			Total			2	29	27	21	35	39	25	29	34	37	303

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
AH 1518		3/10	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1027	3/11	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1452	3/12	24.3	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1103	3/13	24.4	24.5	Day 3	6	7	5	✓	6	✓	3	7	5	7	
	AW 1227	3/14	24.1	24.5	Day 4	✓	✓	✓	5	✓	7	✓	✓	✓	✓	
	AW 1058	3/15	24.1	24.6	Day 5	12	12	11	11	11	12	13	10	9	10	
	AW 1111	3/16	24.2	24.4	Day 6	18	20	16	18	15	19	7	18	17	14	
AW 1328		3/17	24.4		Day 7	✓	13	17	✓	9	✓		✓	✓	2	
					Day 8											
			Total			36	39	32	34	32	38	23	35	31	31	331

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

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TEST LOG NO. 17450

JOB NO. 20-196751

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 3/10/15

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	8.2	8.2	8.2	8.4	8.2	8.5	8.2	8.4	8.4	8.5	8.5	8.2	8.4	7.8
25	8.3	8.2	8.3	8.4	8.3	8.5	8.3	8.2	8.5	8.6	8.4	8.2	8.4	7.7
34	8.3	8.1	8.3	8.3	8.3	8.4	8.2	8.4	8.6	8.6	8.5	8.3	8.6	7.8
45	8.3	8.2	8.4	8.3	8.4	8.6	8.2	8.2	8.5	8.6	8.2	8.3	8.3	7.8
60	8.2	8.2	8.3	8.2	8.4	8.5	8.2	8.4	8.4	8.5	8.4	8.4	8.4	7.7
80	8.3	8.2	8.3	8.2	8.3	8.3	8.2	8.2	8.4	8.4	8.5	8.3	8.3	7.5
MH	8.2	8.4	8.2	8.5	8.2	8.3	8.4	8.3	8.1	8.2	8.4	8.3	8.3	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	7.78	7.74	7.92	7.86	7.26	7.26	7.65	7.45	6.59	7.51	6.70	7.42	7.12	7.49
25	7.50	7.69	7.44	7.62	7.40	7.70	7.24	7.78	6.47	7.79	6.84	7.64	7.21	7.95
34	7.45	7.99	7.50	7.82	7.42	7.92	7.42	7.91	7.24	7.94	7.35	7.85	7.52	8.01
45	7.54	8.03	7.59	7.97	7.53	8.03	7.50	8.04	7.45	8.07	7.55	8.01	7.60	8.12
60	7.59	8.19	7.66	8.09	7.59	8.11	7.57	8.14	7.56	8.17	7.56	8.14	7.72	8.19
80	7.61	8.28	7.72	8.21	7.65	8.29	7.65	8.26	7.65	8.32	7.61	8.29	7.74	8.24
MH	[illegible]	7.80	7.89	7.71	7.77	7.75	7.82	7.62	7.89	7.87	7.92	7.83	7.99	7.98

EH 3/12/15

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	125	123	136	133	775	76	125	96	65	73	87	129	67	73
25	575	570	535	553	555	516	544	510	498	479	509	516	497	482
34	765	735	737	721	725	706	684	696	648	649	665	670	672	651
45	941	912	910	923	829	827	886	816	813	811	800	812	822	833
60	1194	1176	1153	1167	1083	1138	1150	1054	1038	1031	1045	1029	1035	1075
80	1546	1497	1499	1509	1400	1407	1494	1350	1318	1340	1308	1332	1340	1310
MH	260	277	259	267	252	215	251	205	224	210	224	278	214	234
Params Intl/Time:	AH 1515	AW1039	AH 0823	AH1202	AH1101	~~HM1106~~	AH 0913	~~[illegible]~~	AW1215	AW1115	AW1012	AH 1117	AW0920	AW1340
Dilutions Intl/Time:	AW1510		AW0817		HM1057		AW0910		AW1204		AW1002		AW0910	
Control Water Batch#:	5811		5815		5814		5814		5814		5820		5820	
Food Batch	4997,57		4999,91		4999,5005		4990,5005		4990,5005		~~4998~~,5009 4991		4991,5009	

130 3/14

3/15/15 ie AW

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

No 2nd Sample

TEST LOG NO.: 17428
JOB NUMBER.: 20-19675I
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes ______ No ______
FOOD BATCH: 4903

BEGINNING: HRS: 1247 DATE: 3/3/15
ENDING: HRS: _____ DATE: __________
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 3/2/15
ORGANISM SOURCE: ECT # 4995
SOURCE TEMP @ TEST START: 24.1
RANDOMIZED BY: LM

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						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.3	24.1/24.0						
25	A	8	8						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.1	24.0/24.2						
34	A	8	8						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.0	24.0/24.1						
45	A	8	8						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.0	24.0/24.0						
60	A	8	8						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.0	24.0/24.1						
80	A	8	8						
	B	8	8						
	C	8	8						
	D	8	8						
	E	8	8						
	Temp(°c):old/new	24.0	24.1/24.3						
Test Renewal	Time	1247	1214						
	Date	3/3/15	3/4/15						
	Initials	LM	AW						
morning feeding	Int/Time		LM0711						
afternoon feeding	Int/Time	AW1600	AW1537						

TERMINATED

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

TEST LOG NO.: 17428
JOB NUMBER.: 20-19675I
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes ______ No ______
FOOD BATCH: ______

BEGINNING: HRS: 1247 DATE: 3/3/15
ENDING: HRS: ____ DATE: ______

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

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

TEST LOG NO. 17428

JOB NO. 20-196751

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Fm

DATE: 3/3/15

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	8.3	8.2	7.8											
25	8.3	7.9	8.2											
34	8.4	7.8	8.3											
45	8.4	8.0	8.4											
60	8.2	8.1	8.6											
80	8.3	8.2	8.5											
MH	8.1	8.0	8.4											

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	6.51	7.08	7.01											
25	7.28	7.65	7.45											
34	7.32	7.60	7.44											
45	7.44	7.68	7.46											
60	7.47	7.66	7.55											
80	7.51	7.73	7.58											
MH	7.74	7.61	7.92											

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	87	75	82											
25	505	466	454											
34	655	596	595											
45	537	759	794											
60	1054	926	1038											
80	1354	1203	1352											
MH	240	202	243											
Params Intl/Time:	AW 1100	AN 0943	AW 0921											
Dilutions Intl/Time:	AW 1050		AN 0911											
Control Water Batch#:	18563, MH 5800		18563, MH 5800											
Food Batch	4900		4900											

TEST LOG NO. _____ CLIENT: Georgia Pacific Crossett DATE OF TEST: _____

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
18564	Outfall 001	3/1-2/15	3/3/15	50	260	0.09	
	Outfall 001						
	Outfall 001						

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
18563	River Water	3/2/15	3/3/15	24.8	18	0.08	
	River Water						
	River Water						
5800	MH	2/19/15	3/3/15	80.8	45	<0.02	

No 2nd Sample

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

TEST LOG NO.: 17428

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): 3/2-3/15

TEMP @ TEST START: 24.3

RANDOMIZED BY: HM

SOURCE ID:	AGE (time):
10901	1211-1500
10903	1213-1503
10905	1212-1502
10906	1212-1503

TEST START:

HOURS: 1127 DATE: 3/3/15

TEST END:

HOURS: _____ DATE: _____

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
						901			905				903	906		
					Adult	14	10	17	7	16	12	11	2	16	19	
HM 1127		3/3	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

TERMINATED

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

TEST LOG # 17428 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HH 1107		3/3	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.1	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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
HH 1107		3/3	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.1	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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

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Page _____ of _____

TEST LOG # 17428 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HH 1107		3/3	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.5	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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
HH 1107		3/3	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.4	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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

TEST LOG # 17408 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HM 1127		3/3	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.7	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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
HM 1127		3/3	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1054	3/4	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
					Day 2											
					Day 3											
					Day 4											
					Day 5											
					Day 6											
					Day 7											
					Day 8											
			Total													

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

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TEST LOG NO. 17450

JOB NO. 20-19675I

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 3/31/18

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	8.3	8.4	7.8											
25	8.3	8.2	8.2											
34	8.4	8.2	8.3											
45	8.4	8.2	8.4											
60	8.7	8.0	8.6											
80	8.3	8.1	8.5											
MH	8.1	8.2	8.4											

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	6.51	7.31	7.01											
25	7.28	7.84	7.45											
34	7.32	7.91	7.44											
45	7.44	8.05	7.46											
60	7.47	8.15	7.55											
80	7.51	8.26	7.58											
MH	7.74	7.89	7.93											

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	87	89	92											
25	505	491	454											
34	655	630	595											
45	837	798	797											
60	1054	1004	1008											
80	1354	1295	1352											
MH	240	221	249											
Params Intl/Time:	AW1100	AW1110	AW0927											
Dilutions Intl/Time:	AW1050		AW0911											
Control Water Batch#:	18563 MH $800		18563, $800											
Food Batch	44989, $7		44991, $7											

4/15 AW

ENVIRON Test Log No. 17450

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ENVIRON Test Log No. 17450

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Project Name:	Project Number:
Industry: GEORGIA PACIFIC PAPER	
Phone: 870-367-8170 FAX: 870-364-9076	
County: ASHLEY City: CROSSETT State: AR	
Sample Collected by (print): DANNY / BOBBIE	NPDES Permit No.: AR0001210
Sample Collected by (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	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	3-2-15	10:15am													18563	1.8
																		18564	
OUTFALL 001	C	PLASTIC	YES	3-1-15	3-2-15							✓	✓						2.1
				4:08pm	6:19pm														

* 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)
Danny R.	3-2-15	3:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 20L of ice	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/3/15 Time: 0851	pH upon arrival: 6.25 7.60 DO upon arrival: 6.95 9.4

Amie. 3/3/15

Sample Receipt Checklist:

Client: GPCNossett

Date/Time received 3/3/15 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) 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
18563	River	1.8	6.75	9.5	0.08
18564	Cuttalloy	2.1	7.60	9.4	0.09

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Attachment 2:
Chain-Of-Custody Documentation and Reference Toxicant Data

ENVIRON Test Log No. 17450

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Project Name:	Project Number:
Industry: GEORGIA PACIFIC PAPER	
Phone: 870-567-8670 FAX: 870-364-9076	
County: ASHLEY City: CROSSETT State: AR	
Sample Collected by (print): DANNA HOBBIE	NPDES Permit No.: AR0001210
Sample Collected by (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	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
																		18583	3.8
RIVER	G	PLASTIC	NA	3-9-15 10:10am		2	20											18584	2.9
OUTFALL 001	C	PLASTIC	YES	3-8-15 4:22pm	3-9-15 6:25am	2	20					✓	✓						

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

Remarks:

Measured TRC (if applicable): 000 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
[redacted] Danny W. Hobbie	3-9-15	3:00P~			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 2@1L of each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Austin Winton	Date: 3/10/15	Time: 1421

pH upon arrival:	DO upon arrival:
7.10 7.61	8.6 8.1

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 3/10/15 1421 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
18583	River	3.8	7.10	8.6	0.03
18584	Outfall 108	2.9	7.61	8.1	<0.02

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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 PAPER
Phone: 870-567-8170 FAX: 870-364-9016
County: ASHLEY City: CROSSETT State: AR
Sample Collected by (print): DANNY / BOBBIE
NPDES Permit No.: AR0001210
Sample Collected by (signature):
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	3-9-15 10:10am														18551	0.6
OUTFALL 001	C	PLASTIC	YES	3-10-15 6:23am	3-11-15 6:28am							✓	✓					18552	1.4

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only) ON ICE
Danny W. Rice					
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 4OL - 2OL	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 3/12/15 Time: 0910 pH upon arrival: (1) 7.09	DO upon arrival: 8.4

(2) 7.66 8.5

Sample Receipt Checklist:

Client: COP Crossett

Date/Time received 3/12/15 0910 by AP

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
18541	River	0.6	7.09	8.4	0.06
18542	Outfall 001	1.4	7.66	8.5	<0.02

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ENVIRON Test Log No. 17450

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 / BOBBIE

NPDES Permit No.: AR0001210

Sample Collected by (signature):

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	3-9-15 10:10am		2												18599	0.6
OUTFALL 001	C	PLASTIC	YES	3-12-15 6:30am	3-13-15 6:30am	2						✓	✓					18600	0.1

* 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)
Danny W. Rice	3-13-15	3:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 2 OL of each	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita W.	Date: 3/14/15	Time: 1136
				pH upon arrival: 6.84, 7.71	DO upon arrival: 9.5, 8.7

HH 3/15 ic

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 3/14/15 1136 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
18599	River	0.6	6.84	9.5	0.07
18600	Outfall 001	0.1	7.71	8.7	<0.02

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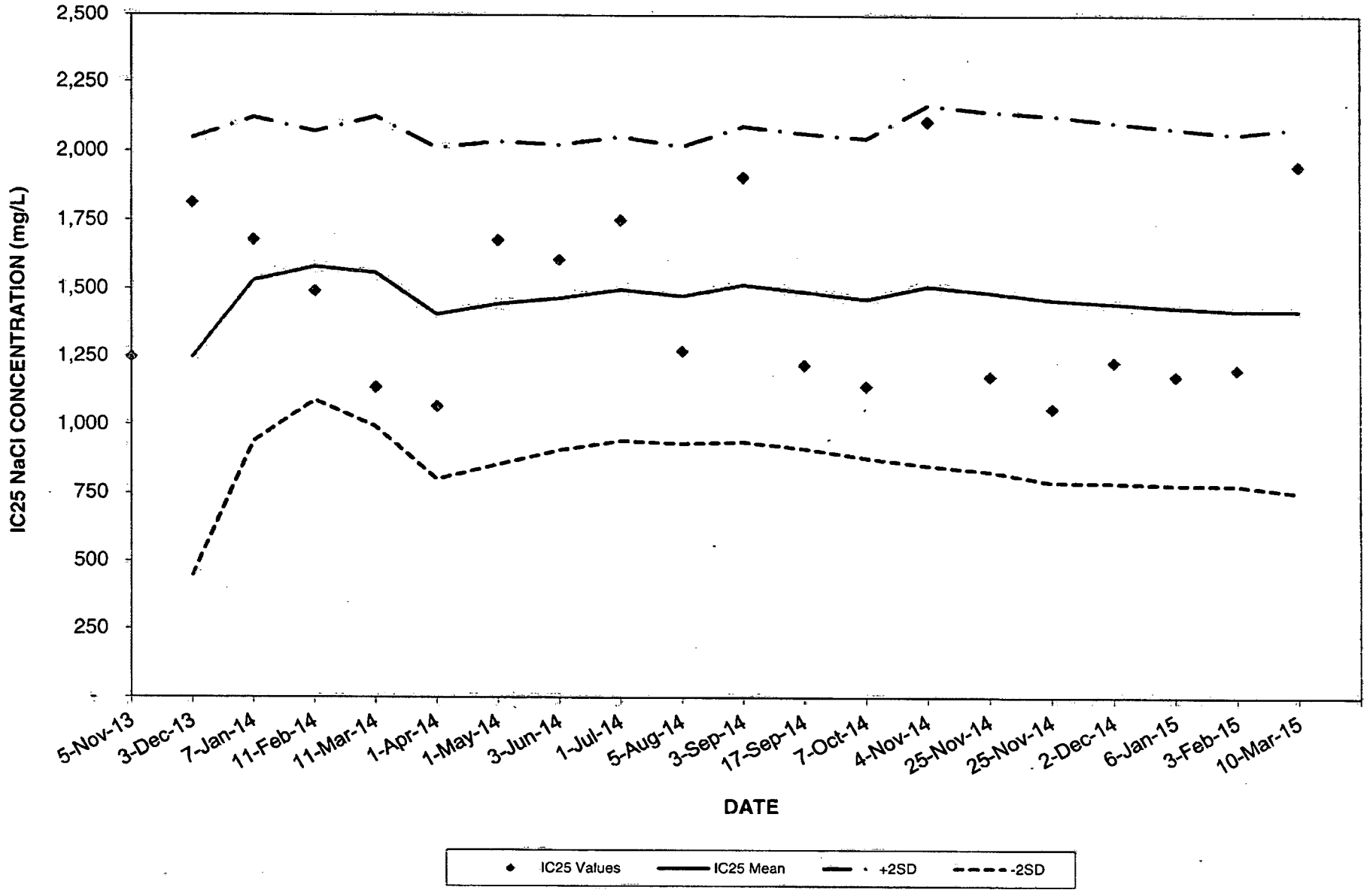
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2013 - 2015
FATHEAD MINNOWS



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3/26/2015

Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2013 - 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	16425	05-Nov-13	100	0.335	750	1,500	750	1,500	19.7	1,248					
2	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814	1,248	400	2,048	448	18
3	16554	07-Jan-14	100	0.464	750	1,500	1,500	3,000	27.8	1,679	1,531	296	2,122	940	15
4	16631	11-Feb-14	92.5	0.484	750	1,500	750	1,500	13.5	1,491	1,580	245	2,071	1,089	14
5	16684	11-Mar-14	100	0.543	750	1,500	750	1,500	28.8	1,138	1,558	284	2,125	991	17
6	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067	1,406	303	2,013	800	20
7	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,445	295	2,036	854	19
8	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,465	279	2,024	907	18
9	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,497	278	2,053	941	18
10	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270	1,474	272	2,018	931	17
11	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,514	289	2,092	936	18
12	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,489	288	2,066	912	19
13	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,462	293	2,047	877	19
14	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,509	330	2,169	848	21
15	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,486	330	2,146	827	21
16	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,460	336	2,132	787	22
17	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,446	330	2,106	785	22
18	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,431	327	2,084	778	22
19	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,419	322	2,062	775	22
20	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,419	335	2,088	749	23
Avg			98	0.444	900	1800	1088	2175	27	1445	1465	307	2079	851	

Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

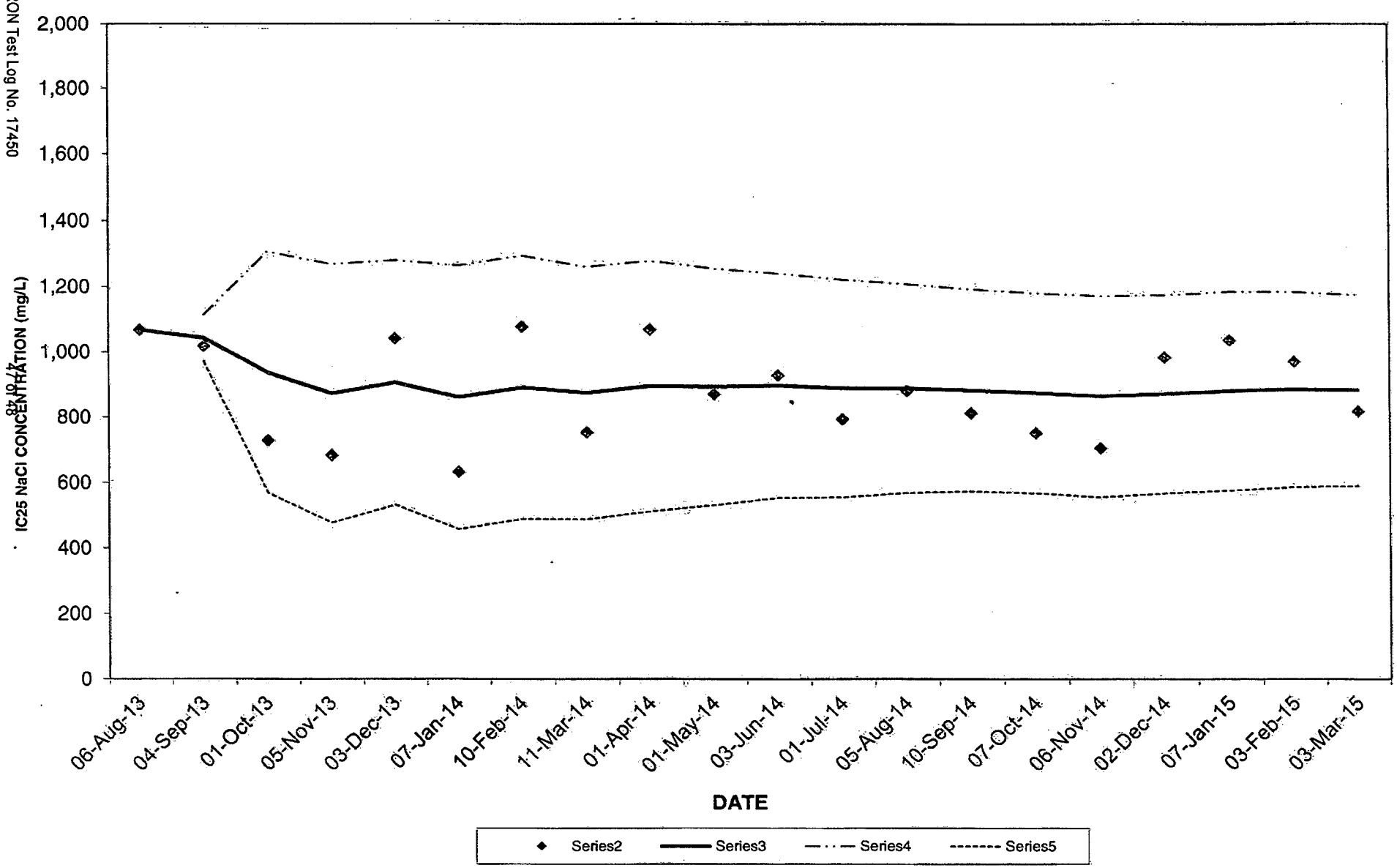
LOEC - Lowest Observable Effect Concentration (survival or growth)

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

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

ENVIRON Test Log No. 17450

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2015
Ceriodaphnia dubia



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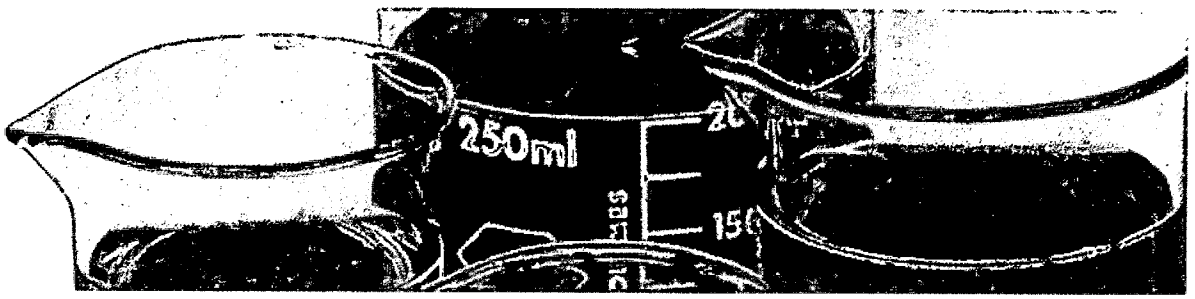
3/19/2015

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	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	1,068				
2	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	1,043	35	1,114	972	2
3	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	937	185	1,307	568	16
4	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	873	198	1,269	477	20
5	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	907	187	1,281	533	18
6	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	861	202	1,265	457	21
7	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	891	202	1,294	488	21
8	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	874	193	1,260	487	21
9	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	895	192	1,279	512	20
10	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	893	181	1,255	530	19
11	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	896	172	1,240	551	18
12	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	887	167	1,220	553	18
13	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	886	160	1,206	566	17
14	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	880	155	1,190	570	17
15	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	871	153	1,178	565	17
16	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	861	154	1,169	553	17
17	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	868	152	1,172	564	17
18	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	877	152	1,182	572	17
19	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	882	150	1,181	582	17
20	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	878	146	1,171	585	16
Avg			100	91	28	1500	1000	542	1083	19	882	904	167	1228	560	

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.



Chronic Toxicity Test Results
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
April 2015

Project Number:
20-19675I

ENVIRON

ENVIRON

April 23, 2015

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

Re: Chronic Toxicity Test Results – Outfall 001 Effluent
ENVIRON Project No. 20-19675l

Dear Ms. Johnson:

ENVIRON conducted a chronic (7-day) whole effluent toxicity (WET) test for Georgia-Pacific in Crossett, AR. The test was conducted according to WET testing requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on April 13, 15, and 17, 2015. The samples were received at ENVIRON on April 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 organism utilized for the chronic toxicity test was *Ceriodaphnia dubia* (*C. dubia*). The test was initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. The river water served as the test dilution water. A secondary control of moderately hard water was also initiated.

The test was 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). Controls met test acceptability criteria (TAC), therefore, the river water control was used for statistical analyses. The results of the chronic toxicity test are as follows:

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

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

The *C. dubia* reproduction Coefficient of Variation (CV) values for the control and critical dilution (80 percent effluent) are 21.2 and 36.6 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The percent minimum significant difference (PMSD) value was 25.3 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia*

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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 data is within acceptable range.

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 27 pages, including this cover letter, attachment pages and separator pages.

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

Sincerely,
ENVIRON International Corporation

Richard e. Lockwood
Project Manager

Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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

Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Laboratory Bench Sheets with Statistical Data

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	07-0505-2497	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Apr-15 14:58	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	10-9007-9571	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	14 Apr-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	20 Apr-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	05-5449-8500	**Code:**	210CF9C4	**Client:**	GPAC Crossett
Sample Date:	13 Apr-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (APR)
Receive Date:	14 Apr-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	1	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

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

Data Summary

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

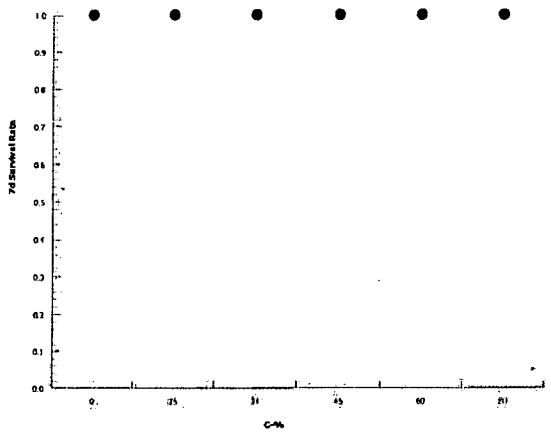
7d Survival Rate Detail

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

7d Survival Rate Binomials

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

Graphics



Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	17-1943-1016	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Apr-15 15:01	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	10-9007-9571	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	14 Apr-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	20 Apr-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	05-5449-8500	**Code:**	210CF9C4	**Client:**	GPAC Crossett
Sample Date:	13 Apr-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (APR)
Receive Date:	14 Apr-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	25.3%

Bonferroni Adj t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-0.1004	2.399	7.166	18	1.0000	CDF	Non-Significant Effect
		34	-0.6026	2.399	7.166	18	1.0000	CDF	Non-Significant Effect
		45	0.6695	2.399	7.166	18	1.0000	CDF	Non-Significant Effect
		60	-0.06695	2.399	7.166	18	1.0000	CDF	Non-Significant Effect
		80	1.734	2.399	7.362	17	0.2218	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	29.1	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.253	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	294.4648	58.89296	5	1.32	0.2699	Non-Significant Effect
Error	2364.756	44.61803	53			
Total	2659.22		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.764	15.09	0.2388	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9668	0.9451	0.1076	Normal Distribution

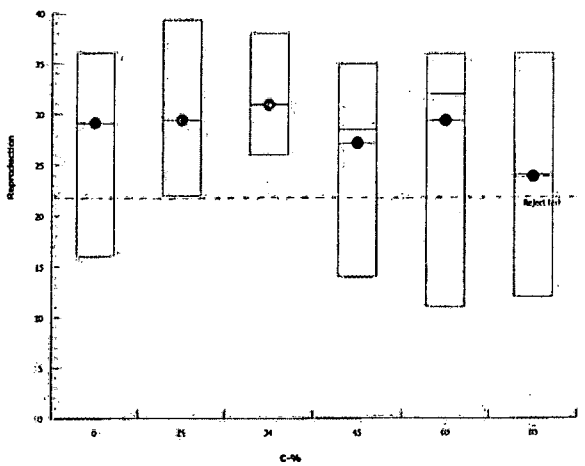
Reproduction Summary

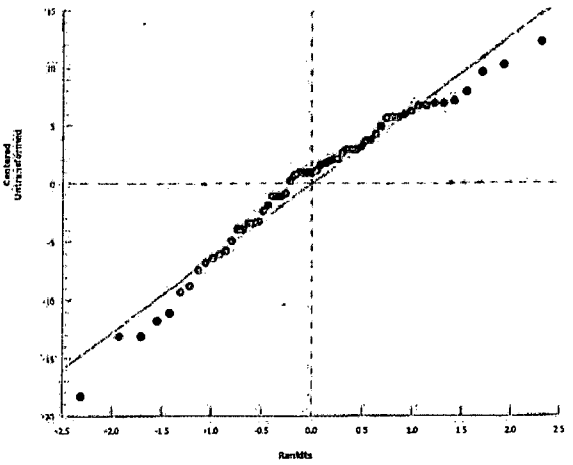
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	29.1	24.7	33.5	29	16	36	1.946	21.15%	0.0%
25		10	29.4	25.48	33.32	29	22	39	1.733	18.64%	-1.03%
34		10	30.9	28.19	33.61	31	26	38	1.197	12.25%	-6.19%
45		10	27.1	22.24	31.96	28.5	14	35	2.147	25.05%	6.87%
60		10	29.3	23.44	35.16	32	11	36	2.591	27.96%	-0.69%
80		9	23.78	17.09	30.47	24	12	36	2.9	36.59%	18.29%

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	28	28	23	30	32	28	34	36	16	36
25		23	22	32	26	27	35	39	31	33	26
34		26	33	33	34	38	30	29	27	32	27
45		28	28	30	14	28	16	30	33	29	35
60		31	36	35	20	30	35	26	33	36	11
80		18	12	30	15	17	24	34	28	36	

Graphics





CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

Analysis ID:	03-9251-6940	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Apr-15 15:07	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	10-9007-9571	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	14 Apr-15	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	20 Apr-15	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	05-5449-8500	**Code:**	210CF9C4	**Client:**	GPAC Crossett
Sample Date:	13 Apr-15	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (APR)
Receive Date:	14 Apr-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	56192	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	29.1	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

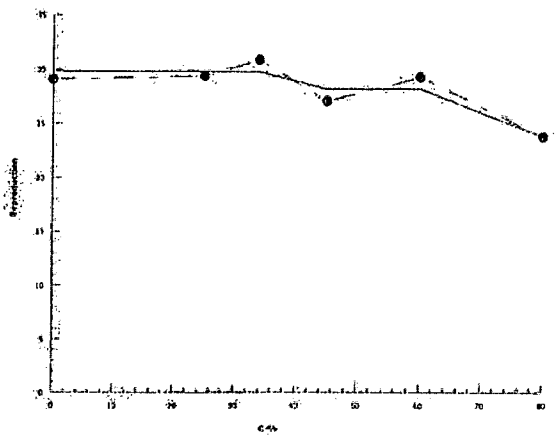
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	29.1	16	36	1.946	6.154	21.15%	0.0%
25		10	29.4	22	39	1.733	5.481	18.64%	-1.03%
34		10	30.9	26	38	1.197	3.784	12.25%	-6.19%
45		10	27.1	14	35	2.147	6.79	25.05%	6.87%
60		10	29.3	11	36	2.591	8.193	27.96%	-0.69%
80		9	23.78	12	36	2.9	8.7	36.59%	18.29%

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	28	28	23	30	32	28	34	36	16	36
25		23	22	32	26	27	35	39	31	33	26
34		26	33	33	34	38	30	29	27	32	27
45		28	28	30	14	28	16	30	33	29	35
60		31	36	35	20	30	35	26	33	36	11
80		18	12	30	15	17	24	34	28	36	

Graphics



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

TEST LOG NO.: 17525

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): 4/13/15

TEMP @ TEST START: 24.1

RANDOMIZED BY: HM

SOURCE ID:	AGE (time):
10951	(1224-1511)
10952	(1224-1512)

TEST START:

HOURS: 1104 DATE: 4/14/15

TEST END:

HOURS: 1235 DATE: 4/20/15

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 1 2 3 4 5 6 7 8 9 10										Notes
					Adult	15	20	10	5	12	16	17	19	18	14	
HM 1104		4/14	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1009	4/15	24.9	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1118	4/16	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.3	24.6	Day 3	✓	5	✓	6	5	✓	5	6	✓	6	
	AW 1147	4/18	24.2	24.3	Day 4	5	8	5	✓	✓	3	✓	✓	5	✓	
	AW 1139	4/19	24.7	24.3	Day 5	9	✓	7	8	10	9	12	12	11	12	
AW 1235		4/20		24.6	Day 6	14	15	11	16	17	16	17	18	✓	18	90%
					Day 7											
					Day 8											
			Total			28	28	23	30	32	28	34	36	16	36	291

K=.75 = 218

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

TEST LOG # 17525 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AM 1104		4/14	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	24.8	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 1116	4/16	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.2	24.1	Day 3	✓	✓	6	5	4,	4	5	4	4	✓	
	AW 1147	4/18	24.1	24.7	Day 4	2	4	7	✓	(1)	✓	✓	✓	✓	4	
	AW 1139	4/19	24.9	24.8	Day 5	8	4	✓	8	8	13	15	8	11	8	
AW 1235		4/20		24.3	Day 6	13	14	19	13	14	18	19	19	18	14	
					Day 7											
					Day 8											
			Total			23	22	32	26	27	35	39	31	33	26	294

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
AM 1104		4/14	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	25.3	25.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AM 1116	4/16	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.1	24.6	Day 3	✓	6	5	5	4,	4	5	4	4	4	
	AW 1147	4/18	24.2	24.2	Day 4	3	9	10	9	(2)	✓	9	✓	✓	✓	
	AW 1139	4/19	24.8	24.9	Day 5	6	✓	✓	✓	13	7	✓	8	9	6	
AW 1235		4/20		24.5	Day 6	17	18	18	20	19	19	15	15	19	17	
					Day 7											
					Day 8											
			Total			26	33	33	34	38	30	29	27	32	27	309

✓ = 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 # 17525 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HM 1104		4/14	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	24.9	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1118	4/16	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.3	24.6	Day 3	✓	5	4	✓	5	✓	5	✓	4	5	
	AW 1147	4/18	24.4	25.1	Day 4	4	6	11	7	8	5	✓	6	✓	✓	
	AW 1139	4/19	24.6	24.8	Day 5	8	✓	✓	7	✓	11	12	11	7	11	
AW 1235		4/20		24.2	Day 6	16	17	15	✓	15	✓	13	16	18	19	80%
					Day 7											
					Day 8											
			Total			28	28	30	14	28	16	30	33	29	35	271

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
HM 1104		4/14	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	24.6	25.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1118	4/16	24.5	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.6	24.3	Day 3	✓	4	7	5	4	5	4	3	4	✓	
	AW 1147	4/18	24.5	24.2	Day 4	5	2	10	✓	8	✓	✓	✓	1	4	
	AW 1139	4/19	24.5	24.7	Day 5	9	13	✓	✓	✓	11	8	10	14	7	
AW 1235		4/20		24.5	Day 6	17	17	18	15	18	19	14	20	17	✓	80%
					Day 7											
					Day 8											
			Total			31	36	35	26	30	35	26	33	36	11	293

✓ = 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 # 17525 JOB # 20-19675I

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			Replicates 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HH 1104		4/14	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	24.8	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1118	4/16	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.3	24.2	Day 3	✓	5	6	4	4 (1)	✓	5	5	6	5	
	AW 1147	4/18	24.3	25.1	Day 4	4	✓	(7)	✓	1	4	12	✓	✓	✓	*Pinched ... AW
	AW 1139	4/19	24.6	24.7	Day 5	✓	✓	(1)	11	12	7	✓	9	✓	14	
AW 1235		4/20		24.8	Day 6	14	7	16	✓	✓	13	17	14	✓	17	50♀
					Day 7											
					Day 8											1.0 ... PBE 4/20
			Total			18	12	30	15	17	24	34	28	(6) N/A	36	~~220~~ 214 / 9 = 23.8

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
HH 1104		4/14	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1003	4/15	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1118	4/16	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1050	4/17	24.1	24.0	Day 3	✓	5	5	✓	5	5	4	✓	4	4	
	AW 1147	4/18	24.2	24.5	Day 4	3	✓	✓	5	✓	✓	8	3	✓	✓	
	AW 1139	4/19	24.1	24.7	Day 5	7	6	10	9	✓	9	✓	5	11	8	
AW 1235		4/20		24.8	Day 6	9	14	17	15	16	17	16	14	18	15	100♀
					Day 7											
					Day 8											
			Total			19	25	32	29	26	31	28	22	33	27	272 x.75 = 204

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

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ENVIRON Test Log No. 17525 14 of 27 ... 4/29/15 AW Page 4 of 4

TEST LOG NO. 17525

JOB NO. 20-196751

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 4/14/15

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	8.0	8.3	8.3	8.3	8.3	8.4	8.2	7.8	8.4	7.8	8.5	7.8	8.0	
25	8.0	8.3	8.3	8.3	8.2	8.3	8.3	7.9	8.3	7.9	8.6	7.8	8.2	
34	8.1	8.4	8.5	8.2	8.3	8.3	8.2	8.1	8.3	8.0	8.6	7.6	8.3	
45	7.9	8.4	8.5	8.2	8.3	8.3	8.2	8.1	8.4	8.0	8.7	7.7	8.0	
60	7.1	8.1	8.3	8.3	8.2	8.2	8.2	8.1	8.4	8.2	8.6	7.8	8.2	
80	7.8	8.1	8.1	8.3	8.2	8.2	8.3	8.0	8.2	8.2	8.5	7.9	8.2	
MH	7.8	8.2	8.4	8.2	8.2	8.2	8.3	7.9	8.5	8.0	8.5	8.0	8.1	

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	6.43	7.61	7.84	7.88	7.22	7.49	7.61	7.34	6.47	7.51	6.80	7.35	6.75	
25	7.03	8.10	7.21	7.83	7.24	7.90	7.20	7.95	7.11	8.01	7.31	7.95	7.50	
34	7.32	8.23	7.40	8.00	7.33	8.06	7.25	8.13	7.32	8.15	7.46	8.08	7.49	
45	7.38	8.33	7.55	8.14	7.45	8.14	7.35	8.27	7.47	8.27	7.53	8.15	7.59	
60	7.60	8.44	7.74	8.34	7.45	8.23	7.66	8.37	7.59	8.35	7.68	8.27	7.71	
80	7.71	8.54	7.82	8.45	7.70	8.40	7.77	8.47	7.76	8.50	7.80	8.40	7.54	
MH	8.01	8.12	7.94	7.82	7.83	7.72	7.60	7.85	7.86	7.92	7.92	7.93	7.87	

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	81	108	74	135	125	130	121	79	79	93	80	87	71	
25	509	528	509	562	576	545	558	519	549	510	480	507	475	
34	688	693	708	762	734	711	975	720	738	662	703	708	691	
45	900	935	950	965	920	944	1076	945	951	887	859	860	927	
60	1195	1215	1711	1271	1784	1211	1230	1236	1216	1123	1098	1106	1173	
80	1561	1549	1539	1526	1570	1571	1571	1588	1499	1608	1418	1446	1531	
MH	241	258	211	260	257	215	253	223	225	215	210	231	230	
Params Intl/Time:	AW 0936	AW 1012	AW 1000	AW 1130	AB 1027	AW 1110	AH 0921	AW 1201	AW 1012	AW 1149	AW 0852	AW 1250	AW 0912	
Dilutions Intl/Time:	AW 0926		AW 0850		AB 1018		AH 0917		AW 1002		AW 0842		AW 0911	
Control Water Batch#:	RW 13699, MH 5851		18609, 5855		18611, 5855		5855		5861, RW 18721		5861, RW 18721		5861, 18721	
Food Batch	5050, 4990		5090		5090		5090		5056, 4990		5058, 4990		5055, 4990	

TEST LOG NO. 17525 CLIENT: Georgia Pacific Crossett DATE OF TEST: 4/14/15

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
18701	Outfall 001	4/12-13/15	4/14/15	~~24~~ 256	355	<0.02	3.51
						wp 4/20/15	
18711	Outfall 001	4/14-15/15	4/16/15	260	360	AW ~~0.03~~ <0.02	4.02
18722	Outfall 001	4/16-17/15	4/18/15	240	340	<0.02	3.49

wp AW 4/14/15

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
18700	River Water	4/13/15	4/14/15	~~256~~ 24	35	0.03	1.09
18710	River Water	4/13/15	4/16/15	20	30	0.03	0.108
18721	River Water	4/13/15	4/18/15	19.2	1.9	0.02	0.248
5851	MH	4/9/15	4/11/15	96	53	<0.02	—
5855	MH	4/12/15	4/15/15	83.2	45	<0.02	—
5861	MH	4/16/15	4/18/15	82.4	45	<0.02	—

wp AW 4/14/15

Attachment 2:
Chain-Of-Custody Documentation and Reference Toxicant Data

ENVIRON Test Log No. 17525

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Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-367-8710 FAX: 870-364-9076

County: ASHLEY City: CROSSETT State: AR.

Sample Collected by (print): DANNY PAUL

Sample Collected by (signature): Danny Paul

NPDES Permit No.: AR0001210

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
RIVER	G	PLASTIC	NA	4-13-15 10:00am		1	10											18-700	
																		18-701	
OUTFALL 001	C	PLASTIC	YES	4-12-15 3:48pm	4-13-15 6:21am	1	10						✓					18-702	

* 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)
Danny W. Paul	4-13-15	3:20pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Containers/Volume Received: 10L Ice chest	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winton	Date: 4/14/15 Time: 0848	pH upon arrival: 7.05, 7.89 DO upon arrival: 8.1, 7.8

Sample Receipt Checklist:

Client: GP Cvossett

Date/Time received 4/14/15 0848 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
18700	River	4.6	7.05	8.1	0.03
18701	Buffalo(00	4.1	7.89	7.8	<0.02

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ENVIRON Test Log No. 17525

Project Name: | Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-367-8170 FAX: 870-364-9576

County: ASHLEY City: CROSSETT State: AR.

Sample Collected by (print): DANNY / PAUL

Sample Collected by (signature):

NPDES Permit No.: AR0001210

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
RIVER	G	PLASTIC	NA	4-13-15 10:00AM		1	10	■		■		■		■		■		18710	4.1
OUTFALL 001	C	PLASTIC	YES	4-14-15 6:20AM	4-15-15 6:22AM	1	10	■		■		■		■		■		18711	3.6

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)
	4-15-15	3:00 PM	
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: [illegible]

Date: 4/15/15 Time: 0831 pH upon arrival: 6.55 DO upon arrival: 8.42

ID 795 86

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Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 4/16/15 0839 by MH

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
18710	River	4.1	6.59	8.4	0.03
18711	Outfall 001	3.9	7.55	8.60	<0.02

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ENVIRON Test Log No. 17525

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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 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): Danny ... R

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	~~Plastic~~	Plastic	NA	4-13-15 10:00 am														187121	2.3
OUTFALL 001			YES	4-16-15 6:20	4-17-15 6:21								✓					187122	2.8

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	
[signature]	4/17/15	5:00pm		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 of each
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winter	Date: 4/18/15; Time: 0932; pH upon arrival: 6.57 / 7.93; DO upon arrival: 9.0 / 9.2

RW 001 RW 001

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 4/18/15 0932 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
18721	River	2.3	6.57	9.0	0.02
18722	Outfall 001	2.8	7.93	9.2	<0.02

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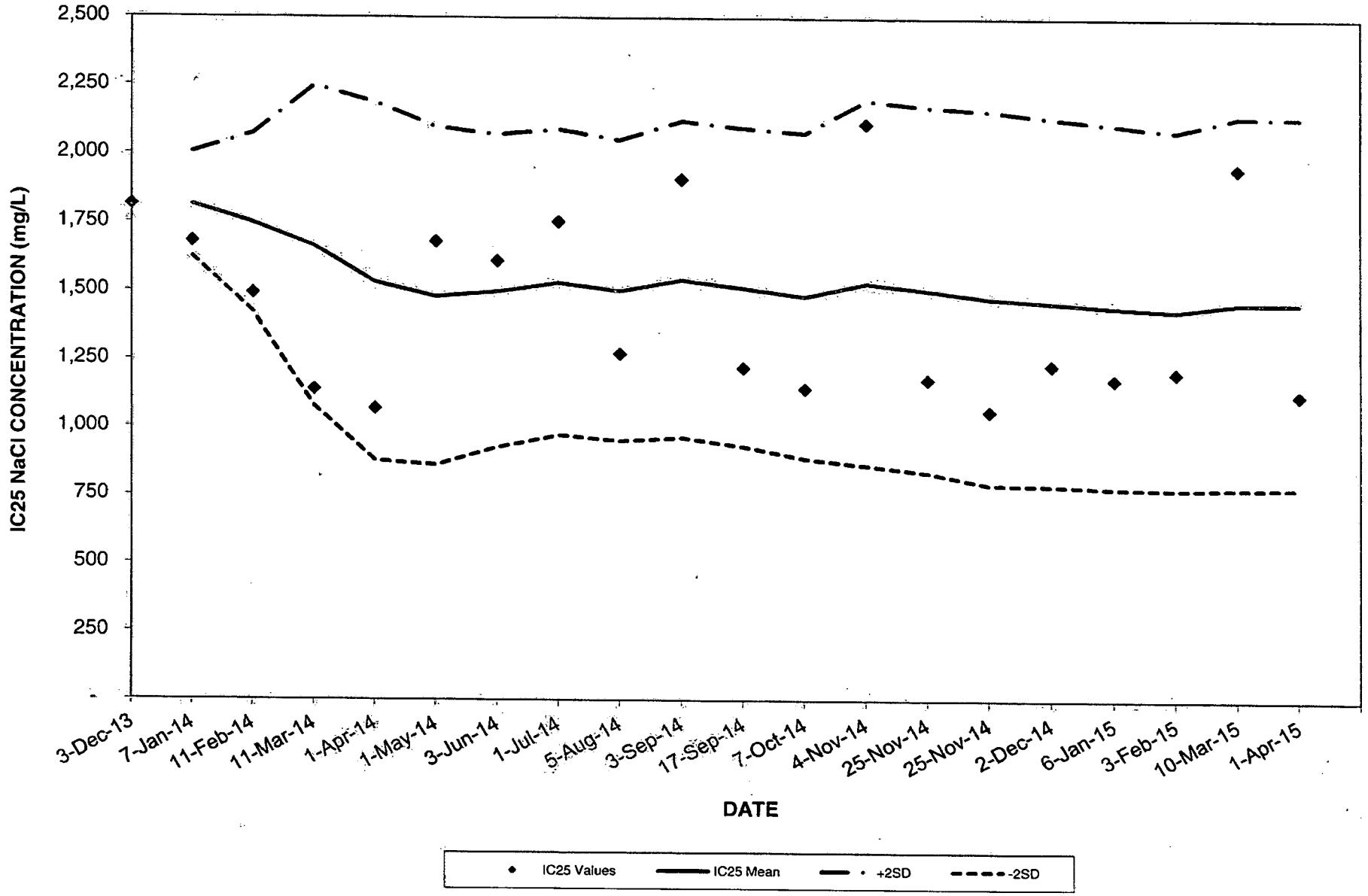
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2013 - 2015
FATHEAD MINNOWS



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4/22/2015

Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2013 - 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	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814					
2	16554	07-Jan-14	100	0.464	750	1,500	1,500	3,000	27.8	1,679	1,814	95	2,005	1,623	4
3	16631	11-Feb-14	92.5	0.484	750	1,500	750	1,500	13.5	1,491	1,747	162	2,071	1,422	8
4	16684	11-Mar-14	100	0.543	750	1,500	750	1,500	28.8	1,138	1,661	293	2,248	1,075	17
5	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067	1,531	328	2,186	875	20
6	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,478	309	2,096	859	19
7	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,496	286	2,069	923	18
8	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,528	280	2,088	968	17
9	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270	1,499	276	2,051	948	17
10	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,540	290	2,121	960	18
11	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,511	292	2,095	927	18
12	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,480	298	2,076	884	19
13	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,529	335	2,198	859	21
14	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,503	335	2,174	833	21
15	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,474	343	2,160	788	22
16	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,458	337	2,132	784	22
17	17317	06-Jan-15	97.5	0.476	1,500	3,000	1,500	3,000	42.2	1,176	1,442	333	2,108	775	22
18	17379	03-Feb-15	100	0.515	750	1,500	750	1,500	25.3	1,200	1,428	328	2,085	771	22
19	17427	10-Mar-15	97.5	0.519	1,500	3,000	1,500	3,000	34.3	1,948	1,456	341	2,137	774	23
20	17504	01-Apr-15	90	0.316	750	1,500	750	1,500	39.1	1,117	1,456	340	2,136	775	23
		Avg	98	0.443	900	1800	1088	2175	28	1439	1528	295	2118	938	

Notes:

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

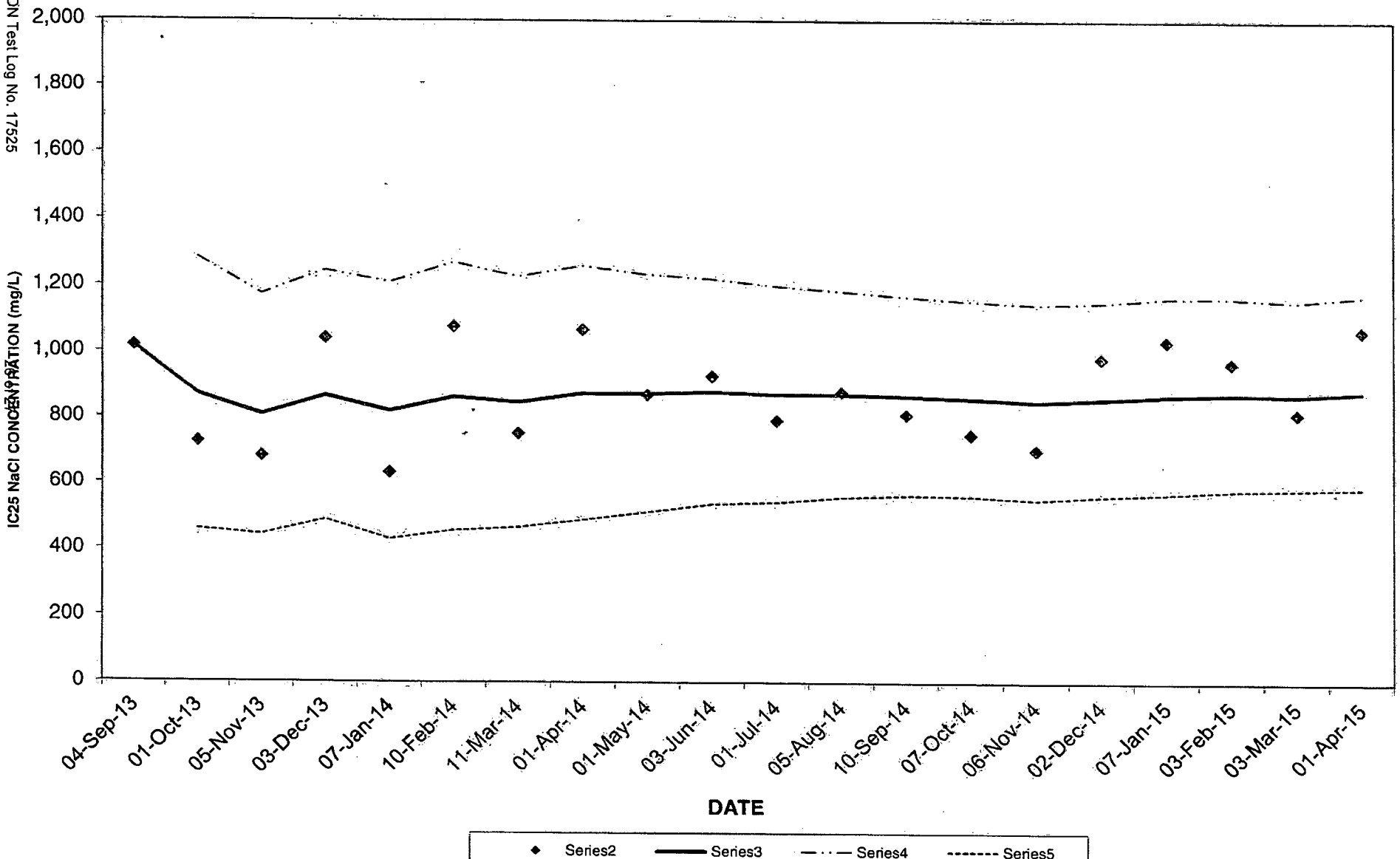
NOEC - No Observable Effect Concentration (survival or growth)

LOEC - Lowest Observable Effect Concentration (survival or growth)

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

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

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2015
Ceriodaphnia dubia



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4/22/2015

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	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	1,018				
2	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	872	206	1,285	459	17
3	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	808	183	1,174	442	18
4	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	867	189	1,245	488	19
5	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	819	195	1,209	429	21
6	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	862	204	1,269	455	22
7	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	846	191	1,227	465	21
8	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	874	193	1,260	488	21
9	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	873	181	1,234	512	19
10	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	878	171	1,220	536	18
11	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	870	164	1,199	541	18
12	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	871	157	1,184	557	17
13	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	866	151	1,168	564	17
14	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	857	149	1,155	560	17
15	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	847	149	1,145	549	17
16	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	855	148	1,151	560	17
17	17316	07-Jan-15	100	90	28.2	2,000	>2000	500	1,000	17.8	1,032	866	149	1,164	567	17
18	17380	03-Feb-15	100	90	33.2	2,000	>2000	500	1,000	18.7	966	871	147	1,165	578	16
19	17427	03-Mar-15	100	90	26.7	1,000	2,000	500	1,000	21.4	811	868	143	1,155	582	16
20	17504	01-Apr-15	100	90	24.5	1,000	2,000	1,000	2,000	24.9	1,064	878	146	1,170	586	16
Avg			100	91	29	1556	889	542	1083	19	868	868	172	1203	515	

Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

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

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00200

MUR4

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1 From

Date 5/22/15

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Company GEORGIA PACIFIC/ENVIRONMENTAL

Address 100 SUPPLY RD

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Company NPDES Enforcement, ADEQ

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