Georgia-Pacific

Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
100 Mill Supply Rd.
P.O. Box 3333
Crossett, AR 71635
(870) 567-8000
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January 15, 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 December 2014. As required by Part II, Section 5, paragraph d, of our NPDES Permit, a Toxicity Reduction Evaluation (TRE) Activities Report has also been included to cover TRE activities conducted this quarter.

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

TRE Activities Report
For Fourth Quarter of 2014

A Toxicity Reduction Evaluation (TRE) Action Plan was submitted on July 12, 2011 after sub-lethal effects were demonstrated in three consecutive Whole Effluent Toxicity (WET) tests for *Ceriodaphnia dubia*, as required by Part II, Condition 15, Paragraph 5 of NPDES permit number AR0001210. As per the plan the mill has begun conducting monthly WET testing for *Ceriodaphnia dubia* in an attempt to capture episodes of sub-lethal toxicity. There were no episodes of toxicity noted during the fourth quarter of 2014; therefore, no addition Toxicity Identification Evaluation (TIE) manipulations were conducted.

Chronic Toxicity Test Results
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
December 2014

Project Number:
20-19675H

ENVIRON

ENVIRON

December 22, 2014

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. 20-19675H

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 December 8, 10, and 12, 2014. The samples were received at ENVIRON on December 9, 11, and 13, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

Tests were conducted in accordance with *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition (EPA-821-R-02-013). All controls met test acceptability criteria (TAC), therefore, the river 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*.

The Coefficient of Variation (CV) values for the fathead minnow survival in the river water control and critical dilution are 24.8 and zero percent, respectively. The CV values for growth in the control and critical dilution are 19.8 and 8.2 percent, respectively, and meet the CV limit of 40

percent for findings of no toxicity. The effluent concentration-response curve can be described as a Type 10 dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 10 response is characterized by an increase in fish growth as the test concentrations increase. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 29.9 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 17.4 and 17.9 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 22.8 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and cannot be described in EPA 821-B-00-004. A flat concentration-response curve is indicative of a lack of toxicity. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 36 pages, including this cover letter, attachment pages and separator pages.

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

Sincerely,
ENVIRON International Corporation

Richard e. Lockwood
Project Manager

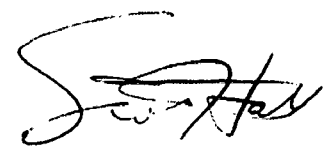
Robin L. Richards, REM
Principal

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:
Statistical Analysis and Raw Data Sheets

CETIS Analytical Report

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

Analysis ID:	02-5422-8294	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:21	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	12-4614-6948	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Dec-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	11.2%

Steel Many-One Rank Sum Test

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

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.9	0.8 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.06154736	0.01230947	5	1	0.4389	Non-Significant Effect
Error	0.2954274	0.01230947	24			
Total	0.3569747		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	587	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.4063	0.9031	<0.0001	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.9	0.6224	1	1	0.5	1	0.1	24.85%	0.0%
25		5	1	1	1	1	1	1	0	0.0%	-11.11%
34		5	1	1	1	1	1	1	0	0.0%	-11.11%
45		5	1	1	1	1	1	1	0	0.0%	-11.11%
60		5	1	1	1	1	1	1	0	0.0%	-11.11%
80		5	1	1	1	1	1	1	0	0.0%	-11.11%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.272	0.9341	1.609	1.393	0.7854	1.393	0.1215	21.37%	0.0%
25		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-9.56%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-9.56%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-9.56%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-9.56%
80		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-9.56%

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

Analysis ID:	02-5422-8294	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:21	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1	1	1	1	0.5
25		1	1	1	1	1
34		1	1	1	1	1
45		1	1	1	1	1
60		1	1	1	1	1
80		1	1	1	1	1

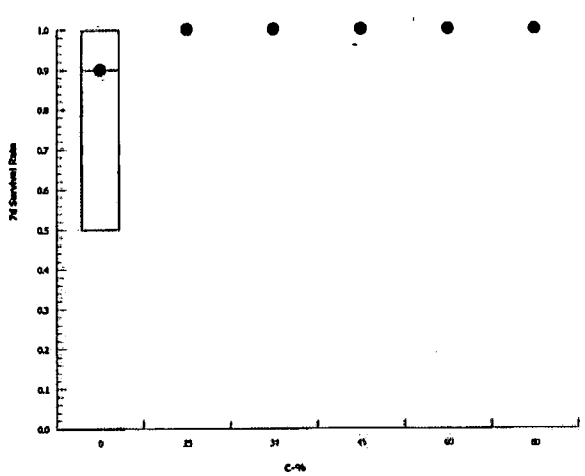
Angular (Corrected) Transformed Detail

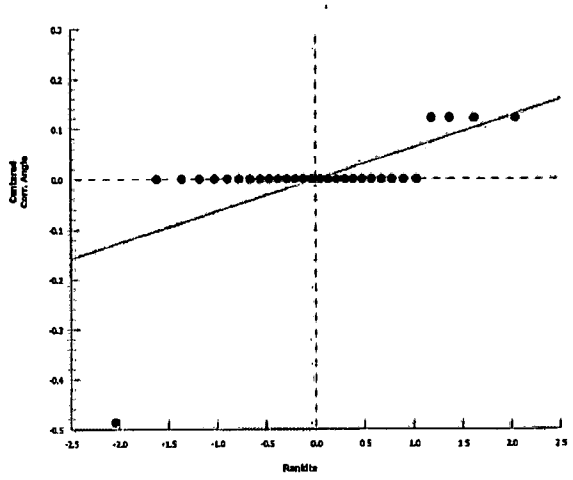
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.393	1.393	1.393	0.7854
25		1.393	1.393	1.393	1.393	1.393
34		1.393	1.393	1.393	1.393	1.393
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.393	1.393	1.393	1.393	1.393

7d Survival Rate Binomials

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

Graphics





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

Analysis ID:	18-8085-7077	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:21	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	12-4614-6948	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Dec-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**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	29.9%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-2.208	2.362	0.163	8	0.9996	CDF	Non-Significant Effect
		34	-2.86	2.362	0.163	8	1.0000	CDF	Non-Significant Effect
		45	-4.097	2.362	0.163	8	1.0000	CDF	Non-Significant Effect
		60	-3.35	2.362	0.163	8	1.0000	CDF	Non-Significant Effect
		80	-2.882	2.362	0.163	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.545	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2988	0.12 - 0.3	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2343608	0.04687215	5	3.943	0.0094	Significant Effect
Error	0.2853211	0.01188838	24			
Total	0.5196818		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.565	15.09	0.7667	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.972	0.9031	0.5949	Normal Distribution

Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.545	0.4112	0.6788	0.5187	0.4375	0.715	0.04818	19.77%	0.0%
25		5	0.6973	0.5551	0.8394	0.6625	0.5562	0.82	0.05121	16.42%	-27.94%
34		5	0.7423	0.596	0.8885	0.7213	0.625	0.8938	0.05269	15.87%	-36.19%
45		5	0.8275	0.6507	1.004	0.8563	0.6487	1.029	0.06367	17.2%	-51.84%
60		5	0.776	0.66	0.892	0.75	0.6738	0.9137	0.04177	12.04%	-42.39%
80		5	0.7438	0.6678	0.8197	0.7563	0.64	0.795	0.02735	8.22%	-36.47%

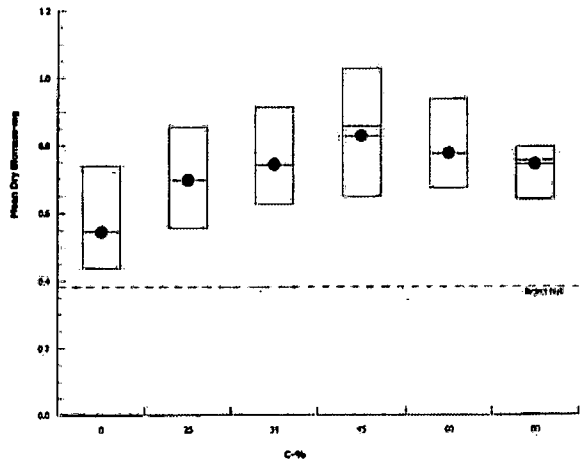
Mean Dry Biomass-mg Detail

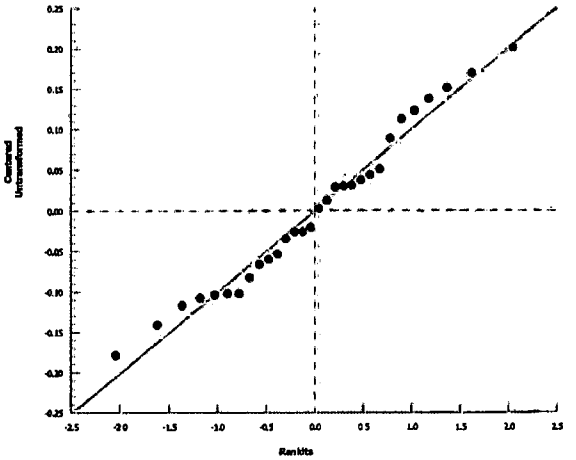
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.715	0.575	0.4375	0.5187	0.4787
25		0.81	0.5562	0.6625	0.82	0.6375
34		0.8313	0.64	0.7213	0.8938	0.625
45		0.6487	0.745	0.8587	0.8563	1.029
60		0.75	0.6738	0.82	0.7225	0.9137
80		0.7463	0.7563	0.7813	0.64	0.795

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

Analysis ID:	18-8085-7077	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:21	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

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

Analysis ID:	10-2324-8168	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:22	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	12-4614-6948	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Dec-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1930880	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.545	0.25 - 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

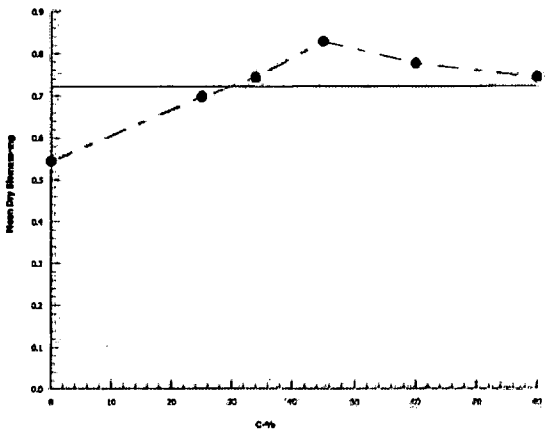
Mean Dry Biomass-mg Summary — Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.545	0.4375	0.715	0.04818	0.1077	19.77%	0.0%
25		5	0.6973	0.5562	0.82	0.05121	0.1145	16.42%	-27.94%
34		5	0.7423	0.625	0.8938	0.05269	0.1178	15.87%	-36.19%
45		5	0.8275	0.6487	1.029	0.06367	0.1424	17.2%	-51.84%
60		5	0.776	0.6738	0.9137	0.04177	0.09341	12.04%	-42.39%
80		5	0.7438	0.64	0.795	0.02735	0.06115	8.22%	-36.47%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.715	0.575	0.4375	0.5187	0.4787
25		0.81	0.5562	0.6625	0.82	0.6375
34		0.8313	0.64	0.7213	0.8938	0.625
45		0.6487	0.745	0.8587	0.8563	1.029
60		0.75	0.6738	0.82	0.7225	0.9137
80		0.7463	0.7563	0.7813	0.64	0.795

Graphics



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

TEST LOG NO.: 17272
JOB NUMBER.: 20-19675H
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes / No
FOOD BATCH: 4818

BEGINNING: HRS: 1315 DATE: 12/9/14
ENDING: HRS: 1150 DATE: 12/16/14
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 12/8/14
ORGANISM SOURCE: ECT# 4904
SOURCE TEMP @ TEST START: 24.3
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	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 (12/13)	7 (12/14)	4	4
	Temp(°C):old/new	24.0	24.0 / 24.0	24.2 / 24.0	24.1 / 24.2	24.0 / 24.1	24.0 / 24.0	24.0 / 24.4	24.9
25	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	7	7	7
	Temp(°C):old/new	24.1	24.0 / 24.0	24.0 / 24.0	24.0 / 24.1	24.0 / 24.0	24.0 / 24.5	24.1 / 24.3	25.0
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	7	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	7
	E	8	8	8	8	8	8 (12/14)	6	6
	Temp(°C):old/new	24.3	24.0 / 24.1	24.4 / 24.1	24.1 / 24.1	24.0 / 24.0	24.0 / 24.1	24.0 / 24.4	25.2
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8 (12/13)	8 / 7	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	24.0	24.0 / 24.1	24.3 / 24.1	24.1 / 24.2	24.0 / 24.1	24.0 / 24.2	24.0 / 24.2	24.3
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8 (12/13) / 7	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	7
	Temp(°C):old/new	24.1	24.1 / 24.0	24.3 / 24.0	24.1 / 24.2	24.3 / 24.1	24.6 / 24.0	24.3	24.3
80	A	8	8	8	8	8	8	8	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	7
	E	8	8	8	8	8	8	8	7
	Temp(°C):old/new	24.3	24.0 / 24.1	24.4 / 24.0	24.1 / 24.1	24.1 / 24.3	24.4 / 24.1	24.4	24.1
Test Renewal	Time	1315	1154	1240	1410	1203	1138	1100	1150
	Date	12/9/14	12/10/14	12/11/14	12/12/14	12/13/14	12/14/14	12/15/14	12/16/14
	Initials	LM	AW	LM	LM	AW	AW	AW	AW
morning feeding	Int/Time	[redacted]	AW0700	AW0700	AW0715	AW0730	AW0735	AW0700	[redacted]
afternoon feeding	Int/Time	AW1620	AW1320	AW1530	AW1540	AW1430	AW1447	AW1515	[redacted]

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

TEST LOG NO.: 17272
JOB NUMBER.: 20-19675H
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes ✓ No
FOOD BATCH: 4818

BEGINNING: HRS: 1315 DATE: 12/9/14
ENDING: HRS: 1150 DATE: 12/17/14

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	6	8
	B	8	8	8	8	8	8	6	8
	C	8	8	7	7	7	7	7	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	~~8~~ 7	7	7
	Temp(°c):old/new	24.8	24.6/24.1	24.1/24.0	24.0/24.1	24.0/24.1	24.0/24.0	24.4/24.1	24.4
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	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.: 17272 BEGINNING: HRS: 1315 DATE: 12/9/14
JOB NO.: 20-19675H ENDING: HRS: 1150 DATE: 12/16/14
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 95	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish
RW	A	1	1.11153	1.11725	0.00572	8	0.715
	B	2	1.09016	1.09476	0.00460	8	0.575
	C	3	1.12437	1.12787	0.00350	8	0.438
	D	4	1.10043	1.10458	0.00415	8	0.519
	E	5	1.11155	1.11538	0.00383	4	0.958
25	A	6	1.11927	1.12575	0.00648	8	
	B	7	1.10605	1.11050	0.00445	7	
	C	8	1.10214	1.10744	0.00530	8	
	D	9	1.11032	1.11688	0.00656	8	
	E	10	1.10057	1.10567	0.00510	7	
34	A	11	1.11624	1.12289	0.00665	8	
	B	12	1.12276	1.12788	0.00512	8	
	C	13	1.12469	1.13046	0.00577	8	
	D	14	1.10971	1.11686	0.00715	7	
	E	15	1.12254	1.12754	0.00500	6	
45	A	16	1.12314	1.12833	0.00519	8	
	B	17	1.10548	1.11144	0.00596	7	
	C	18	1.11734	1.12421	0.00687	8	
	D	19	1.10382	1.11067	0.00685	8	
	E	20	1.10935	1.11758	0.00823	8	
60	A	21	1.10915	1.11515	0.00600	8	
	B	22	1.11461	1.12000	0.00539	7	
	C	23	1.10440	1.11096	0.00656	8	
	D	24	1.11742	1.12320	0.00578	8	
	E	25	1.10629	1.11360	0.00731	7	
80	A	26	1.11033	1.11630	0.00597	7	
	B	27	1.10773	1.11378	0.00605	8	
	C	28	1.10392	1.11017	0.00625	8	
	D	29	1.09981	1.10493	0.00512	7	
	E	30	1.09000	1.09636	0.00636	7	
MH	A	31	1.11160	1.11647	0.00487	8	
	B	32	1.11095	1.11577	0.00482	8	
	C	33	1.10222	1.10680	0.00458	7	
	D	34	1.10948	1.11475	0.00527	8	
	E	35	1.09426	1.10040	0.00614	7	
	Initials / Date:		LTH 12/12				

AVG Control Fish wt. 0.641 **(using final #)**

Oven ID: 2

Tins In:
Date: 12/16/14
Time: 1305
Temp (°C): 100
Initials: AW

Tins Out:
Date: 12/17/14
Time: 0930
Temp (°C): 100
Initials: LM

FINAL WEIGHTS
DATE: 12/17/14
INITIALS: LM

TEST LOG NO. 17272

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675H

TEST ORGANISM: Fm

DATE: 12/9/14

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	8.7	8.3	8.4	8.1	8.4	8.6	8.1	8.6	8.2	8.6	8.5	8.3	8.1	8.3
25	8.1	8.3	8.4	8.0	8.3	8.3	8.3	8.5	8.2	8.6	8.4	8.4	8.4	8.2
34	8.4	8.4	8.5	7.9	8.2	8.3	8.3	8.5	8.1	8.5	8.4	8.6	8.4	8.4
45	8.4	8.4	8.4	7.6	8.4	7.9	8.2	8.6	8.1	8.1	8.5	8.5	8.3	8.2
60	8.4	8.0	8.3	7.0	8.4	7.4	8.2	8.6	8.2	7.7	8.5	8.6	8.3	8.4
80	8.5	7.7	8.1	6.7	8.3	6.9	8.3	8.5	8.3	7.2	8.6	8.6	8.3	8.2
MH	8.5	8.0	8.3	8.0	8.6	8.1	8.2	7.8	8.4	7.9	8.5	8.1	8.4	8.3

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	7.17	7.85	7.82	7.76	7.72	7.94	7.77	7.50	7.32	7.73	7.56	7.93	7.97	7.96
25	7.08	7.56	7.69	7.44	7.39	7.55	7.41	7.25	7.40	7.44	7.35	7.89	7.61	7.55
34	7.44	7.68	7.34	7.49	7.60	7.51	7.46	7.39	7.40	7.43	7.40	7.99	7.56	7.64
45	7.69	7.71	7.50	7.59	7.44	7.54	7.40	7.68	7.40	7.50	7.49	7.63	7.65	7.57
60	7.69	7.85	7.61	7.73	7.58	7.68	7.53	7.71	7.46	7.69	7.51	7.74	7.57	7.61
80	7.76	8.05	7.74	7.87	7.62	7.74	7.56	7.74	7.54	7.71	7.53	7.78	7.64	7.72
MH	7.84	7.65	7.49	7.66	7.65	7.73	7.70	7.84	7.68	7.86	7.81	7.78	7.74	7.69

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	1097	109	116	111	166	108	169	117	120	128	132	106	107	297
25	510	438	524	416	543	459	611	526	570	512	600	500	566	604
34	714	628	724	624	769	670	760	698	745	698	779	1084	756	756
45	907	833	864	818	953	851	946	931	937	931	965	1010	999	1014
60	1099	1088	1140	1084	1220	1108	1201	1197	1180	1167	1245	1160	1206	1201
80	1456	1399	1444	1409	1432	1426	1525	1504	1560	1509	1633	1546	1555	1576
MH	220	213	237	209	262	210	256	230	220	248	214	208	242	367

Params Intl/Time:	AM 1528	LM01046	AW 0833	LM0650	AH 1041	LM0700	AW0824	AW0755	AM1050	AW0880	AW1012	LM0734	AH 0853	AH0652
Dilutions Intl/Time:	AW 1008		AW 0848		AH 0908		AW 0840		AM 1059		AW 1027		AW 0850	
Control Water Batch:	5739, 18339		5739, 18334		5741, 18363		5741, 18363		5744, 18377		5744, 18377		5746, 18377	
Food Batch	4818		4818		4818		4818		4900		4906		06.52	

ENVIRON Test Log No. 17272

TEST LOG NO. 17272 CLIENT: Georgia Pacific Crossett DATE OF TEST: 12/9/14

JOB NO. 20-19675H 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
18338	Outfall 001	12/9/14	12/9/14	896	350	<0.02	2.47
18364	Outfall 001	12/9-10/14	12/11/14	280	325	<0.02	0.579
18377	Outfall 001	12/11-12/14	12/13/14	300	315	<0.02	0.469

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
18339	River Water	12/8/14	12/9/14	204	30	<0.02	<0.1
5739	MH	12/10/14	12/13/14	80	51	<0.02	—
18363	River Water	12/8/14	12/11/14	26	22	0.03	<0.1
5741	MH	12/8/14	12/10/14	848	45	<0.02	—
18378	River Water	12/8/14	12/13/14	24	25	<0.02	<0.1
5744	MH	12/10/14	12/12/14	80	43	<0.02	—
5746	MH	12/11/14	12/15/14	83.2	44	<0.02	—

CETIS Analytical Report

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

Analysis ID:	13-7579-1151	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:15	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	04-6264-0256	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	16 Dec-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**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

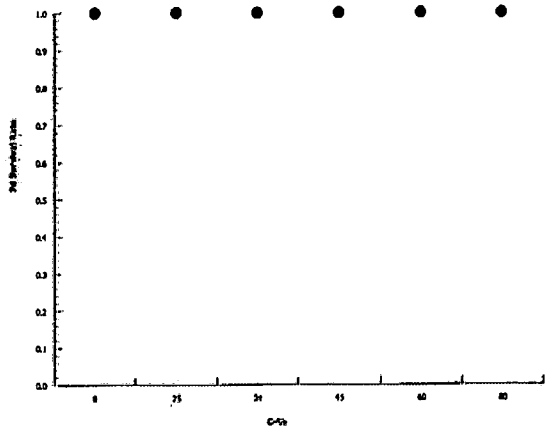
7d Survival Rate Binomials

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	1/1

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

Analysis ID:	13-7579-1151	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:15	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	15-6522-4796	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:15	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	04-6264-0256	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	16 Dec-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**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	22.8%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	0.7451	2.289	7.374	18	0.5344	CDF	Non-Significant Effect
		34	-0.2173	2.289	7.374	18	0.8899	CDF	Non-Significant Effect
		45	-0.9314	2.289	7.374	18	0.9808	CDF	Non-Significant Effect
		60	-0.2484	2.289	7.374	18	0.8967	CDF	Non-Significant Effect
		80	0.7451	2.289	7.374	18	0.5344	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	32.4	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2276	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	216.35	43.27	5	0.8341	0.5313	Non-Significant Effect.
Error	2801.3	51.87593	54			
Total	3017.65		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.001	15.09	0.3061	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9834	0.9459	0.5884	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	32.4	28.38	36.42	32	22	39	1.778	17.35%	0.0%
25		10	30	23.98	36.02	31.5	12	38	2.662	28.07%	7.41%
34		10	33.1	26.09	40.11	30	21	53	3.1	29.62%	-2.16%
45		10	35.4	31.61	39.19	34	31	49	1.675	14.96%	-9.26%
60		10	33.2	27.86	38.54	33.5	18	45	2.361	22.49%	-2.47%
80		10	30	26.16	33.84	31.5	21	37	1.7	17.92%	7.41%

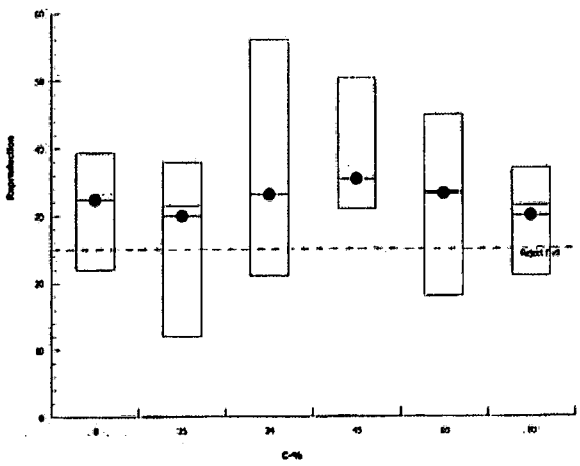
Reproduction Detail

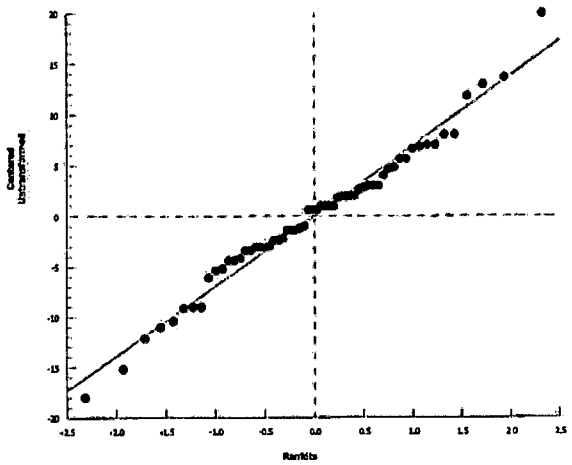
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	38	29	22	38	37	39	30	33	27	31
25		29	19	38	38	32	37	31	31	33	12
34		24	30	30	27	21	35	35	30	46	53
45		31	38	32	34	34	36	31	33	36	49
60		18	36	31	40	38	29	35	28	45	32
80		31	32	37	21	27	31	34	21	33	33

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

Analysis ID:	15-6522-4796	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:15	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

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

Analysis ID:	08-7453-7611	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Dec-14 11:15	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	04-6264-0256	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Dec-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	16 Dec-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	09-3490-7990	**Code:**	37B99056	**Client:**	GPAC Crossett
Sample Date:	08 Dec-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	09 Dec-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	118572	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	32.4	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

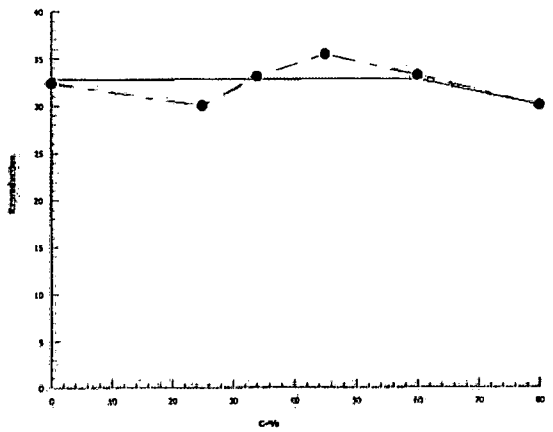
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	32.4	22	39	1.778	5.621	17.35%	0.0%
25		10	30	12	38	2.662	8.42	28.07%	7.41%
34		10	33.1	21	53	3.1	9.803	29.62%	-2.16%
45		10	35.4	31	49	1.675	5.296	14.96%	-9.26%
60		10	33.2	18	45	2.361	7.465	22.49%	-2.47%
80		10	30	21	37	1.7	5.375	17.92%	7.41%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	38	29	22	38	37	39	30	33	27	31
25		29	19	38	38	32	37	31	31	33	12
34		24	30	30	27	21	35	35	30	46	53
45		31	38	32	34	34	36	31	33	36	49
60		18	36	31	40	38	29	35	28	45	32
80		31	32	37	21	27	31	34	21	33	33

Graphics



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

TEST LOG NO.: 17272

JOB NUMBER.: 20-19675H

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): 12/8/14

TEMP @ TEST START: AW

RANDOMIZED BY: 24.7

SOURCE ID:	AGE (time):
10815	1223-1500
10816	~~1223 - 1500~~ 1500 - 2230 — AW 12/9/14
10818	1224 - 1501
10820	1224-1502

TEST START:

HOURS: 1103 DATE: 12/9/14

TEST END:

HOURS: 1117 DATE: 12/16/14

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 10815 10816 10815 10818 10820										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	11	3	4	19	14	20	13	2	6	17	
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1140	12/11	24.1	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1201	12/12	24.3	24.2	Day 3	4	4	5	4	4	5	✓	✓	✓	✓	
	AW 1108	12/13	24.0	24.9	Day 4	✓	✓	✓	✓	✓	✓	3	5	3	2	
	AW 1040	12/14	24.0	24.3	Day 5	15	14	✓	13	14	14	9	✓	8	13	
	AW 0935	12/15	24.0	24.4	Day 6	✓	11	14	3	✓	✓	✓	7	16	16	
AW 1117		12/16		24.7	Day 7	19	22	3	18	19	20	18	21	✓	✓	
					Day 8											
			Total			38	29	22	38	37	39	30	33	27	31	324 / 1 X .75 = 243

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

TEST LOG # 17272 JOB # 20-19675H

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											
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1140	12/11	24.1	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.2	24.4	Day 3	4	3	4	5	✓	4	✓	✓	✓	✓	
	AW 1104	12/13	24.1	24.2	Day 4	✓	✓	✓	✓	3	✓	3	3	2	4	
	AW 1040	12/14	24.0	24.0	Day 5	8	✓	15	12	11	15	12	9	13	✓	
	AW 0935	12/15	24.0	24.2	Day 6	17	16	19	21	18	18	16	19	18	✓	
AW 1117		12/16		24.3	Day 7	✓	✓	✓	✓	20	21	✓	20	23	8	
					Day 8											
			Total			29	19	38	38	32	37	31	31	33	12	300

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 34% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1140	12/11	24.1	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.2	24.3	Day 3	3	5	4	4	✓	✓	✓	✓	✓	✓	
	AW 1108	12/13	24.0	24.4	Day 4	✓	✓	✓	✓	3	1	5	5	7	9	
	AW 1040	12/14	24.0	24.1	Day 5	✓	8	✓	7	✓	15	✓	10	✓	✓	
	AW 0935	12/15	24.0	24.2	Day 6	9	✓	11	16	✓	19	11	15	17	20	
AW 1117		12/16		24.4	Day 7	12	17	15	✓	18	22	19	21	22	24	
					Day 8											
			Total			24	30	30	27	21	35	35	30	46	53	331

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

TEST LOG # 17272 JOB # 20-19675H

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											
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1140	12/11	24.1	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.3	24.3	Day 3	4	5	5	✓	✓	1	✓	✓	✓	✓	
	AW 1108	12/13	24.0	24.1	Day 4	✓	✓	✓	3	5	✓	5	4	4	9	
	AW 1040	12/14	24.0	24.0	Day 5	9	13	9	✓	11	16	8	9	14	✓	
	AW 0935	12/15	24.0	24.1	Day 6	18	20	18	9	✓	19	✓	20	18	17	
AW 1117		12/16		24.8	Day 7	✓	23	✓	22	18	✓	18	✓	23	23	
					Day 8											
			Total			31	38	32	34	34	36	31	33	36	49	354

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 60% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1140	12/11	24.1	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.3	24.1	Day 3	3	4	✓	6	6	1	2	4	✓	✓	
	AW 1108	12/13	24.0	24.3	Day 4	✓	✓	2	✓	✓	✓	✓	✓	7	3	
	AW 1040	12/14	24.0	24.1	Day 5	✓	11	9	✓	13	11	✓	11	✓	9	
	AW 0935	12/15	24.0	24.3	Day 6	15	✓	✓	15	19	17	14	13	15	17	
AW 1117		12/16		25.0	Day 7	✓	21	20	19	✓	✓	19	20	23	3	
					Day 8											
			Total			18	96	31	40	38	29	35	28	45	32	332

✓ = 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 # 17272 JOB # 20-19675H

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											
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	MH 1140	12/11	24.0	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.1	24.3	Day 3	6	5	6	✓	4	✓	✓	✓	✓	6	0, Cooled in fridge
	AW 1108	12/13	24.0	24.4	Day 4	✓	✓	✓	✓	✓	5	3	7	4	(8)	
	AW 1040	12/14	24.0	24.2	Day 5	5	12	14	7	7	9	12	✓	11	3	
	AW 0935	12/15	24.0	24.1	Day 6	AW 16	✓	17	✓	16	✓	✓	14	18	16	
AW 1117		12/16		24.3	Day 7	✓	15	18	14	✓	17	19	✓	22	24	
					Day 8											
			Total			31	32	37	21	27	31	34	21	33	33	300

≈ 2.4% <

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1103		12/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1107	12/10	24.1	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	MH 1140	12/11	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1201	12/12	24.2	24.3	Day 3	5	✓	5	5	6	5	3	✓	2	6	
	AW 1108	12/13	24.8	24.9	Day 4	✓	4	✓	✓	✓	✓	✓	3	✓	✓	
	AW 1040	12/14	24.0	24.2	Day 5	11	13	9	13	9	11	13	10	14	13	
	AW 0935	12/15	24.0	24.9	Day 6	✓	16	17	15	✓	12	✓	15	10	11	
AW 1117		12/16		24.7	Day 7	D/1	3	✓	22	20	✓	19	20	24	24	
					Day 8											
			Total			D/17	36	31	33	35	28	35	28	26	30	299

✓ = 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 NO. 17272 CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675H TEST ORGANISM: Cd DATE: 12/19/19

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	8.6	8.4	8.6	8.4	8.5	8.1	8.2	8.2	8.1	8.3	8.0	8.3	7.8
25	8.1	8.6	8.6	8.5	8.3	8.3	8.2	8.2	8.2	8.0	8.4	8.6	8.4	7.5
34	8.4	8.5	8.5	8.3	8.2	8.4	8.2	8.1	8.1	7.9	8.4	8.6	8.4	7.6
45	8.4	8.4	8.6	8.3	8.4	8.4	8.2	8.1	8.1	7.9	8.3	8.5	8.3	7.7
60	8.2	8.4	8.7	8.3	8.4	8.2	8.2	8.1	8.2	8.1	8.5	8.2	8.3	7.8
80	8.5	8.0	8.3	8.0	8.3	8.1	8.4	7.9	8.3	8.1	8.6	8.2	8.4	7.9
MH	8.3	8.2	8.8	8.4	8.6	8.4	8.2	7.7	8.4	8.2	8.5	8.6	8.4	7.5

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	7.77	7.61	7.62	7.53	7.72	7.52	7.77	7.58	7.62	7.78	7.80	7.94	7.97	7.46
25	7.68	7.48	7.69	7.43	7.39	7.68	7.41	7.44	7.40	7.59	7.33	7.73	7.61	7.86
34	7.44	7.54	7.39	7.56	7.40	7.84	7.46	7.61	7.46	7.79	7.40	7.82	7.56	7.98
45	7.60	7.73	7.50	7.78	7.44	7.96	7.46	7.99	7.43	8.03	7.49	7.97	7.55	8.15
60	7.109	7.90	7.61	7.98	7.58	8.05	7.53	8.11	7.49	8.04	7.61	8.16	7.57	8.31
80	7.96	8.19	7.94	8.24	7.62	8.22	7.86	8.24	7.84	8.17	7.68	8.31	7.66	8.33
MH	7.84	7.56	7.99	7.70	7.65	7.96	7.70	7.92	7.68	7.82	7.81	7.85	7.99	8.01

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	107	129	116	114	166	128	169	134	172	133	132	127	167	136
25	510	477	524	444	599	536	611	627	578	561	600	533	566	611
34	714	1056	774	668	769	765	760	815	745	762	779	731	756	778
45	907	839	864	838	953	954	946	1011	972	993	995	966	994	1027
60	1096	1105	1160	1120	1220	977	1201	1373	1180	1264	1245	1274	1206	1615
80	1456	1384	1446	1425	1472	1536	1525	1643	1520	1588	1633	1624	1555	1317
MH	2216	214	224	226	262	226	256	253	00	219	214	225	272	234

Params Init/Time:	AW 1500	LM 1119	AW 0832	LM 1152	AW 1001	AW 0929		AW 1123		AW 0955	AW 1017	LM 0950	AW 0857	AW 1130
Dilutions Init/Time:	AW 1058		AW 0828			AW 0920					AW 1007		AW 0850	
Control Water Batch#:	5741, 18339		5741, 18339		5741, 18339									
Food Batch	4898, 11452		4898, 52		4898, 52									

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

ENVIRON Test Log No. 17272

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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 BIRD	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)
OUTFALL 001	C	Plastic	YES	12-7-14 4:00pm	12-8-14 6:17pm	2	20	■		■		☑	☑	☑		■		[redacted]
								■		■		■		■		■		[redacted]
River	G	Plastic	NA	12-8-14 9:27am		2	20	■		■		☑		■		■	Dilution Water	[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]

* 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)
[signature]	12-8-14	4:00pm			[redacted]
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: [redacted] 1.2 0.8°C	Containers/Volume Received: [redacted] 20L of ice
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [redacted]	Date: 12/9/14	Time: 08:59 pH upon arrival: 7.77 8.09 DO upon arrival: 9.0 8.6

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 12/9/14 0849 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~~ in River
   - 1.0 mg/L? (did dechlor occur) Yes (No)

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18338	Outfall 001	1.7	7.77	9.0	0.02
18339	River	0.8	8.09	8.4	<0.02

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ENVIRON Test Log No. 17272

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Project Name: | Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-567-8170 FAX: 870-364-9074

County: Ashley City: CROSSETT State: AR

Sample Collected by (print): DANNY RICE

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

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
																	18363		
RIVER	G	PLASTIC	NA	12-9-14	9:29am	2	20										DILUTION WATER		1.1
OUTFALL 001	C	PLASTIC	YES	12-9-14 6:17pm	12-10-14 6:17am	2	20											18364	1.6

* 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)
DANNY RICE	12/10/14	3:00pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Condition: (lab use only) OK

Containers/Volume Received: 2SL 1-20L

Date: 12.10.14 Time: 0852 pH upon arrival: 7.65 DO upon arrival: 8.09

7.65 | 7.70

Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 0852 12/11/14 by AH

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) in DO! (No) AH 12/11
   - 1.0 mg/L? (did dechlor occur) Yes (No)

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18363	River	1.1	~~8~~ 7.67 HM	8.6	<0.02
18364	Outfall	1.6	7.70	9.1	0.03

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ENVIRON Test Log No. 17272

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Project Name:	Project Number:
Industry: Georgia-Pacific Crossett Paper Ops	
Phone: 870-567-8170 FAX: 870	
County: Ashley City: Crossett State: AR	
Sample Collected by (print): Robbie Phillips/Danny Rice	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)
Outfall 001	Comp	Plastic	Y	12/11/14 6:15am	12/12/14 6:16am	2	20	[redacted]		[redacted]		[redacted]	✓	[redacted]		[redacted]		[redacted]
River	Grab	Plastic	NA	12/8/14		2	20	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]	Dilution Water	[redacted]
								[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		
								[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		
								[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		
								[redacted]		[redacted]		[redacted]		[redacted]		[redacted]		

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Rachel Johnson	12/12/14	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: [redacted]	Containers/Volume Received: [redacted]
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [redacted]	Date: [redacted]	Time: [redacted] pH upon arrival: [redacted] DO upon arrival: [redacted]

Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 12/13/14 1001 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
18377	Outfall 001	1.7	7.55	8.6	LOQ
18378	River	1.4	7.88	9.0	LOQ

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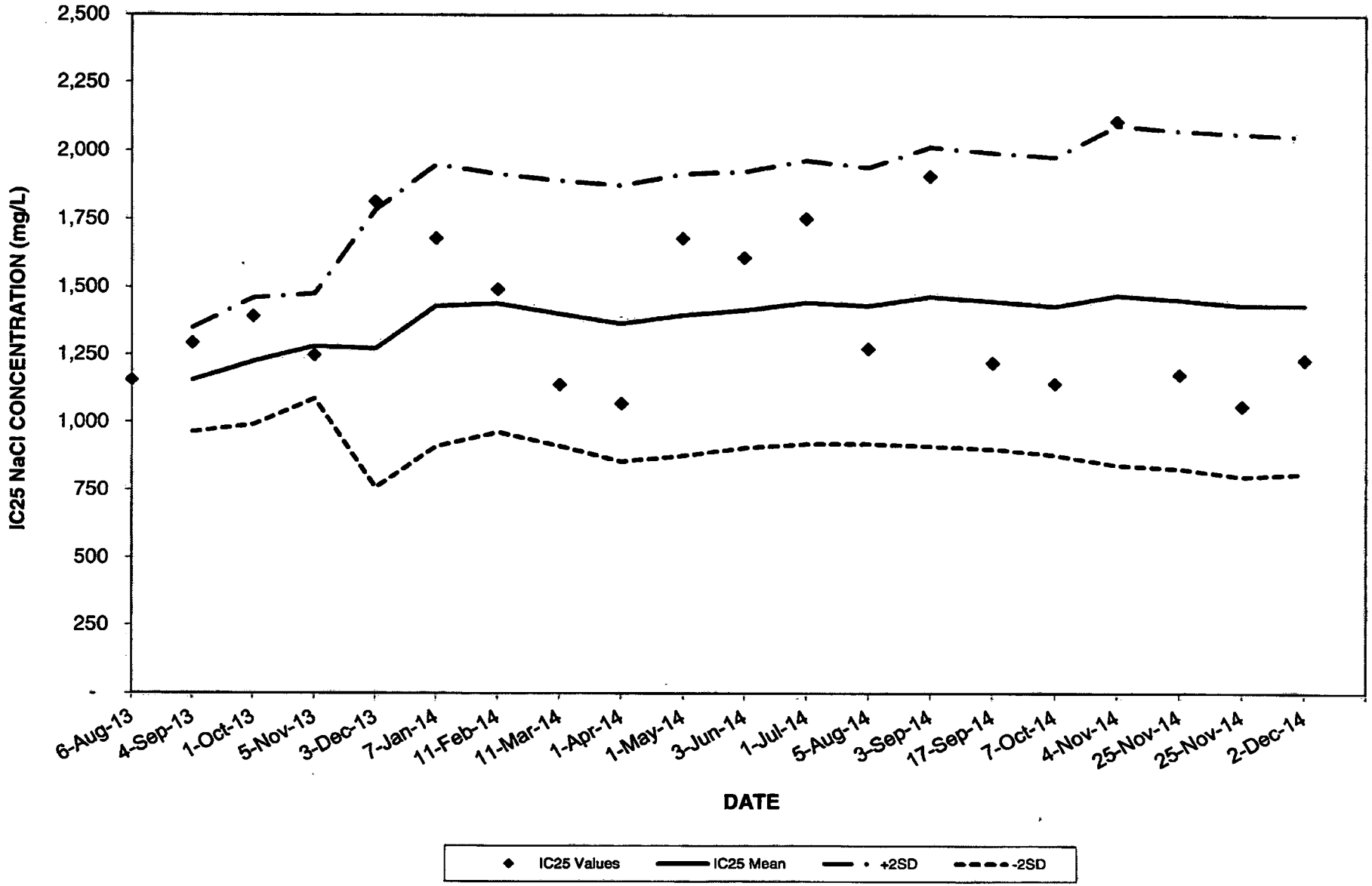
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2013 - 2014
FATHEAD MINNOWS



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12/18/2014

Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2013 - 2014

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	Control Mean Dry Weight (mg/fish) (*)	SURVIVAL NOEC (mg/L)	SURVIVAL LOEC (mg/L)	GROWTH NOEC (mg/L)	GROWTH LOEC (mg/L)	PMSD (%)	IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
1	16256	06-Aug-13	100	0.382	750	1,500	750	1,500	19.3	1,157					
2	16309	04-Sep-13	97.5	0.369	750	1,500	750	1,500	27.1	1,293	1,157	96	1,349	965	6
3	16348	01-Oct-13	97.5	0.310	1,500	3,000	750	1,500	23.4	1,391	1,225	118	1,460	990	7
4	16425	05-Nov-13	100	0.335	750	1,500	750	1,500	19.7	1,248	1,280	97	1,475	1,086	7
5	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814	1,272	257	1,785	759	17
6	16554	07-Jan-14	100	0.464	750	1,500	1,500	3,000	27.8	1,679	1,430	260	1,950	911	17
7	16631	11-Feb-14	92.5	0.484	750	1,500	750	1,500	13.5	1,491	1,439	238	1,915	963	15
8	16684	11-Mar-14	100	0.543	750	1,500	750	1,500	28.8	1,138	1,401	245	1,891	912	16
9	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067	1,364	255	1,874	855	18
10	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,396	260	1,915	876	18
11	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,415	255	1,924	906	17
12	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,443	261	1,966	920	17
13	16989	05-Aug-14	97.5	0.511	750	1,500	750	1,500	25.8	1,270	1,430	255	1,939	920	17
14	17054	03-Sep-14	100	0.519	750	1,500	1,500	3,000	34.4	1,907	1,464	276	2,016	911	18
15	17095	17-Sep-14	100	0.458	750	1,500	750	1,500	17.3	1,218	1,447	274	1,994	900	18
16	17125	07-Oct-14	100	0.280	750	1,500	750	1,500	32.7	1,141	1,428	275	1,978	878	19
17	17193	04-Nov-14	100	0.400	750	1,500	1,500	3,000	31.3	2,111	1,468	314	2,096	841	21
18	17242	25-Nov-14	100	0.433	750	1,500	750	1,500	17.4	1,175	1,452	312	2,076	828	21
19	17243	25-Nov-14	97.5	0.483	750	1,500	750	1,500	22.1	1,057	1,431	317	2,064	798	22
20	17258	02-Dec-14	100	0.317	750	1,500	750	1,500	27.7	1,228	1,431	311	2,054	808	21
Avg			98	0.421	863	1725	1013	2025	25	1421	1388	246	1880	896	

Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

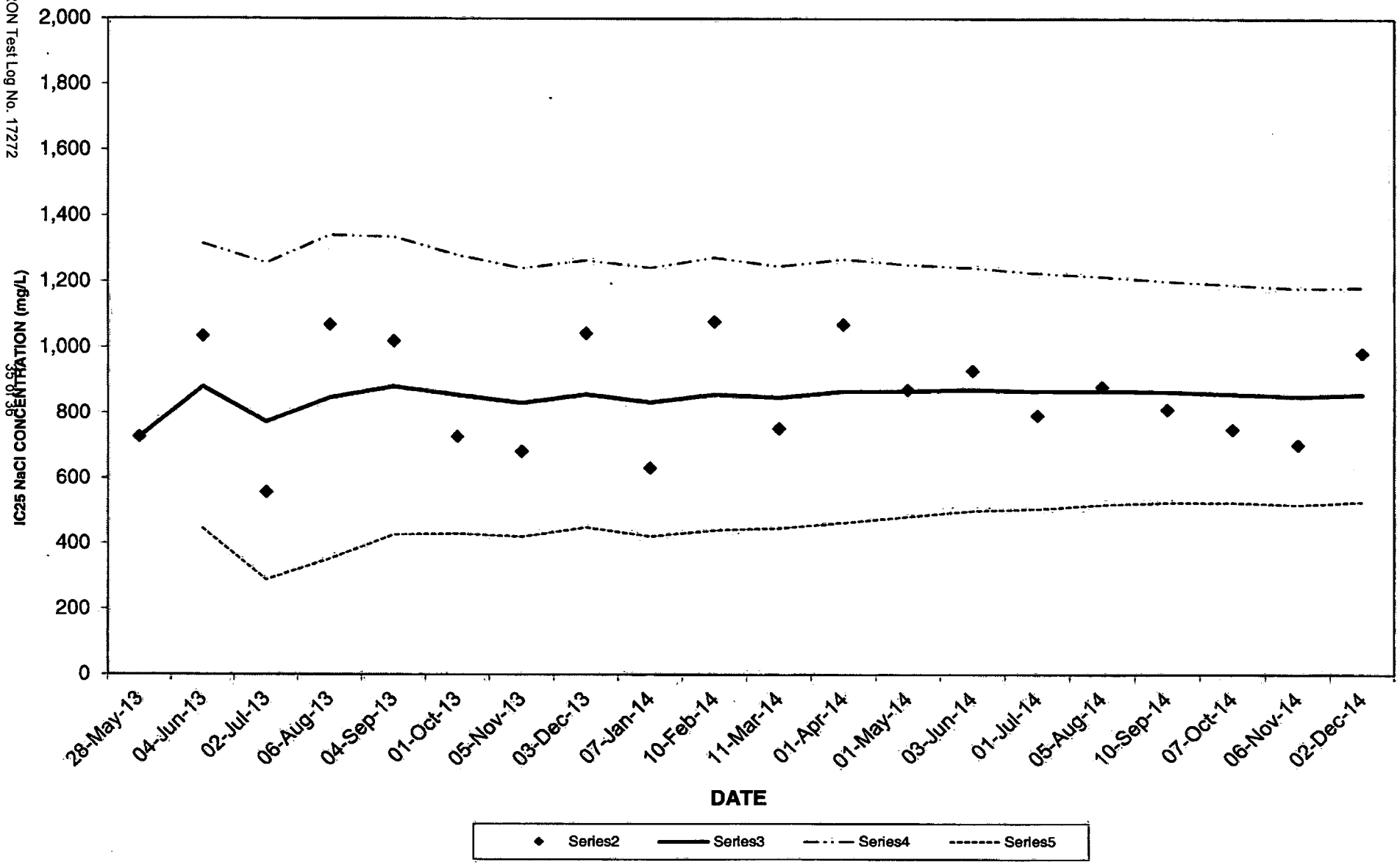
LOEC - Lowest Observable Effect Concentration (survival or growth)

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. 17272

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2014
Ceriodaphnia dubia



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12/18/2014

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2013-2014

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	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	727				
2	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	881	217	1,315	446	17
3	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	772	242	1,257	288	26
4	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	846	247	1,340	352	25
5	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	881	227	1,335	426	23
6	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	855	213	1,280	429	23
7	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	830	205	1,240	420	23
8	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	856	204	1,264	448	22
9	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	831	205	1,242	421	23
10	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	856	208	1,272	439	23
11	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	846	200	1,247	446	23
12	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	865	201	1,267	462	22
13	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	865	193	1,250	479	21
14	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	869	186	1,241	497	21
15	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	864	180	1,224	503	20
16	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	865	174	1,213	516	20
17	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	861	169	1,200	523	19
18	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	855	166	1,188	522	19
19	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	847	166	1,178	516	19
20	17248	02-Dec-14	100	80	26.1	2,000	>2000	500	1,000	14.1	980	853	164	1,181	526	19
Avg			99	91	29	1500	1000	542	1083	20	847	846	202	1257	448	

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:
November 2014

Project Number:
20-19675H

ENVIRON

ENVIRON

December 2, 2014

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. 20-19675H

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The test is conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on November 3, 5, and 7, 2014. The samples were received at ENVIRON on November 4, 6, and 10, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The first two samples were received and utilized within the 36-hr hold time; however, the third sample was delayed in shipping. The The grab samples of river water were received in good condition on the same days as the effluent samples. The 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. A secondary control of moderately hard water was also evaluated.

The test is 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 tests 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 of the chronic test with *C. dubia* indicated NOEC values for lethality and sub-lethality of 80 percent effluent. The test results indicate no significant toxicity at the critical dilution for *C. dubia*.

The *C. dubia* reproduction CV values for the river water control and critical dilution are 14 and 35 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 31 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and not described in EPA 821-B-00-004. A flat concentration-response curve is indicative of a lack of toxicity. The monthly reference toxicant test

also met all the test acceptability criteria. This test is considered valid for assessment of permit compliance.

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 28 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

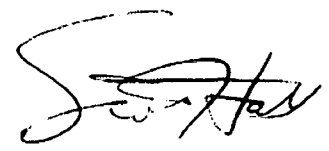
Robin L. Richards, REM
Principal

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:
Statistical Analysis and Raw Data Sheets

CETIS Analytical Report

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

Analysis ID:	00-4455-1260	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Nov-14 15:05	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	02-5118-5509	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	04 Nov-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	11 Nov-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	19-2517-4678	**Code:**	72BFD596	**Client:**	GPAC Crossett
Sample Date:	03 Nov-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	04 Nov-14	**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	0.5263	1.0000	Exact	Non-Significant Effect
		34	0.5263	1.0000	Exact	Non-Significant Effect
		45	0.5263	1.0000	Exact	Non-Significant Effect
		60	1	1.0000	Exact	Non-Significant Effect
		80	0.5263	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	9	0	9	1	0	0.0%
25		9	1	10	0.9	0.1	10.0%
34		9	1	10	0.9	0.1	10.0%
45		9	1	10	0.9	0.1	10.0%
60		10	0	10	1	0	0.0%
80		9	1	10	0.9	0.1	10.0%

7d Survival Rate Detail

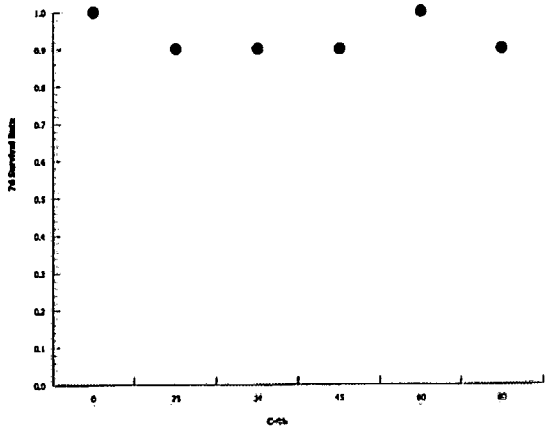
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	
25		1	1	1	1	1	1	1	1	1	0
34		1	1	1	1	1	1	1	1	0	1
45		1	1	1	0	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		0	1	1	1	1	1	1	1	1	1

7d Survival Rate Binomials

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

Analysis ID:	00-4455-1260	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Nov-14 15:05	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	07-3033-9239	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Nov-14 15:05	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	02-5118-5509	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	04 Nov-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	11 Nov-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	19-2517-4678	**Code:**	72BFD596	**Client:**	GPAC Crossett
Sample Date:	03 Nov-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	04 Nov-14	**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	31.4%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	90	NA	3	17	1.0000	Exact	Non-Significant Effect
		34	102	NA	4	17	1.0000	Exact	Non-Significant Effect
		45	89	NA	1	17	0.9666	Exact	Non-Significant Effect
		60	104	NA	2	17	1.0000	Exact	Non-Significant Effect
		80	96	NA	5	17	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.44	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.3139	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	182.0252	36.40505	5	0.5546	0.7341	Non-Significant Effect
Error	3478.822	65.63815	53			
Total	3660.847		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.425	15.09	0.1343	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9019	0.9451	0.0002	Non-normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	9	28.44	25.37	31.52	30	22	33	1.334	14.07%	0.0%
25		10	25.7	21	30.4	27	12	34	2.077	25.55%	9.65%
34		10	27.1	19.82	34.38	30	0	35	3.22	37.57%	4.73%
45		10	24.2	17.23	31.17	28	4	36	3.08	40.24%	14.92%
60		10	29.6	24.89	34.31	29.5	18	39	2.083	22.25%	-4.06%
80		10	26.8	20.12	33.48	27.5	6	41	2.954	34.86%	5.78%

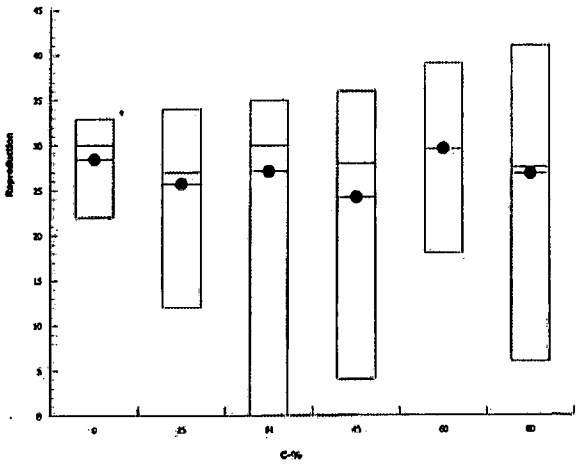
Reproduction Detail

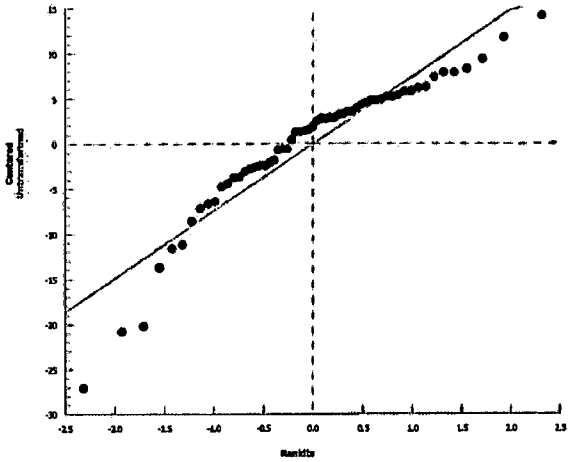
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	32	31	26	26	30	32	33	24	22	
25		34	19	22	30	27	29	25	27	32	12
34		25	29	24	30	35	35	32	30	0	31
45		17	13	29	4	30	30	27	29	27	36
60		18	21	37	39	29	31	29	30	27	35
80		6	24	22	30	32	41	25	33	23	32

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

Analysis ID:	07-3033-9239	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Nov-14 15:05	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes

Graphics





CETIS Analytical Report

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

Analysis ID:	05-0015-2147	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Nov-14 15:06	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	02-5118-5509	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	04 Nov-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	11 Nov-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	19-2517-4678	**Code:**	72BFD596	**Client:**	GPAC Crossett
Sample Date:	03 Nov-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	04 Nov-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1466458	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	28.44	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

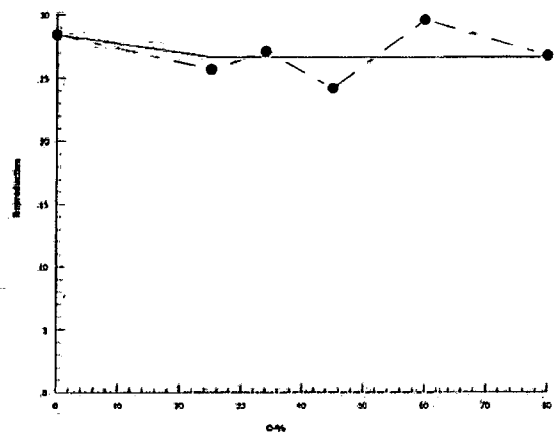
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	9	28.44	22	33	1.334	4.003	14.07%	0.0%
25		10	25.7	12	34	2.077	6.567	25.55%	9.65%
34		10	27.1	0	35	3.22	10.18	37.57%	4.73%
45		10	24.2	4	36	3.08	9.739	40.24%	14.92%
60		10	29.6	18	39	2.083	6.586	22.25%	-4.06%
80		10	26.8	6	41	2.954	9.343	34.86%	5.78%

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	32	31	26	26	30	32	33	24	22	
25		34	19	22	30	27	29	25	27	32	12
34		25	29	24	30	35	35	32	30	0	31
45		17	13	29	4	30	30	27	29	27	36
60		18	21	37	39	29	31	29	30	27	35
80		6	24	22	30	32	41	25	33	23	32

Graphics



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

TEST LOG NO.: 17192

JOB NUMBER.: 20-19675H

INDUSTRY: Georgia Pacific-Crossett

EFFLUENT: Outfall 001

DILUTION WATER: River Water

NPDES (Y/N) : Yes

PHOTOPERIOD: 16 hr light/8 hr dark

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

TEST VESSEL CAPACITY: 30 mL

TEST SOLUTION VOLUME: 15 mL

NO. ORGANISMS/REPLICATE: 1

NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 11/3/14

TEMP @ TEST START: 24.0

RANDOMIZED BY: AW

SOURCE ID:	AGE (time):
10780	1546-2000
10781	1546-2000
10782	1548-2000
10784	1550-2000

TEST START:

HOURS: 1103 DATE: 11/4/14

TEST END:

HOURS: 1303 DATE: 11/11/14

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 780: 1	2	781: 3	4	5	782: 6	7	784: 8	9	10	Notes
					Adult	19	18	3	19	1	8	8	3	11	2	
AW 1103		11/4	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1120	11/5	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 0956	11/7	24.3	24.2	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	4	
	AW 1302	11/8	24.1	24.1	Day 4	5	5	3	3	Miss	4	5	5	3	✓	
	AW 1314	11/9	24.2	~~24.5~~ 24.1	Day 5	✓	7	✓	✓		✓	11	12	✓	6	
	HM 1300	11/10	24.0	24.3	Day 6	10	10	9	8		8	✓	10	10	✓	
AW 1303		11/11		24.3	Day 7	17	18	14	15		18	16	✓	11	12	
					Day 8											
			Total			32	31	26	26	n-1	30	32	33	24	22	256/9 = 28.4

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

TEST LOG # 17192 JOB # 20-19675H

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											
AW 1403		11/4	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1120	11/5	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1058	11/7	24.2	24.3	Day 3	✓	✓	2	✓	✓	✓	4	5	4	3	
	AW 1302	11/8	24.1	24.5	Day 4	3	4	✓	5	5	4	✓	✓	✓	✓	
	AW 1319	11/9	24.5	25.0	Day 5	✓	✓	4	7	7	5	7	9	7	9	
	LH 1300	11/10	24.3	24.6	Day 6	11	✓	✓	D	✓	✓	14	13	✓	D/0	
AW 1303		11/11		25.0	Day 7	20	15	16	17	15	20	✓	✓	21	1	
					Day 8											
			Total			34	19	22	30	27	29	25	27	32	D/12	257

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 34% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1403			24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1120	11/5	24.3	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1058	11/7	24.4	24.3	Day 3	5	✓	2	✓	✓	5	4	✓	✓	5	
	AW 1302	11/8	24.2	24.3	Day 4	✓	4	✓	4	5	✓	✓	4	✓	✓	
	AW 1319	11/9	24.7	25.1	Day 5	5	6	5	8	✓	11	10	12	✓	9	1 odd sphagnum
	LH 1300	11/10	24.8	24.4	Day 6	✓	19	15	✓	9	15	✓	14	✓	11	
AW 1303		11/11		25.1	Day 7	15	18	16	18	21	18	18	19	D/0	17	
					Day 8											
			Total			25	29	24	30	35	35	32	30	D/0	31	271

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

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

TEST LOG # 171982 JOB # 20-19675H

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											
AW 1103		11/4	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1100	11/5	24.4	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1058	11/7	24.3	24.2	Day 3	✓	✓	2	✓	✓	5	4	3	3	✓	
	AW 1302	11/8	24.4	24.2	Day 4	3	2	✓	4	3	✓	✓	✓	✓	4	
	AW 1314	11/9	24.9	25.0	Day 5	✓	4	✓	D/0	✓	6	7	6	7	9	
	HM 1300	11/10	24.0	24.5	Day 6	✓	✓	10	|	10	✓	16	✓	✓	2	
AW 1303		11/11		25.1	Day 7	14	7	17	|	17	19	✓	20	17	21	
					Day 8											
			Total			17	13	29	D/4	30	30	27	29	27	36	242

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 60% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1103		11/4	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1100	11/5	24.5	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1058	11/7	24.2	24.3	Day 3	✓	✓	5	4	✓	3	✓	3	5	✓	
	AW 1302	11/8	24.1	24.6	Day 4	3	4	✓	✓	4	✓	4	✓	✓	2	
	AW 1314	11/9	24.5	25.0	Day 6	✓	✓	✓	✓	7	11	7	13	12	✓	
	HM 1300	11/10	24.6	24.9	Day 6	✓	1	14	14	✓	✓	10	14	10	13	
AW 1303		11/11		25.1	Day 7	15	16	18	21	18	17	17	✓	very much babies ✓	20	
					Day 8											
			Total			18	21	37	39	29	31	29	30	27	35	296

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

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

TEST LOG # 17192 JOB # 20-19675H

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											
AW 1107		11/4	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1120	11/5	24.6	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1058	11/7	24.2	24.3	Day 3	4	3	3	3	✓	3	✓	✓	3	3	
	AW 1302	11/8	24.1	24.4	Day 4	✓	✓	✓	✓	4	✓	4	4	✓	✓	
	AW 1319	11/9	24.6	24.8	Day 5	D/2	6	5	✓	7	3	7	11	7	8	
	LM 1300	11/10	24.5	24.8	Day 6		✓	✓	10	2	14	14	18	13	1	
AW 1203		11/11		24.9	Day 7		15	14	17	19	21	✓	✓	✓	20	
					Day 8											
			Total			D/6	24	22	30	32	41	25	33	23	32	268

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1107		11/4	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1120	11/5	24.6	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1112	11/6	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1058	11/7	24.3	24.3	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1302	11/8	24.0	24.1	Day 4	2	4	5	3	2	3	5	5	4	3	
	AW 1319	11/9	24.0	24.0	Day 5	✓	✓	✓	✓	✓	✓	13	10	12	✓	
	LM 1300	11/10	24.1	24.0	Day 6	9	10	10	10	10	10	✓	✓	✓	14	
AW 1307		11/11		24.6	Day 7	14	17	14	15	✓	12	16	15	18	16	
					Day 8											
			Total			25	31	29	28	12	25	34	30	35	33	282

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

TEST LOG # 17192 JOB # 20-19675F

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% Filtered Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HM 1140		11/5		24.4	Day 0	✓	✓	✓	✓	✓	✓	—	✓	✓	✓	
	LM 1112	11/6	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1058	11/7	24.1	24.2	Day 2	—	—	—	—	—	—	—	—	—	—	
	AW 1302	11/8	24.0	24.1	Day 3	Miss	3	✓	✓	✓	3	4	3	4	5	
	AW 1319	11/9	24.1	24.4	Day 4	✓	5	7	4	6	✓	✓	✓	✓	✓	
	LM 1300	11/10	24.1	24.0	Day 5		13	13	10	14	13	~~14~~ LM/0	14	10	12	
AW 1303	1	11/11		24.3	Day 6		17	17	17	16	19	14	16	14	15	
					Day 7											
					Day 8											
			Total			n-1	21	37	31	36	35	32	33	28	32	285/9 = 31.7

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 100% Filtered Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
HM 1140		11/5		24.4	Day 0	✓	✓	✓	✓	✓	—	✓	✓	✓	✓	
	LM 1112	11/6	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1058	11/7	24.2	24.3	Day 2	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1302	11/8	24.0	24.1	Day 3	4	4	5	✓	Miss	4	4	5	2	3	✓
	AW 1319	11/9	24.1	24.4	Day 4	4	3	✓	6		7	✓	✓	✓	✓	
	LM 1300	11/10	24.1	24.0	Day 5	✓	14	14	15		✓	13	13	11	18	
AW 1303		11/11		24.2	Day 6	7	12	15	18		5	12	13	13	12	
					Day 7											
					Day 8											
			Total			15	21	34	39	n-1	16	29	31	26	27	238/9 = 26.4

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

TEST LOG # 17192 JOB # 20-19675F

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 Ferric 80% Temp (°C)		30ppm REPLICATES										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult											
AM 1140		11/5		24.3	Day 0	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
	LH 1112	11/6	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	
	PH 2058	11/7	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1302	11/8	24.0	24.0	Day 3	4	4	✓	✓	✓	5	5	4	3	✓		
	AW 1314	11/9	24.0	24.0	Day 4	✓	2	D/0	4	5	✓	✓	✓	✓	4		
	LH 1300	11/10	24.0	24.0	Day 5	13	14	|	11	12	14	13	12	13	14		
AW 1303		11/11		24.5	Day 6	15	16	|	✓	18	17	16	✓	17	✓		
					Day 7			|									
					Day 8			|									
			Total			32	36	D/0	15	35	36	34	16	33	18	255	

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration Ferric 100% Temp (°C)		30ppm REPLICATES										Notes
						1	2	3	4	5	6	7	8	9	10	
AM 1140		11/5		24.4	Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1112	11/6	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	PH 2058	11/7	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1302	11/8	24.0	24.1	Day 3	4	5	3	✓	✓	6	3	5	✓	✓	
	AW 1314	11/9	24.0	24.0	Day 4	7	✓	✓	6	2	✓	11	✓	5	5		
	LH 1300	11/10	24.0	24.0	Day 5	✓	11	14	13	11	10	14	12	12	12		
AW 1303		11/11		24.1	Day 6	18	19	18	9	17	19	✓ LH 11/10	17	11	✓		
					Day 7							15					
					Day 8												
			Total			29	35	35	28	30	35	29	34	28	17	300	

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

TEST LOG NO. 17192

JOB NO. 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 11/11/14

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.4	8.0	8.4	8.3	8.4	8.4	8.6	8.4	8.3	7.8	8.5	8.0	8.1	8.2
25	8.6	8.0	8.4	8.2	8.4	8.4	8.4	8.3	8.0	7.9	8.4	8.1	8.1	8.3
34	8.5	8.2	8.5	8.2	8.3	8.4	8.5	8.3	7.9	8.0	8.4	8.0	7.9	8.3
45	8.5	8.1	8.5	8.2	8.3	8.3	8.5	8.2	7.9	8.0	8.3	7.7	7.8	8.2
60	8.4	8.2	8.4	8.2	8.2	8.3	8.4	8.4	7.8	8.2	8.3	7.6	7.5	8.3
80	8.4	8.2	8.4	8.3	8.2	8.3	8.6	8.3	7.8	8.1	8.4	7.8	7.1	8.2
MH	8.5	8.1	8.4	8.4	8.2	8.3	8.6	8.0	8.4	8.0	8.2	7.9	7.8	8.2

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	7.34	8.01	7.85	8.06	7.82	7.96	7.81	7.54	7.70	7.71	7.20	7.80	6.94	7.80
25	7.10	7.99	7.95	7.86	7.42	7.84	7.85	8.12	7.51	8.17	7.39	7.58	7.18	8.17
34	7.41	8.03	7.91	8.04	7.48	7.99	7.80	8.18	7.56	8.24	7.47	7.93	7.39	8.27
45	7.47	8.20	7.89	8.15	7.56	8.15	7.80	8.30	7.68	8.27	7.55	8.18	7.47	8.32
60	7.48	8.24	7.97	8.30	7.64	8.26	7.85	8.39	7.69	8.34	7.64	8.34	7.67	8.44
80	7.50	8.47	8.10	8.41	7.70	8.50	7.89	8.49	7.68	8.50	7.69	8.49	7.66	8.52
MH	7.80	7.89	7.75	7.95	7.74	7.91	7.86	7.84	7.94	7.98	7.98	7.88	7.69	7.79

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	85	150	140	146	149	154	146	98	73	85	84	100	95	134
25	529	569	586	575	577	556	581	535	515	538	484	479	653	765
34	701	730	724	785	735	770	761	722	709	729	698	702	878	890
45	929	977	913	981	997	972	943	938	888	938	934	938	1352	1168
60	1179	1182	1244	1251	1256	1239	1221	1184	1132	1202	1200	1249	1370	1345
80	1501	1474	1543	1532	1532	1541	1509	1495	1468	1476	1533	1552	1650	1696
MH	217	253	246	330	256	269	215	204	194	245	209	211	256	226

Params Init/Time:	AW 0915	HH 1117	AW 1025	AW 1117	AW 0950	AW 1109	HH 0928	AW 1416	AW 1239	AW 1415	AW 1005	LM 310	AW 1135	HH 1456
Dilutions Init/Time:	HH 0905		PM 1020		PM 0950		HH 0918		PM 1220		AW 0945		AW 1125	
Control Water Batch#:	18203	18203	18221	18221	18221	18221	18221	18221	18221	18221	18221	18221	18221	18221
Food Batch	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459	AR52459

TEST LOG NO. _____ CLIENT/SAMPLE ID: Georgia Pacific Crossett TIE

JOB NO. 20-19675H TEST ORGANISM: CD DATE: _____

ENVIRON Test Log No. 17192

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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
Filtered 80%	8.4	8.7	8.1	8.3	8.3	8.2	7.8	7.9	7.9	8.0	7.3	8.4		
Filtered 100%	8.4	8.3	8.2	8.4	8.2	8.2	7.8	8.1	8.0	8.1	7.8	8.2		
Ferric 80%	8.3	8.3	8.0	8.2	8.2	8.3	7.6	8.1	8.0	8.0	7.9	8.3		
Ferric 100%	8.3	8.4	8.2	8.2	8.1	8.3	7.7	8.2	7.9	7.9	8.0	8.3		

pH (s.u.)

	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
Filtered 80%	7.87	8.44	8.04	8.54	7.97	8.50	8.03	8.56	8.05	8.54	8.03	8.55		
Filtered 100%	7.96	8.54	8.14	8.61	8.03	8.59	8.02	8.66	8.09	8.62	8.10	8.60		
Ferric 80%	8.16	8.51	8.21	8.53	7.94	8.42	8.01	8.43	8.11	8.43	8.10	8.59		
Ferric 100%	8.19	8.56	8.25	8.56	7.96	8.45	8.02	8.52	8.04	8.50	8.02	8.59		

Conductivity (µmhos/cm)

	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
Filtered 80%	1457	1471	1534	1939	1577	1531	1426	1510	1407	1603	1492	1500		
Filtered 100%	1072	1677	1930	1916	1940	1900	1772	1809	1834	1900	1658	1884		
Ferric 80%	1726	1557	1684	1791	1748	1705	1615	1790	1664	1910	1761	1802		
Ferric 100%	2190	2070	2100	2700	2060	2050	1888	2040	2039	2190	2140	2206		
Params Intl/Time:														
Dilutions Intl/Time:														
Control Water Batch#:														
Food Batch														

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TEST LOG NO. 17192 CLIENT: Georgia Pacific Crossett DATE OF TEST: 11/4/14

JOB NO. 20-19675H 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
18207	Outfall 001	~~11/2~~ 11/3-11/4	11/4/14	292	345	<0.02	0.545
18222	Outfall 001	11/4-5/14	11/6/14	296	325	0.07	0.500
18235	Outfall 001	11/6-7/14	11/10/14	284	330	0.07	1.18

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
18208	River Water	11/3/14	11/4/14	32	21	0.03	<0.1
18221	River Water	11/3/14	11/6/14	27.2	21	<0.02	<0.1
18234	River Water	11/3/14	11/10/14	26 → 20.8		0.07	<0.1
5699	MH	11/2/14	11/4/14	848 um"2	44	<0.02	<0.02
5700	MH	11/2/14	11/5/14	824	43	<0.02	<0.02
5701	MH	11/3/14	11/6/14	80	41	<0.02	<0.02
5702	MH	11/5/14	11/7/14	816	45	<0.02	<0.02
5704	MH	11/7/14	11/9/14	824	42	<0.02	<0.02

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

ENVIRON Test Log No. 17192

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Project Name:	Project Number:
Industry: Georgia-Pacific Crossett Paper Ops	
Phone: 870-567-8170 FAX: 870-364-9076	
County: Ashley City: Crossett State: AR	
Sample Collected by (print): Paul/Danny	NPDES Permit No.: AR0001210
Sample Collected by (signature): Rachel Johnson	NPDES Test: ☐ No ☑ Yes

CHAIN-OF-CUSTODY

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

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested: Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
Outfall 001	Comp	Plastic	Yes	11/2/14 4:05am	11/3/14 6:18am	2		[redacted]		[redacted]		✓	✓	[redacted]		[redacted]		[redacted] 18120
River	Grab	Plastic	NA	11/3/14 9:51am		2		[redacted]		[redacted]		[redacted]		[redacted]		[redacted]	Dilution water	[redacted] 18120

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☒ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: [redacted] (lab use only)
Rachel Johnson	11/3/14	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 3.1°C 1.9°C	Containers/Volume Received: 20L Cubitainer [redacted]
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [redacted]	Date: [redacted]	Time: 0848 pH upon arrival: [redacted] DO upon arrival: [redacted]

Sample Receipt Checklist:

Client: GP Crossett.

Date/Time received 11/14/14 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) in liver water

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18207	Outfall 001	3.1	7.43	84	<0.02
18208	River	1.9	7.30	83	0.03

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ENVIRON Test Log No. 17792

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):
NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)	Temp
River	G	Plastic	NA	11-3-14 9:51am		2	20					✓	✓					[redacted]	0.8
Outfall 001	C	Plastic	YES	11-4-14 6:18am	11-5-14 6:18am	2	20					✓	✓					[redacted]	1.0

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)		
Danny W. Paul	11-6-14	4:00pm		Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only) [redacted]
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: [redacted]	Containers/Volume Received: [redacted]
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [redacted]	Date: [redacted]	Time: [redacted] pH upon arrival: [redacted] DO upon arrival: [redacted]

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Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 11/6/14 0840 by HM

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18224	Pilot	0.8	7.11	8.3	LOD
18222	Outfall 001	1.0	7.64	7.9	0.07

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ENVIRON Test Log No. 17192

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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

Sample Collected by (signature): Danny W. Rice

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	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	11-3-14 9:51am		2	20											18234	5.1
OUTFALL 001	C	Plastic	Yes	11-6-14 6:18pm	11-7-14 6:18am	2	20					✓	✓					18235	3.9

Analysis Requested

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)
Danny W. Rice			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Amanda Wilson

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

Condition: (lab use only)

Containers/Volume Received: 20L Ice Pack

Date: 11/10/2014 Time: 0920 pH upon arrival: 7.87 7.45 DO upon arrival: 9.2 9.1

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/10/14 0920 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) cooler delivered late
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 in River water ✓
   - ➢ 1.0 mg/L? (did dechlor occur) Yes (No)

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
18234	River	5.1	7.89	9.2	0.07
18235	Outfall 001	3.9	7.65	9.1	<0.02

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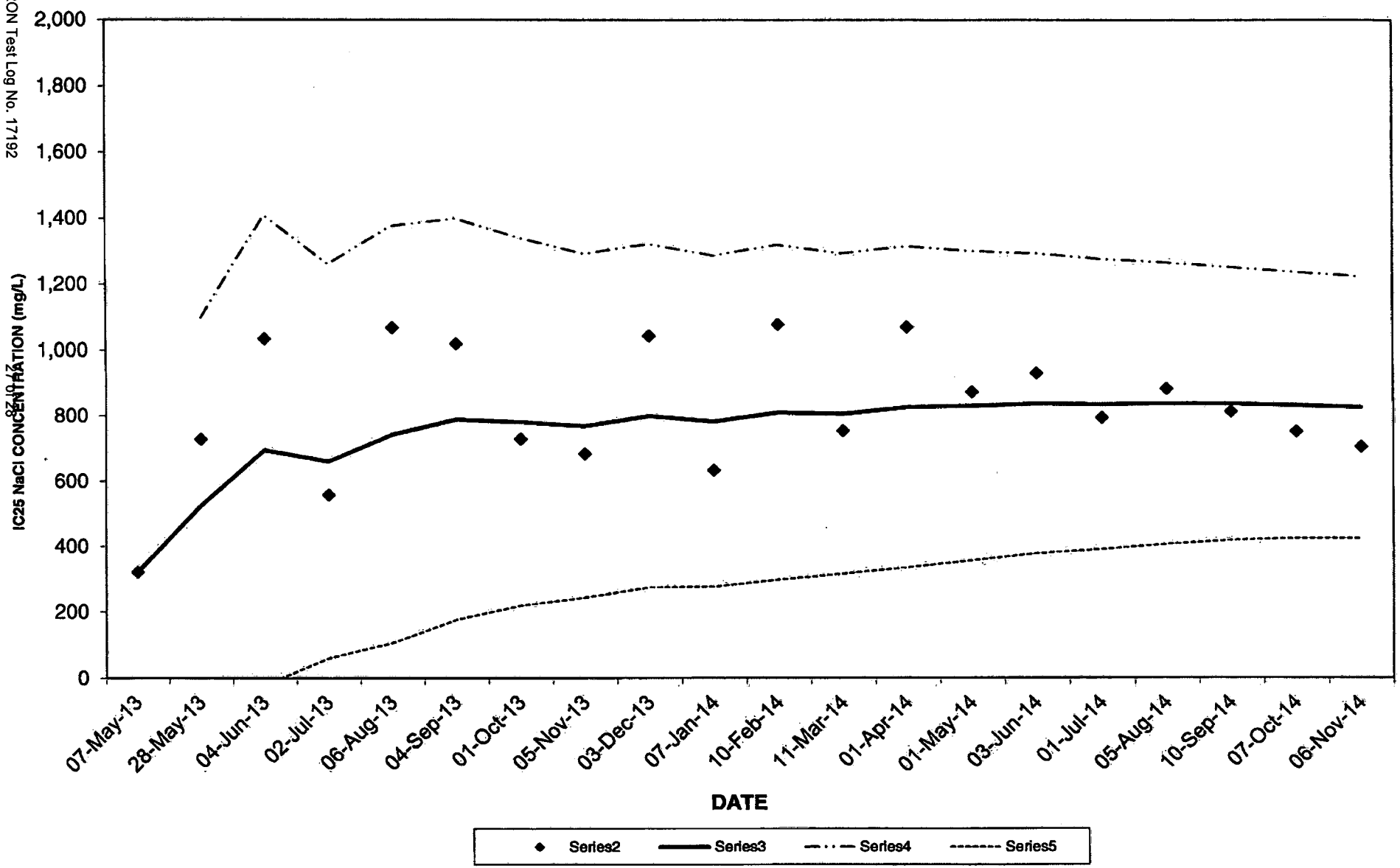
ENVIRON Test Log No. 17192

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2014

Ceriodaphnia dubia



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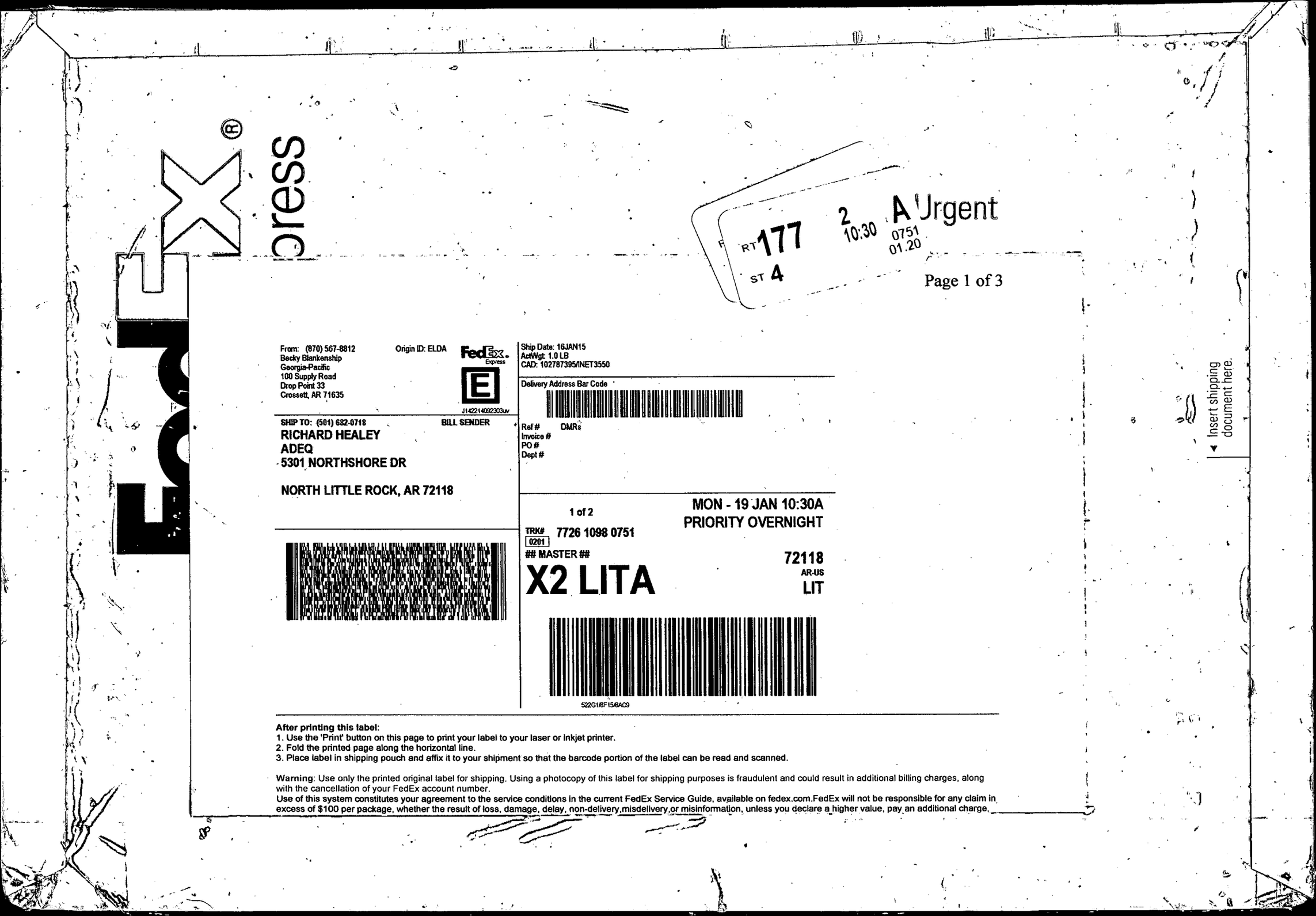
12/1/2014

Ceriodaphnia dubia **CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2013-2014**

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	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	321				
2	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	524	287	1,098	(50)	39
3	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	694	358	1,409	(21)	42
4	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	660	300	1,260	59	39
5	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	741	318	1,376	106	38
6	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	787	306	1,399	176	35
7	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	779	280	1,339	218	33
8	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	766	262	1,290	243	32
9	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	797	261	1,319	274	31
10	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	780	252	1,284	276	31
11	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	807	255	1,317	297	30
12	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	802	244	1,290	315	29
13	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	823	245	1,312	333	29
14	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	826	235	1,297	355	27
15	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	833	228	1,289	376	26
16	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	830	221	1,271	388	26
17	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	833	214	1,261	404	25
18	17077	10-Sep-14	100	90	28.4	1,000	2,000	500	1,000	17.3	808	831	208	1,247	416	24
19	17124	07-Oct-14	100	100	29.7	1,000	2,000	500	1,000	26.8	747	827	203	1,233	421	24
20	17201	06-Nov-14	100	80	23.8	1,000	2,000	500	1,000	21.5	700	821	199	1,219	422	24
Avg			99	91	29	1474	1053	513	1033	21	821	751	260	1294	255	

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.



RT 177 2 10:30 A Urgent
ST 4 0751 01.20

From: (870) 567-8812
Becky Blankenship
Georgia-Pacific
100 Supply Road
Drop Point 33
Crossett, AR 71635

Origin ID: ELDA

J14221409230Suv

Ship Date: 16JAN15
ActWgt: 1.0 LB
CAD: 102787395/INET3550

Delivery Address Bar Code

Ref # DMRs
Invoice #
PO #
Dept #

SHIP TO: (501) 682-0718 BILL SENDER
RICHARD HEALEY
ADEQ
5301 NORTHSHORE DR

NORTH LITTLE ROCK, AR 72118

1 of 2

MON - 19 JAN 10:30A
PRIORITY OVERNIGHT

TRK# 7726 1098 0751
0201

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72118
AR-US
LIT

522G1/8F15/8AC9

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