Georgia-Pacific

Georgia-Pacific LLC
Consumer Products

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

January 23, 2014

Mr. Craig Uyeda
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. Uyeda:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for December 2013. 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 me at (870) 567-8144 or by email at james.cutbirth@gapac.com.

Sincerely,

James W. Cutbirth
Environmental Services Superintendent

TRE Activities Report
For Fourth Quarter of 2014

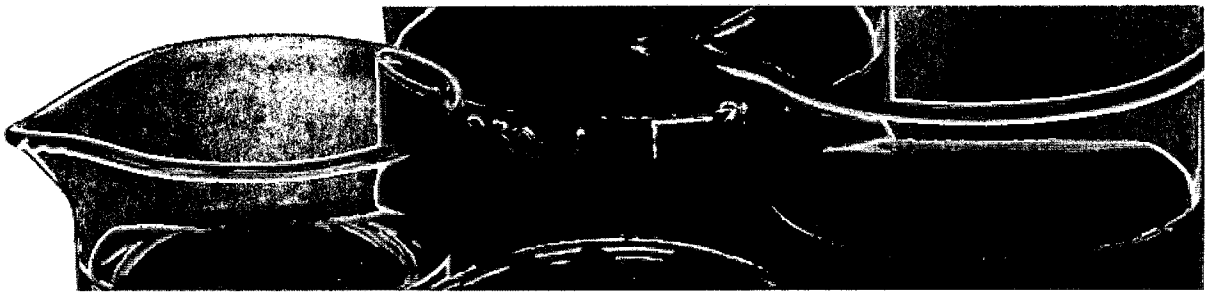
A Toxicity Reduction Evaluation (TRE) Action Plan was submitted on July 12, 2011 after sub-lethal effects were demonstrated in three consecutive Whole Effluent Toxicity (WET) tests for *Ceriodaphnia dubia*, as required by Part II, Condition 15, Paragraph 5 of NPDES permit number AR0001210. As per the plan the mill has begun conducting monthly WET testing for *Ceriodaphnia dubia* in an attempt to capture episodes of sub-lethal toxicity.

Samples collected during October, November and December of this quarter did demonstrate sub-lethal effects. All tests were conducted at the 80 percent effluent test concentration using Ouachita River water as diluent. Concurrent filtration fractionations were run with each test conducted this quarter at the 80 and 100 percent effluent concentrations. The results of these TIE manipulations are outlined in Table 1 below. We are continuing investigations and testing to determine if we can identify the source(s) of the observed effects.

TABLE 1.
Percent Effect to C. dubia Reproduction for Untreated and Treated Effluent
Georgia Pacific, Crossett Arkansas – Fourth Quarter 2013

Water/Test Date	Average Neonates per Female	Percent Inhibition
River Water 10/1/13	25.6	NA
80% 001 Effluent	18.9	26.2[1]
River Water 10/06/13[2]	27.8	NA
80% 001 Effluent filtered	12.3	55.8[1]
100% 001 Effluent filtered	6.6	76.3[1]
River Water 11/19/13	31.9	NA
80% 001 Effluent	27.4	14.1[1]
80% 001 Effluent filtered	26.9	15.7[1]
100% 001 Effluent filtered	26.4	17.2[1]
River Water 12/10/13	27.0	NA
80% 001 Effluent	16.7	38.1[1]
80% 001 Effluent filtered	16.0	40.7[1]
100% 001 Effluent filtered	12.6	53.3[1]

[1] Impaired compared to river water control.
[2] 10/06/13 effluent sample used is a composite of the same samples used for the 10/01/13 test.



Chronic Toxicity Test Results
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
December 2013

Project Number:
20-19675G

ENVIRON

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January 6, 2014

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

Re: Chronic Toxicity Test Results - December 2013
ENVIRON Project No. 20-19675G

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 9, 11, and 13, 2013. The samples were received at ENVIRON on December 10, 12, and 14, 2013, 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. All control organisms met USEPA test acceptability criteria. 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%	34%

The fathead minnow chronic test results indicate no significant mortality at the critical dilution (80 percent effluent). The results indicated a No Observable Effect Concentration (NOEC) value for lethality of 80 percent effluent. The sub-lethal NOEC value for fathead minnow growth was 80 percent effluent, which demonstrates no sub-lethal toxicity to the fathead minnow. The results of the chronic test with *C. dubia* indicated a NOEC value for lethality of 80 percent effluent; and a sub-lethality NOEC value of 34 percent effluent. The *C. dubia* test results indicate significant toxicity at the critical dilution for sub-lethal effects.

The river water control for the fathead minnow test met USEPA criteria for test acceptability. The Coefficient of Variation (CV) values for survival in the control and critical dilution are 12.1 and 7.2 percent, respectively. The CV values for growth in the control and critical dilution are 10.8 and 17.7 percent, respectively, and are below the CV limit of 40 percent for findings of no toxicity. The Percent Minimum Significant Difference (PMSD) value was 28.4 percent, which is within the

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USEPA PMSD bounds of 12 to 30 percent for fathead minnow growth. The effluent concentration-response curve can be described as a flat dose response, and is not described in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing.* A flat response 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.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 15.8 and 22.8 percent respectively, which are below the CV limit of 40 percent for a finding of no toxicity. The PMSD value was 18 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response can be described as a Type 1 response in EPA 821-B-00-004. A Type 1 concentration-response curve is an ideal response, and indicative 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 38 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:	16-4658-7121	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:46	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	06-4300-3427	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Dec-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	17 Dec-13	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	04-2776-4080	**Code:**	197F2970	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**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	9.64%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	30.5	16	2	8	0.9573	Asymp	Non-Significant Effect
		34	30.5	16	2	8	0.9573	Asymp	Non-Significant Effect
		45	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect
		60	32.5	16	1	8	0.9870	Asymp	Non-Significant Effect
		80	28.5	16	2	8	0.8883	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.925	0.8 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04328825	0.008657651	5	1.084	0.3944	Non-Significant Effect
Error	0.191728	0.007988668	24			
Total	0.2350163		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	230.6	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8609	0.9031	0.0011	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	0.925	0.7862	1	1	0.75	1	0.05	12.09%	0.0%
25		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-5.41%
34		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-5.41%
45		5	1	1	1	1	1	1	0	0.0%	-8.11%
60		5	1	1	1	1	1	1	0	0.0%	-8.11%
80		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	-2.7%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.287	1.094	1.481	1.393	1.047	1.393	0.06974	12.12%	0.0%
25		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	-5.37%
34		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	-5.37%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-8.23%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-8.23%
80		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	-2.52%

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

Analysis ID:	16-4658-7121	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:46	**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	0.75	0.875
25		1	1	1	1	0.875
34		1	1	0.875	1	1
45		1	1	1	1	1
60		1	1	1	1	1
80		1	1	0.875	0.875	1

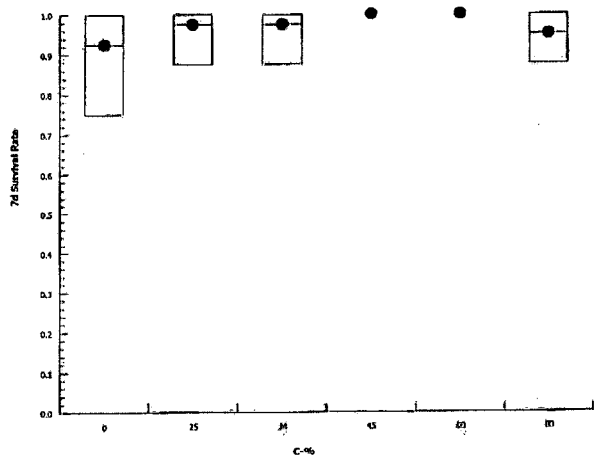
Angular (Corrected) Transformed Detail

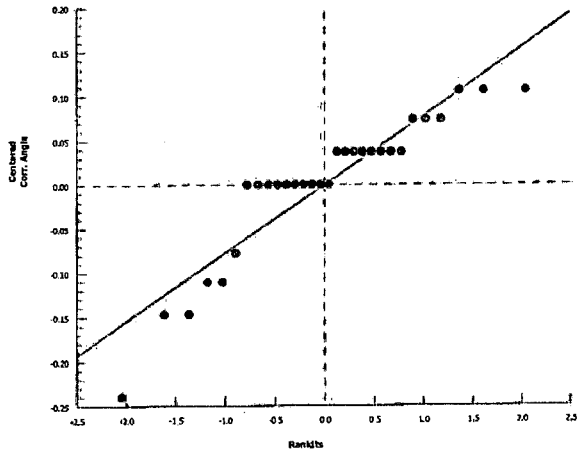
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.393	1.393	1.047	1.209
25		1.393	1.393	1.393	1.393	1.209
34		1.393	1.393	1.209	1.393	1.393
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.393	1.393	1.209	1.209	1.393

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	6/8	7/8
25		8/8	8/8	8/8	8/8	7/8
34		8/8	8/8	7/8	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	7/8	7/8	8/8

Graphics





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

Analysis ID:	05-4429-7355	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Dec-13 13:13	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	06-4300-3427	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Dec-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	17 Dec-13	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	04-2776-4080	**Code:**	197F2970	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**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	28.4%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-3.28	2.362	0.118	8	1.0000	CDF	Non-Significant Effect
		34	-3.084	2.362	0.118	8	1.0000	CDF	Non-Significant Effect
		45	-4.254	2.362	0.118	8	1.0000	CDF	Non-Significant Effect
		60	-2.782	2.362	0.118	8	0.9999	CDF	Non-Significant Effect
		80	-3.144	2.362	0.118	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.414	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.284	0.12 - 0.3	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	1.683	2.908	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.128496	0.02569921	5	4.149	0.0074	Significant Effect
Error	0.1486533	0.006193888	24			
Total	0.2771494		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	4.875	15.09	0.4314	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9454	0.9031	0.1273	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	0.414	0.3588	0.4692	0.4	0.3662	0.4813	0.0199	10.75%	0.0%
25		5	0.5772	0.5279	0.6266	0.5687	0.5425	0.645	0.01778	6.89%	-39.43%
34		5	0.5675	0.4526	0.6824	0.5263	0.465	0.6875	0.04138	16.3%	-37.08%
45		5	0.6257	0.5258	0.7257	0.6288	0.5137	0.7112	0.036	12.86%	-51.15%
60		5	0.5525	0.4385	0.6665	0.5212	0.44	0.6725	0.04105	16.61%	-33.45%
80		5	0.5705	0.4455	0.6955	0.57	0.45	0.6788	0.04503	17.65%	-37.8%

Fathead Minnow 7-d Larval Survival and Growth Test

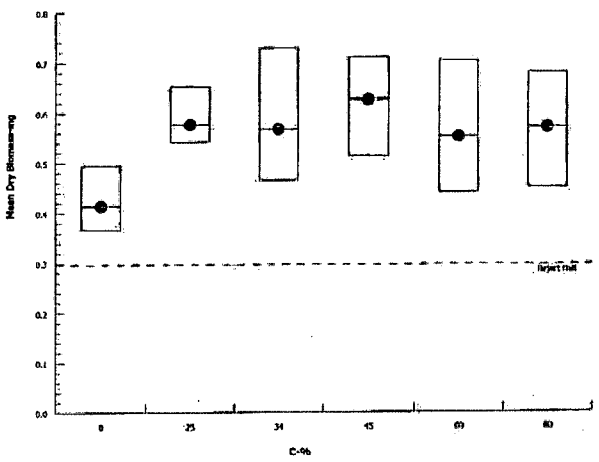
ENVIRON International Corp

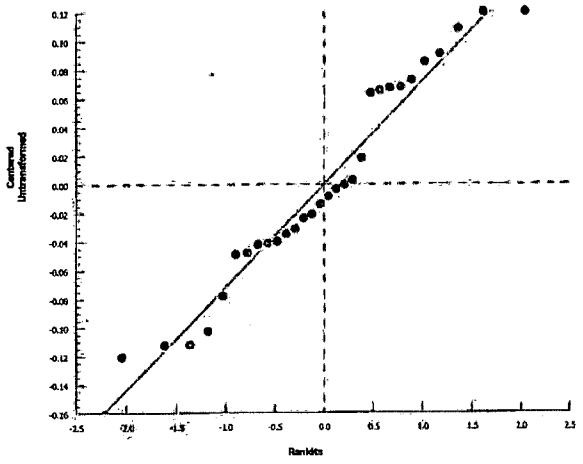
Analysis ID:	05-4429-7355	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Dec-13 13:13	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.4325	0.4813	0.3662	0.4	0.39
25		0.645	0.5562	0.5425	0.5738	0.5687
34		0.6875	0.64	0.465	0.5187	0.5263
45		0.7112	0.6912	0.5838	0.6288	0.5137
60		0.5125	0.5212	0.44	0.6725	0.6163
80		0.6788	0.57	0.45	0.4925	0.6613

Graphics





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

Analysis ID:	13-9596-8048	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Dec-13 13:14	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	06-4300-3427	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	10 Dec-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	17 Dec-13	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	04-2776-4080	**Code:**	197F2970	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	9690	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.414	0.25 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	1.683	2.908	1.0000	No Outliers Detected

Point Estimates

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

Mean Dry Biomass-mg Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.414	0.3662	0.4813	0.0199	0.04449	10.75%	0.0%
25		5	0.5772	0.5425	0.645	0.01778	0.03976	6.89%	-39.43%
34		5	0.5675	0.465	0.6875	0.04138	0.09252	16.3%	-37.08%
45		5	0.6257	0.5137	0.7112	0.036	0.08049	12.86%	-51.15%
60		5	0.5525	0.44	0.6725	0.04105	0.09178	16.61%	-33.45%
80		5	0.5705	0.45	0.6788	0.04503	0.1007	17.65%	-37.8%

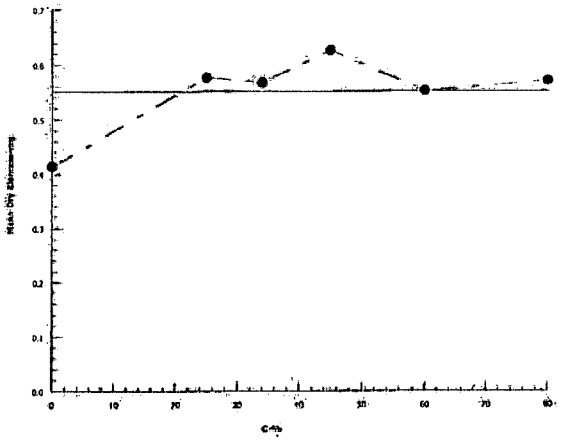
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.4325	0.4813	0.3662	0.4	0.39
25		0.645	0.5562	0.5425	0.5738	0.5687
34		0.6875	0.64	0.465	0.5187	0.5263
45		0.7112	0.6912	0.5838	0.6288	0.5137
60		0.5125	0.5212	0.44	0.6725	0.6163
80		0.6788	0.57	0.45	0.4925	0.6613

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

Analysis ID:	13-9596-8048	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	24 Dec-13 13:14	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



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

TEST LOG NO.: 16511
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes X No
FOOD BATCH: 4512

BEGINNING: HRS: 1710 DATE: 12/10/13
ENDING: HRS: 1510 DATE: 12/17/13
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 12/10/13
ORGANISM SOURCE: ABS #4534
SOURCE TEMP @ TEST START: 24.0
RANDOMIZED BY: TLH

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	7	6	6
	E	8	8	8	8	8	8	7	7
	Temp(°c):old/new	24.2	24.3/24.2	24.4/24.8	24.5/24.3	24.1/24.3	24.0/24.0	24.0/24.1	24.0
25	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	7	7	7
	Temp(°c):old/new	24.1	24.3/24.4	24.1/24.8	24.3/24.4	24.1/24.5	24.1/24.2	24.1/24.1	24.1
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.2	24.4/24.1	24.3/24.1	24.4/24.5	24.1/24.8	24.1/24.1	24.1/24.1	24.1
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.2	24.4/24.1	24.3/24.7	24.3/24.4	24.1/24.8	24.3/24.0	24.3/24.1	24.1
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.1	24.4/24.1	24.4/24.3	24.3/24.4	24.0/24.8	24.1/24.0	24.0/24.1	24.1
80	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	7	7
	D	8	8	8	8	8	8	8	7
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.1	24.1/24.3	24.0/24.4	24.5/24.3	24.1/24.8	24.3/24.1	24.1/24.1	24.0
Test Renewal	Time	1730	1350	1155	1255	1318	1304	1355	1510
	Date	12/10/13	12/11/13	12/12/13	12/13/13	12/14/13	12/15/13	12/16/13	12/17/13
	Initials	TLH	LH	HM	AH	AW	HM	LH	AW
morning feeding	Int/Time	[redacted]	LH0700	LH0700	LH0700	AW0730	AW0730	LH0710	[redacted]
afternoon feeding	Int/Time	TLH 1749	HM1533	AH1534	HM1530	AW1600	AW1500	AW1345	[redacted]

ENVIRON FATHEAD MINNOW SURVIVAL AND GROWTH 7-DAY CHRONIC TOXICITY TEST

EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: 16511
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes X No
FOOD BATCH: 16512

BEGINNING: HRS: 1710 DATE: 12/10/13
ENDING: HRS: 1510 DATE: 12/17/13

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

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

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

TEST LOG NO.: 16511 BEGINNING: HRS: 1710 DATE: 12/10/13
JOB NO.: 20-19675G ENDING: HRS: 1510 DATE: 12/17/13
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 89	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish	
RW	A	1	1.11924	1.12270	0.00346	8	0.4325	
	B	2	1.08845	1.09730	0.00385	8	0.4812	AVG Control
	C	3	1.07564	1.07857	0.00293	8	0.3663	Fish wt. ____
	D	4	1.07809	1.08129	0.00320	6	0.4000	(using final #)
	E	5	1.10040	1.10352	0.00312	7	0.390	
25	A	6	1.05752	1.060268		8		
	B	7	1.08389	1.08832		8		
	C	8	1.09586	1.10020		8		Oven ID: 1
	D	9	1.13008	1.13467		8		
	E	10	1.08480	1.08935		7		Tins In:
34	A	11	1.08793	1.09343		8		Date: 12/17/13
	B	12	1.13180	1.13692		8		Time: 1530
	C	13	1.10884	1.11256		7		Temp (°C): 107
	D	14	1.08492	1.08907		8		Initials: AW
	E	15	1.13309	1.13790		8		
45	A	16	1.13820	1.14195		8		Tins Out:
	B	17	1.05218	1.05771		8		Date: 12/18/13
	C	18	1.08676	1.09143		8		Time: 1441
	D	19	1.07637	1.08140		8		Temp (°C): 10
	E	20	1.09343	1.09754		8		Initials: UM
60	A	21	1.14218	1.14628		8		
	B	22	1.09515	1.09988		8		
	C	23	1.04709	1.05061		8		
	D	24	1.11900	1.12444		8		
	E	25	1.11158	1.11651		8		
80	A	26	1.14849	1.15392		8		FINAL WEIGHTS
	B	27	1.11805	1.12061		8		
	C	28	1.07001	1.07361		7		DATE: 12/19/13
	D	29	1.10700	1.11100		7		INITIALS: UM
	E	30	1.06127	1.06656		8		
MH	A	31	1.08400	1.08771		8		
	B	32	1.12230	1.12533		7		
	C	33	1.08545	1.08926		8		
	D	34	1.14032	1.15073		8		
	E	35	1.10008	1.12460		8		
	Initials / Date:		HM 12/18					

TEST LOG NO. 16511

JOB NO. 20-19675G

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Fm

DATE: 12/10/13

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	8.1	8.4	8.5	8.8	7.9	8.4	8.6	8.8	8.6	8.7	8.2	8.2	8.0
25	8.3	8.0	8.3	8.6	8.9	7.5	8.3	8.7	8.6	8.6	8.8	8.6	8.5	8.7
34	8.4	8.3	8.4	8.6	8.9	7.5	8.4	8.7	8.7	8.7	8.8	8.6	8.5	8.7
45	8.4	8.3	8.3	8.7	8.8	7.5	8.5	8.8	8.7	8.7	8.8	8.6	8.4	8.6
60	8.6	8.4	8.4	8.8	8.7	7.7	8.5	8.8	8.5	8.6	8.8	8.4	8.6	8.5
80	8.6	8.4	8.5	8.7	8.16	7.7	8.4	8.5	8.5	8.6	8.7	8.1	8.5	8.6
MH	8.7	8.1	8.6	8.6	8.5	8.3	8.6	8.5	8.6	8.5	8.8	8.5	8.4	8.7

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	7.21	7.46	10.96	7.66	7.28	7.58	8.00	7.39	7.14	7.53	7.14	7.51	7.82	7.62
25	7.48	7.62	7.63	7.57	7.41	7.54	7.63	7.44	7.55	7.45	7.48	7.59	7.50	7.47
34	7.71	7.79	7.68	7.69	7.56	7.80	7.55	7.78	7.67	7.62	7.69	7.69	7.61	7.51
45	7.82	7.96	7.76	7.99	7.68	7.83	7.64	7.86	7.68	7.72	7.68	7.79	7.64	7.57
60	7.59	8.16	7.80	8.14	7.75	7.87	7.78	7.95	7.76	7.95	7.74	7.84	7.71	7.74
80	7.90	8.19	7.84	8.17	7.74	7.96	7.75	7.99	7.77	7.94	7.78	7.93	7.72	7.87
MH	7.98	7.93	7.97	7.82	8.00	7.60	7.97	7.94	7.96	7.91	7.97	7.76	7.89	7.64

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	95	86	97	91	112	88	151	116	70	137	107	89	139	101
25	472	438	585	519	425	446	565	410	503	458	521	442	535	529
34	635	638	826	657	580	577	658	547	676	605	665	616	680	630
45	858	825	836	829	748	756	801	719	875	806	835	792	863	839
60	1035	1069	1101	1072	926	949	993	906	1073	988	1040	1038	1049	1020
80	1219	1213	1213	1210	1070	1085	1052	1016	1183	1085	1147	1132	1200	1166
MH	217	200	1380 217	214	297	216	816	202	208	234	225	205	254	229

Params Intl/Time:	AW 1454	LH0707	AW 0956	LH0857	AW 1119	LH0707	AW 0946	AW 757	AW 1230	AW 0800	AW 1030	LH0708	AW 0943	LH0704
Dilutions Intl/Time:	AW 1444		AW 0948		AW 1120		AW 0940		AW 1220		AW 1020		AW 0940	
Control Water Batch#:	16979		16979.5344		16999.5345		16999.5345		17011.5348		17011.5349		17011.5351	
Food Batch	4572		4572		4518		4512		4512		4512		4512	

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TEST LOG NO. 16511 CLIENT: Georgia Pacific Crossett DATE OF TEST: 12/10/13

JOB NO. 20-19675G 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
16950	Outfall 001	12/9/13	12/10/13	268	370	<0.02	1.15
16998	Outfall 001	12/10/13	12/12/13	288	410	0.05	0.939
17010	Outfall 001	12/12-13/13	12/14/13	292	~~390~~ 355 FM 12/14	0.06	0.717

* seems foamier than usual

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
16979	River Water	12/9/13	12/10/13	22.4	15	0.03	0.195
16994	MH		12/10/13	85.6	41	<0.02	
16999	RW	12/9/13	12/12/13	43.2	30	0.10	0.308
17011	MH			~~8~~ 81.6	~~28~~ 43	<0.02	
	RW		12/14/13	29.2	23	0.09	0.165

CETIS Analytical Report

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

Analysis ID:	18-2597-1153	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:52	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Sample ID:	11-3079-7479	**Code:**	436699A7	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**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	9	0	9	1	0	0.0%
25		10	0	10	1	0	0.0%
34		10	0	10	1	0	0.0%
45		9	0	9	1	0	0.0%
60		9	0	9	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	
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	
60		1	1	1	1	1	1	1	1	1	
80		1	1	1	1	1	1	1	1	1	1

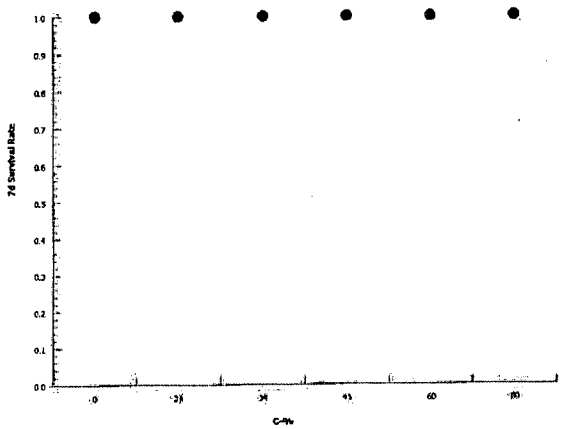
7d Survival Rate Binomials

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	
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	
60		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:	18-2597-1153	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:52	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID:	12-8850-3301	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:52	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes
Sample ID:	11-3079-7479	**Code:**	436699A7	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**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	34	45	39.12	2.941	18.0%

Bonferroni Adj t Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-0.4933	2.402	4.868	17	1.0000	CDF	Non-Significant Effect
		34	1.48	2.402	4.868	17	0.3625	CDF	Non-Significant Effect
		45*	3.313	2.402	4.995	16	0.0043	CDF	Significant Effect
		60*	5.663	2.402	4.995	16	<0.0001	CDF	Significant Effect
		80*	5.081	2.402	4.868	17	<0.0001	CDF	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1803	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1350.824	270.1648	5	13.88	<0.0001	Significant Effect
Error	992.5444	19.46166	51			
Total	2343.368		56			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	2.825	15.09	0.7269	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9886	0.9434	0.8671	Normal Distribution

Reproduction Summary

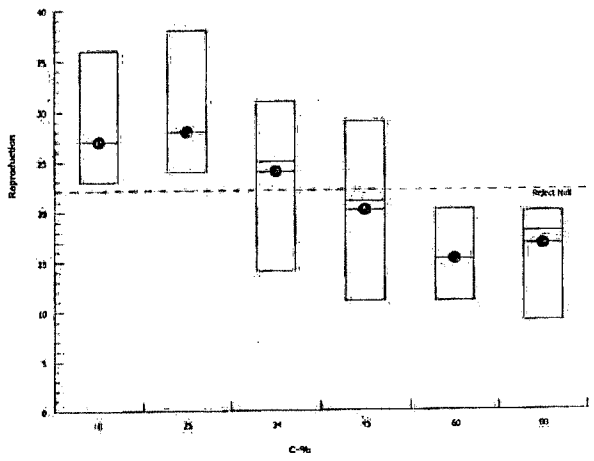
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	9	27	23.72	30.28	26	23	35	1.424	15.82%	0.0%
25		10	28	25.28	30.72	27	24	37	1.202	13.57%	-3.7%
34		10	24	20.01	27.99	25	14	31	1.764	23.24%	11.11%
45		9	20.11	16.2	24.02	21	11	29	1.695	25.29%	25.51%
60		9	15.22	12.51	17.93	15	11	20	1.176	23.17%	43.62%
80		10	16.7	13.98	19.42	18	9	20	1.202	22.77%	38.15%

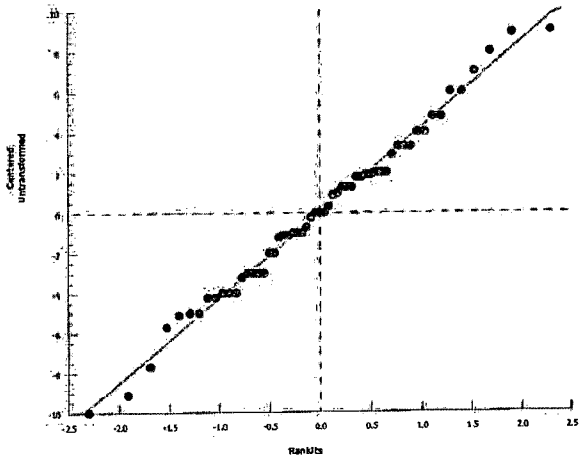
Reproduction Detail

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	25	24	23	26	27	27	23	35	33	
25		30	27	37	30	25	26	29	25	24	27
34		19	21	28	19	30	24	31	14	28	26
45		23	22	19	22	11	21	29	15	19	
60		17	15	20	12	11	17	14	11	20	
80		20	9	11	18	20	17	18	18	16	20

Analysis ID:	12-8850-3301	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:52	**Analysis:**	Parametric-Multiple Comparison	**Official Results:**	Yes

Graphics





CETIS Analytical Report

Report Date: 20 Dec-13 07:52 (p 1 of 1)
Test Code: 16511cd | 21-3165-3009

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID:	05-2488-4022	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	20 Dec-13 7:52	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Sample ID:	11-3079-7479	**Code:**	436699A7	**Client:**	GPAC Crossett
Sample Date:	09 Dec-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (DEC)
Receive Date:	10 Dec-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1556227	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	43.55	33.81	51.14	2.296	1.956	2.958

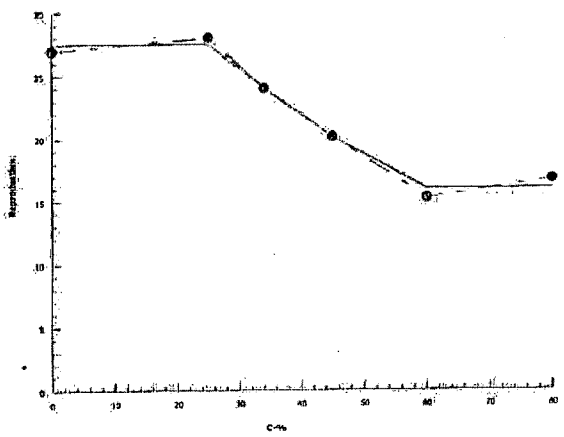
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	9	27	23	35	1.424	4.272	15.82%	0.0%
25		10	28	24	37	1.202	3.801	13.57%	-3.7%
34		10	24	14	31	1.764	5.578	23.24%	11.11%
45		9	20.11	11	29	1.695	5.085	25.29%	25.51%
60		9	15.22	11	20	1.176	3.528	23.17%	43.62%
80		10	16.7	9	20	1.202	3.802	22.77%	38.15%

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	25	24	23	26	27	27	23	35	33	
25		30	27	37	30	25	26	29	25	24	27
34		19	21	28	19	30	24	31	14	28	26
45		23	22	19	22	11	21	29	15	19	
60		17	15	20	12	11	17	14	11	20	
80		20	9	11	18	20	17	18	18	16	20

Graphics



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

TEST LOG NO.: 16511

JOB NUMBER.: 20-19675G

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): 12/9-10/13

TEMP @ TEST START: 26.6

RANDOMIZED BY: LM

SOURCE ID:	AGE (time):
10459	2300-0643
10461	2300-0649

TEST START:

HOURS: 1449 DATE: 12/10/13

TEST END:

HOURS: _____ DATE: 12/17/13

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 59 61										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	8	4	10	2	13	18	2	10	1	14	
LM 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1721	12/11	24.2	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.1	24.2	Day 2	✓	✓	miss	✓	✓	✓	✓	✓	✓	✓	
	AH 1142	12/13	24.4	24.3	Day 3	✓	✓	✓	✓	✓	✓	✓	–	–	–	
	AW 1237	12/14	24.0	24.1	Day 4	3	3	Miss	5	5	3	4	3	5	6	
	AW 1232	12/15	24.0	24.0	Day 5	7	5	/	9	8	11	(7)	7	(11)	(9)	
	AW 10469	12/16	24.0	24.1	Day 6	✓	✓	/	✓	✓	✓	(3)	✓	(4)	(2)	
LM 1600		12/17		24.1	Day 7	15	16	/	9	13	13	13	13	15	16	WOF
					Day 8											
			Total			25	24	NH	23	26	27	27	23	35	33	243/14

= 270

x .75 = 203

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

TEST LOG # 16511 JOB # 20-19675G

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											
LM 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1221	12/11	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	–	✓	✓	✓	
	AH 1112	12/13	24.3	24.4	Day 3	✓	✓	✓	✓	✓	✓	–	–	–	–	
	AW 1237	12/14	24.0	24.5	Day 4	5	3	7	4	5	4	4	3	4	4	
	AW 1132	12/15	24.0	24.4	Day 5	✓	6	✓	8	7	7	11	8	7	9	
	AW 1049	12/16	24.3	24.1	Day 6	7	✓	11	(3)	13	✓	✓	14	13	14	
		12/17		24.2	Day 7	18	18	19	15	✓	15	14	✓	✓	✓	
					Day 8											
			Total			30	27	37	35	25	26	29	25	24	27	280

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
LM 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1221	12/11	24.2	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.1	24.1	Day 2	✓	–	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1112	12/13	24.3	24.4	Day 3	✓	✓	✓	✓	✓	✓	–	–	–	–	
	AW 1237	12/14	24.5	24.2	Day 4	3	3	5	4	5	4	4	3	4	4	
	AW 1132	12/15	24.0	24.1	Day 5	5	7	9	7	✓	7	11	11	10	7	
	AW 1049	12/16	24.1	24.3	Day 6	9	11	14	✓	10	✓	✓	✓	14	✓	
		12/17		24.4	Day 7	12	✓	✓	8	15	13	16	✓	✓	15	
					Day 8											
			Total			19	21	28	19	30	24	31	14	28	26	240

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

L/Ecotox/ab/Labforms/ToxTestSheets/7DchronicCD.doc

TEST LOG # _____ JOB # 20-19675G

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											
LM 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1221	12/11	24.3	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.3	24.4	Day 2	–	–	–	–	–	–	–	–	–	–	
	AH 1112	12/13	24.4	24.5	Day 3	✓	✓	✓	✓	✓	✓	–	–	–	–	
	AW 1237	12/14	24.2	24.1	Day 4	4	3	4	3	2	3	3	3	3	5	
	AW 1132	12/15	24.0	24.2	Day 5	7	6	✓	5	7	11	7	7	6	7	
	AW 1049	12/16	24.5	24.1	Day 6	✓	✓	7	✓	9	✓	✓	✓	✓	✓	
		12/17		24.7	Day 7	9	✓	4	10	2	3	8	8	7	8	
					Day 8											
			Total			20	9	11	18	20	17	18	18	16	20	167

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
LM 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1221	12/11	24.1	24.7	Day 1	✓	✓	✓		✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.3	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1112	12/13	24.5	24.4	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1237	12/14	24.1	24.2	Day 4	3	2	5	4	3	4	5	6	4	5	
	AW 1132	12/15	24.1	24.3	Day 5	11	7	✓	9	✓	11	8	Miss	6	✓	
	AW 1049	12/16	24.0	24.9	Day 6	15	13	✓	✓	7	✓	✓		✓	5	
		12/17		24.9	Day 7	3	2	7	13	16	14	18		18	18	89
					Day 8											
			Total			32	26	12	26	26	29	31	M-1	28	28	238/9

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

= 264/10

TEST LOG # _____ JOB # 20-19675G

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											
LH 1449		12/10	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1221	12/11	24.1	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1112	12/13	24.5	24.4	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1237	12/14	24.6	24.2	Day 4	3	2	4	2	3	4	4	5	4	4	
	AW 1132	12/15	24.0	24.1	Day 5	7	8	8	7	✓	✓	6	8	Mis	✓	
	AW 1049	12/16	24.0	24.2	Day 6	11	✓	✓	✓	8	✓	✓	✓		11	
		12/17		24.8	Day 7	✓	5	6	9	12	1	6	✓		✓	
					Day 8											
			Total			21	15	18	18	23	5+	16	13	Mis	15	144/149 160

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
LH 1449		12/10	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	HH 1221	12/11	24.0	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1141	12/12	24.2	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1112	12/13	24.5	24.5	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1237	12/14	24.3	24.4	Day 4	4	3	3	4	3	5	5	6	2	3	
	AW 1132	12/15	24.0	24.1	Day 5	7	3	3	5	7	5	5	5	4	5	
	AW 1049	12/16	24.0	24.2	Day 6	M+ 1/16/01	✓	✓	13	✓	7	✓	(3)	✓	✓	
		12/17		24.8	Day 7	✓	✓	4	✓	✓	✓	✓	✓	12	✓	
					Day 8											
			Total			11	6	10	22	10	17	16	14	18	8	126

TEST LOG NO. 16511

JOB NO. 20-19675G

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 12/11/13

ENVIRON Test Log No. 16511

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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
RW	8.2	7.9	8.4	8.3	8.8	7.6	8.4	8.6	8.9	8.4	8.7	8.4	8.2	8.4
25	8.2	8.0	8.2	8.3	8.9	7.6	8.3	8.6	8.8	8.6	8.8	8.3	8.5	8.7
34	8.4	7.8	8.4	8.3	8.4	7.7	8.4	8.4	8.7	8.7	8.8	8.6	8.4	8.6
45	8.4	7.6	8.3	8.3	8.5	7.7	8.5	8.6	8.7	8.6	8.8	8.4	8.4	8.6
60	8.6	7.6	8.2	8.3	8.4	7.7	8.5	8.6	8.5	8.5	8.9	8.4	8.5	8.6
80	8.6	7.9	8.5	8.3	8.6	7.6	8.4	8.5	8.5	8.5	8.7	8.4	8.5	8.7
MH	8.7	7.8	8.6	8.1	8.5	7.5	8.6	8.5	8.5	8.5	8.6	8.6	8.4	8.6
80% filtered	8.7	7.8	8.6	8.3	8.2	7.6	8.5	8.2	8.6	8.2	8.6	8.6	8.4	8.6
100% filtered	8.6	7.9	8.3	8.4	8.1	7.6	8.4	AM	8.8	+	8.7	8.8	8.4	8.5

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	7.21	7.53	10.96	7.53	7.28	7.89	8.00	7.97	7.14	7.43	7.14	7.94	7.82	7.77
25	7.48	8.18	10.7	7.99	7.41	7.77	7.63	7.88	7.55	8.17	7.48	8.12	7.50	7.71
34	7.71	8.32	7.68	8.29	7.56	8.00	7.55	8.24	7.67	8.49	7.63	8.19	7.61	8.04
45	7.87	8.44	7.76	8.39	7.68	8.17	7.68	8.28	7.68	8.41	7.68	8.32	7.64	8.23
60	7.89	8.58	7.80	8.60	7.75	8.37	7.78	8.43	7.76	8.48	7.74	8.45	7.71	8.42
80	7.90	8.56	7.84	8.59	7.74	8.45	7.75	8.49	7.77	8.53	7.78	8.54	7.72	8.44
MH	7.98	7.89	7.97	7.99	8.00	7.95	7.97	7.90	7.96	7.94	7.97	8.10	7.99	8.40
80% filtered	7.88	8.62	7.96	8.65	7.81	8.20	7.79	8.28	7.78	8.57	7.78	8.50	7.88	8.33
100% filtered	7.96	8.46	8.06	8.77	7.85	8.55	7.89	8.58	7.76	8.66	7.82	8.62	7.61	8.63

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	95	110	97	143	112	95	151	144	70	157	107	100	139	110
25	472	536	505	567	425	421	505	500	503	513	527	527	533	480
34	633	683	6510	707	580	508	638	632	670	6510	665	668	680	513
45	858	876	863	902	748	729	801	792	873	844	833	859	863	713
60	1035	1102	1101	1103	926	908	999	990	1073	1051	1040	1075	1043	1011
80	1219	1286	1213	1353	1070	1043	1082	1047	1139	1143	1141	1217	1200	1202
MH	317	219	218	262	197	200	257	274	208	220	203	293	259	216
80% filtered	319	1303	1259	1461	1218	1110	1126	1152	1135	1291	1182	1162	1138	1363
100% filtered	1746	1807	1700	1729	1558	1453	1497	1471	1350	1644	1617	1655	1642	1460
Params Intl/Time:	AW 1459	HM1211	HM0959	AH 1155	HM1110	AH 0846		AW 1230		HM1454	HM1030	AW 1235	AH 0943	
Dilutions Intl/Time:	AW 1442		HM1415		HM1100	AH 0840		AH 1225			HM1030		AH 0940	
Control Water Batch#:	110979, 1145314		110979, 5314		100999, 5395	16979, 5395		M011 5398		17011, 5399		17011, 5395		
Food Batch	45334		33114		33H	33,14		35,14		42,14		42,14		

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

ENVIRON Test Log No. 16511

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Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-567-8170 FAX: 1-870-314-9076

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY / SAM

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)
RIVER	G	PLASTIC	NA	12-9-13 12:50pm	[illegible]	2	10										DILUTION WATER	
OUTFALL 001	C	PLASTIC	YES	12-8-13 4:23pm	12-9-13 6:13am	2	10					✓	✓					

Analysis Requested

CHAIN-OF-CUSTODY

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

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	12-9-13	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)

Receipt Temp: 1.0, 1.0 °C

Containers/Volume Received: 10L, 10L

Date: 12/10/13 Time: 1102 pH upon arrival: 9.25, 7.76 DO upon arrival: 8.4, 8.6

Sample Receipt Checklist:

Client: COP Crossett

Date/Time received 12/10/13 1100 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 (in the river water)
   - ➢ 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
116979	River	1.1	7.25	8.4	0.03
116980	Outfall001	1.0	7.76	8.6	<0.02

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ENVIRON Test Log No. 16511

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CHAIN-OF-CUSTODY

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

Project Name: Project Number:

Industry: Georgia-Pacific Crossett Paper Ops

Phone: 870-567-8120 FAX: 870-364-9076

County: Ashley City: Crossett State: AR

Sample Collected by (print): Rachel Johnson

NPDES Permit No.: AR0001210

Sample Collected by (signature): Rachel Johnson

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
Outfall 001	Comp	Plastic	Yes	12/10/13 6:13am	12/11/13 6:17am	1	10					✓	✓					1129978
River	Grab	Plastic	NA	12/9/13		1	10					✓					Dilution Water	1129979

* 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	12/11/13	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 1.8 1.1	Containers/Volume Received: 10L 1cl
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/12/13	Time: 0858

pH upon arrival:

DO upon arrival:

Sample Receipt Checklist:

Client: Cep Chossett

Date/Time received 12/12/13 0858 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
160998	Outfall 09	1.8	7.74	7.4	0.03
160999	River	1.1	7.09	7.9	0.10

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ENVIRON Test Log No. 16511

33 of 38

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 / Rachel

Sample Collected by (signature): Rachel Patton

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

CHAIN-OF-CUSTODY

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

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested: Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
River	G	Plastic	NA	12/9/13		2	20										Dilution water	131011
Outfall 001	C	Plastic	Yes	12/12/13 6:16am	12/13/13 6:14am	2	20					✓	✓					131010

* 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)
Rachel Patton	12/13/13	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 3.1°C, 3.1°C	Containers/Volume Received: 20 L 1 each
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/14/13	Time: 1136

pH upon arrival: 7.12, 7.69

DO upon arrival: 9.8, 5.8

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 12/14/13 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
16 17010	Outfall 001	2.1	7.69	9.6	0.06
17011	River	3.1	7.12	9.8	0.09

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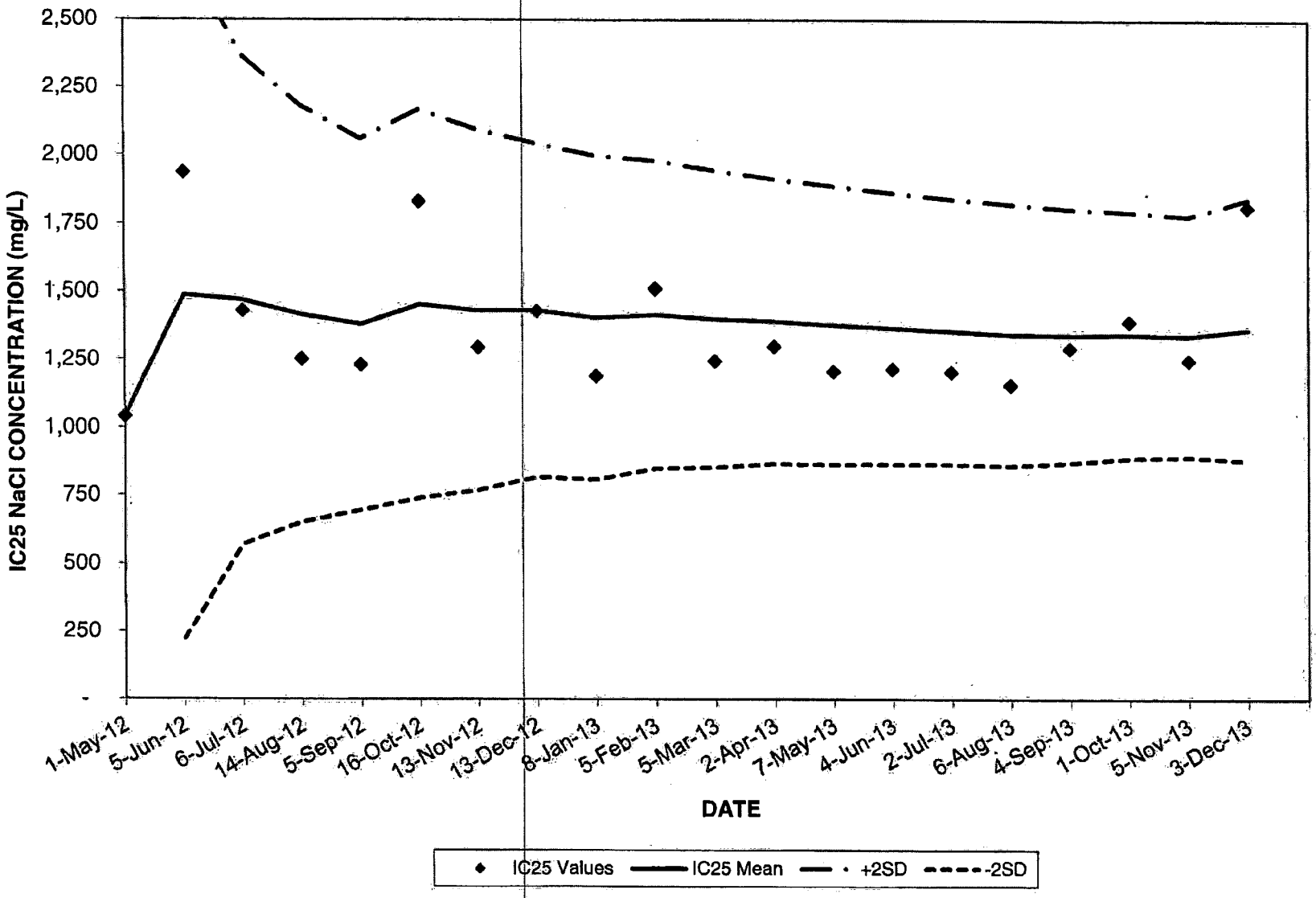
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2012 - 2013
FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2012 - 2013

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	15343	01-May-12	100	0.562	750	1,500	750	1,500	25.0	1,042	1,042				
2	15115	05-Jun-12	100	0.499	750	1,500	1,500	3,000	24.0	1,937	1,490	633	2,755	224	30
3	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,470	449	2,368	572	25
4	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,416	382	2,180	652	23
5	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,379	341	2,061	697	22
6	15683	16-Oct-12	97.5	0.447	1,500	3,000	1,500	3,000	19.0	1,832	1,455	357	2,168	742	22
7	15743	13-Nov-12	100	0.514	750	1,500	750	1,500	15.9	1,297	1,432	331	2,094	770	21
8	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,432	306	2,045	819	20
9	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,405	298	2,000	810	20
10	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,416	283	1,981	850	19
11	15965	05-Mar-13	100	0.538	750	1,500	750	1,500	28.1	1,246	1,400	273	1,946	854	19
12	16017	02-Apr-13	100	0.504	750	1,500	750	1,500	25.8	1,300	1,392	262	1,916	868	18
13	16088	07-May-13	100	0.390	750	1,500	750	1,500	29.3	1,207	1,378	256	1,890	866	18
14	16137	04-Jun-13	100	0.402	750	1,500	750	1,500	21.5	1,215	1,366	250	1,866	867	18
15	16189	02-Jul-13	100	0.444	750	1,500	750	1,500	26.7	1,205	1,355	244	1,844	867	17
16	16256	06-Aug-13	100	0.382	750	1,500	750	1,500	19.3	1,157	1,343	241	1,825	861	17
17	16309	04-Sep-13	97.5	0.369	750	1,500	750	1,500	27.1	1,293	1,340	234	1,808	872	17
18	16348	01-Oct-13	97.5	0.310	1,500	3,000	750	1,500	23.4	1,391	1,343	227	1,797	889	16
19	16425	05-Nov-13	100	0.335	750	1,500	750	1,500	19.7	1,248	1,338	222	1,781	894	16
20	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814	1,362	241	1,843	880	17
Avg			99	0.428	825	1650	900	1800	23	1362	1378	307	2009	782	

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.

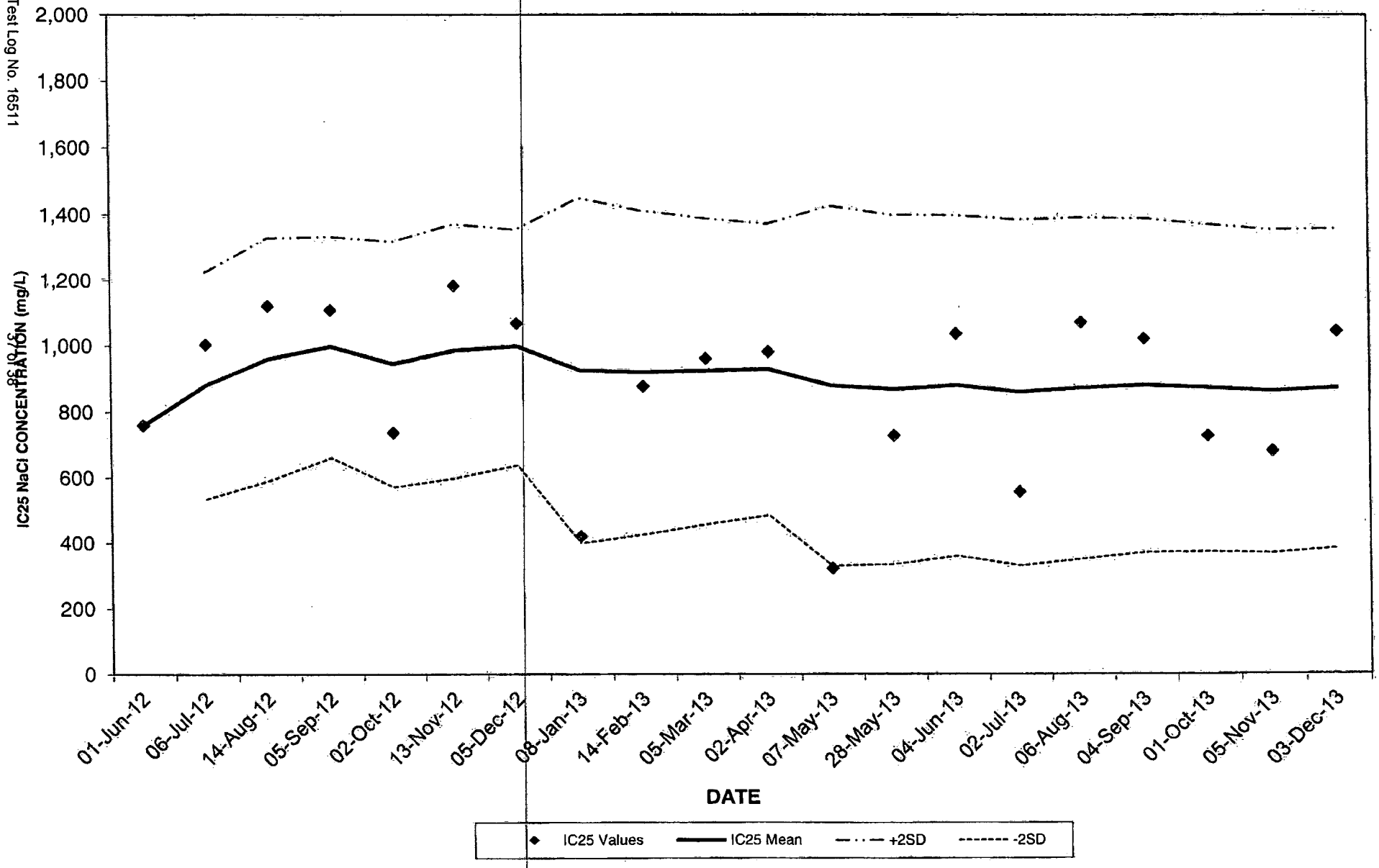
(*) Minimum USEPA CONTROL CRITERIA - 80 percent survival and average dry weight of 0.25 mg (weight based on surviving number of fish).

Test Log 15132 intiated Feb 7, 2012 was invalidated due to standard deviation over 2x

ENVIRON Test Log No. 16511

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2013

Ceriodaphnia dubia



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12/23/2013

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2013

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	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	759				
2	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1,003	881	173	1,226	536	14
3	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1,121	961	185	1,330	592	16
4	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1,109	998	168	1,334	662	15
5	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	946	186	1,319	573	18
6	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1,183	985	193	1,371	600	18
7	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.8	1,067	997	179	1,354	640	17
8	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	925	263	1,450	400	27
9	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	919	246	1,412	427	25
10	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	923	233	1,388	458	24
11	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	928	221	1,371	486	23
12	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	878	274	1,426	329	30
13	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	866	266	1,398	334	29
14	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	878	259	1,397	359	28
15	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	857	263	1,384	330	30
16	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	870	260	1,390	350	29
17	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	879	254	1,387	370	28
18	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	870	249	1,369	372	28
19	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	860	246	1,352	368	28
20	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	869	243	1,355	383	27
Avg			98	93	30	1750	500	500	1006	19	869	903	230	1369	451	

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 2013

Project Number:
20-19675G

ENVIRON

ENVIRON

December 9, 2013

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

Re: Chronic Toxicity Test Results - November 2013
ENVIRON Project No. 20-19675G

Dear Ms. Johnson:

ENVIRON conducted a chronic (7-day) whole effluent toxicity (WET) test for Georgia-Pacific in Crossett, AR. The test was conducted as a repeat for a non-compliant test conducted in October 2013 according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on November 18, 20, and 21, 2013. The samples were received at ENVIRON on November 19, 21, and 23, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received on November 12, and 21, 2013 in good condition. The test organism utilized for the chronic toxicity test was *Ceriodaphnia dubia* (*C. dubia*). The test was initiated upon receipt of the first sample (November 19, 2013). 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. All control organisms met USEPA test acceptability criteria. A test round using both fathead minnow and *C. dubia* was initiated on November 12, 2013, but was terminated early due to failure to receive the third sample. The bench sheets and Chains of Custody for the terminated test are in Attachment 1. 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)	60%

The results of the chronic tests with *C. dubia* indicated No Observable Effect Concentration (NOEC) values for survival (lethality) of 80 percent effluent. The *C. dubia* test results indicated no significant toxicity at the critical dilution to the survival of *C. dubia*. The sub-lethal NOEC value for *C. dubia* reproduction was 60 percent, which demonstrates sub-lethal toxicity to *C. dubia* at the critical dilution.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 8.7 and 8.8 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent in case of findings of no toxicity. The PMSD value

ENVIRON International Corp. 201 Summit View Drive, Suite 300, Brentwood, TN 37027
V +1 615.277.7570 F +1 615.377.4976

was 12.4 percent, which is below the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction indicating high test sensitivity. In this case the percent effect at the critical dilution was 14.1 percent which is greater than the minimal PMSD response of 13 percent. Subsequently, the effect to the 80 percent effluent exposure is considered significant and not a false positive. The effluent concentration-response is described as a Type 7 response in EPA 821-B-00-004, *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing*. A Type 7 response demonstrates significant effects at only the highest test concentration. This test is considered valid for assessment of permit requirements. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data and documentation from the terminated test are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2.

In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 41 pages including this cover letter, attachment pages and separator pages.

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

Sincerely,

ENVIRON International Corporation

Richard E. Lockwood
Project Manager

Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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

Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Laboratory Bench Sheets, Statistical Data, and Terminated Test Documentation

CETIS Analytical Report

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

Analysis ID:	07-0616-7157	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	27 Nov-13 16:32	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	00-2221-6123	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	19 Nov-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	26 Nov-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	12-4167-7122	**Code:**	4A027D42	**Client:**	GPAC Crossett
Sample Date:	18 Nov-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	19 Nov-13	**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		9	0	9	1	0	0.0%
45		8	0	8	1	0	0.0%
60		10	0	10	1	0	0.0%
80		10	0	10	1	0	0.0%

7d Survival Rate Detail

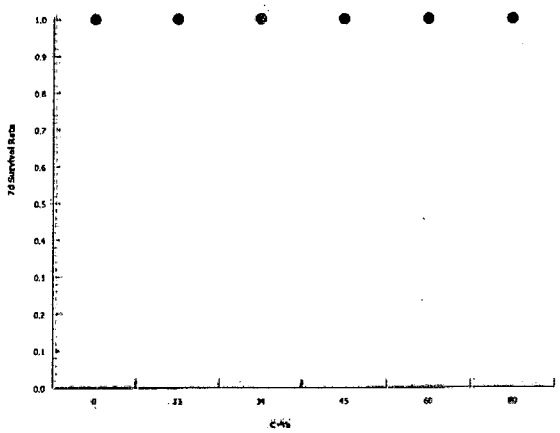
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	1	1	1	1	1	1	1
34		1	1	1	1	1	1	1	1	1	
45		1	1	1	1	1	1	1	1		
60		1	1	1	1	1	1	1	1	1	1
80		1	1	1	1	1	1	1	1	1	1

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	
45		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

Analysis ID:	07-0616-7157	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	27 Nov-13 16:32	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



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

Analysis ID:	17-1609-4133	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	27 Nov-13 16:44	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	00-2221-6123	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	19 Nov-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	26 Nov-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	12-4167-7122	**Code:**	4A027D42	**Client:**	GPAC Crossett
Sample Date:	18 Nov-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	19 Nov-13	**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	60	80	69.28	1.667	12.4%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	85	NA	2	18	0.3408	Exact	Non-Significant Effect
		34	70.5	NA	3	17	0.2844	Exact	Non-Significant Effect
		45	54.5	NA	4	16	0.1417	Exact	Non-Significant Effect
		60	78	NA	3	18	0.0988	Exact	Non-Significant Effect
		80*	67	NA	2	18	0.0061	Exact	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	31.9	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1244	0.13 - 0.47	Yes	Below Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	3.433	3.18	0.0165	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	111.2466	22.24933	5	1.631	0.1686	Non-Significant Effect
Error	695.6306	13.63981	51			
Total	806.8772		56			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.15	15.09	0.1481	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9419	0.9434	0.0086	Non-normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	31.9	29.92	33.88	32.5	27	35	0.875	8.67%	0.0%
25		10	29.1	25.41	32.79	29.5	17	37	1.629	17.7%	8.78%
34		9	29.22	26.23	32.22	29	24	34	1.299	13.34%	8.39%
45		8	28.38	24.53	32.22	29.5	18	33	1.625	16.2%	11.05%
60		10	29	27.06	30.94	28	27	36	0.8563	9.34%	9.09%
80		10	27.4	25.67	29.13	28	22	31	0.763	8.81%	14.11%

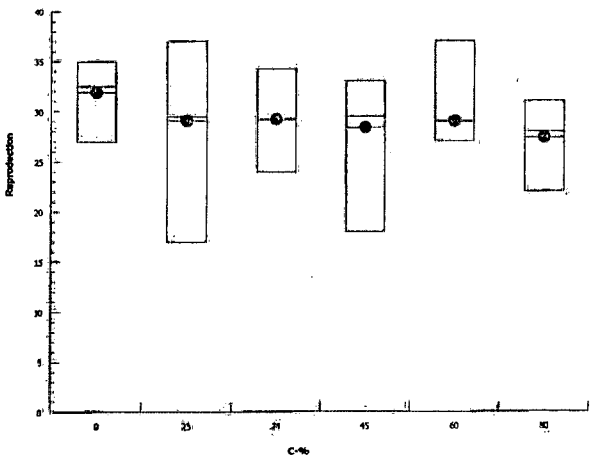
Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

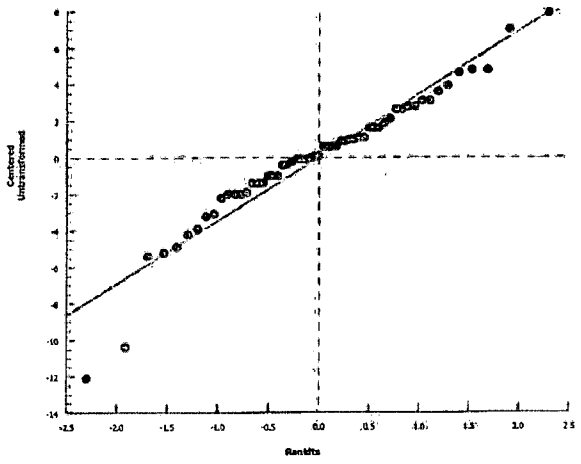
Analysis ID:	17-1609-4133	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	27 Nov-13 16:44	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	32	35	33	30	28	33	27	32	34	35
25		37	30	31	29	29	33	30	26	29	17
34		25	27	34	29	34	32	24	26	32	
45		30	18	31	28	31	33	29	27		
60		30	28	27	36	28	28	27	29	30	27
80		31	26	28	29	28	29	28	27	26	22

Graphics





CETIS Analytical Report

Report Date: 27 Nov-13 16:46 (p 1 of 1)
Test Code: 16463cd | 08-5837-1796

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

Analysis ID:	06-1597-4301	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	27 Nov-13 16:45	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	00-2221-6123	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	19 Nov-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	26 Nov-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	12-4167-7122	**Code:**	4A027D42	**Client:**	GPAC Crossett
Sample Date:	18 Nov-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (NOV)
Receive Date:	19 Nov-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	26264	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	31.9	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

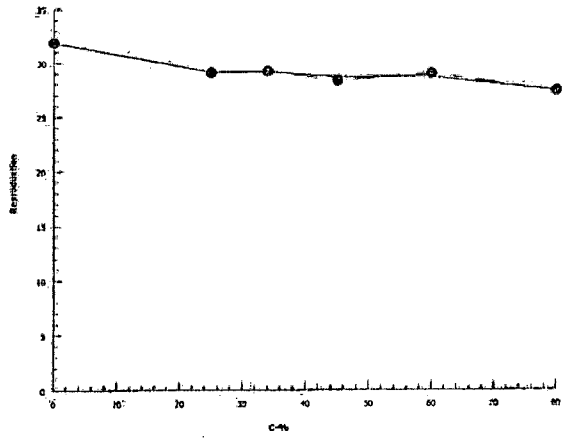
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	31.9	27	35	0.875	2.767	8.67%	0.0%
25		10	29.1	17	37	1.629	5.152	17.7%	8.78%
34		9	29.22	24	34	1.299	3.898	13.34%	8.39%
45		8	28.38	18	33	1.625	4.596	16.2%	11.05%
60		10	29	27	36	0.8563	2.708	9.34%	9.09%
80		10	27.4	22	31	0.763	2.413	8.81%	14.11%

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	35	33	30	28	33	27	32	34	35
25		37	30	31	29	29	33	30	26	29	17
34		25	27	34	29	34	32	24	26	32	
45		30	18	31	28	31	33	29	27		
60		30	28	27	36	28	28	27	29	30	27
80		31	26	28	29	28	29	28	27	26	22

Graphics



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

TEST LOG NO.: 16463

JOB NUMBER.: 20-19675G

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): 11/18/13

TEMP @ TEST START: 24.6 °C

RANDOMIZED BY: CR

SOURCE ID:	AGE (time):
10439	1533-1921
10438	1530 - 1912

TEST START:

HOURS: 1135 DATE: 11/19/13

TEST END:

HOURS: 1132 DATE: 11/26/13

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult	12	2	13	11	19	15	20	7	2	4	
CR 1135		11/19	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1205	11/20	24.1	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1040	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1248	11/22	24.3	24.4	Day 3	✓	✓	✓	✓	5	4 ✓	4	4	✓	✓	HM 11/22
	HM 1144	11/23	24.6	24.3	Day 4	5	4	6	4	3	4	1	✓	5	4	
	AW 1113	11/24	24.2	24.7	Day 5	11	14	11	10	7	11	8	12	✓	14	
	AW 1110	11/25	24.1	24.8	Day 6	✓	17	✓	16	15	✓	14	16	11	✓	SOS
AW 1132		11/26		25.1	Day 7	16	✓	16	✓	✓	17	✓	✓	18	17	eggs
					Day 8											
			Total			32	35	33	30	28	33	27	32	34	35	319

K. 75 = 239

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

TEST LOG # 16463 JOB # 20-19675G

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											
CVR 1155		11/19	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CVR 1305	11/20	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	✓ 1040	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1248	11/22	24.3	24.1	Day 3	6	✓	✓	5	✓	5	5	4	✓	✓	
	HM 1144	11/23	24.1	24.2	Day 4	✓	4	3	✓	5	✓	1	✓	6	5	
	AW 1113	11/24	24.1	24.3	Day 5	13	✓	11	10	9	13	9	8	9	12	
	AW 1110	11/25	24.3	24.4	Day 6	✓	12	17	14	15	15	15	14	✓	✓	
AW 1132		11/26		24.9	Day 7	18	14	✓	✓	✓	14	14	17	14	✓	
					Day 8											
			Total			37	34	31	29	29	33	30	26	29	17	291

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
CVR 1135		11/19	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CVR 1305	11/20	24.1	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	✓ 1040	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	M	SS
	HM 1248	11/22	24.1	24.0	Day 3	✓	6	✓	4	6	5	✓	5	5		
	HM 1144	11/23	24.2	24.3	Day 4	4	✓	6	✓	✓	✓	4	✓	✓		
	AW 1113	11/24	24.1	24.1	Day 5	7	10	13	9	✓	12	7	9	11		
	AW 1110	11/25	24.1	24.3	Day 6	✓	11	15	16	13	15	13	12	16		
AW 1132		11/26		24.2	Day 7	14	✓	✓	18	15	13	✓	17	✓		
					Day 8											
			Total			25	27	34	29	34	32	24	26	32	14	262

✓ = Test Organism Alive 0 = Live neonates Miss = Lost or Missing

D = Test Organism Dead (-0) = Dead neonates M = Male

TEST LOG # 16463 JOB # 20-19675G

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											
CR 1135		11/19	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1305	11/20	24.2	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	[illegible]	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	ins	✓	
	HM 1248	11/22	24.4	24.3	Day 3	✓	✓	4	✓	✓	5	4	✓		5	
	HM 1144	11/23	24.1	24.5	Day 4	4	5	4	5	6	✓	✓	6		✓	
	AW 1113	11/24	24.1	24.7	Day 5	11	13	12	8	10	13	11	11		9	
	AW 1110	11/25	24.0	24.5	Day 6	✓	✓	14	✓	13	15	14	✗		13	
AW 1132		11/26		24.3	Day 7	15	✓	✓	15	✓	17	15	Miss		✓	
					Day 8								-1			
			Total			30	18	31	28	31	28 / 53	29	17	11	27	289 → 2 = 287 / 7 = 283

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
CR 1135		11/19	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1305 CR2	11/20	24.1	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	[illegible]	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1248	11/22	24.0	24.3	Day 3	✓	✓	✓	5	✓	4	✓	✓	4	✓	
	HM 1144	11/23	24.5	24.2	Day 4	5	4	6	✓	6	✓	3	6	✓	4	
	AW 1113	11/24	24.4	25.0	Day 5	✓	9	8	14	8	9	11	9	12	7	
	AW 1110	11/25	24.1	25.0	Day 6	11	✓	13	17	14	15	13	14	14	✓	
AW 1132		11/26		24.4	Day 7	14	15	✓	✓	✓	16	✓	✓	✓	16	
					Day 8			-								
			Total			30	28	27	36	28	28	27	29	30	27	290

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

TEST LOG # 16463 JOB # 20-19675G

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											
OK 1135		11/19	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1305	11/20	24.2	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1040	11/21	24.0	24.8	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1248	11/22	24.4	24.7	Day 3	✓	✓	S	✓	✓	✓	S	✓	✓	S	
	HM 1144	11/23	24.3	24.6	Day 4	4	4	✓	4	6	S	✓	6	6	✓	
	AW 1113	11/24	24.4	24.8	Day 5	11	9	10	11	9	10	8	8	9	9	
	AW 1110	11/25	24.3	24.4	Day 6	✓	✓	13	14	13	✓	12	13	7	8	70 6
AW 1132		11/26			Day 7	16	13	✓	✓	✓	14	3 Bk	✓	4 Bk	✓	
					Day 8											274
			Total			31	26	28	29	28	29	~~25~~ 28	27	26	22	274 158 nectus

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
OK 1135		11/19	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1305	11/20	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	OK 1033	11/21	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1248	11/22	24.7	24.7	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1144	11/23	24.5	24.1	Day 4	4	6	7	6	5	5	6	5	6	5	
	AW 1113	11/24	24.6	25.0	Day 5	13	11	13	11	11	11	12	14	13	✓	
	AW 1110	11/25	24.7	25.0	Day 6	17	17	✓	✓	✓	✓	16	✓	✓	15	
AW 1132		11/26		25.2	Day 7	✓	✓	15	13	16	16	✓	16	14	17	100%
					Day 8											
			Total			34	34	35	30	32	32	34	35	33	37	336

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

TEST LOG # 16463 JOB # 20-19675G

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											
CW 1135		11/19	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CW 1305	11/20	24.5	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	✓ 1033	11/21	24.3	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1248	11/22	24.7	24.2	Day 3	6	5	5	5	6	4	6	6	4	✓	
	HH 1144	11/23	24.2	24.6	Day 4	✓	9	✓	✓	✓	9	✓	✓	✓	7	
	AW 1113	11/24	24.6	24.8	Day 5	6	✓	11	9	10	7	5	9	8	9	
	AW 1110	11/25	24.6	24.6	Day 6	7	13	17	13	12	13	12	✓	15	8	80
AW 1132		11/26		25.4	Day 7	7	15	✓	✓	3	✓	14	11	✓	✓	
					Day 8											
			Total			26	27	33	27	31	25	23	26	27	24	269

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
CW 1135		11/19	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CW 1305	11/20	24.3	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	✓ 1035	11/21	24.3	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1248	11/22	24.5	24.6	Day 3	6	6	5	4	5	5	4	4	5	5	
	HH 1141	11/23	24.3	24.7	Day 4	✓	10	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1113	11/24	24.1	24.6	Day 5	11	✓	11	7	12	13	8	8	7	8	
	AW 1110	11/25	24.6	25.1	Day 6	14	11	12	11	14	14	10	11	12	7	100
AW 1132		11/26		25.4	Day 7	18	11	14	12	✓	✓	✓	11	✓	4	
					Day 8											
			Total			31	27	28	22	31	32	22	23	24	24	264

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

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

TEST LOG NO. 16463

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Cd

DATE: 11/19/13

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.3	8.2	8.5	8.2	8.4	8.4	8.6	8.4	8.6	8.1	8.0	8.4	8.1	8.5
25	8.4	8.3	8.6	8.3	8.4	8.3	8.1	8.4	8.5	7.9	8.4	8.4	8.6	8.4
34	8.3	8.4	8.6	8.3	8.5	8.4	8.4	8.3	8.4	7.8	8.4	8.4	8.6	8.4
45	8.4	8.2	8.6	8.4	8.4	8.3	8.4	8.0	8.4	8.0	8.6	8.4	8.5	8.4
60	8.5	8.4	8.5	8.4	8.5	8.2	8.3	8.4	8.4	7.9	8.5	8.4	8.5	8.4
80	8.5	8.5	8.5	8.5	8.5	8.3	8.3	8.5	8.4	8.1	8.4	8.4	8.4	8.4
MH	8.6	8.5	8.6	8.0	8.4	8.3	8.0	8.4	8.4	8.0	8.3	8.4	8.4	8.4
80% filt	8.7	8.4	8.6	8.0	8.6	8.3	8.0	8.4	8.4	8.0	8.3	8.4	8.3	8.4
100% filt	8.6	8.4	8.6	8.1	8.7	8.3	8.0	8.4	8.4	7.9	8.3	8.4	8.3	8.5

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	7.46	7.70	8.10	7.52	7.89	7.66	7.14	7.54	6.93	7.68	7.08	7.70	7.19	8.02
25	7.82	8.20	7.90	7.98	7.54	7.60	7.68	8.11	7.45	8.31	7.46	8.11	7.64	7.84
34	7.85	8.01	7.72	8.31	7.65	8.00	7.74	8.20	7.48	8.35	7.62	8.26	7.74	8.18
45	7.83	8.40	7.75	8.36	7.79	8.30	7.78	8.31	7.50	8.47	7.67	8.34	7.79	8.23
60	7.87	8.52	7.80	8.53	7.80	8.49	7.83	8.48	7.59	8.54	7.71	8.45	7.81	8.39
80	7.86	8.62	7.81	8.68	7.91	8.45	7.84	8.51	7.62	8.61	7.74	8.61	7.79	8.48
MH	7.91	7.95	7.98	8.00	7.92	8.39	7.91	7.89	7.88	7.91	7.89	7.89	8.01	7.96
80% filt	8.01	8.65	8.00	7.98	7.89	8.52	8.05	8.59	7.79	8.66	8.00	8.51	8.03	8.09
100% filt	8.03	8.74	8.29	8.66	7.99	8.68	8.09	8.61	7.89	8.52	8.01	8.66	8.07	8.10

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	142	158	149	109	154	95	93	111	157	114	114	116	142	160
25	637	640	644	624	589	469	584	568	567	603	545	525	583	627
34	763	771	832	774	763	685	765	705	707	765	764	742	745	796
45	974	1001	974	957	964	884	958	937	914	936	915	914	918	950
60	1268	1280	1253	1277	1230	1108	1084	1228	1163	1217	1132	1178	1198	1236
80	1601	1601	1582	1537	1567	1458	1549	1583	1472	1516	1600	1573	1559	1597
MH	216	229	245	215	257	212	223	284	220	226	220	240	270	272
80% filt	1627	1637	1632	1642	1668	1534	1585	1465	1520	1532	1546	1460	1240	1422
100% filt	3020	1914	1949	1969	1965	1529	1559	1838	1921	1984	1946	1836	1746	1863
Params Init/Time:	1000	1330	5374, RW		AW 0855		HM0943	HM1354	AW1120	HM1355	HM1047	AW1442	HM1040	AW1300
Dilutions Init/Time:	0950		4513,81	16876	1918 0948	HM1352	HM0945		AW1119		AW1036		AW1035	
Control Water Batch#:	5374, RW16876		AW 0826		5371,16917		5371,16917		5379,16936		5381,16936		5383,16936	
Food Batch	4513,81		AW0819		4513,81		4513,4481		4524,4481		4524,4471		4524,14	

ENVIRON Test Log No. 16463

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TEST LOG NO. 16463 CLIENT: Georgia Pacific Crossett DATE OF TEST: 11/19/13

JOB NO. 20-19675G TEST TYPE(S) PERFORMED: 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
16900	Outfall 001	11/17-18/13	11/19/13	368	425	<0.02	9.05
16916	Outfall 001	11/19-20/13	11/21/13	308	400	0.05	9.07
16935	Outfall 001	11/21-22/13	11/23/13	304	380	0.08	1.97

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
16917	River Water	11/11/13	11/19/13	23.2	20	0.05	<0.1
5374	mH	11/14/13	11/19/13	96	44	<0.02	
16936	RW	11/22/13	11/23/13	51.2	23	0.06	<0.1
5377	mH	11/19/13	11/21/13	80.8	44	<0.02	
~~16945~~	~~RW~~						
5379	mH	11/20/13	11/22/13	82.4	44	<0.02	
5381	mH	11/20/13	11/23/13	82.4	43	<0.02	
5383	mH	11/22/13	11/24/13	81.6	40	<0.02	

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

TEST LOG NO.: 16442
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes Y No
FOOD BATCH: 4378

BEGINNING: HRS: 1445 DATE: 11/12/13
ENDING: HRS: ____ DATE: ____
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): ____
ORGANISM SOURCE: EC#4507
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 HH	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	
	E	8	8	7	7	7	7	7	
	Temp(°c):old/new	24.2	24.0 / 24.2	24.1 / 24.0	24.1 / 24.3	24.1	24.4		
25	A	8	8	8	8	8	8	7	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	
	E	8	8	8	8	8	8	8	
	Temp(°c):old/new	24.1	24.5 / 24.1	24.1 / 24.0	24.3 / 24.4	24.0	24.5		
34	A	8	8	8	8	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	7	8	
	E	8	8	8	8	8	8	8	
	Temp(°c):old/new	24.1	24.1 / 24.3	24.1 / 24.2	24.3 / 24.5	24.0	24.8		
45	A	8	8	8	8	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	
	E	8	8	8	8	8	8	8	
	Temp(°c):old/new	24.4	24.2 / 24.2	24.2 / 24.1	24.4 / 24.3	24.0	24.4		
60	A	8	8	8	8	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	7	7	
	D	8	8	8	8	8	8	7	
	E	8	8	8	8	8	8	7	
	Temp(°c):old/new	24.1	24.4 / 24.4	24.2 / 24.4	24.5 / 24.4	24.1	24.8		
80	A	8	8	8	8	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	
	E	8	8	8	8	8	8	8	
	Temp(°c):old/new	24.1	24.2 / 24.2	24.4 / 24.3	24.3 / 24.7	24.2	24.3		
Test Renewal	Time	1445	1330	1251	1314	1214	1230		
	Date	11/12	11/13/13	11/14/13	11/15/13	11/16/13	11/17/13		
	Initials	LM	CR	LM	HM	AW	HM		
morning feeding	Int/Time	[illegible]	LM0700	LM0700	LM0715	AW0730	AW0734		[illegible]
afternoon feeding	Int/Time	LM1545	HM1530	HM1600	HM1520	AW1500	AW1530		[illegible]

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

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

BEGINNING: HRS: ____ DATE: ____________
ENDING: HRS: ____ DATE: ____________

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

CONC (%)	REP ID	SURVIVAL (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MH	A	8	8	8	8	8	8	8	
	B	8	8	8	8	8	8	8	
	C	8	8	8	8	8	8	8	
	D	8	8	8	8	8	8	8	
	E	8	8	8	8	8	8	8	
	Temp(°c):old/new	24.2	24.1/24.3	24.1/24.0	24.1/24.2	24.1	24.3		
	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.: 16442 BEGINNING: HRS: 1115 DATE: 11/12/13
JOB NO.: 20-19675G ENDING: HRS: ____ DATE: ____
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 70	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish
RW	A	1					
	B	2					AVG Control Fish wt. ____ (using final #)
	C	3					
	D	4					
	E	5					
25	A	6					
	B	7					
	C	8					Oven ID: ____
	D	9					
	E	10					Tins In:
34	A	11					Date: ____
	B	12					Time: ____
	C	13					Temp (°C): ____
	D	14					Initials: ____
	E	15					
45	A	16					Tins Out:
	B	17					Date: ____
	C	18					Time: ____
	D	19					Temp (°C): ____
	E	20					Initials: ____
60	A	21					
	B	22					
	C	23					
	D	24					
	E	25					
80	A	26					FINAL WEIGHTS
	B	27					
	C	28					DATE: ____
	D	29					INITIALS: ____
	E	30					
MH	A	31					
	B	32					
	C	33					
	D	34					
	E	35					
	Initials / Date:						

TEST LOG NO. 16442

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Fm

DATE: 11/12/13

ENVIRON Test Log No. 16463

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

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	7.30	7.88	7.21	7.90	7.89	7.40	8.20	7.73		7.72				
25	7.51	7.78	7.91	7.85	7.75	7.51	7.79	7.66		7.60				
34	7.92	7.98	7.88	7.91	7.80	7.99	7.80	7.95		8.07				
45	8.00	8.06	7.93	8.06	7.90	8.00	7.82	8.01		8.12				
60	8.02	8.20	7.94	8.17	7.91	8.19	7.87	8.15		8.20				
80	8.00	8.33	7.90	8.26	7.90	8.19	7.86	8.23		8.29				
MH	7.92	7.84	7.97	7.72	7.89	7.71	7.91	7.85		7.82				

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	139	346	138	110	99	94	101	102		116				
25	617	473	610	490	614	519	531	514		525				
34	749	713	774	730	794	741	780	708		742				
45	1015	932	945	941	988	922	969	923		936				
60	1273	1212	1188	1210	1208	1211	1229	1224		1246				
80	1958	1812	1581	1610	1656	1617	1646	1567		1572				
MH	221	201	220	219	226	203	218	223		221				
Params Intl/Time:	CR1020	LH0652	CR0830	LH0657	HM1017	LH0655	HM0918	AW0750		AW0755				
Dilutions Intl/Time:	DW1010		HM0920		CR1005		HM0928							
Control Water Batch:	110513	RW	103, 5371	RW	103776, 5371		103776 5371							
Food Batch	43718	MH 5370	43718		43718		43718							

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TEST LOG NO. 16442 CLIENT: Georgia Pacific Crossett DATE OF TEST: 11/12/13

JOB NO. 20-19675G 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
16864	Outfall 001	11/12-11/13	11/12/13	320	410	<0.02	
16877	Outfall 001	11/12-13/13	11/14/13	292	480	0.10	

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
16863	River Water	11/11/13	11/12/13	32.8	45	0.05	
16876	RW	11/11/13	11/14/13	22.4	19	0.10	
5370	MH	11/9/13	11/10/13	83.2	44	<0.02	
5371	MH	11/10/13	11/13/13	92	40	<0.02	
5372	MH					<0.02	

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

TEST LOG NO.: 16442

JOB NUMBER.: 20-19675G

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): 11/7/13

TEMP @ TEST START: 24.2°C

RANDOMIZED BY: AW

SOURCE ID:	AGE (time):
10427	1551-1231
10428	1554-2311
10431	1601-2316

TEST START:

HOURS: 1241 DATE: 11/12/13

TEST END:

HOURS: _____ DATE: _____

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 10428 10427 10431 10428										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	8	20	10	15	12	11	18	12	16	20	
AW 1241		11/12	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1324	11/14	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1250	11/15	24.4	24.3	Day 3	6	4	5	5	4	✓	✓	✓	✓	✓	
	AW 1335	11/16		24.0	Day 4	✓	✓	✓	✓	✓	3	5	4	4	4	
	HM 1217	11/17	24.3	24.3	Day 5	11	13	12	13	11	9	11	8	8	7	
					Day 6											
					Day 7											
					Day 8											
			Total													

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

TEST LOG # 16447 JOB # 20-19675G

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 1241		11/12	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	24.4	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1324	11/14	24.6	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1250	11/15	24.5	24.3	Day 3	3	4	✓	✓	✓	5	✓	✓	✓	✓	
	AW 1335	11/16	?	24.1	Day 4	✓	✓	5	4	6	✓	4	5	6	4	
	HM 1217	11/17	24.4	24.3	Day 5	7	1	9	10	11	12	9	✓	10	9	
					Day 6											
					Day 7											
					Day 8											
			Total													

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 34% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1241		11/12	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	24.5	24.9	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1324	11/14	24.5	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1250	11/15	24.6	24.7	Day 3	✓	5	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1335	11/16		24.7	Day 4	✓	✓	4	✓	3	5	✓	3	5	✓	
	HM 1217	11/17	24.4	24.3	Day 5	2	11	9	7	6	10	4	10	12	11	
					Day 6											
					Day 7											
					Day 8											
			Total													

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

TEST LOG # 16443 JOB # 20-19675G

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 1241		11/12	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1310	11/13	24.4	24.7	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1324	11/14	24.5	24.3	Day 2	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	
	HH 1250	11/15	24.8	24.4	Day 3	4	✓	6	✓	7	5	✓	✓	3	5	
	AW 1335	11/16		24.3	Day 4	✓	✓	✓	4	✓	✓	4	4	✓	✓	
	HH 1917	11/17	24.8	24.4	Day 5	7	5	11	10	7	12	9	✓	✓	10	
					Day 6											
					Day 7											
					Day 8											
			Total													

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 60% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1241		11/12	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1310	11/13	24.5	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1324	11/14	24.8	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1250	11/15	24.4	24.7	Day 3	3	4	✓	✓	3	3	4	5	✓	✓	
	AW 1335	11/16		24.7	Day 4	✓	✓	✓	2	✓	✓	✓	✓	5	4	
	HH 1917	11/17	24.3	24.6	Day 5	6	8	7	10	11	11	7	9	9	8	
					Day 6											
					Day 7											
					Day 8											
			Total													

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

TEST LOG # 16446 JOB # 20-19675G

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 1241		11/12	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1304	11/14	24.1	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1050	11/15	24.5	24.8	Day 3	4	5	✓	5	3	3	✓	✓	✓	✓	
	AW 1335	11/16		24.3	Day 4	✓	✓	✓	✓	✓	✓	4	5	4	4	
	HM 1317	11/17	24.3	24.1	Day 5	8	11	7	11	9	8	10	7	9	8	
					Day 6											
					Day 7											
					Day 8											
			Total													

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1241		11/12	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	24.5	24.8	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1304	11/14	24.4	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1050	11/15	24.5	24.3	Day 3	4	5	4	✓	✓	✓	✓	✓	4	✓	
	AW 1335	11/16		24.2	Day 4	✓	✓	✓	6	6	7	5	6	✓	4	
	HM 1317	11/17	24.0	24.1	Day 5	8	9	10	✓	✓	13	12	12	10	9	
					Day 6											
					Day 7											
					Day 8											
			Total													

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

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TEST LOG # 11642 JOB # 20-19675G

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											
AW 1241		11/12	240		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	248	244	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1324	11/14	243	244	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1250	11/15	246	247	Day 3	3	3	4	5	4	✓	✓	✓	3	✓	
	AW 1335	11/16		242	Day 4	✓	✓	✓	✓	✓	3	✓	4	✓	5	
	HM 1217	11/17		243	Day 5	8	✓	9	9	10	9	7	8	6	9	
					Day 6											
					Day 7											
					Day 8											
			Total													

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
AW 1241		11/12	242		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1310	11/13	243	246	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1324	11/14	242	243	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1250	11/15	244	245	Day 3	4	3	3	✓	✓	✓	✓	3	4	4	
	AW 1335	11/16		241	Day 4	✓	✓	✓	5	4	4	5	✓	✓	✓	
	HM 1217	11/17		248	Day 5	6	5	4	7	7	6	7	✓	7	6	
					Day 6											
					Day 7											
					Day 8											
			Total													

TEST LOG NO. 16442 CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G TEST ORGANISM: Cd DATE: 11/12/13

ENVIRON Test Log No. 16463

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D.O. (mg/L)

F/O and (counted labels)

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	8.12	8.0	8.3	8.4	8.4	8.0	8.5		8.0	8.2				
25	8.14	8.1	8.2	8.2	8.4	8.0	8.3		7.9	8.1				
34	8.3	8.2	8.4	8.0	8.4	8.0	8.2		7.9	7.9				
45	8.4	8.3	8.3	8.0	8.3	7.9	8.4		7.8	7.8				
60	8.10	8.2	8.2	8.0	8.5	7.9	8.6		7.5	7.8				
80	8.5	8.1	8.5	8.3	8.3	7.7	8.6		7.6	7.8				
MH	8.5	8.4	8.5	8.5	8.8	7.9	8.4		7.7	7.9				
~~80%~~ Init	8.7	8.4	8.6	8.2	8.7	7.9	8.5							
100% Init	8.7	8.3	8.7	8.1	8.3	7.9								

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	7.80	7.82	7.21	7.96	7.94	7.51	7.20			7.69	7.73			
25	7.81	6.34	7.71	8.23	7.75	8.09	7.79			8.29	7.69			
34	7.92	5.45	7.68	8.40	7.80	8.37	7.80			8.49	7.80			
45	8.00	8.54	7.93	8.49	7.90	8.46	7.82			8.57	7.86			
60	8.02	8.05	7.94	8.68	7.91	8.57	7.87			8.60	7.85			
80	8.06	8.10	8.00	8.71	7.98	8.56	7.86			8.78	7.85			
MH	7.95	7.86	7.97	8.02	7.89	8.10	7.91			7.89	8.04			
80% Init	8.24	8.75	8.22	8.14	8.05	8.66	8.15							
100% Init	8.22	8.81	8.22	8.32	8.09	8.72	8.18							

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	1391	1160	1338	1099	994	1004	1014			1027	974			
25	1417	1278	1410	545	1014	489	991			526	1009			
34	743	822	774	746	794	769	780			786	757			
45	1015	1030	945	913	988	960	969			804	958			
60	1273	1249	1183	1180	1268	1206	1279			1306	1214			
80	1458	1490	1581	1555	1656	1579	1646			1090	1482			
MH	221	240	226	227	208	219	216			228	220			
80% Init	1509	1591	1603	1538	1694	1538	1536							
100% Init	1376	1449	1429	1951	2100	1882	1488							
Params Init/Time:	KR1020	KR1420	KR0830	LM1420	HM1012	LM1407	HM0910			HM1301	AW1139			
Dilutions Init/Time:	AW1010		HM0820		CR1228		HM0959				AW1120			
Control Water Batch#:	110803 5370		03.5371		120410.5541		110316.5591				110926.5372			
Food Batch	4405.4481		05.481		4409.81		09.81				4315.81			

ENVIRON Test Log No. 16463

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): DAWN/Rachel

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	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)
RIVER	G	PLASTIC	NA	11-11-13 9:28am	[redacted]	2	20										PLUTION WATER	16863
OUTFALL 001	C	PLASTIC	YES	11-10-13 5:05pm	11-11-13 6:15am	2	20					✓	✓					16864

Analysis Requested

CHAIN-OF-CUSTODY

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

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
[signature]	11-11-13	3:00pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature): Anita Bryant-Wiatt

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

Condition: (lab use only)

Receipt Temp: 1.6 1.1

Containers/Volume Received: 20L, 20L

Date: 11/12/13

Time: 0915

pH upon arrival: 7.5, 7.89

DO upon arrival: 9.2, 9.2

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/12/13 0915 by AR

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 water)
   - 1.0 mg/L? (did dechlor occur) Yes No

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
16863	River water	1.6	7.57	9.8	0.05
16864	Outfall	1.1	7.89	9.2	<0.02

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ENVIRON Test Log No. 16463

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Project Name:	Project Number:
Industry:	GEORGIA PACIFIC PAPER
Phone: 870-567-8470	FAX: 870-364-9076
County: ASHLEY	City: CROSSETT
State: AR	
Sample Collected by (print):	NPDES Permit No.:
DAWN T / Rachel	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)
RIVER	G	PLASTIC	NA	11-11-13	9:12am	1	10										DILUTION	1102-714
OUTFALL 001	C	PLASTIC	YES	11-12-13 6:15am	11-13-13 6:17am	1	10					1/2	1/2					1102-717

Analysis Requested

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 377-4775
FAX: (615) 377-4976

* 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)
	11-13-13	3:30pm	
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: GOOD (lab use only)

Receipt Temp: 0.6°C, 0.8°C

Containers/Volume Received: 2@ 10L

Date: 11/14/13

Time: 0850

pH upon arrival: 7.89, 7.57

DO upon arrival: 9.3, 8.7

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/14/13 0840 by CR

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 (CR)	DO	TRC
16876	RW	0.6	~~8.~~ 7.51	9.3	0.10
16877	Outfall	0.8	7.89	8.7	0.10

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

ENVIRON Test Log No. 16463

Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-367-8170 FAX: 870-364-9016

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY ROBB

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	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	11-17-13 4:45pm	11-18-13 6:15am	1	8	■		■		■	✓	■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■
								■		■		■		■		■		■

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
■■■■ Danny Robb	11-18-13	3:30 pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) ■■■■

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

Condition: ■■■■ (lab use only): GOOD

Receipt Temp: 0.7 ■■■■

Containers/Volume Received: 1 10L ■■■■

Date: 11/19/13 Time: 0955 pH upon arrival: 7.85 DO upon arrival: 8.57

CHAIN-OF-CUSTODY

ENVIRON

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

Sample Receipt Checklist:

Client: GPC

Date/Time received 11/19/13 0855 by CR

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
169100	Outfall001	0.7	7.84	8.7	0.02

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ENVIRON Test Log No. 16463

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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 / Robin	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	11-19-13 6:14pm	11-20-13 6:16am	1	4						✓					1609.0
RIVER	G	Plastic	N/A	11-14-13	9:25am	1	4										Dilution Water	1609.7

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Danny W-R	11-2013	3:00pm			good
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 0.3°C 0.0°C	Containers/Volume Received: 2 4L
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Carlene K Watts	Date: 11/21/13 Time: 0830	pH upon arrival: 7.1 7.11 DO upon arrival: 8.0 8.1

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/21/13 0880 by CR

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
16914	Outfall	0.3	7.87	8.0	0.05
16917	RW	0.9	7.11	11.1	0.05

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ENVIRON Test Log No. 16463

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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 Rice | NPDES Permit No.: AR0001210

Sample Collected by (signature): [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)
Outfall 001	Comp	Plastic	Yes	11-21-13 6:15am	11-22-13 6:16am	1	4						✓					16935
River	Grab	Plastic	NA	11-22-13 7:15am		1	4											16930

* 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:	
[signature]	11/22/13	3:00pm		☒ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 3.0, 0.6	Containers/Volume Received: 4 L of each
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Anita Winton	Date: 11/23/13	Time: 1000
				pH upon arrival: 7.62, 7.01	DO upon arrival: 8.9, 8.6

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 11/23/13 1000 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
16935	Outfall001	0.7	7.01	8.9	0.08
16936	River	0.6	7.62	8.6	0.00

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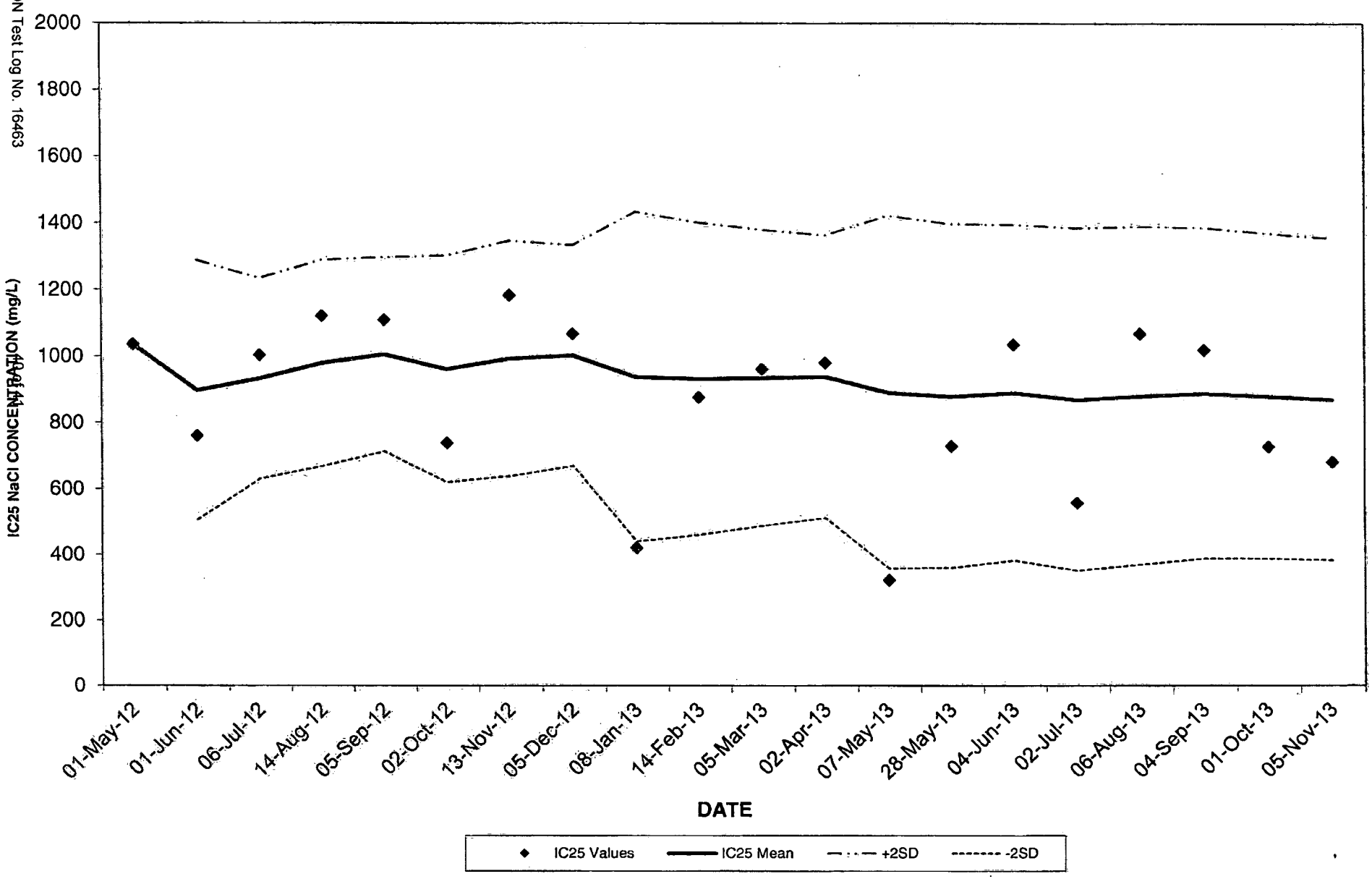
ENVIRON Test Log No. 16463

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2013

Ceriodaphnia dubia



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12/3/2013

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2013

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	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	1,036				
2	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	898	196	1,289	506	15
3	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	933	151	1,235	630	13
4	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	980	155	1,290	669	14
5	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	1,006	146	1,298	713	13
6	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	961	171	1,302	619	16
7	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	993	177	1,347	638	17
8	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.8	1067	1,002	166	1,334	670	16
9	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	937	248	1,434	440	25
10	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	931	235	1,401	461	24
11	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	934	223	1,380	487	23
12	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	937	213	1,364	511	22
13	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	890	266	1,423	357	29
14	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	878	260	1,397	359	28
15	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1034	889	253	1,395	382	28
16	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	868	258	1,385	351	29
17	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1068	880	255	1,390	370	28
18	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1018	887	249	1,386	389	27
19	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	879	245	1,369	388	27
20	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	869	243	1,354	384	27
Avg			98	94	30	1722	556	486	979	19	887	935	213	1356	503	

Notes:

NOEC - No Observable Effect Concentration (survival or reproduction)

LOEC - Lowest Observable Effect Concentration (survival or reproduction)

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

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00200

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FedEx Express Package US Airbill

FedEx Tracking Number 8047 4852 9931

MOR4

Form ID No. 0215

Recipient's Copy

1 From

Date 1/24/14

Sender's Name REBECCA BLANKENSHIP Phone 870 567-8812

Company GEORGIA PACIFIC/ENVIRONMENTAL

Address 100 SUPPLY RD Dept./Floor/Suite/Room

City CROSSETT State AR ZIP 71635

2 Your Internal Billing Reference

3 To

Recipient's Name Craig Uyeda Phone 501 682-0718

Company NPDES Enforcement, ARC Dept. of Env. Q

Address 5301 Northshore Drive Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City North Little Rock State AR ZIP 72118

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

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8047 4852 9931

4 Express Package Service • To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☑ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging • Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ No Signature Required — Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- ☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods?
One box must be checked.

- ☑ No
- ☐ Yes — As per attached Shipper's Declaration.
- ☐ Yes — Shipper's Declaration not required.
- ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

- ☑ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

Total Packages 1 Total Weight 4 lbs. Credit Card Auth.

[redacted]

[1] Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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