Georgia-Pacific

Georgia-Pacific LLC
Consumer Products

Crossett Paper Operations
100 Mill Supply Rd.
P.O. Box 3333
Crossett, AR 71635
(870) 567-8000
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September 19, 2014

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

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

Dear Mr. Healey:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for August 2014. As required by Part III, Section 4 paragraph a, of our NPDES Permit, a full report of the chronic toxicity testing has also been included with this submittal.

If you have any questions or need additional information, please feel free to contact me at (870) 567-8144 or by email at james.cutbirth@gapac.com.

Sincerely,

Rachel M Johnson

Rachel M. Johnson
Environmental Engineer
Crossett Paper Operations

Chronic Toxicity Test Results
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
July 2014

Project Number:
20-19675H

ENVIRON

ENVIRON

July 29, 2014

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

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

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The tests were conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on July 14, 16, and 18, 2014. The samples were received at ENVIRON on July 15, 17, and 19, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

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

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

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

The Coefficient of Variation (CV) values for the fathead minnow survival in the river water control and critical dilution are 12 and eight percent, respectively. The CV values for growth in the control and critical dilution are 13 and six percent, respectively, and are below the CV limit of 40 percent for findings of no toxicity. The effluent concentration-response curve can be described as a Type

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

10 dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing.* A Type 10 response is characterized by an increase in fish growth as the test concentrations increase. Test precision for growth results (as Percent Minimum Significant Difference, PMSD) value was 26 which is within the USEPA PMSD bounds of 12 to 30 percent when alpha 0.05 was used for hypothesis testing. The monthly reference toxicant test also met all the test acceptability criteria.

The *C. dubia* reproduction CV values for the control and critical dilution are nine and 19 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 16 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and cannot be described in EPA 821-B-00-004. A flat concentration-response curve is indicative of a lack of toxicity. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

Copies of the laboratory bench sheets with statistical data are presented in Attachment 1. Chain-of-custody documentation and reference toxicant data are presented in Attachment 2. In order to meet the NELAP requirement for listing the total number of report pages; this report consists of 39 pages, including this cover letter, attachment pages and separator pages.

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

Sincerely,
ENVIRON International Corporation

Liza T. Heise
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:	11-5899-3030	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 16:05	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	14-7649-2516	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	22 Jul-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-6430-1859	**Code:**	15B6CE23	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	13.1%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	25	16	1	8	0.6353	Asymp	Non-Significant Effect
		34	28	16	1	8	0.8627	Asymp	Non-Significant Effect
		45	28	16	1	8	0.8627	Asymp	Non-Significant Effect
		60	30	16	1	8	0.9446	Asymp	Non-Significant Effect
		80	26	16	1	8	0.7237	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.95	0.8 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04961817	0.009923634	5	0.6517	0.6630	Non-Significant Effect
Error	0.3654495	0.01522706	24			
Total	0.4150677		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	121.6	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8302	0.9031	0.0002	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	0.95	0.8112	1	1	0.75	1	0.05	11.77%	0.0%
25		5	0.9	0.6976	1	1	0.625	1	0.07289	18.11%	5.26%
34		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-2.63%
45		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	-2.63%
60		5	1	1	1	1	1	1	0	0.0%	-5.26%
80		5	0.95	0.865	1	1	0.875	1	0.03062	7.21%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.324	1.132	1.516	1.393	1.047	1.393	0.06918	11.68%	0.0%
25		5	1.26	0.9989	1.521	1.393	0.9117	1.393	0.09407	16.69%	4.82%
34		5	1.347	1.248	1.446	1.393	1.209	1.393	0.03557	5.91%	-1.73%
45		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	-2.45%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	-5.23%
80		5	1.32	1.195	1.445	1.393	1.209	1.393	0.04499	7.62%	0.32%

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

Analysis ID:	11-5899-3030	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 16:05	**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	0.75	1	1
25		1	1	1	0.875	0.625
34		0.875	1	1	1	1
45		1	0.875	1	1	1
60		1	1	1	1	1
80		0.875	1	1	0.875	1

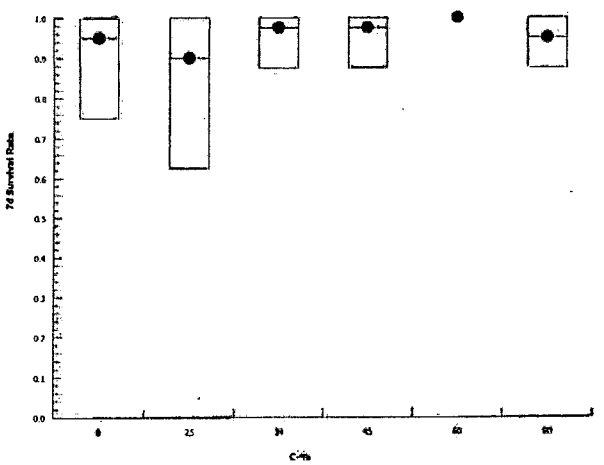
Angular (Corrected) Transformed Detail

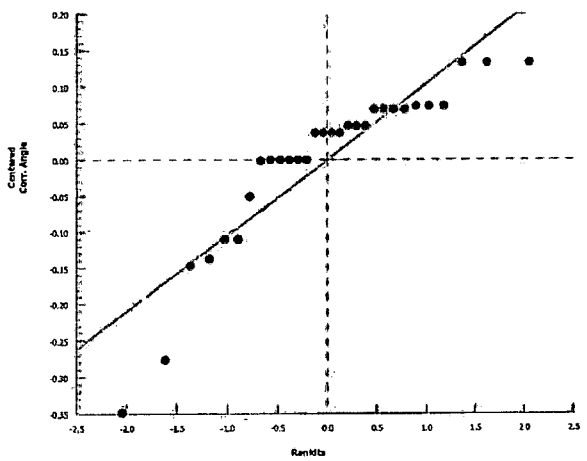
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.393	1.047	1.393	1.393
25		1.393	1.393	1.393	1.209	0.9117
34		1.209	1.393	1.393	1.393	1.345
45		1.393	1.209	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.209	1.393	1.393	1.209	1.393

7d Survival Rate Binomials

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

Graphics





CETIS Analytical Report

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

Analysis ID:	13-7004-8472	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	28 Jul-14 8:09	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	14-7649-2516	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	22 Jul-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-6430-1859	**Code:**	15B6CE23	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	25.5%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-2.484	2.362	0.134	8	0.9999	CDF	Non-Significant Effect
		34	-3.859	2.362	0.134	8	1.0000	CDF	Non-Significant Effect
		45	-4.742	2.362	0.134	8	1.0000	CDF	Non-Significant Effect
		60	-3.827	2.362	0.134	8	1.0000	CDF	Non-Significant Effect
		80	-4.402	2.362	0.134	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5245	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.2547	0.12 - 0.3	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2464137	0.04928274	5	6.16	0.0008	Significant Effect
Error	0.1919993	0.007999972	24			
Total	0.438413		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	7.059	15.09	0.2163	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9782	0.9031	0.7764	Normal Distribution

Mean Dry Biomass-mg Summary

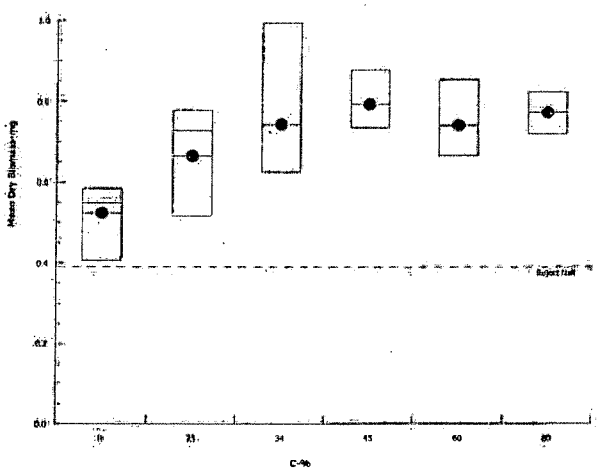
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.5245	0.4372	0.6118	0.55	0.4075	0.5863	0.03145	13.41%	0.0%
25		5	0.665	0.4987	0.8313	0.7287	0.5175	0.7787	0.05988	20.14%	-26.79%
34		5	0.7428	0.5878	0.8978	0.7025	0.625	0.954	0.05582	16.8%	-41.62%
45		5	0.7927	0.7193	0.8662	0.7825	0.735	0.8687	0.02646	7.46%	-51.14%
60		5	0.741	0.6608	0.8212	0.715	0.6663	0.8288	0.02887	8.71%	-41.28%
80		5	0.7735	0.7197	0.8273	0.7737	0.72	0.8237	0.01937	5.6%	-47.47%

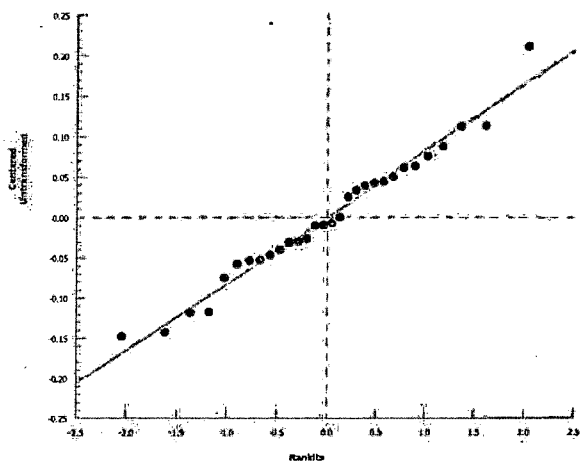
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5637	0.515	0.4075	0.55	0.5863
25		0.7787	0.7775	0.7287	0.5175	0.5225
34		0.625	0.7025	0.6962	0.7363	0.954
45		0.8375	0.74	0.7825	0.8687	0.735
60		0.715	0.7838	0.8288	0.6663	0.7113
80		0.72	0.8075	0.7425	0.7737	0.8237

Analysis ID:	13-7004-8472	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	28 Jul-14 8:09	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Graphics





CETIS Analytical Report

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

Analysis ID:	14-0732-0000	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	28 Jul-14 8:10	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	14-7649-2516	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	22 Jul-14	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	Environmental Consult & Test	**Age:**	
Sample ID:	03-6430-1859	**Code:**	15B6CE23	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	841737	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.5245	0.25 - NL	Yes	Passes Acceptability Criteria

Point Estimates

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

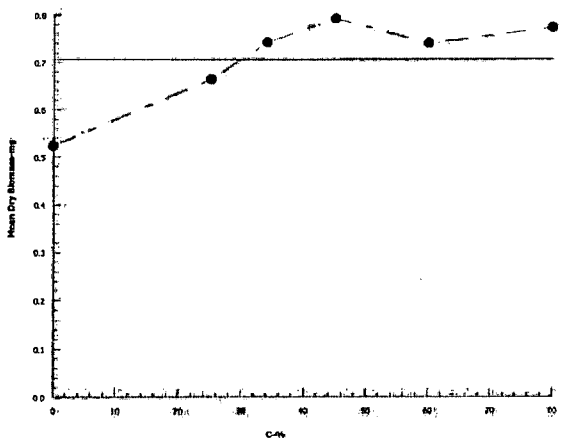
Mean Dry Biomass-mg Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.5245	0.4075	0.5863	0.03145	0.07033	13.41%	0.0%
25		5	0.665	0.5175	0.7787	0.05988	0.1339	20.14%	-26.79%
34		5	0.7428	0.625	0.954	0.05582	0.1248	16.8%	-41.62%
45		5	0.7927	0.735	0.8687	0.02646	0.05916	7.46%	-51.14%
60		5	0.741	0.6663	0.8288	0.02887	0.06456	8.71%	-41.28%
80		5	0.7735	0.72	0.8237	0.01937	0.04331	5.6%	-47.47%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.5637	0.515	0.4075	0.55	0.5863
25		0.7787	0.7775	0.7287	0.5175	0.5225
34		0.625	0.7025	0.6962	0.7363	0.954
45		0.8375	0.74	0.7825	0.8687	0.735
60		0.715	0.7838	0.8288	0.6663	0.7113
80		0.72	0.8075	0.7425	0.7737	0.8237

Graphics



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

TEST LOG NO.: 16947
JOB NUMBER.: 20-19675H
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes ____ No ____
FOOD BATCH: 4721

BEGINNING: HRS: 1130 DATE: 7/15/14
ENDING: HRS: 1255 DATE: 7/22/14
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 7/14/14
ORGANISM SOURCE: ECI 4757
SOURCE TEMP @ TEST START: 24.1
RANDOMIZED BY: CR

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	7	7	6
	D	8	8	8	8	8	7	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.9	24.9/24.1	24.4/24.5	24.5/24.3	24.2/24.0	24.3/24.4	24.0/25.3	24.3
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	7
	E	8	8	8	8	8	8	8	5
	Temp(°c):old/new	24.0	24.8/24.1	24.2/24.4	24.4/24.3	24.5/24.3	24.6/24.1	24.3/24.4	24.2
34	A	8	8	8	8	8	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	7	8	8	8
	E	8	8	8	8	5*	5	5	5
	Temp(°c):old/new	24.6	24.0/24.1	24.1/24.3	24.3/24.5	24.5/24.2	24.4/24.1	24.3/24.5	24.5
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	7
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.5	24.1/24.1	24.2/24.5	24.1/24.3	24.3/24.2	24.1/24.5	24.1/24.3	24.4
60	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.7	24.1/24.1	24.2/24.3	24.3/24.4	24.4/24.5	24.2/24.7	24.4/24.5	24.3
80	A	8	8	8	8	8	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	7	7	7
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.8	24.1/24.1	24.4/24.0	24.5/24.2	24.3/24.1	24.4/24.3	24.7/24.3	24.2
Test Renewal	Time	1130	1322	1122	1115	1240	1222	0915	1255
	Date	7/15/14	7/16/14	7/17/14	7/18/14	7/19/14	7/20/14	7/21/14	7/22/14
	Initials	CR	LH	HH	CR	CR	HH	AH	AH
morning feeding	Int/Time	[redacted]	LH0652	HH0700	HH0650	HH0750	HH0720	HH0711	[redacted]
afternoon feeding	Int/Time	AW1600	LH1530	AH1535	HH1550	HH1520	HH1520	CR1550	[redacted]

*spill cup

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

TEST LOG NO.: 16947
JOB NUMBER.: 20-19675H
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes _______ No _______
FOOD BATCH: _______________

BEGINNING: HRS: 1130 DATE: 7/15/14
ENDING: HRS: 1255 DATE: 7/22/14

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

CONC (%)	REP ID	SURVIVAL (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MH	A	8	8	8	8	8	8	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	24.7	24.2/24.2	24.4/24.2	24.0/24.2	24.4/24.3	24.5/24.1	24.4/24.3	24.4
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
	A								
	B								
	C								
	D								
	E								
	Temp(°c):old/new								
Test Renewal	Time								
	Date								
	Initials								
morning feeding	Int/Time	[redacted]							[redacted]
afternoon feeding	Int/Time								[redacted]

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

EPA-821-R-02-013 Method 1000.(

TEST LOG NO.: 16947 BEGINNING: HRS: 1130 DATE: 7/15/14
JOB NO.: 20-19675H ENDING: HRS: 1255 DATE: 7/22/14
INDUSTRY: Georgia Pacific-Crossett
EFFLUENT: Outfall 001 NO. ORGANISMS/TREATMENT: 8
NPDES: Yes ____ No ____ NO. REPLICATES: 5

PHOTOPERIOD: 16 hr light
FEEDING REGIME:
0.15 mL Artemia @ 2 times/day
TEST VESSEL CAPACITY: 450 mL
TEST SOLUTION VOLUME: 250 mL

GROWTH RESULTS

CONC (%)	REP ID	Boat ID 94	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish
RW	A	1	1.11906	1.12357	0.00451	8	0.564
	B	2	1.05182	1.05594	0.00412	8	0.515
	C	3	1.03954	1.04280	0.00326	6	0.543
	D	4	1.04745	1.05185	0.00440	8	0.550
	E	5	1.06184	1.06653	0.00469	8	0.586
25	A	6	1.08755	1.09378	0.00623	8	
	B	7	1.06668	1.07290	0.00622	8	
	C	8	1.09349	1.09932	0.00583	8	
	D	9	1.09006	1.09420	0.00414	7	
	E	10	1.08188	1.08606	0.00418	5	
34	A	11	1.12299	1.12799	0.00500	7	
	B	12	1.05978	1.06540	0.00562	8	
	C	13	1.06579	1.07136	0.00557	8	
	D	14	1.08296	1.08885	0.00589	8	
	E	15	1.07088	1.07565	0.00477	~~8~~ 5	
45	A	16	1.11201	1.11871	0.00670	8	
	B	17	1.07539	1.08131	0.00592	7	
	C	18	1.14421	1.15047	0.00626	8	
	D	19	1.07824	1.08519	0.00695	8	
	E	20	1.10509	1.11097	0.00588	8	
60	A	21	1.14607	1.15179	0.00572	8	
	B	22	1.12027	1.12654	0.00327	8	
	C	23	1.08642	1.09305	0.00663	8	
	D	24	1.14083	1.14616	0.00533	8	
	E	25	1.04807	1.05376	0.00569	8	
80	A	26	1.07170	1.07746	0.00576	7	
	B	27	1.08779	1.09425	0.00646	8	
	C	28	1.07935	1.08529	0.00594	8	
	D	29	1.07388	1.08007	0.00619	7	
	E	30	1.06126	1.06785	0.00659	8	
MH	A	31	1.08067	1.08605	0.00538	8	
[illegible]	B	32	1.07503	1.07915	0.00412	8	
	C	33	1.09401	1.09892	0.00491	8	
	D	34	1.10005	1.10460	0.00455	8	
1.07140	E	35	~~1.07140~~	1.07569	0.00429	8	
	Initials / Date:		[illegible]				

AVG Control Fish wt. 0.552 (using final #)

Oven ID: 1

Tins In:
Date: 7/22/14
Time: 1303
Temp (°C): 105
Initials: [illegible]

n-3

Tins Out:
Date: 7/23/14
Time: 1006
Temp (°C): 1300 [illegible]
Initials: LM

FINAL WEIGHTS

DATE: 7/24/14
INITIALS: LM

TEST LOG NO. 16947

JOB NO. 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Fm

DATE: 7/15/14

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	7.8	8.1	8.1	8.1	7.9	7.9	8.0	8.2	8.1	8.3	8.5	8.3	8.01	7.8
25	8.0	8.0	8.1	7.8	8.2	7.6	8.0	8.1	8.4	8.3	8.0	8.0	8.0	8.1
34	7.8	8.0	8.3	7.6	8.1	7.6	8.3	8.1	8.2	8.2	8.1	7.9	8.0	8.1
45	7.9	7.8	8.2	7.5	8.0	7.3	8.4	8.1	8.2	8.4	8.1	7.8	8.0	8.0
60	8.0	7.3	8.4	7.3	8.0	7.6	8.2	8.1	8.1	8.2	8.2	7.6	8.1	7.9
80	8.1	6.6	8.4	7.2	8.0	7.7	8.2	8.1	8.3	8.1	8.2	7.6	8.1	7.7
MH	8.1	8.2	8.3	8.0	8.2	8.2	8.4	8.0	8.2	8.0	8.2	8.3	8.1	7.5

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	7.36	7.16	7.42	7.86	7.59	7.80	7.48	7.46	7.36	7.60	7.48	7.87	7.98	7.91
25	7.76	7.69	7.88	7.79	7.90	7.65	7.81	7.85	7.79	7.82	7.95	7.78	7.65	7.90
34	7.82	8.07	7.93	7.93	7.96	7.76	7.85	7.97	7.88	7.89	7.95	7.89	7.82	7.86
45	7.81	8.13	8.00	8.04	8.06	8.03	7.95	8.08	7.98	7.96	7.80	7.91	7.86	7.97
60	7.84	8.13	8.04	8.19	8.05	8.11	7.94	8.11	8.12	8.04	7.90	8.09	7.91	8.06
80	7.94	8.09	8.06	8.19	8.06	8.20	7.96	8.24	8.05	8.18	8.01	8.16	7.93	8.12
MH	7.97	7.68	7.96	7.77	7.89	7.71	7.95	7.78	7.89	7.86	7.92	7.73	7.93	7.92

Conductivity (µmhos/cm)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	76	78	77	82	81	84	95	88	95	97	79	88	123	94
25	613	570	584	725	558	498	576	528	505	584	561	461	576	566
34	767	720	760	725	736	710	798	729	712	711	733	685	778	754
45	1000	951	960	929	974	938	959	941	944	926	956	908	935	922
60	1305	1214	1270	1181	1258	1236	1288	1243	1250	1226	1221	1200	1261	1219
80	1663	1571	1354	1523	1618	1512	1624	1430	1546	1518	1604	1587	1566	1547
MH	211	207	223	203	217	201	209	207	221	220	207	211	243	229
Params Intl/Time:	AW 0954	LM 0703	HM 1011	LM 0643	HM 1006	LM 0647	KR 0900	HM 0946	HM 1107	HM 0946	HM 1033	LM 0735	AU 0527	LM 0653
Dilutions Intl/Time:	AW 0944		CR 1000		HM 0915		KR 0550		HM 1048		HM 1020		AU 0816	
Control Water Batchs:	0589, 17771		90, 17771		90, 17783		90, 17783		90, 17793		92, 17793		92, 17793	
Food Batch	4721		4721		4721		4721		4721		4721		4721	

TEST LOG NO. 110947 CLIENT: Georgia Pacific Crossett DATE OF TEST: 7/15/14

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

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
17771	Outfall 001	7/13-14/14	7/15/14	260	24 405	<0.02	0.190
17782	Outfall 001	7/15-16/14	7/17/14	208	395	<0.02	0.186
17792	Outfall 001	7/17-18/14	7/19/14	252	402	0.09	0.169

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
17770	River Water	7/14/14	7/15/14	24	41	0.01	<0.1
17783	River Water	7/14/14	7/17/14	23.2	36	<0.02	<0.1
17793	River Water	7/14/14	7/19/14	32	34	0.05	<0.1
5589	MH	7/10/14	7/13/14	84.8	46	<0.02	—
5590	MH	7/11/14	7/16/14	94.8	48	<0.02	—
5592	MH	7/15/14	7/18/14	80	45	<0.02	—

CETIS Analytical Report

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

Analysis ID:	17-0584-0802	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 15:54	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	00-0055-8859	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	06-3563-4917	**Code:**	25E304E5	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Lab Water		25	0.5	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	Lab Water	10	0	10	1	0	0.0%
25		9	1	10	0.9	0.1	10.0%
34		10	0	10	1	0	0.0%
45		10	0	10	1	0	0.0%
60		9	0	9	1	0	0.0%
80		10	0	10	1	0	0.0%

7d Survival Rate Detail

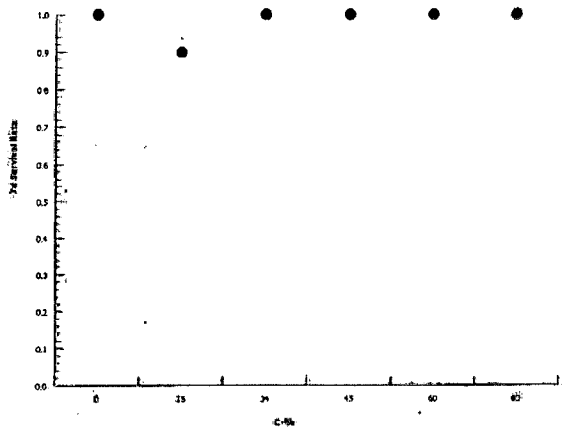
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	1	1	1	1	1	1	0
34		1	1	1	1	1	1	1	1	1	1
45		1	1	1	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	
80		1	1	1	1	1	1	1	1	1	1

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	Lab 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	0/1
34		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
45		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
60		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
80		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Analysis ID:	17-0584-0802	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 15:54	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	02-0957-9911	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 15:54	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	00-0055-8859	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	06-3563-4917	**Code:**	25E304E5	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	16.0%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Water		25	141	NA	2	18	1.0000	Exact	Non-Significant Effect
		34	153	NA	1	18	1.0000	Exact	Non-Significant Effect
		45	147	NA	2	18	1.0000	Exact	Non-Significant Effect
		60	128	NA	1	17	1.0000	Exact	Non-Significant Effect
		80	121.5	NA	3	18	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.6	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1603	0.13 - 0.47	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	310.3795	62.07589	5	3.649	0.0065	Significant Effect
Error	901.7222	17.01363	53			
Total	1212.102		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	19.58	15.09	0.0015	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8585	0.9451	<0.0001	Non-normal Distribution

Reproduction Summary

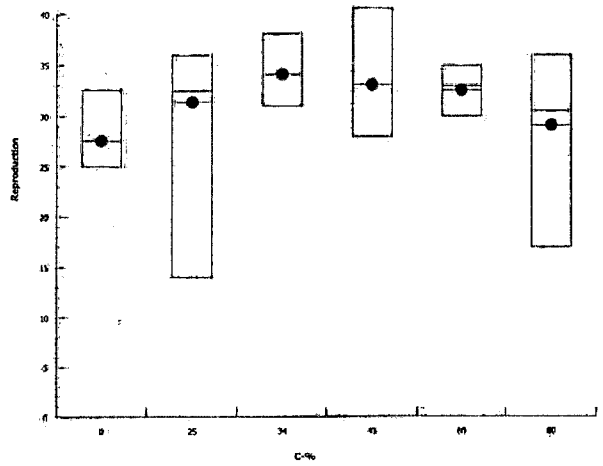
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Water	10	27.6	25.91	29.29	27	25	32	0.7483	8.57%	0.0%
25		10	31.4	26.76	36.04	32.5	14	36	2.05	20.65%	-13.77%
34		10	34.1	32.54	35.66	34	31	38	0.6904	6.4%	-23.55%
45		10	33.1	30.63	35.57	31.5	28	39	1.09	10.41%	-19.93%
60		9	32.56	30.79	34.32	33	30	35	0.7658	7.06%	-17.95%
80		10	29.1	25.1	33.1	30.5	17	36	1.767	19.2%	-5.44%

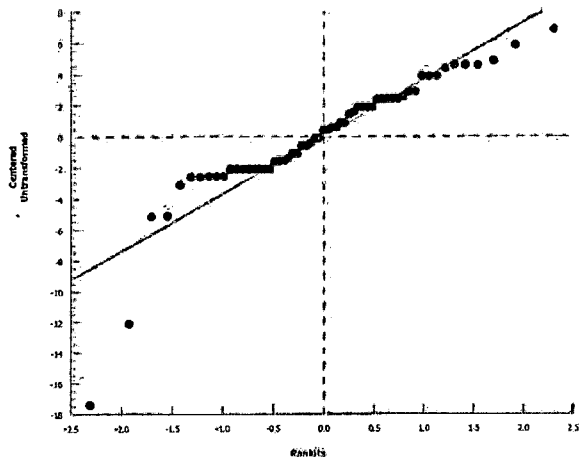
Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab Water	30	32	26	30	27	27	28	25	26	25
25		31	32	30	34	33	36	32	36	36	14
34		36	38	32	31	34	33	35	36	34	32
45		35	37	39	36	31	31	28	31	32	31
60		33	35	30	30	31	30	35	34	35	
80		34	36	24	27	17	31	33	27	32	30

Analysis ID:	02-0957-9911	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 15:54	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes

Graphics





CETIS Analytical Report

Report Date: 25 Jul-14 15:54 (p 1 of 1)
Test Code: 16947cd | 20-7898-7893

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

Analysis ID:	05-8407-1053	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	25 Jul-14 15:54	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	00-0055-8859	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	15 Jul-14	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	21 Jul-14	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	6d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	06-3563-4917	**Code:**	25E304E5	**Client:**	GPAC Crossett
Sample Date:	14 Jul-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	15 Jul-14	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	803802	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.6	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

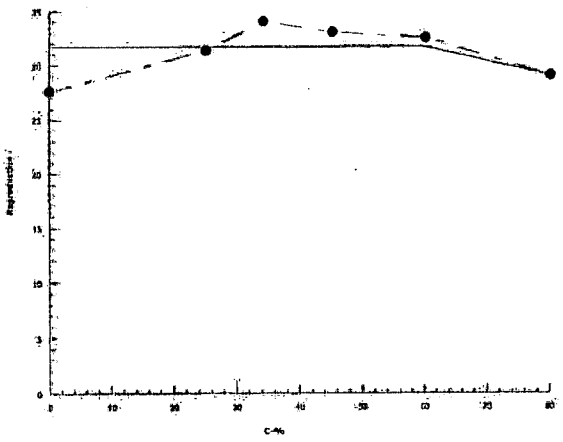
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	27.6	25	32	0.7483	2.366	8.57%	0.0%
25		10	31.4	14	36	2.05	6.484	20.65%	-13.77%
34		10	34.1	31	38	0.6904	2.183	6.4%	-23.55%
45		10	33.1	28	39	1.09	3.446	10.41%	-19.93%
60		9	32.56	30	35	0.7658	2.297	7.06%	-17.95%
80		10	29.1	17	36	1.767	5.587	19.2%	-5.44%

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	Lab Water	30	32	26	30	27	27	28	25	26	25
25		31	32	30	34	33	36	32	36	36	14
34		36	38	32	31	34	33	35	36	34	32
45		35	37	39	36	31	31	28	31	32	31
60		33	35	30	30	31	30	35	34	35	
80		34	36	24	27	17	31	33	27	32	30

Graphics



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

TEST LOG NO.: 16947

JOB NUMBER.: 20-19675H

INDUSTRY: Georgia Pacific-Crossett

EFFLUENT: Outfall 001

DILUTION WATER: River Water

NPDES (Y/N) : Yes

PHOTOPERIOD: 16 hr light/8 hr dark

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

TEST VESSEL CAPACITY: 30 mL

TEST SOLUTION VOLUME: 15 mL

NO. ORGANISMS/REPLICATE: 1

NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 7/14/14

TEMP @ TEST START: 24.6

RANDOMIZED BY: AW

SOURCE ID:	AGE (time):
10666	1522-2211
10667	1524-2212
10670 AW	1526-2215
10672	1526-2220
10673	1528-2225

TEST START:

HOURS: 1055 DATE: 7/15/14

TEST END:

HOURS: 1255 DATE: 7/22/14

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)		REPLICATES 66 67 70 72 10673										Notes
					1	2	3	4	5	6	7	8	9	10	
					Adult	20	14	1	5	14	6	2	9	1	4	
AW 1055		7/15	24.9		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CF 1155	7/16	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1055	7/16	24.4	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1110	7/18	24.1	24.4	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1215	7/19	24.6	24.5	Day 4	5	4	4	5	4	5	5	7	5	4	
	HM 1133	7/20	24.2	24.6	Day 5	✓	13	9	10	11	9	✓	7	✓	7	
	AW 0946	7/21	24.4	24.3	Day 6	12	✓	✓	15	✓	✓	12	✓	10	✓	
CF 1255		7/22		24.0	Day 7	13	15	13	✓	12	13	11	11	11	14	
					Day 8											
			Total			30	32	26	30	27	27	28	25	26	25	276 ~~275~~ 207

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

TEST LOG # 16947 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1055		7/15	24.9		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1155	7/16	24.6	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1031	7/17 BW	24.2	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	24.5	24.3	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1215	7/19	24.7	24.4	Day 4	6	6	6	5	6	6	5	5	6	5	
	HH 1133	7/20	24.6	24.1	Day 5	11	11	10	10	11	10	10	12	✓	9	
	AW 0946	7/21	24.2	24.3	Day 6	✓	✓	14	✓	16	✓	✓	✓	12	✓	
HH 1255		7/22		24.4	Day 7	14	15	✓	19	✓	20	17	19	18	D/O	
					Day 8											
			Total			31	32	30	34	33	36	32	36	36	34	314

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 1055		7/15	24.8		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1155	7/16	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1031	7/17	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	24.4	24.6	Day 3	✓	✓	✓	6	✓	✓	✓	✓	4	✓	
	HH 1215	7/19	24.6	24.2	Day 4	6	6	5	✓	6	6	5	6	8	5	HH 7/19
	HH 1133	7/20	24.2	24.3	Day 5	12	14	12	9	8	11	✓	✓	12	9	
	AH 0946	7/21	24.4	24.3	Day 6	✓	✓	15	16	✓	16	12	12	18	✓	
HH 1255		7/22		24.4	Day 7	18	18	✓	✓	20	✓	18	18	15	18	
					Day 8											
			Total			36	38	32	31	34	33	35	36	34	32	341

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

TEST LOG # 16947 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1055		7/15	24.8		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1155	7/16	243	244	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	245	246	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	247	242	Day 3	✓	6	✓	✓	✓	✓	4	✓	✓	✓	
	HH 1215	7/19	243	245	Day 4	6	✓	7	6	6	5	8	5	5	6	
	HH 1133	7/20	240	244	Day 5	13	13	14	13	9	11	✓	✓	10	12	
	AH 0946	7/21	242	243	Day 6	16	18	18	17	✓	✓	16	12	✓	✓	
HH 1255		7/22		243	Day 7	✓	✓	✓	19	16	15	19	14	17	13	
					Day 8											
			Total			35	37	39	36	31	31	28	31	32	31	331

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 1055		7/15	25.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CR 1155	7/16	244	245	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	245	24.6	Day 2	✓	✓	✓	✓	miss ✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	242	243	Day 3	✓	✓	✓	5	|	✓	✓	✓	✓	✓	
	HH 1215	7/19	241	244	Day 4	6	6	4	✓	|	4	5	6	6	7	
	HH 1133	7/20	245	24.0	Day 5	11	12	9	9	|	11	✓	✓	11	✓	
	AH 0946	7/21	24.4	24.6	Day 6	✓	17	17	16	|	✓	10	12	17	14	
HH 1255		7/22		244	Day 7	14	✓	✓	16	|	16	15	17	✓	14	
					Day 8					|						
			Total			33	35	30	30	(-1) 3	30	35	34	35	29	326

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

TEST LOG # 16947 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding / End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1055		7/15	24.8		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CK 1155	7/16	24.7	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	24.5	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1110	7/18	24.2	24.3	Day 3	✓	✓	4	✓	✓	✓	✓	✓	4	5	
	HM 1215	7/19	24.3	24.2	Day 4	6	6	9	5	6	5	6	5	✓	✓	
	HM 1133	7/20	24.6	24.1	Day 5	11	✓	11	8	11	✓	13	✓	10	8	
	AH 0946	7/21	24.5	24.6	Day 6	17	14	✓	✓	✓	12	✓	10	18	17	
HM 1255		7/22		24.1	Day 7	✓	16	14	14	✓	14	14	12	✓	✓	
					Day 8											
			Total			34	36	24	27	17	31	33	27	32	30	291

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 1055		7/15	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CK 1155	7/16	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	24.4	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1110	7/18	24.3	24.7	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1215	7/19	24.1	24.6	Day 4	6	6	6	4	6	✓	6	6	6	4	
	HM 1133	7/20	24.8	24.4	Day 5	✓	✓	12	10	10	7	✓	✓	13	12	
	AH 0946	7/21	24.4	24.5	Day 6	13	D/12	✓	✓	✓	12	12	12	✓	✓	
		7/22		24.1	Day 7	14		18	12	17	2	15	14	15	16	
					Day 8											
			Total			33	6	36	26	33	21	33	32	34	32	298

16

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

TEST LOG # 16947 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Filtered Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
CR 1155		7/16	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1110	7/18	24.5	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1215	7/19	24.2	24.3	Day 3	5	6	3	5	6	7	6	6	5	5	
	HM 1133	7/20	24.7	24.1	Day 4	1	8	8	✓	10	✓	✓	9	9	✓	
	AH 0946	7/21	24.5	24.4	Day 5	12	✓	✓	2,	✓	9	12	✓	✓	12	
	LM 1255	7/20	24.8	24.1	Day 6	14	16	15	15	16	13	14	11	15	17	
LM 1143		7/23		24.7	Day 7	✓	18	✓	15	17	✓	✓	13	17	21	
					Day 8											
			Total			32	30	26	37	32	17	32	26	29	34	295

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
CR 1155		7/16	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1031	7/17	24.5	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1110	7/18	24.4	24.6	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1215	7/19	24.1	24.4	Day 3	5	D/0	✓	5	6	6	5	✓	✓	5	
	HM 1133	7/20	24.5	24.2	Day 4	9		4	✓	✓	✓	✓	6	5	8	
	AH 0946	7/21	24.4	24.5	Day 5	✓		8	12	12	✓	10	12	11	✓	
	LM 1255	7/22	24.2	24.2	Day 6	15		7	16	14	3	13	5	10	8	
LM 1143		7/23		24.3	Day 7	7		✓	14	7/22 13	12	12	✓	✓	11	
					Day 8											
			Total			29	D/0	19	33	31	27	28	23	26	21	231

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

TEST LOG # 16947 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Ferric 30ppm Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
CH 1155		7/16	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1031	7/17	24.4	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	24.5	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1215	7/19	24.7	24.4	Day 3	5	✓	✓	✓	5	✓	✓	✓	✓	✓	
	HH 1133	7/20	24.6	24.2	Day 4	✓	6	6	4	✓	4	6	5	6	6	
	AH 0946	7/21	24.4	24.3	Day 5	11	12	11	✓	10	10	13	10	12	12	
	CH 1255	7/22	24.1	24.0	Day 6	18	✓	✓	13	16	✓	16	14	17	16	
CH 1143		7/23		24.2	Day 7	✓	15	20	16	✓	17	✓	✓	✓	✓	
					Day 8											
			Total			34	33	37	33	31	31	35	29	35	34	332

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 100% Ferric 30ppm Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
CH 1155		7/16	24.5		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AB 1031	7/17	24.7	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1110	7/18	24.4	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1215	7/19	24.0	24.1	Day 3	✓	✓	5	4	7	✓	✓	7	✓	✓	
	HH 1133	7/20	24.2	24.4	Day 4	6	4	✓	9	✓	5	6	✓	6	5	
	AH 0946	7/21	24.1	24.2	Day 5	14	8	10	✓	14	✓	13	13	✓	✓	
	CH 1255	7/22	24.0	24.0	Day 6	✓	13	16	13	16	10	✓	17	11	10	
CH 1143		7/23		24.3	Day 7	15	13	✓	13	✓	16	16	✓	14	15	
					Day 8											
			Total			35	25	31	26	37	31	35	37	31	30	318

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

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TEST LOG NO. 16947

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675H

TEST ORGANISM: Cd

DATE: 7/15/14

ENVIRON Test Log No. 16947

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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	News
RW	7.8	7.9	8.1	8.6	7.9	8.0	8.0	8.6	8.1	8.10	8.5	8.0	8.1	8.1	
25	8.0	7.9	8.1	8.0	8.2	8.1	8.0	8.2	8.4	8.1	8.0	8.0	8.0	7.9	
34	7.8	8.0	8.3	8.5	8.1	8.4	8.3	8.3	8.2	8.0	8.1	8.0	8.0	7.8	
45	7.9	8.3	8.2	8.4	8.0	8.2	8.4	8.3	8.2	8.0	8.1	8.0	8.0	7.8	
60	8.0	8.0	8.2	8.2	8.1	8.2	8.2	8.2	8.1	8.2	8.2	8.0	8.1	7.6	
80	8.1	8.2	8.4	8.4	8.0	8.3	8.2	8.2	8.0	8.2	8.3	8.0	8.1	7.3	
MH	8.1	8.4	8.3	8.6	8.2	8.0	8.4	8.1	8.3	8.4	8.3	8.2	8.1	8.4	8.2

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7	
RW	7.36	7.64	7.42	7.95	7.59	7.56	7.48	7.70	7.30	7.58	7.48	7.84	7.98	7.55	
25	7.70	8.11	7.89	8.04	7.90	8.04	7.81	8.09	7.79	8.17	7.99	8.03	7.69	8.05	
34	7.82	8.21	7.93	8.30	7.96	8.23	7.85	8.29	7.80	8.22	7.99	8.21	7.82	8.13	
45	7.87	8.32	8.00	8.39	8.03	8.25	7.94	8.41	7.98	8.38	7.86	8.38	7.86	8.27	
60	7.89	8.45	8.04	8.48	8.05	8.45	7.96	8.45	8.03	8.57	8.06	8.48	7.91	8.39	
80	7.94	8.55	8.00	8.58	8.06	8.59	7.97	8.66	8.05	8.63	8.04	8.60	7.97	8.59	
MH	7.97	7.80	7.96	7.88	7.89	7.84	7.95	7.91	7.89	7.89	7.92	7.73	7.93	7.90	7.42

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	76	76	77	138	81	96	95	96	95	96	79	138	123	88	
25	613	635	584	733	553	1004	576	1008	505	1019	561	662	576	564	
34	767	723	700	882	736	783	798	836	712	729	733	812	778	787	
45	1000	944	960	1106	974	1042	959	1060	944	1057	956	1071	935	1027	
60	1305	1351	1176	1214	1258	1370	1288	1352	1250	1363	1271	1548	1261	1425	
80	1663	1411	1359	1810	1618	1716	1624	1696	1596	1704	1604	1738	1566	1682	
MH	211	212	223	285	217	234	209	238	221	233	207	281	243	212	8251
Params Intl/Time:	AW 0954	CR 1205	HM 1011	AW 1040	HM 1000	HM 1144	CR 0900	HM 1240	HM 1102	HM 1200	HM 1033	AU 0956	AU 0827	HM 1310	AU 0741
Dilutions Intl/Time:	AW 0944		CR 1000		HM 0956		CR 0850		HM 1048		HM 1010		AU 0816		AU 0730
Control Water Batch#:	4589, 17771		89, 17771		89, 17771		90, 17783		90, 17778		92, 17793		92, 17793		92, 17793
Food Batch	4752, 23		52, 23		52, 27		64, 23		54, 23		59, 23		59, 44		59, 46

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TEST LOG NO. 16947

JOB NO. 20-19675G

CLIENT/SAMPLE ID: Georgia Pacific Crossett TIE

TEST ORGANISM: CD

DATE: 7/15/14

D.O. (mg/L)

Concentration	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
~~RW~~														
Filtered 80%	8.2	8.4	8.0	8.2	8.3	8.0	8.1	8.4	8.0	8.2	8.2	7.6	8.2	
Filtered 100%	8.4	8.5	8.0	8.1	8.4	8.0	8.0	8.4	8.2	8.2	8.1	7.4	8.2	
Ferric 80%	8.1	8.3	8.1	8.3	8.4	8.1	8.1	8.3	8.4	8.3	8.0	7.4	8.1	
Ferric 100%	8.3	8.4	8.1	8.3	8.4	8.4	8.2	8.2	8.0	8.2	8.0	7.5	8.1	

pH (s.u.)

Concentration	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New (CP 7/19)	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~~														
Filtered 80%	8.01	8.64	8.34	8.61	8.34 8.15	8.66	8.24	8.66	8.10	8.70	8.03	8.57	8.02	
Filtered 100%	8.07	8.73	8.21	8.107	8.15	8.86	8.28	8.88	8.08	8.76	8.00	8.69	8.09	
Ferric 80%	8.13	8.58	8.32	8.59	8.23	8.58	8.05	8.56	7.96	8.55	7.91	8.56	8.04	
Ferric 100%	8.011	8.66	8.31	8.69	8.25	8.72	8.65 8.96	8.51	7.92	8.64	7.85	8.58	7.99	
	HM 7/16													

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~~											12			
Filtered 80%	1595	1612	1670	1761	1698	1723	1684	1787	1609	1748	1489	1648	1630	
Filtered 100%	2080	2050	1993	2130	2000	2060	1910	2050	2040	2300	1978	2060	1957	
Ferric 80%	1804	1770	1767	1840	1816	1800	1748	1814	1690	1800	1646	1660	1657	
Ferric 100%	2240	2460	2040	2440	2220	2530	2070	2640	2140	2610	2100	2480	2090	

Params Intl/Time:

Dilutions Intl/Time:

Control Water Batch#:

Food Batch

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

ENVIRON Test Log No. 16947

30 of 39

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 / ROBIE

Sample Collected by (signature):

NPDES Permit No.: AR0012D

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	7-14-14 9:42am		2	20										DILUTION	WATER
OUTFALL 001	C	PLASTIC	TBS	7-13-14 4:10pm	7-14-14 6:10am	2	20					☑	☑					

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	7-14-14	3:00pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Condition: (lab use only)

Receipt Temp: 2.9 3.3°C

Containers/Volume Received: 20L of each

Date: 7/15/14

Time: 0901

pH upon arrival: 7.50, 7.8

DO upon arrival: 8.1, 9.2

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: GP Crossett

Date/Time received 7/15/14 0901 by AW

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
17770	River	2.9	7.50	8.1	0.08
17771	Outfall 001	3.3	7.89	9.2	<0.02

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CHAIN-OF-CUSTODY

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

Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

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

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY RODIES NPDES Permit No.: AR0001210

Sample Collected by (signature): NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
RIVER	G	PLASTIC	NA	7-14-14 9:42am		2	20											122185
OUTFALL 001	C	PLASTIC	YES	7-15-14 6:17am	7-16-14 6:11am	2	20					✓	✓					122187

* 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	7-16-14	3:00pm		Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only) Good
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 8.6, 2.1 °C	Containers/Volume Received: 4@2L, 2L
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7-17-14 Time: 1730	pH upon arrival: 7.62, 8.0 DO upon arrival: 8.8, 8.9

Sample Receipt Checklist:

Client: COP Crossett

Date/Time received 7/17/14 0830 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 # 17783 HM	Sample ID	Temp (C°)	pH	DO	TRC
177803	Rw	2.6	7.62	8.8	<0.02
177802	001	2.1	8.00	8.9	<0.02

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ENVIRON Test Log No. 16947

34 of 39

Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-367-8170 FAX: 870-314-9076

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): DANNY ROBIE

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

CHAIN-OF-CUSTODY

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

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Analysis Requested: Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
RIVER	G	PLASTIC	NA	7-17-14 9:42am		2	20											12295
OUTFALL 001	C	PLASTIC	YES	7-17-14 6:16am	7-18-14 6:17am	2	20					V	V					12296

* 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)
	7-18-14	3:00pm			GOOD
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: °C 1.6 on ice	Containers/Volume Received: 2 x 20L
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7-19-14	Time: 1000 pH upon arrival: 8.02	DO upon arrival: 8.19

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 7/19/14 1000 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
17792	EFF	1.0	8.08	7.9	0.09
17793	RW	1.6	7.60	8.1	0.05

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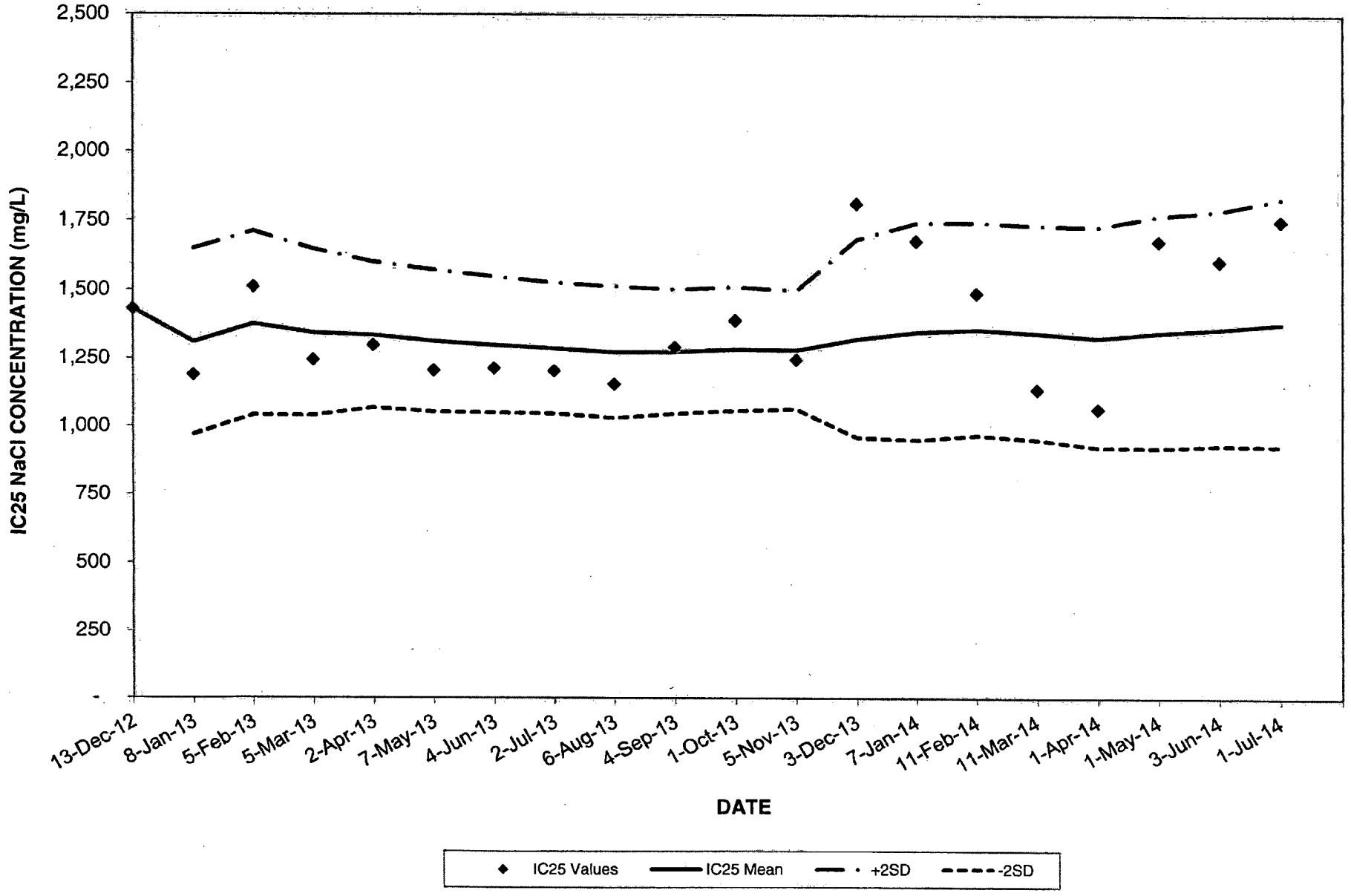
CHRONIC REFERENCE TOXICANT TEST (NaCl) 2012 - 2014
FATHEAD MINNOWS



Fathead Minnow CHRONIC REFERENCE TOXICANT TESTING-SODIUM CHLORIDE (NaCl) 2012 - 2014

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	Control Mean Dry Weight (mg/fish) (*)	SURVIVAL NOEC (mg/L)	SURVIVAL LOEC (mg/L)	GROWTH NOEC (mg/L)	GROWTH LOEC (mg/L)	PMSD (%)	IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
1	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,430				
2	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,310	170	1,649	971	9
3	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,377	167	1,712	1,043	10
4	15965	05-Mar-13	100	0.538	750	1,500	750	1,500	28.1	1,246	1,345	152	1,648	1,041	10
5	16017	02-Apr-13	100	0.504	750	1,500	750	1,500	25.8	1,300	1,336	133	1,601	1,070	9
6	16088	07-May-13	100	0.390	750	1,500	750	1,500	29.3	1,207	1,314	130	1,574	1,054	9
7	16137	04-Jun-13	100	0.402	750	1,500	750	1,500	21.5	1,215	1,300	124	1,549	1,051	9
8	16189	02-Jul-13	100	0.444	750	1,500	750	1,500	26.7	1,205	1,288	120	1,528	1,048	9
9	16256	06-Aug-13	100	0.382	750	1,500	750	1,500	19.3	1,157	1,274	120	1,514	1,033	9
10	16309	04-Sep-13	97.5	0.369	750	1,500	750	1,500	27.1	1,293	1,276	114	1,503	1,048	8
11	16348	01-Oct-13	97.5	0.310	1,500	3,000	750	1,500	23.4	1,391	1,286	113	1,513	1,059	8
12	16425	05-Nov-13	100	0.335	750	1,500	750	1,500	19.7	1,248	1,283	109	1,500	1,066	8
13	16489	03-Dec-13	97.5	0.417	750	1,500	1,500	3,000	31.8	1,814	1,324	180	1,684	963	13
14	16554	07-Jan-14	100	0.464	750	1,500	1,500	3,000	27.8	1,679	1,349	198	1,744	954	14
15	16631	11-Feb-14	92.5	0.484	750	1,500	750	1,500	13.5	1,491	1,359	194	1,746	971	14
16	16684	11-Mar-14	100	0.543	750	1,500	750	1,500	28.8	1,138	1,345	195	1,735	954	14
17	16729	01-Apr-14	90	0.430	750	1,500	750	1,500	29.2	1,067	1,328	201	1,730	927	15
18	16782	01-May-14	97.5	0.378	1,500	3,000	1,500	3,000	28.2	1,678	1,348	211	1,771	925	15
19	16835	03-Jun-14	100	0.467	750	1,500	1,500	3,000	24.9	1,607	1,361	214	1,789	934	15
20	16907	01-Jul-14	100	0.447	1,500	3,000	1,500	3,000	22.3	1,751	1,381	226	1,832	930	16
Avg			98	0.426	863	1725	938	1875	24	1381	1331	162	1649	1002	

Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

LOEC - Lowest Observable Effect Concentration (survival or growth)

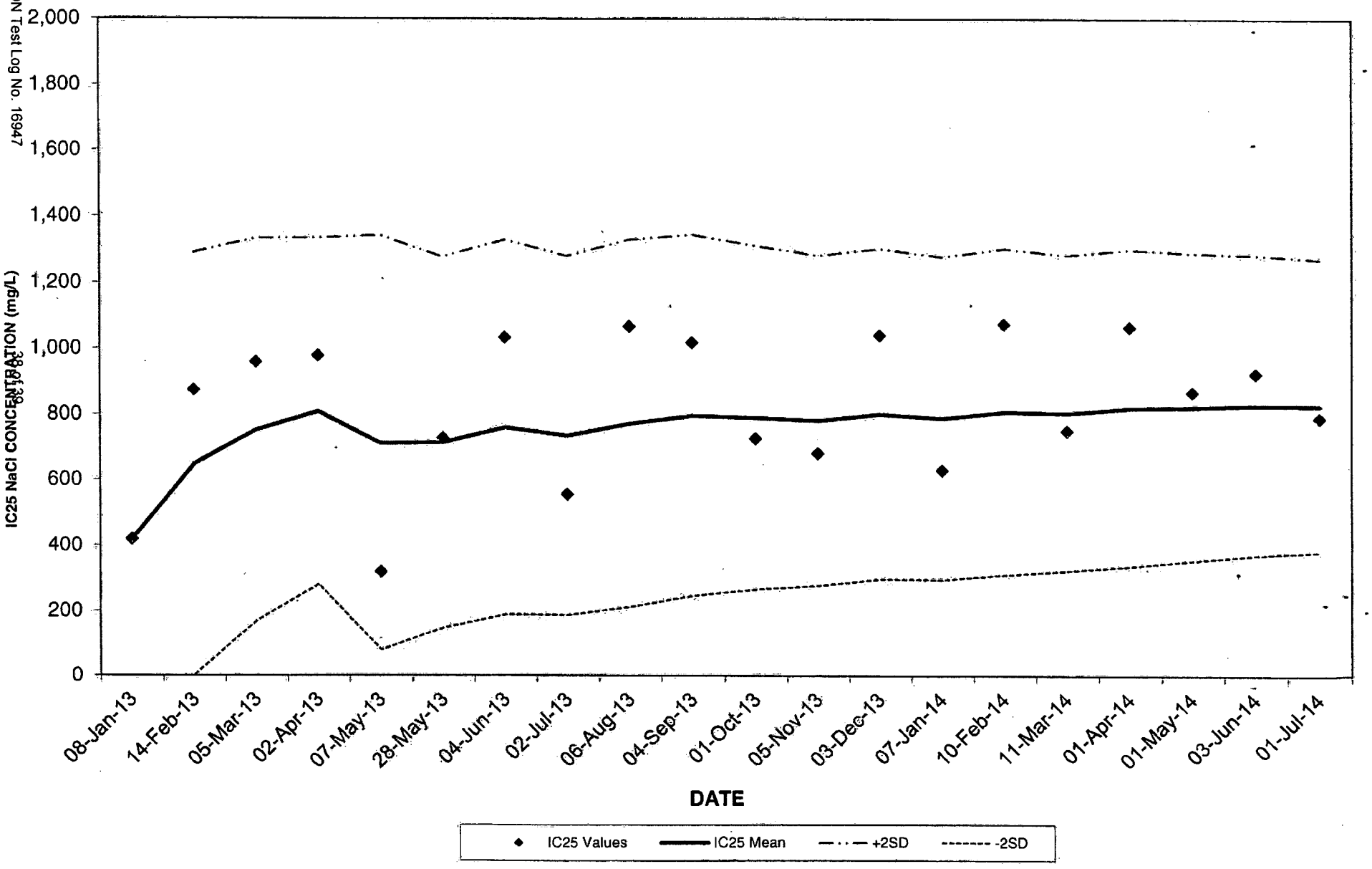
ACCEPTABLE TEST RESULTS - A growth NOEC ranging from 750 mg/L to 3,000 mg/L.

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

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2014

Ceriodaphnia dubia

ENVIRON Test Log No. 16947



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7/28/2014

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2014

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repro (*)	Survival		Reproduction			IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)	PMSD						
1	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	420				
2	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	648	322	1,291	4	35
3	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	752	290	1,332	171	32
4	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	809	263	1,334	283	28
5	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	711	315	1,341	81	40
6	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	714	282	1,278	150	36
7	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	759	285	1,328	190	35
8	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	734	273	1,280	188	35
9	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	771	279	1,328	214	34
10	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	796	274	1,344	248	33
11	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	789	261	1,311	268	32
12	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	780	251	1,282	279	31
13	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	800	251	1,302	299	30
14	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	788	245	1,278	298	30
15	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	807	248	1,303	312	30
16	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	804	240	1,283	325	29
17	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	819	241	1,301	338	28
18	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	822	234	1,289	355	28
19	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	828	228	1,284	371	27
20	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	826	222	1,270	381	26
Avg			99	91	29	1600	800	500	1006	21	826	759	263	1303	250	

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:
August 2014

Project Number:
20-19675H

ENVIRON

ENVIRON

August 20, 2014

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

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

Dear Ms. Johnson:

ENVIRON conducted chronic (7-day) whole effluent toxicity (WET) tests for Georgia-Pacific in Crossett, AR. The tests are conducted according to requirements in Arkansas NPDES permit AR0001210. Composite samples of Outfall 001 effluent were collected on August 4, 6, and 8, 2014. The samples were received at ENVIRON on August 5, 7, and 9, 2014, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity test was *Ceriodaphnia dubia* (*C. dubia*). The test was initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated.

Tests are conducted in accordance with *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition for chronic testing (EPA-821-R-02-013). Controls met test acceptability criteria (TAC), therefore, the river water control was used for statistical analyses. The results of the chronic toxicity tests are as follows:

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

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

The *C. dubia* reproduction CV values for the control and critical dilution are 18.3 and 20.8 percent respectively, which meets the TAC limit of 40 percent for a finding of no toxicity. The PMSD value was 16.1 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia* reproduction. The effluent concentration-response is flat and not described in EPA 821-B-00-004. A flat concentration-response curve is indicative of a lack of toxicity. The monthly reference toxicant test also met all the test acceptability criteria. This test is considered valid for assessment of permit compliance.

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

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

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

Sincerely,
ENVIRON International Corporation

Richard E. Lockwood
Project Manager

Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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

Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Statistical Analysis and Raw Data Sheets

CETIS Analytical Report

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

Analysis ID:	06-2498-3527	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Aug-14 11:35	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	13-7087-1807	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	05 Aug-14 11:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	11 Aug-14 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	5d 22h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-8375-2593	**Code:**	1CD57A91	**Client:**	GPAC Crossett
Sample Date:	04 Aug-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	05 Aug-14	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

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

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

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

7d Survival Rate Binomials

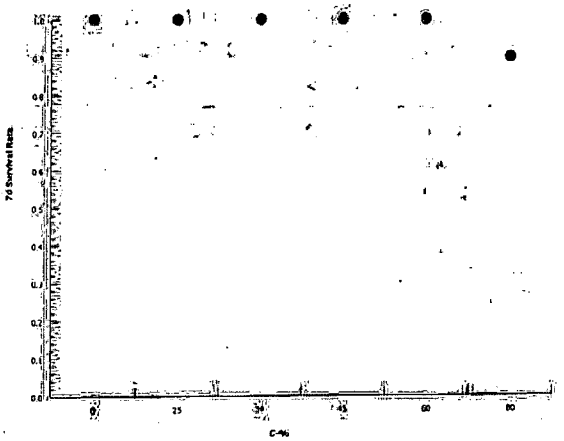
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
34		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
45		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
60		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1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

Ceriodaphnia 7-d Survival and Reproduction Test

ENVIRON International Corp

Analysis ID:	06-2498-3527	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Aug-14 11:35	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	05-7791-7365	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Aug-14 11:36	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	13-7087-1807	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	05 Aug-14 11:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	11 Aug-14 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	5d 22h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-8375-2593	**Code:**	1CD57A91	**Client:**	GPAC Crossett
Sample Date:	04 Aug-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	05 Aug-14	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**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	16.1%

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	110	75	3	18	0.9223	Asymp	Non-Significant Effect
		34	114	75	4	18	0.9629	Asymp	Non-Significant Effect
		45	122	75	4	18	0.9941	Asymp	Non-Significant Effect
		60	104	75	3	18	0.8098	Asymp	Non-Significant Effect
		80	83.5	75	1	18	0.1720	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	26.2	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1612	0.13 - 0.47	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.99	3.2	0.1153	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	157.6	31.52	5	1.852	0.1182	Non-Significant Effect
Error	919	17.01852	54			
Total	1076.6		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	8.604	15.09	0.1259	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9154	0.9459	0.0005	Non-normal Distribution

Reproduction Summary

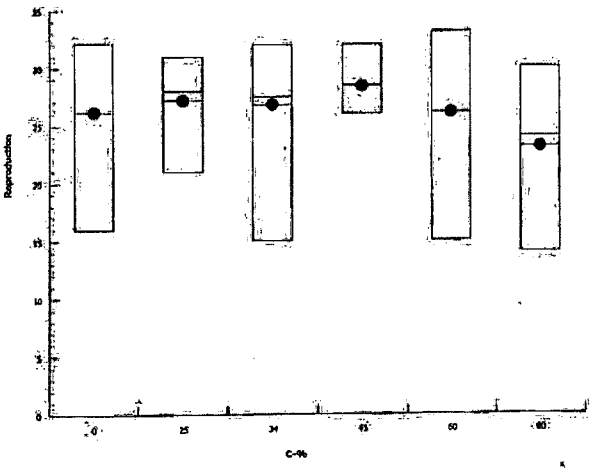
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	26.2	22.76	29.64	26	16	32	1.519	18.33%	0.0%
25		10	27.2	25.05	29.35	28	21	31	0.9522	11.07%	-3.82%
34		10	26.8	23.52	30.08	27.5	15	32	1.451	17.13%	-2.29%
45		10	28.4	26.96	29.84	28.5	26	32	0.636	7.08%	-8.4%
60		10	26.1	22.75	29.45	26	15	33	1.479	17.92%	0.38%
80		10	23.1	19.67	26.53	24	14	30	1.516	20.76%	11.83%

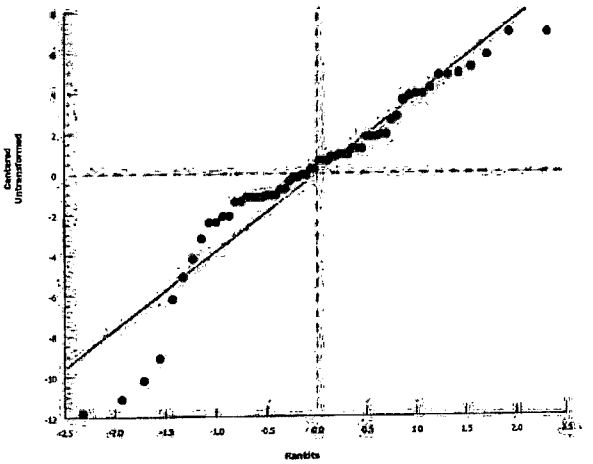
Analysis ID: 05-7791-7365 Endpoint: Reproduction CETIS Version: CETISv1.8.4
Analyzed: 18 Aug-14 11:36 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	31	31	25	22	28	26	25	16	26	32
25		29	30	29	28	24	26	31	26	21	28
34		31	28	26	15	26	32	27	28	27	28
45		31	29	29	27	29	26	28	27	32	26
60		25	25	30	33	28	26	26	15	25	28
80		21	30	27	18	24	24	21	24	14	28

Graphics





CETIS Analytical Report

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

Analysis ID:	19-9259-2665	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	18 Aug-14 11:36	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	13-7087-1807	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	05 Aug-14 11:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	11 Aug-14 09:30	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	5d 22h	**Source:**	In-House Culture	**Age:**	
Sample ID:	04-8375-2593	**Code:**	1CD57A91	**Client:**	GPAC Crossett
Sample Date:	04 Aug-14	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	05 Aug-14	**Source:**	Discharge Monitoring Report		
Sample Age:	35h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1640271	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	26.2	15 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.99	3.2	0.1153	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

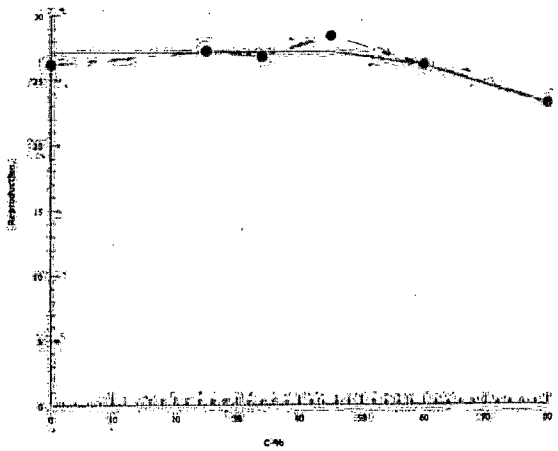
Reproduction Summary — Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	26.2	16	32	1.519	4.803	18.33%	0.0%
25		10	27.2	21	31	0.9522	3.011	11.07%	-3.82%
34		10	26.8	15	32	1.451	4.59	17.13%	-2.29%
45		10	28.4	26	32	0.636	2.011	7.08%	-8.4%
60		10	26.1	15	33	1.479	4.677	17.92%	0.38%
80		10	23.1	14	30	1.516	4.795	20.76%	11.83%

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	31	31	25	22	28	26	25	16	26	32
25		29	30	29	28	24	26	31	26	21	28
34		31	28	26	15	26	32	27	28	27	28
45		31	29	29	27	29	26	28	27	32	26
60		25	25	30	33	28	26	26	15	25	28
80		21	30	27	18	24	24	21	24	14	28

Graphics



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

TEST LOG NO.:	16988	PHOTOPERIOD:	16 hr light/8 hr dark
JOB NUMBER.:	20-19675H	FEEDING REGIME:	0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
INDUSTRY:	Georgia Pacific-Crossett	TEST VESSEL CAPACITY:	30 mL
EFFLUENT:	Outfall 001	TEST SOLUTION VOLUME:	15 mL
DILUTION WATER:	River Water	NO. ORGANISMS/REPLICATE:	1
NPDES (Y/N) :	Yes	NO. REPLICATES:	10

ORGANISM SOURCE INFORMATION:

AGE (date): 8/4/14

TEMP @ TEST START: 24.2°C

RANDOMIZED BY: LM

TEST START:

HOURS: 1052 DATE: 8/5/14

TEST END:

HOURS: 1205 DATE: 8/11/14

SOURCE ID:	AGE (time):
10687	1217-1622
10688	1217-1625

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 87									88	Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult	11	3	12	5	10	6	7	15	14	10	
LM 1052		8/5	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1150	8/6	24.6	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	8/7	24.0	24.6	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1133	8/8	24.5	24.2	Day 3	5	4	4	3	4	4	4	✓	5	6	
	HH 1228	8/9	24.4	24.1	Day 4	9	9	✓	6	✓	8	✓	5	✓	11	
	HH 1122	8/10	24.1	24.3	Day 5	✓	✓	9	✓	9	✓	9	11	9	✓	
CR 1205		8/11		24.5	Day 6	17	18	12	13	15	14	12	✓	12	15	90%
					Day 7											
					Day 8											
			Total			31	31	25	22	28	26	25	16	26	32	262

x̄ 26.2 ←.75

2 196

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

TEST LOG # 16988 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
LM 1052		8/5	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	LM 1150	8/6	24.8	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	8/7	24.0	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1133	8/8	24.5	24.2	Day 3	5	4	5	6	4	4	4	5	4	5	
	HM 1228	8/9	24.3	24.4	Day 4	10	10	✓	✓	8	10	✓	✓	✓	9	
	HM 1122	8/10	24.6	24.5	Day 5	✓	✓	11	10	✓	✓	11	10	9	✓	
QR 1205		8/11		24.5	Day 6	14	16	13	12	12	12	16	11	8	14	
					Day 7											
					Day 8											
			Total			29	30	29	28	24	26	31	26	21	28	272

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 1052		8/5	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1150	8/6	24.1	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	8/7	24.0	24.6	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1133	8/8	24.4	24.5	Day 3	6	4	5	5	4	4	6	6	4	4	
	HM 1228	8/9	24.2	24.3	Day 4	11	9	✓	1	9	10	✓	10	✓	11	
	HM 1122	8/10	24.3	24.4	Day 5	✓	✓	10	'	✓	✓	11	12	9	✓	
QR 1205		8/11		24.4	Day 6	14	15	11	9	13	18	10	10	14	13	
					Day 7											
					Day 8											
			Total			31	28	26	15	26	32	27	28	27	28	268

✓ = 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 # 16988 JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LH 1052		8/5	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1150	8/6	24.1	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1200	8/7	24.0	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1133	8/8	24.5	24.3	Day 3	4	5	5	5	5	5	4	5	6	6	
	HH 1228	8/9	24.3	24.2	Day 4	11	11	✓	9	10	9	9	✓	12	11	
	HH 1122	8/10	24.4	24.1	Day 5	11	✓	10	11	✓	✓	✓	9	✓	✓	
QR 1205		8/11		24.3	Day 6	15	12	14	12	14	12	15	13	14	9	
					Day 7											
					Day 8											
			Total			31	29	29	27	29	26	28	27	32	26	~~315~~ 289

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
					Adult	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LH 1052		8/5	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1150	8/6	24.6	25.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1200	8/7	24.0	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1133	8/8	24.7	24.4	Day 3	5	4	4	6	5	4	4	5	6	5	
	HH 1228	8/9	24.1	24.2	Day 4	9	9	10	12	9	9	✓	✓	✓	10	
	HH 1122	8/10	24.5	24.0	Day 5	11	✓	✓	12	✓	✓	10	10	10	✓	
QR 1205		8/11		24.6	Day 6	10	12	16	13	14	13	12	✓	9	13	
					Day 7											
					Day 8											
			Total			25	25	30	31	28	26	26	15	25	28	~~235~~ 261

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

TEST LOG # 16988 ✓ JOB # 20-19675H

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
LM 1052		8/5	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1150	8/6	24.3	24.8	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	8/7	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1133	8/8	24.1	24.1	Day 3	5	6	4	3	4	4	5	5	4	4	
	HM 1228	8/9	24.5	24.3	Day 4	✓	11	✓	7	9	9	10	✓	D 10	11	
	HM 1122	8/10	24.3	24.0	Day 5	10	✓	12	✓	✓	✓	✓	9		✓	
OR 1205		8/11		24.5	Day 6	6	13	11	8	11	11	6	10		13	
					Day 7											
					Day 8											
			Total			21	30	27	18	24	24	21	24	D 14	28	231

T/D

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
LM 1052		8/5	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1150	8/6	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1200	8/7	24.2	24.1	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1132	8/8	24.5	24.3	Day 3	5	4	4	4	4	5	4	✓	4	4	
	HM 1228	8/9	24.2	24.2	Day 4	✓	✓	5	✓	✓	9	✓	4	✓	✓	
	HM 1122	8/10	24.6	24.4	Day 5	9	7	9	8	8	8	9	10	9	8	
OR 1205		8/11		24.6	Day 6	14	10	12	5	12	13	15	15	16	16	
					Day 7											
					Day 8											
			Total			28	21	26	27	24	30	29	29	29	28	271

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

TEST LOG # 16988

JOB # 20-19675F

CLIENT/SAMPLE ID: Georgia Pacific - Crossett

LAB/STATE: ENVIRON / TN

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration Filtered 80% Temp (°C)			REPLICATES 2										Notes
						1	2	3	4	5	6	7	8	9	10	
					Adult											
LH 1150		8/6	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1200	8/7	24.3	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1133	8/8	24.4	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1228	8/9	24.6	24.5	Day 3	4	✓	4	4	3	5	3	✓	✓	✓	
	LH 1122	8/10	24.3	24.6	Day 4	9	5	10	8	6	9	10	6	6	6	
	CR 1205	8/11	24.5	24.4	Day 5	14	D/0	✓	12	13	✓	12	11	10	9	
LH 1310		8/12		25.6	Day 6	14	1	✓	✓	14	11	13	10	14	14	
					Day 7											
					Day 8											
			Total			27	5	14	24	22	25	25	27	30	29	228 1/0

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration Filtered 100% Temp (°C)			REPLICATES										Notes
						1	2	3	4	5	6	7	8	9	10	
LH 1150		8/6	25.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1200	8/7	24.3	24.1	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LH 1133	8/8	24.8	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HH 1228	8/9	24.4	24.0	Day 3	2	6	4	2	5	4	3	4	6	✓	
	HH 1122	8/10	24.5	24.1	Day 4	7	9 (1)	10	8	✓	10	8	11	✓	6	
	CR 1205	8/11	24.6	24.5	Day 5	13	(1)	10	10	14	✓	12	D/2	8	10	
LH 1310		8/12		25.7	Day 6	12	14	✓	✓	8	✓	14		15	18	
					Day 7											
					Day 8											
			Total			22	30	24	20	27	14	23	9/1	29	34	240 1/0

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

TEST LOG # 16988 JOB # 20-19675H

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

SURVIVIAL AND REPRODUCTION DATA

Concentration: Ferric 80% — ~~40~~ 30 ppm

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Temp (°C)			1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
HM 1150		8/6	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1200	8/7	24.0	24.0	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	★ mort has stuff [illegible]
	HM 1133	8/8	24.4	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	D/0	
	HM 1227	8/9	24.1	24.2	Day 3	4	6	3	4	5	3	Po	4	5		
	HM 1122	8/10	24.5	24.3	Day 4	10	✓	10	9	✓	8	*	11	9		
	CR 1205	8/11	24.3	24.4	Day 5	11	9	✓	✓	13	✓		✓	✓		
LMW 1310		8/12		24.1	Day 6	✓	16	11	13	19	8		8	6		
					Day 7											
					Day 8											
			Total			25	31	24	26	37	19	D/-1 [illegible] (circled)	23	20	D/0	205/9 = 22.8

SURVIVIAL AND REPRODUCTION DATA

Concentration: Ferric 100% — ~~40~~ 30 ppm

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Temp (°C)			1	2	3	4	5	6	7	8	9	10	Notes
HM 1150		8/6	24.6		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1200	8/7	24.0	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1133	8/8	24.1	24.0	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	HM 1226	8/9	24.4	24.4	Day 3	3	4	4	5	4	5	3	3	4	5	
	HM 1122	8/10	24.2	24.2	Day 4	10	✓	9	9	✓	9	11	10	✓	9	
	CR 1205	8/11	24.5	24.4	Day 5	✓	✓	✓	10	✓	✓	✓	✓	13	11	
HM 1310		8/12		24.4	Day 6	12	19	1	18	13	15	11	11	19	✓	
					Day 7											
					Day 8											
			Total			25	23	14	24	17	29	25	24	36	25	242

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

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ENVIRON Test Log No. 16988

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TEST LOG NO. 110988

JOB NO. 20-19675H

CLIENT/SAMPLE ID: Georgia Pacific Crossett

TEST ORGANISM: Cd

DATE: 8/5/14

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.1	7.9	8.4	7.8	8.3	8.1	8.5	8.0	8.3	8.1	8.4	8.0		
25	8.1	8.1	8.3	7.9	8.5	8.1	8.4	8.0	8.3	8.1	8.4	8.0		
34	8.3	8.1	8.1	8.1	8.4	8.0	8.5	8.3	8.2	8.0	8.3	7.8		
45	8.2	8.0	8.2	8.2	8.2	8.4	8.6	8.3	8.2	8.2	8.5	7.9		
60	8.4	8.2	8.2	7.9	8.4	8.2	8.4	8.2	8.4	8.2	8.5	8.2		
80	8.3	8.2	8.1	8.1	8.6	8.0	8.3	8.2	8.4	8.4	8.3	8.2		
MH	8.1	7.8	8.3	7.0	8.7	7.9	8.0	8.3	8.5	8.3	8.4	8.3	8.4	

pH (s.u.)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	7.39	7.75	7.41	7.89	7.47	7.72	7.46	7.65	7.40	7.68	7.48	7.69		
25	7.67	7.73	7.73	7.94	7.74	7.57	7.66	7.99	7.70	7.96	7.80	8.05		
34	7.73	8.04	7.78	8.16	7.85	8.04	7.77	8.23	7.79	8.21	7.90	8.19		
45	7.84	8.23	7.80	8.36	7.89	8.16	7.79	8.34	7.85	8.53	7.94	8.35		
60	7.86	8.36	7.86	8.48	7.92	8.34	7.85	8.45	7.89	8.41	7.98	8.39		
80	7.90	8.48	7.89	8.57	7.95	8.47	7.83	8.52	7.90	8.55	7.96	8.53		
MH	7.85	7.72	7.87	7.16	7.85	7.69	7.98	7.80	7.93	7.81	7.90	7.96	7.91	

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	79	91	74	80	82	83	83	98	84	103	88	96		
25	534	420	522	483	504	484	497	545	493	576	533	529		
34	702	656	693	661	697	672	688	720	696	780	740	756		
45	800	809	816	844	871	823	912	918	874	953	920	896		
60	1145	1102	1174	1107	1022	1152	1201	1185	1099	1187	1216	1201		
80	1470	1473	1514	1460	1418	1513	1551	1520	1486	1598	1570	1545		
MH	220	213	211	218	204	202	202	210	212	216	205	220	236	
Params Intl/Time:	HM1035	HM1159	HM0910	LM1215	HM1111	HM1000	LH0800	HM1015	HM1144	HM1120	CR0835	CR1220	[illegible]	
Dilutions Intl/Time:	CR1025		HM0855		HM1105		HM0750		CR1137		CR0825		[illegible]	

	Start	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Control Water Batch#:	17854, 5606	17854, 5606	17862, 5608	17864, 5608	17873, 5609	17873, 5609	17873, 56[illegible]	
Food Batch	4746, 4677	46,73	46,78	46,78	46,78	46,78	46,78	

TEST LOG NO. 16988

CLIENT/SAMPLE ID: Georgia Pacific Crossett TIE

JOB NO. 20-19675H

TEST ORGANISM: CD

DATE: 8/15/17

D.O. (mg/L)

Concentration	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
Filtered 80%	8.1	7.8	8.4	7.9	8.1	8.0	8.2	8.2	8.2	8.3	8.3	8.1		
Filtered 100%	8.2	7.8	8.2	7.9	8.2	8.1	8.1	8.3	8.3	8.4	8.3	7.8		
Ferric 80%	8.1	7.7	8.2	7.9	8.2	8.2	8.2	8.2	8.0	8.2	8.2	7.7		
Ferric 100%	8.4	7.7	8.4	8.0	8.0	8.2	8.3	8.2	8.1	8.2	8.1	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
Filtered 80%	7.92	8.60	8.16	8.55	8.16	8.67	8.12	8.62	8.18	8.60	8.13	8.64		
Filtered 100%	7.96	8.68	8.15	8.65	8.13	8.71	8.15	8.71	8.22	8.70	8.11	8.71		
Ferric 80%	7.85	8.56	7.96	8.46	8.15	8.54	8.11	8.51	8.20	8.47	8.04	7.54		
Ferric 100%	7.76	8.54	7.89	8.57	8.10	8.61	8.06	8.59	8.11	8.56	8.01	8.61		

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
Filtered 80%	1458	1440	1500	1588	1410	1554	1467	1623	1426	1601	1576	1483		
Filtered 100%	1891	1773	1806	1882	1796	1902	1806	1916	1889	1896	1961	1820		
Ferric 80%	1601	1632	1607	1739	1744	1739	1467	1774	1655	1752	581	1761		
Ferric 100%	1930	1925	1976	2060	1948	2150	1944	2100	1992	2040	2200	2070		

	Start	Day 1	Day 2	Day 3	Day 4	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
Params Intl/Time:						0	Ab	LH 1308		
Dilutions Intl/Time:							Ab			
Control Water Batch#:							17-593, 15611			
Feed Batch							46.98			

TEST LOG NO. 16988 CLIENT: Georgia Pacific Crossett DATE OF TEST: 8/5/14

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

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
17855	Outfall 001	8/3-4/14	8/5/14	280	405	<0.02	0.42
17863	Outfall 001	8/5-6/14	8/7/14	272	405	0.04	0.71
17872	Outfall 001	8/7-8/14	8/9/14	~~280~~ 3/12 244 QR	360	0.03	0.75

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
17854	River Water	8/4/14	8/5/14	25.6	32	0.05	0.06
17870	River Water	8/4/14	8/7/14	23.2	27	0.03	0.10
17873	River Water	8/4/14	8/9/14	23.2	26	0.04	0.05
S6006	MH	8/1/14	8/4/14	80.8	45	<0.02	-
S6008	MH	8/4/14	8/7/14	80	45	<0.02	-
S6009	MH	8/6/14	8/9/14	83.2	44	<0.02	-

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

ENVIRON Test Log No. 16988

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Project Name: Project Number:

Industry: GEORGIA PACIFIC PAPER

Phone: 870-367-8170 FAX: 870-534-9014

County: ASHLEY City: CROSSETT State:

Sample Collected by (print): DANNY / 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)
				8-4-14														
RIVER	G	PLASTIC	NA	9:07 am		1	10										DILUTION	17854
OUTFALL	C	PLASTIC	YES	8-3-14 4:07 pm	8-4-14 6:17 am	1	10											17855

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

CHAIN-OF-CUSTODY

ENVIRON

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	8-4-14	4:00 pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Condition: good (lab use only)

Receipt Temp: 2.9 2.3 3.1 °C

Containers/Volume Received: 2 1 UL

Date: 8/5/14 Time: 0825

pH upon arrival: 7.99 7.80

DO upon arrival: 7.9 7.8

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 8/5/14 0825 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
17854	RW	2.8	7.99	7.9	0.05
17855	~~Outfall~~	2.3	7.80	8.7	<.002

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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 / Robbie
NPDES Permit No.: AR0001210
Sample Collected by (signature): Danny ... R...
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	8-4-14 9:08am		1	10						✓					121861
OUTFALL 001	C	PLASTIC	YES	8-5-14 6:17am	8-6-14 6:18am	1	10						✓					121863

* 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 ... R...	8-6-14	3:00PM		Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only) Good
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 2.0 / 2.5°C	Containers/Volume Received: 10/10
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8/7/14 Time: 0831	pH upon arrival: 7.30 / 7.86 DO upon arrival: 8.5/8.9

Sample Receipt Checklist:

Client: CEP Crossett

Date/Time received 8/19/14 0839 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
17862	Bkg	2.2	7.36	8.5	0.02
17863	outfall	2.5	7.86	8.1	0.04

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ENVIRON Test Log No. 16988

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Project Name: | Project Number:

Industry: Georgia-Pacific

Phone: 870-567-8170 | FAX:

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	Y	8/7/14 6:15am	8/8/14 6:15am	1	10	■		■		■	✓	■		■		[redacted]
								■		■		■		■		■		[redacted]
River	Grab	Plastic	NA	8/4/14 9:08am		1	10	■		■		■		■		■	Dilution Water	[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]
								■		■		■		■		■		[redacted]

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): 0.0 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	8/8/14	4:00pm			GOOD	[redacted]
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 5.3 5.9	Containers/Volume Received: 12 10L	[redacted]
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8/9/14	Time: 0905	pH upon arrival: 7.08 7.50	DO upon arrival: 9.80 12.8

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 8/9/14 0905 by DR

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
17872	Outfall	5.3	7.83	9.0	0.03
17873	RWO	5.9	7.50	8.8	0.04

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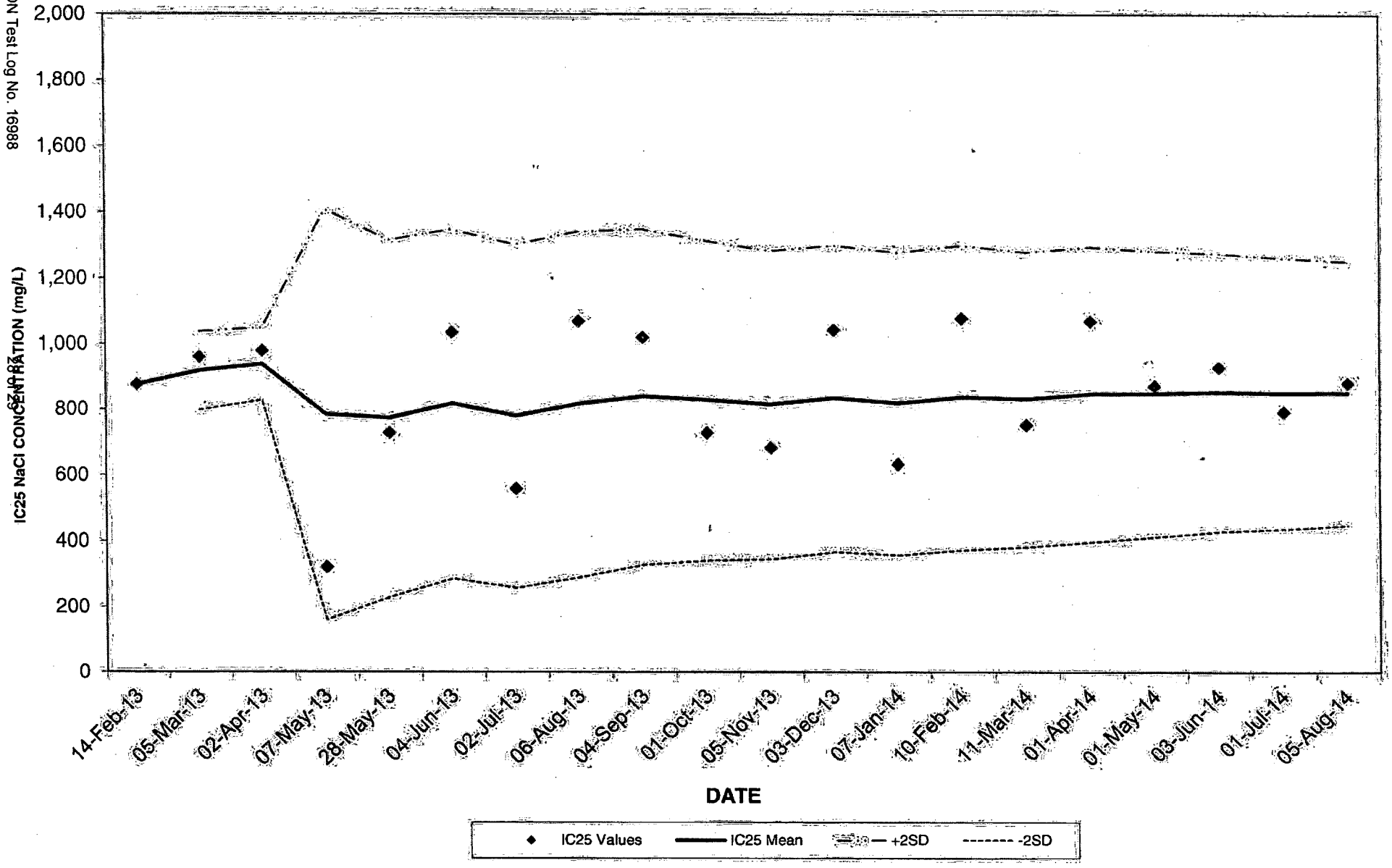
ENVIRON Test Log No. 16988

CHRONIC REFERENCE TOXICANT (NaCl) 2013-2014
Ceriodaphnia dubia



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8/19/2014

Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2014

ENVIRON Test Log No. 16988

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	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	875				
2	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	918	60	1,038	797	5
3	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	938	55	1,049	827	5
4	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	784	312	1,407	160	34
5	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	772	271	1,315	230	31
6	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1,034	816	265	1,346	286	30
7	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.7	556	779	261	1,301	257	31
8	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1,068	815	263	1,340	290	30
9	16308	04-Sep-13	100	90	27.1	2,000	>2,000	500	1,000	14.6	1,018	838	255	1,347	328	29
10	16347	01-Oct-13	100	90	28.0	2,000	>2,000	1,000	2,000	26.0	726	826	243	1,312	341	28
11	16426	05-Nov-13	100	80	31.0	2,000	>2,000	250	500	27.1	681	813	234	1,282	344	27
12	16497	03-Dec-13	100	90	29.0	2,000	>2,000	500	1,000	12.3	1,041	832	233	1,298	366	27
13	16552	07-Jan-14	100	90	29.4	1,000	2,000	500	1,000	20.2	630	817	230	1,277	357	27
14	16630	10-Feb-14	100	100	31.1	1,000	2,000	500	1,000	13.4	1,076	835	232	1,298	372	27
15	16682	11-Mar-14	100	90	23.0	1,000	2,000	500	1,000	24.3	750	829	224	1,278	381	26
16	16730	01-Apr-14	100	100	28.8	2,000	>2,000	500	1,000	12.3	1,067	844	225	1,294	395	26
17	16782	01-May-14	100	100	33.6	2,000	>2,000	500	1,000	13.5	868	846	218	1,281	411	25
18	16834	03-Jun-14	100	80	26.1	1,000	2,000	1,000	2,000	22.9	926	850	212	1,274	426	24
19	16909	01-Jul-14	100	100	31.3	1,000	2,000	500	1,000	21.7	789	847	206	1,260	434	24
20	16989	05-Aug-14	100	90	28.7	2,000	>2000	500	1,000	17.4	877	848	201	1,251	446	23
Avg			99	92	29	1600	800	513	1031	20	848	836	221	1276	392	

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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