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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www.gp.com

September 23, 2013

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

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

Dear Mr. Uyeda:

Attached are the Discharge Monitoring Reports (DMRs) for the Georgia-Pacific Crossett Paper Operations' - NPDES Permit # **AR0001210** - for August 2013. 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,

James W. Cutbirth
Environmental Manager

Chronic Toxicity Test Results-
Outfall 001 Effluent

Prepared for:
Georgia Pacific Crossett Mill
Crossett, Arkansas

Prepared by:
ENVIRON International Corporation
Nashville, Tennessee

Date:
July 2013

Project Number:
20-19675E

ENVIRON

ENVIRON

July 24, 2013

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

Re: Chronic Toxicity Test Results - July 2013
ENVIRON Project No. 20-19675E

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. Due to shipping issues, only the first two of the composite samples of Outfall 001 effluent collected on July 8, 10, and 12, 2013 were delivered to ENVIRON. The samples were received at ENVIRON on July 9, 11, and 12, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The effluent sample received on July 12 was an additional second sample collected July 10, and the third sample collected July 12, never arrived at ENVIRON. The grab samples of river water were received on July 9, and 12, 2013 in good condition. The test organism utilized for the chronic toxicity test was *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated. All control organisms met USEPA test acceptability criteria. The results of the chronic toxicity tests are as follows:

TEST RESULTS FOR OUTFALL 001 EFFLUENT

Permit Limits	*C. dubia*
NOEC Value 80% (lethality)	80%
NOEC Value 80% (sub-lethality)	80%

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

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 14.8 and 20.4 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity. The PMSD value was 18.6 percent, which is within the USEPA PMSD bounds of 13 to 47 percent for *C. dubia*

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reproduction indicating normal test sensitivity. The effluent concentration-response is flat and not described in EPA 821-B-00-004. A flat dose response is indicative of a lack of toxicity. This test is considered valid for assessment of TIE requirements. 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 27 pages including this cover letter, attachment pages and separator pages.

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

Sincerely,

ENVIRON International Corporation

Richard E. Lockwood
Project Manager

Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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

Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Laboratory Bench Sheets and Statistical Data

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

Analysis ID:	16-1485-7933	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	17 Jul-13 16:53	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	02-2332-5406	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Jul-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Jul-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	20-2901-4268	**Code:**	78F04CFC	**Client:**	GPAC Crossett
Sample Date:	08 Jul-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	09 Jul-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

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

Test Acceptability Criteria

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

Data Summary

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

7d Survival Rate Detail

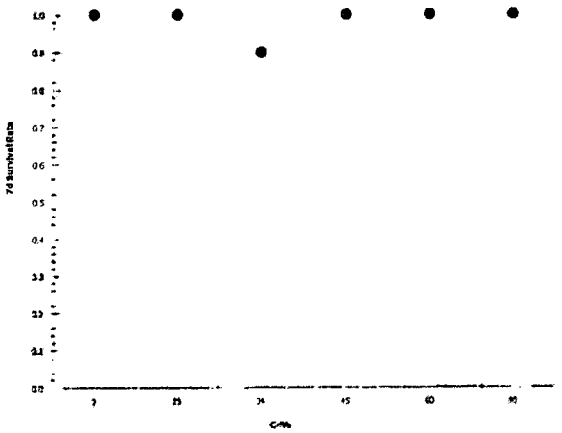
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	1	1	1	1	1	1	1
34		1	1	1	1	1	1	1	1	1	0
45		1	1	1	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		1	1	1	1	1	1	1	1	1	1

7d Survival Rate Binomials

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

Analysis ID:	16-1485-7933	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	17 Jul-13 16:53	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	06-1294-9985	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	17 Jul-13 16:53	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	02-2332-5406	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Jul-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Jul-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	20-2901-4268	**Code:**	78F04CFC	**Client:**	GPAC Crossett
Sample Date:	08 Jul-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	09 Jul-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	18.6%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-0.5746	2.289	5.179	18	0.9506	CDF	Non-Significant Effect
		34	1.326	2.289	5.179	18	0.2793	CDF	Non-Significant Effect
		45	-0.0442	2.289	5.179	18	0.8461	CDF	Non-Significant Effect
		60	0.0884	2.289	5.179	18	0.8057	CDF	Non-Significant Effect
		80	0.663	2.289	5.179	18	0.5724	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.9	15 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1856	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	2.769	3.2	0.2583	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	111.75	22.35	5	0.8734	0.5052	Non-Significant Effect
Error	1381.9	25.59074	54			
Total	1493.65		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	6.891	15.09	0.2289	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9603	0.9459	0.0487	Normal Distribution

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	27.9	24.95	30.85	27.5	22	35	1.303	14.77%	0.0%
25		10	29.2	26.28	32.12	30.5	22	34	1.289	13.96%	-4.66%
34		10	24.9	19.69	30.11	24	12	35	2.302	29.23%	10.75%
45		10	28	24.26	31.74	30.5	17	32	1.653	18.67%	-0.36%
60		10	27.7	25.36	30.04	28	22	33	1.033	11.8%	0.72%
80		10	26.4	22.55	30.25	27.5	13	33	1.701	20.37%	5.38%

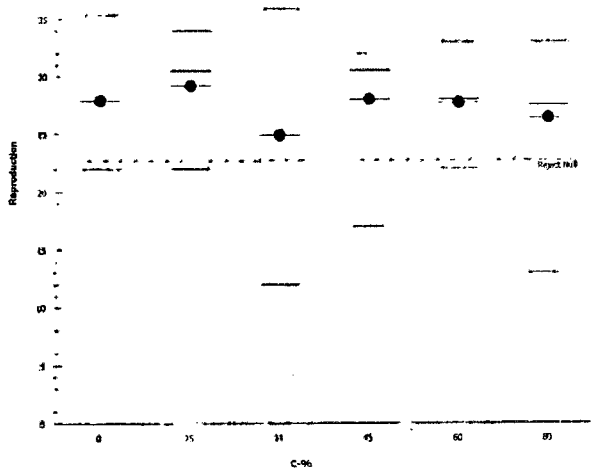
Ceriodaphnia 7-d Survival and Reproduction Test — **ENVIRON International Corp**

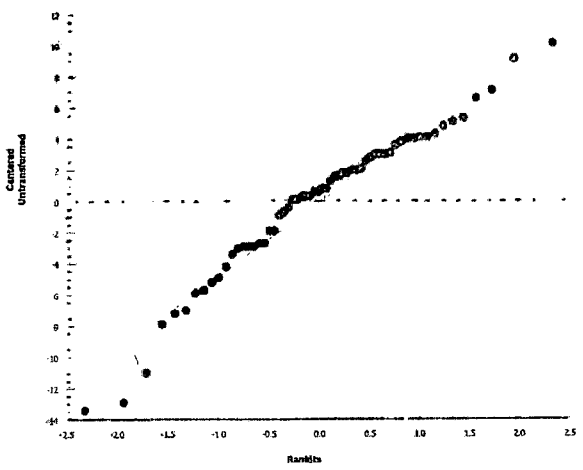
Analysis ID:	06-1294-9985	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	17 Jul-13 16:53	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

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	28	30	32	35	25	27	23	22	26	31
25		33	24	25	31	30	31	22	30	32	34
34		22	34	25	30	35	23	17	29	22	12
45		31	25	30	21	31	31	32	32	17	30
60		28	28	25	25	29	22	32	27	28	33
80		29	33	23	13	27	28	26	30	27	28

Graphics





CETIS Analytical Report

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

Analysis ID:	11-5861-4076	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	17 Jul-13 16:53	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	02-2332-5406	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	09 Jul-13	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	16 Jul-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	20-2901-4268	**Code:**	78F04CFC	**Client:**	GPAC Crossett
Sample Date:	08 Jul-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (JUL)
Receive Date:	09 Jul-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	257882	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	27.9	15 - NL	Yes	Passes Acceptability Criteria

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	2.769	3.2	0.2583	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	27.9	22	35	1.303	4.122	14.77%	0.0%
25		10	29.2	22	34	1.289	4.077	13.96%	-4.66%
34		10	24.9	12	35	2.302	7.279	29.23%	10.75%
45		10	28	17	32	1.653	5.228	18.67%	-0.36%
60		10	27.7	22	33	1.033	3.268	11.8%	0.72%
80		10	26.4	13	33	1.701	5.379	20.37%	5.38%

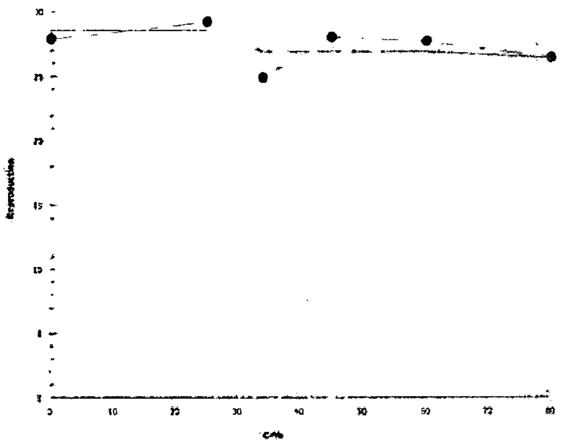
Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	28	30	32	35	25	27	23	22	26	31
25		33	24	25	31	30	31	22	30	32	34
34		22	34	25	30	35	23	17	29	22	12
45		31	25	30	21	31	31	32	32	17	30
60		28	28	25	25	29	22	32	27	28	33
80		29	33	23	13	27	28	26	30	27	28

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

Analysis ID: 11-5861-4076	**Endpoint:** Reproduction		**CETIS Version:** CETISv1.8.4		
Analyzed: 17 Jul-13 16:53	**Analysis:** Linear Interpolation (ICPIN)		**Official Results:** Yes		

Graphics



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

TEST LOG NO.: 16206
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific-Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES (Y/N) : Yes

PHOTOPERIOD: 16 hr light/8 hr dark
FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
TEST VESSEL CAPACITY: 30 mL
TEST SOLUTION VOLUME: 15 mL
NO. ORGANISMS/REPLICATE: 1
NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 7/8/13
TEMP @ TEST START: 24.2
RANDOMIZED BY: LM

SOURCE ID:	AGE (time):
10305	1628 - 2244
10308	1630 - 2309

TEST START:
HOURS: 1015 DATE: 7/9/13

TEST END:
HOURS: 1215 DATE: 7/16/13

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult	8	20	3	1	7	14	9	19	3	18	
LM 1015		7/9	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1012	7/10	24.5	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1250	7/11	24.5	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1229	7/12	24.3	24.2	Day 3	4	4	✓	✓	3	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.3	24.2	Day 4	✓	✓	3	5	✓	4	3	3	4	5	
	AW 1030	7/14	24.5	24.4	Day 5	7	11	13	14	9	8	7	7	8	11	
	AW 1058	7/15	24.1	24.6	Day 6	✓	15	✓	16	13	✓	✓	12	✓	✓	506
AW 1215		7/16		24.5	Day 7	17	14	16	✓	✓	15	13	✓	14	15	100
					Day 8											
					Total	28	30	32	35	25	27	23	22	26	31	279

x.75 = 209

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

TEST LOG # 162016 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AH 1015		7/9	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1012	7/10	24.4	24.3	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1253	7/11	24.1	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1229	7/12	24.4	24.2	Day 3	5	4	3	✓	✓	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.1	24.6	Day 4	✓	7	✓	7	4	5	4	5	6	4	
	AW 1030	7/14	24.4	25.3	Day 5	11	13	8	11	10	11	11	9	11	12	
	AW 1058	7/15	24.1	24.8	Day 6	17	✓	14	13	16	15	7	16	✓	✓	
AW 1215		7/16		24.2	Day 7	19	14	16	✓	✓	✓	✓	✓	16	18	100
					Day 8											
			Total			33	24	25	31	30	31	22	30	32	34	297

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 34% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AH 1015		7/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1012	7/10	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1253	7/11	24.3	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1229	7/12	24.4	24.3	Day 3	3	5	4	✓	✓	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.4	25.1	Day 4	6	✓	✓	5	7	4	5	4	2	3	
	AW 1030	7/14	24.2	25.5	Day 5	13	12	6	9	11	8	✓	11	7	9	
	AW 1058	7/15	24.1	25.2	Day 6	✓	17	15	16	✓	11	12	14	13	✓	80%
AW 1215		7/16		24.7	Day 7	20	15	18	17	17	✓	✓	✓	✓	D/0	
					Day 8											
			Total			22	34	25	30	35	23	17	29	22	12	249

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

TEST LOG # 16206 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
LH 1015		7/9	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1012	7/10	24.4	24.6	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1253	7/11	24.5	24.3	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1225	7/12	24.4	24.3	Day 3	✓	✓	3	4	5	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.5	24.4	Day 4	5	1	✓	5	✓	5	6	5	5 AW	6	
	AW 1032	7/14	24.3	25.0	Day 5	12	11	11	12	11	11	12	7	12	11	
	AW 1058	7/15	24.5	24.6	Day 6	14	13	16	✓	15	15	14	3	✓	13	
AW 1215		7/16		24.8	Day 7	✓	17	19	18	17	✓	✓	17	4	17	202
					Day 8											
			Total			31	25	30	2/31	31	32	32	17	30	280	

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
LH 1015		7/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1012	7/10	24.3	24.2	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AH 1253	7/11	24.4	24.2	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1225	7/12	24.3	24.2	Day 3	✓	✓	✓	✓	5	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.4	24.9	Day 4	5	✓	✓	7	✓	3	4	4	5	4	
	AW 1032	7/14	24.4	25.5	Day 5	7	5/9	8	10	9	8	11	10	8	12	eggs + body size
	AW 1058	7/15	24.6	24.9	Day 6	✓	14	17	14	15	11	✓	13	15	✓	
AW 1215		7/16		24.8	Day 7	16	✓	✓	17	18	✓	17	✓	✓	17	
					Day 8											
			Total			28	28	25	25	29	22	32	27	28	33	277

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

TEST LOG # 16206 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
LM 1015		7/9	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1012	7/10	24.2	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1253	7/11	24.4	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1229	7/12	24.3	24.4	Day 3	5	4	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1207	7/13	24.4	24.3	Day 4	✓	✓	✓	✓	✓	6	4	3	5	3	
	AW 1030	7/14	24.7	25.2	Day 5	9	11	4/8	5	7	9	7	8	9	9	split based on size
	AW 1058	7/15	24.6	24.8	Day 6	15	17	11	8	9	✓	15	✓	13	16	
AW 1215		7/16		25.0	Day 7	✓	✓	19	✓	11	14	✓	19	✓	✓	
					Day 8											
			Total			29	33	23	13	27	28	26	30	27	28	264

5% < Rep

14% < MMH

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 1015		7/9	24.4		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1012	7/10	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1253	7/11	24.4	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1229	7/12	24.3	24.2	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1207	7/13	24	24.4	Day 4	6	5	4	5	3	5	5	4	5	2	
	AW 1030	7/14	24.8	25.1	Day 5	14	14	10	13	9	13	9	11	9	10	
	AW 1058	7/15	24.9	24.8	Day 6	✓	17	✓	✓	✓	✓	✓	✓	17	14	
AW 1215		7/16		24.8	Day 7	12	✓	14	15	15	14	16	15	✓	✓	100
					Day 8											
			Total			35	36	26	33	27	32	30	30	31	26	308

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

TEST LOG # 16206 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% filtered Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1015		7/9	24.9		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1012	7/10	24.4	24.5	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1253	7/11	24.3	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1224	7/12	24.4	24.2	Day 3	4	5	4	✓	5	4	✓	✓	✓	✓	
	AW 1207	7/13	24.6	25.1	Day 4	✓	✓	✓	5	✓	✓	3	✓	~~3~~	~~3~~	
	AW 1030	7/14	24.9	25.1	Day 5	11	9	8	9	8	8	7	6	9	8	
	AW 1058	7/15	24.8	25.0	Day 6	12	12	10	11	✓	15	✓	9	13	10	
AW 1215		7/16		25.3	Day 7	✓	17	✓	✓	✓		✓	5	✓	✓	
					Day 8											
			Total			27	26	22	23	13	27	10	20	~~24~~	21	213

25.6 RW

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration Temp (°C)		REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Day 0										
					Day 1										
					Day 2										
					Day 3										
					Day 4										
					Day 5										
					Day 6										
					Day 7										
					Day 8										
			Total												

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

TEST LOG NO. 16206

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Cd

DATE: 7/9/13

D.O. (mg/L)

Concentration (%)	Start	Day 1 Old	Day 1 New	Day 2 Old	Day 2 New	Day 3 Old	Day 3 New	Day 4 Old	Day 4 New	Day 5 Old	Day 5 New	Day 6 Old	Day 6 New	Day 7
RW	8.3	81	73	85	81	8.2	8.4	8.0	8.4	76	86	85	8.0	
25	8.2	84	81	84	82	8.2	8.4	8.4	8.5	78	87	82	7.8	
34	8.3	82	76	84	84	8.1	8.0	8.3	8.5	76	86	84	7.8	
45	8.3	82	74	84	85	8.2	8.6	8.7	8.3	76	85	84	7.9	
60	8.2	81	77	84	85	8.4	8.0	8.2	8.3	77	86	83	8.0	
80	8.0	80	78	83	85	8.4	8.4	8.1	8.3	77	85	82	8.0	
MH	8.5	83	74	85	8.2	8.5	8.5	8.5	8.2	76	87	84	7.8	
80 filtered	8.1	80	76	85	84	8.4	8.4	8.3	7.8	8.1	83	82	8.0	

pH (s.u.)

7.56 (noted above Day 3 Old)

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	7.27	755	714	785	780	~~786~~	7.46	7.62	7.09	744	791	790	7.66	7.66
25	7.61	824	777	768	756	8.25	7.82	8.33	7.70	835	759	793	7.74	8.28
34	7.74	839	7.89	8.17	775	8.45	7.88	8.45	7.74	851	769	834	7.81	8.40
45	7.82	849	796	8.46	782	8.58	7.92	8.59	7.77	860	776	848	7.86	8.57
60	7.89	860	797	8.49	785	8.60	7.99	8.66	7.81	871	778	8.53	7.87	8.61
80	7.93	870	798	8.58	789	8.71	8.00	8.74	7.84	874	780	8.71	7.89	8.69
MH	7.91	7.82	798	781	791	7.86	7.96	7.80	8.01	788	7.99	793	8.00	7.85
80 filtered	8.15	8.75	8.09	8.79	8.13	8.76	8.27	8.87	8.04	8.83	8.02	874	8.03	8.75

Conductivity (µmhos/cm)

826 (noted above Day 4)

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	121	88	73	140	124	122	88	128	79	132	130	110	120	132
25	692	644	620	699	646	1052	720	731	631	659	620	511	635	1052
34	884	838	834	964	847	977	796	~~822~~	872	882	848	803	844	854
45	1140	1067	1080	1161	1052	1183	1703	1130	1049	969	1108	1052	1094	1145
60	1401	1350	1374	1490	1414	1336	1409	1542	1446	1390	1453	1414	1383	1433
80	1859	1776	1823	1841	1679	1876	1793	1553	1851	1768	1849	1755	1789	1820
MH	209	200	206	264	259	226	214	226	209	258	251	242	227	256
80 filtered	1785	1728	1773	1860	1757	1803	1844	1944	1919	1862	1866	1849	1738	1836
Params Intl/Time:	OK 0900	HM 1105	LM 0904	AK 1310	AW 0946	OK 1330	OK 0845	OK 1315	AW 1138	AW 1230	AW 0914	AW 1545	AW 0916	OK 1430
Dilutions Intl/Time:	OK 0850		HM 0850		AW 0932		OK 0830		AW 1125		AW 0910		AW 0906	
Control Water Batch#:	5257 RW16414		5257		5260 RW16424		5260		5261 RW16428		5261, RW16428		5261, RW16428	
Food Batch	43 74 43 53		74,53		74,53		82,53		82,53		85,53		85,83	

TEST LOG NO. 16206 CLIENT: Georgia Pacific Crossett DATE OF TEST: 7/9/13

JOB NO. 20-19675G TEST TYPE(S) PERFORMED: CD Chronic

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
16415	Outfall 001	7-8-13	7/9/13	284	456	0.04	3.27
16425	Outfall 001	7/9-10/13	7/11	288	482	<0.02	4.47
16429	Outfall 001	7/9-10/13	7/13/13	296	471	<0.02	4.30
Same sample as 16425							

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
16414	River Water	7/8/13	7/9/13	24	28	0.07	<0.1
16424	RW			272	25	0.02	<0.1
~~16428~~ 30	RW	7/11/13	7/13/13	26.4	24	0.03	0.13

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

Sample Receipt Checklist:

Client: GPC

Date/Time received 7/9/13 0815 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
130414	RW	2.4	7.04	8.3	0.07
130415	Outfall001	Ao1	7.93	8.07	0.04

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ENVIRON Test Log No. 16206

Project Name: | Project Number:

Industry: Georgia Pacific Paper

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

County: ASHLEY City: CROSSETT State: AR

Sample Collected by (print): Danny / Rachel

Sample Collected by (signature):

NPDES Permit No.: AR0001210

NPDES Test: ☐ No ☑ Yes

CHAIN-OF-CUSTODY

ENVIRON

201 Summit View Drive, Suite 300
Brentwood, TN 37027
PHONE: (615) 377-4775
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	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	7-8-13 10:10AM	7-8-13	2	20										Dilution Water	16414
Outfall 001	C	Plastic	Yes	7-7-13 5:02AM	7-8-13 10:17AM	1	4					✓	✓					16415

Analysis Requested

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
[signature]	7-8-13	3:00p	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature): [signature]

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

Condition: good (lab use only)

Receipt Temp: 2.4 - 2.1

Containers/Volume Received: 3 10-L

Date: 7/9/13

Time: 0815

pH upon arrival: 1) 7.04 2) 7.93

DO upon arrival: 8.2 8.7

Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 7/1/13 0834 by AH

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
16424	River Water	1.1	~~8.07~~ 7.54	6.9	0.06
16425	Outfall 001	2.2	7.87	8.2	<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 9070
County: Ashley City: Crossett State: AR
Sample Collected by (print): Danny / Rachel
NPDES Permit No.: AR0001210
Sample Collected by (signature):
NPDES Test: ☐ No ☐ Yes

Analysis Requested

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
River	G	Plastic	NA	7-8-13 10:10AM	7-8-13	2	20										Dilution Water	16428
Outfall 001	C	Plastic	Yes	7-9-13 10:25AM	7-10-13 10:11AM	2	20					✓	✓					16429
				Arrived 7/11/13													and logged	
																		16495

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
[signature]	7-10-13	3:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 2.1, 1.6	Containers/Volume Received: 4 / 40
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 7/12/13	Time: 0845
				pH upon arrival: 7.42, 7.79	DO upon arrival: 8.6, 9.1

ENVIRON Test Log No. 16296

23 of 27

Sample Receipt Checklist:

Client: GP Crossett

Date/Time received 7/12/13 0845 by AR

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
10428	RW	2.0	7.42	8.6	0.03
~~10429~~	~~OUTFALL~~	~~1.0~~	~~7.79~~	~~9.1~~	~~<0.02~~

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ENVIRON Test Log No. 162396

Project Name: | Project Number:

Industry: Georgia Pacific Paper

Phone: 8705678170 FAX: 8703649076

County: Ashley City: Crossett State: AR

Sample Collected by (print): Danny / Rachel

Sample Collected by (signature):

NPDES Permit No.:

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	7-11-13 11 11AM	7-11-13	2	20										Dilution Water	160430

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

Remarks:

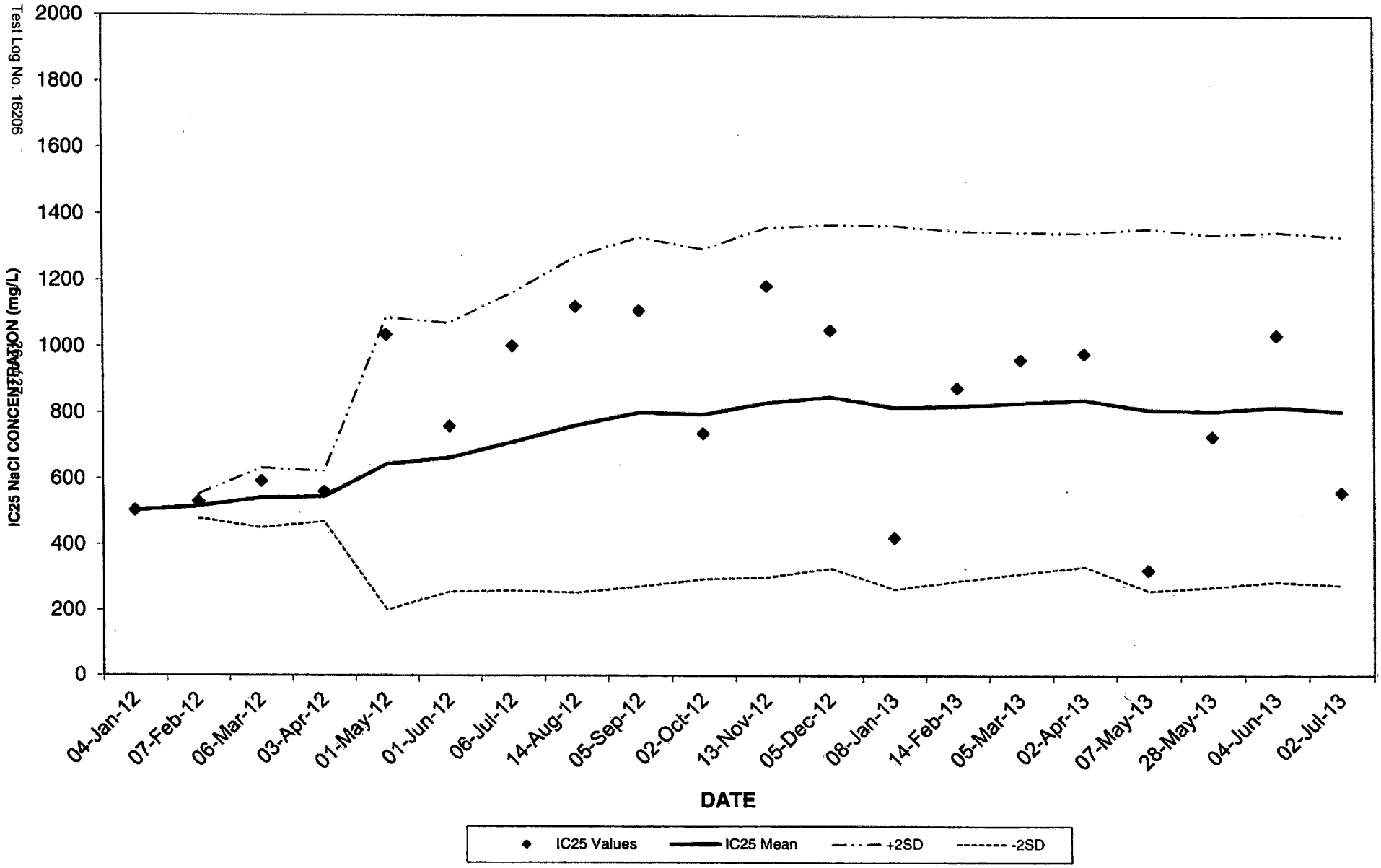
Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☑ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 1.6	Containers/Volume Received: 2 10
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/12/13	Time: 0845 pH upon arrival: DO upon arrival:

ENVIRON Test Log No. 16206

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2013

Ceriodaphnia dubia

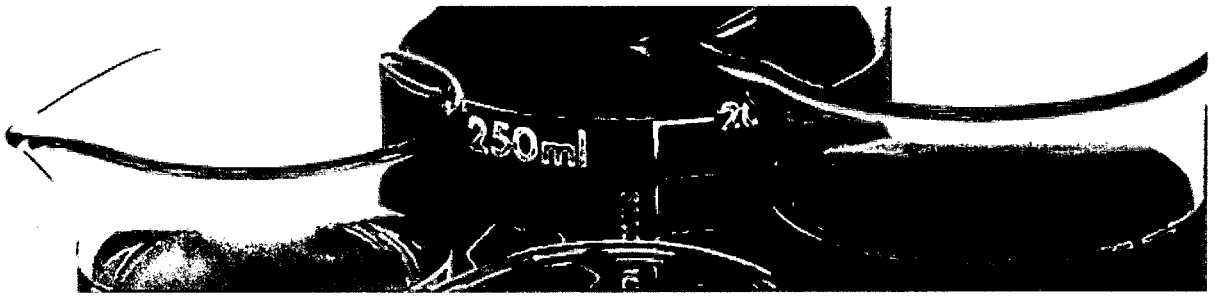


Ceriodaphnia dubia CHRONIC REFERENCE TOXICANT TESTING - SODIUM CHLORIDE (NaCl) 2012-2013

ENVIRON Test Log No. 16206

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	14055	04-Jan-12	90	80	25.4	1,000	2,000	500	1,000	46.4	504	504				0
2	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	517	18	554	480	3
3	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	542	45	632	452	7
4	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	547	38	622	471	6
5	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	644	221	1,087	202	31
6	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	664	203	1,070	257	28
7	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	712	226	1,163	261	29
8	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	763	254	1,271	255	31
9	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	802	264	1,330	273	31
10	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	795	250	1,295	295	30
11	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	830	264	1,359	302	30
12	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.6	1050	849	260	1,369	329	29
13	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	816	276	1,367	264	32
14	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	820	265	1,351	289	31
15	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	829	258	1,346	313	30
16	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	839	252	1,343	334	29
17	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	808	275	1,358	259	33
18	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	804	267	1,338	269	32
19	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1034	816	265	1,346	286	32
20	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.1	556	803	264	1,332	274	32
Avg			98	95	30	1575	750	488	981	21	803	735	219	1186	309	

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 2013

Project Number:
20-19675E

ENVIRON

ENVIRON

September 9, 2013

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

Re: Chronic Toxicity Test Results - August 2013
ENVIRON Project No. 20-19675E

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 August 12, 14, and 16, 2013. The samples were received at ENVIRON on August 13, 15, and 17, 2013, within the USEPA-required receipt temperature range of 0-6.0 °C. The grab samples of river water were received in good condition on the same days as the effluent samples. Test organisms utilized for the chronic toxicity tests were the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* (*C. dubia*). The tests were initiated upon receipt of the first sample. Test concentrations consisted of 25, 34, 45, 60, and 80 percent effluent and a river water control. A secondary control of moderately hard water was also initiated. All control organisms met USEPA test acceptability criteria. The results of the chronic toxicity tests are as follows:

TEST RESULTS FOR OUTFALL 001 EFFLUENT

Permit Limits	Fathead Minnow	*C. dubia*
NOEC Value 80% (lethality)	80%	80%
NOEC Value 80% (sub-lethality)	80%	80%

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

The river water control for the fathead minnow test met USEPA criteria for test acceptability. The Coefficient of Variation (CV) values for survival in the control and critical dilution are zero and eight percent, respectively. The CV values for growth in the control and critical dilution are nine

and seven percent, respectively, and are below the CV limit of 40 percent for findings of no toxicity. The Percent Minimum Significant Difference (PMSD) value was 19 percent, which is within the USEPA PMSD bounds of 12 to 30 percent for fathead minnow growth. The effluent concentration-response curve can be described as a Type 10 dose response in EPA 821-B-00-004 *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing.* A Type 10 response is characterized by an adverse effect, an increase in fish growth as the test concentrations increase. This test is considered valid for assessment of permit compliance. The monthly reference toxicant test also met all the test acceptability criteria.

All *C. dubia* test controls met USEPA criteria for test acceptability. The reproduction CV values for the control and critical dilution are 24 and 19 percent respectively, which meets the Test Acceptability Criteria (TAC) limit of 40 percent for a finding of no toxicity. The PMSD value was 21 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

Richard E. Lockwood
Project Manager

Robin L. Richards, REM
Principal

DATA REVIEW FORM

ACUTE AND CHRONIC WET TESTS

ENVIRON International Corporation

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

Scott Hall, Manager
Ecotoxicology Group

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

Attachment 1:
Statistical Analysis and Raw Data Sheets

CETIS Analytical Report

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

Analysis ID:	11-8776-3178	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	05 Sep-13 8:52	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Sample ID:	19-1334-0385	**Code:**	720B41E1	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	13 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	NA	C > T	NA	NA	80	>80	NA	1.25	6.46%

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	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		45	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		60	27.5	16	1	8	0.8333	Asymp	Non-Significant Effect
		80	20	16	1	8	0.1899	Asymp	Non-Significant Effect

Test Acceptability Criteria

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

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04947025	0.009894051	5	3.52	0.0158	Significant Effect
Error	0.06745943	0.00281081	24			
Total	0.1169297		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	445.4	15.09	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.762	0.9031	<0.0001	Non-normal Distribution

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	1	1	1	1	1	1	0	0.0%	0.0%
25		5	0.975	0.9056	1	1	0.875	1	0.025	5.73%	2.5%
34		5	1	1	1	1	1	1	0	0.0%	0.0%
45		5	1	1	1	1	1	1	0	0.0%	0.0%
60		5	1	1	1	1	1	1	0	0.0%	0.0%
80		5	0.925	0.84	1	0.875	0.875	1	0.03062	7.4%	7.5%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Wate	5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
25		5	1.356	1.254	1.458	1.393	1.209	1.393	0.03673	6.06%	2.64%
34		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
45		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
60		5	1.393	1.393	1.393	1.393	1.393	1.393	0	0.0%	0.0%
80		5	1.283	1.158	1.408	1.209	1.209	1.393	0.04499	7.84%	7.91%

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1	1	1	1	1
25		1	1	1	0.875	1
34		1	1	1	1	1
45		1	1	1	1	1
60		1	1	1	1	1
80		1	0.875	0.875	1	0.875

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

Analysis ID:	11-8776-3178	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	05 Sep-13 8:52	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

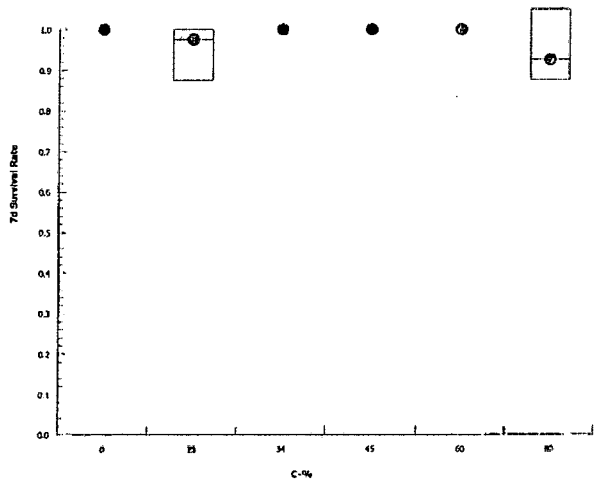
Angular (Corrected) Transformed Detail

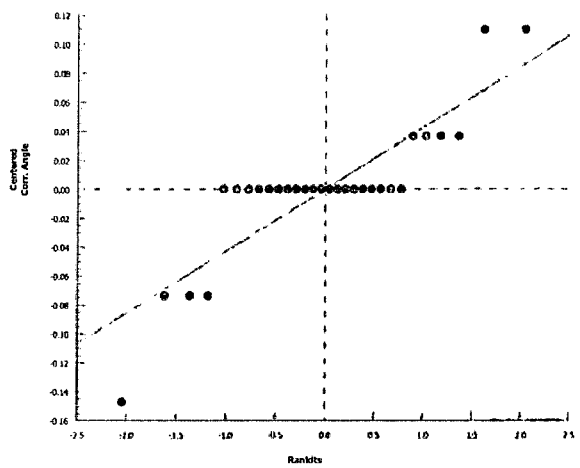
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	1.393	1.393	1.393	1.393	1.393
25		1.393	1.393	1.393	1.209	1.393
34		1.393	1.393	1.393	1.393	1.393
45		1.393	1.393	1.393	1.393	1.393
60		1.393	1.393	1.393	1.393	1.393
80		1.393	1.209	1.209	1.393	1.209

7d Survival Rate Binomials

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

Graphics





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

Analysis ID:	12-8319-0459	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	05 Sep-13 8:56	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes
Sample ID:	19-1334-0385	**Code:**	720B41E1	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	13 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	18.8%

Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	-3.161	2.362	0.129	8	1.0000	CDF	Non-Significant Effect
		34	-0.7166	2.362	0.129	8	0.9645	CDF	Non-Significant Effect
		45	-2.614	2.362	0.129	8	0.9999	CDF	Non-Significant Effect
		60	-4.814	2.362	0.129	8	1.0000	CDF	Non-Significant Effect
		80	-3.648	2.362	0.129	8	1.0000	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.684	0.25 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1879	0.12 - 0.3	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2451131	0.04902261	5	6.621	0.0005	Significant Effect
Error	0.1776925	0.007403853	24			
Total	0.4228055		29			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	5.783	15.09	0.3279	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9415	0.9031	0.1000	Normal Distribution

Mean Dry Biomass-mg Summary

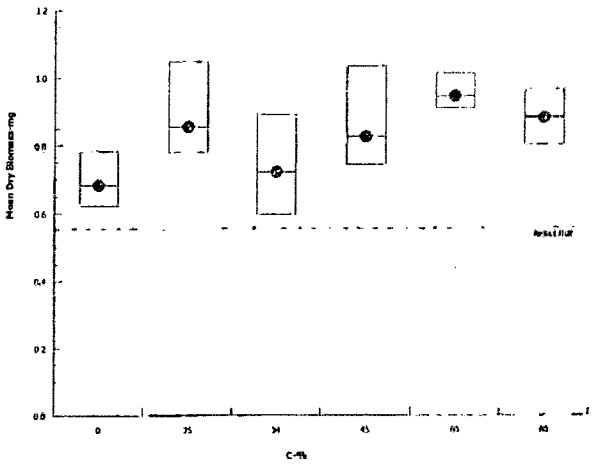
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	5	0.684	0.6073	0.7607	0.6687	0.6237	0.7688	0.02762	9.03%	0.0%
25		5	0.856	0.7356	0.9764	0.82	0.7813	1.014	0.04337	11.33%	-25.15%
34		5	0.723	0.5646	0.8814	0.7088	0.5975	0.8788	0.05705	17.64%	-5.7%
45		5	0.8262	0.7058	0.9467	0.7813	0.745	0.99	0.04339	11.74%	-20.8%
60		5	0.946	0.8972	0.9948	0.9425	0.91	1.011	0.01758	4.16%	-38.3%
80		5	0.8825	0.8043	0.9607	0.8875	0.8038	0.9675	0.02818	7.14%	-29.02%

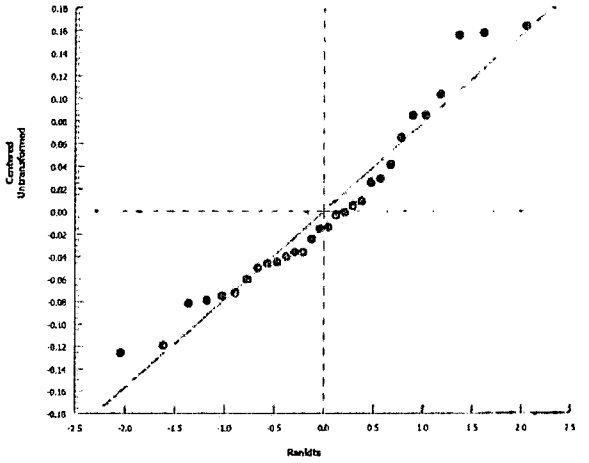
Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.6237	0.7688	0.6337	0.6687	0.725
25		1.014	0.7813	0.7838	0.8812	0.82
34		0.5975	0.8788	0.6037	0.8262	0.7088
45		0.99	0.835	0.745	0.78	0.7813
60		0.945	0.91	1.011	0.9425	0.9212
80		0.8038	0.8425	0.9113	0.8875	0.9675

Analysis ID:	12-8319-0459	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	05 Sep-13 8:56	**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:	15-6971-8455	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.8.4
Analyzed:	05 Sep-13 8:56	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Sample ID:	19-1334-0385	**Code:**	720B41E1	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	13 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	559524	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.684	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

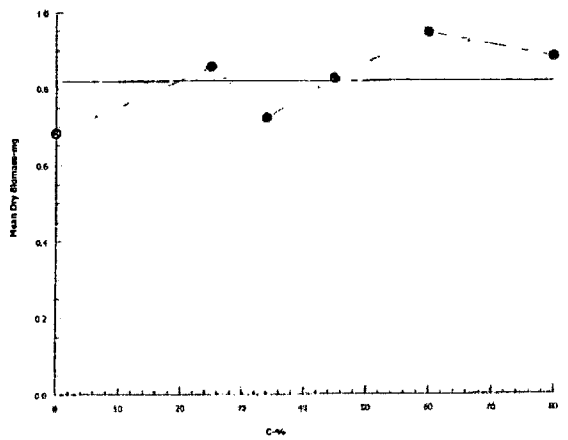
Mean Dry Biomass-mg Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	5	0.684	0.6237	0.7688	0.02762	0.06175	9.03%	0.0%
25		5	0.856	0.7813	1.014	0.04337	0.09699	11.33%	-25.15%
34		5	0.723	0.5975	0.8788	0.05705	0.1276	17.64%	-5.7%
45		5	0.8262	0.745	0.99	0.04339	0.09703	11.74%	-20.8%
60		5	0.946	0.91	1.011	0.01758	0.03931	4.16%	-38.3%
80		5	0.8825	0.8038	0.9675	0.02818	0.063	7.14%	-29.02%

Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Receiving Water	0.6237	0.7688	0.6337	0.6687	0.725
25		1.014	0.7813	0.7838	0.8812	0.82
34		0.5975	0.8788	0.6037	0.8262	0.7088
45		0.99	0.835	0.745	0.78	0.7813
60		0.945	0.91	1.011	0.9425	0.9212
80		0.8038	0.8425	0.9113	0.8875	0.9675

Graphics



TEST LOG NO. 16266

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Fm

DATE: 8/18/13

ENVIRON Test Log No. 16266

11 of 39

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

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	7.79	7.95	7.91	7.74	7.46	7.70	7.51	7.52	7.29	7.30	7.29	7.93	8.42	7.68
25	7.89	8.03	7.81	7.72	7.86	7.76	7.75	7.64	7.93	7.58	7.95	7.73	7.95	7.69
34	7.97	8.09	7.82	7.92	7.91	7.94	7.90	8.07	7.99	7.95	7.99	7.87	7.98	7.72
45	8.01	8.17	7.96	8.13	7.97	8.00	7.97	8.14	8.03	8.01	8.02	8.06	8.02	7.87
60	8.04	8.41	7.98	8.24	8.02	8.19	8.04	8.20	8.04	8.12	8.04	8.11	8.05	8.03
80	8.08	8.52	8.01	8.28	8.05	8.26	8.03	8.26	8.03	8.18	8.03	8.22	8.06	8.13
MH	7.93	7.83	7.82	7.66	7.76	7.79	8.05	7.80	8.01	7.84	8.01	7.80	7.99	7.58

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	83	129	91	138	90	110	75	100	84	111	83	146	165	155
25	556	609	650	704	1014	701	603	605	587	1003	1003	886	652	671
34	765	858	856	919	905	909	832	820	853	822	906	402	461	492
45	1005	1076	1068	1174	1110	1114	1071	1050	1093	1035	1098	1176	1079	1131
60	1207	1382	1339	1449	1477	1468	1391	1383	1405	1381	1428	1426	1440	1468
80	1671	1753	1753	1891	1908	1896	1831	1776	1887	1800	1894	1857	1836	1856
MH	215	242	241	272	221	218	210	230	227	251	225	384	272	357

Params Intl/Time:	AW 1037	AW 0809	AW 1645	AW 0742	AW 0950	LMD1657	LW 0731	AW 0562	AW 1038	AW 0806	AW 0937	AW 0755	AW 0841	AW 0735
Dilutions Intl/Time:	AW 1027		AW 1000		AW 0942		LMD1657		AW 1028		AW 0927		AW 0839	
Control Water Batch:	RW 16552 5290		RW 16552 m 5292		RW 16552 MH 5292		RW 16552 MH 5292		16575, 5292		16575, 5295		16575, 5295	
Food Batch	4378		4378		4378		4378		4378		4378		4378	

TEST LOG NO. 16266 CLIENT: Georgia Pacific Crossett DATE OF TEST: 8/13/13

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

100% EFFLUENT

Batch #	Sample ID	Sample Date	1st Use Date	Hardness mg/L CaCO3	Alkalinity mg/L	TRC mg/L	NH_3N mg/L
16553	Outfall 001	8/11-12/13	8/13/13	~~525~~ 268	525	0.07	1.99
16827	Outfall001	8/13-14/13	8/15/13	248	505	0.11	1.99
16574	Outfall001	8/15-16/13	8/17/13	252	505	0.11	2.03

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
16552	River Water	8/12/13	8/13/13	~~34~~ 30.4	34	0.07	<0.1
5890	MH	8/9/13	8/12/13	81.6	48	<0.02	—
16560	RW	8/12/13	8/15/13	24	29	0.06	<0.1
5892	MH	8/12/13	8/14/13	94.4	46	<0.02	—
16575	RW	8/15/13	8/17/13	23.2	22	0.03	<0.1
5894	MH	8/14/13	8/17/13	38.3	41	<0.02	—

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

TEST LOG NO.: 16266
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES: Yes Y No
FOOD BATCH: 4378

BEGINNING: HRS 1400 DATE: 8/13/13
ENDING: HRS: 1337 DATE: 8/20/13
TEST DILUTIONS: 25, 34, 45, 60, 80%
ORGANISM AGE (date): 8/12/13
ORGANISM SOURCE: ELT# 4415
SOURCE TEMP @ TEST START: 24.4
RANDOMIZED BY: LM

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

CONC (%)	REP ID	SURVIVAL (#) START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
RW	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.8	24.4/24.4	24.4/24.5	24.4/24.7	24.2/24.4	24.3/24.3	24.4/24.6	24.2
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	7	7	7	7	7
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	24.9	24.3/24.6	24.3/24.6	24.5/24.6	24.1/24.6	24.1/24.3	24.1/24.2	24.7
34	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	25.4	24.4/24.4	24.4/24.4	24.4/24.8	24.4/24.3	24.1/24.1	24.1/24.1	24.7
45	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
	Temp(°c):old/new	25.2	24.5/24.3	24.5/24.5	24.6/24.6	24.2/24.3	24.1/24.4	24.1/24.0	24.6
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	24.9/24.5	24.8/24.4	24.6/25.2	24.3/24.6	24.3/24.1	24.1/24.1	24.5
80	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	7
	C	8	8	8	7	7	7	7	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8 AW	8 7 8/20/13
	Temp(°c):old/new	24.3	24.6/24.6	24.6/24.8	24.6/24.7	24.4/24.5	24.1/24.1	24.1/24.0	24.6
Test Renewal	Time	1400	1304	1048	1126	1124	1115	1007	1337
	Date	8/13/13	8/14/13	8/15/13	8/16/13	8/17/13	8/18/13	8/19/13	8/20/13
	Initials	LM	AW	HM	HM	AW	AW	AW	AW
morning feeding	Int/Time	[illegible]	LM0850	LM0700	LM0750	AW0735	AW0740	LM0720	[illegible]
afternoon feeding	Int/Time	AW1624	1511 AW	HM1580	HM 1545	AW1520	AW1500	AW1620	[illegible]

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

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

TEST LOG NO.: 16260
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific Crossett
EFFLUENT: 001
DILUTION WATER: River Water
NPDES: Yes X No
FOOD BATCH: 4379

BEGINNING: HRS: 1400 DATE: 8/13/13
ENDING: HRS: ____ DATE: ____

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

CONC (%)	REP ID	SURVIVAL (#)							
		START	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MH	A	8	8	8	8	8	8	8	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	24.4/24.5	[illegible]/24.4	24.7/24.4	24.8/24.3	24.6/24.1	24.2/24.1	24.2
	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 TEST
EPA-821-R-02-013 Method 1000.0

TEST LOG NO.: 16266 BEGINNING: HRS: 1400 DATE: 8/13/13
JOB NO.: 20-19675G ENDING: HRS: 1337 DATE: 8/20/13
INDUSTRY: Georgia Pacific-Crossett
EFFLUENT: Outfall 001 NO. ORGANISMS/TREATMENT: 8
NPDES: Yes ____ No ____ NO. REPLICATES: 5

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

		GROWTH RESULTS						
CONC (%)	REP ID	Boat ID 26	Tare wt (g)	Combined wt (g)	Tot Fish wt (g)	# of Fish	Fish Wt (mg) Per Final # of Fish	
RW	A	1	1.11293	1.11782	0.00489	8	0.611	
	B	2	1.12007	1.12622	0.00615	8	0.769	AVG Control
	C	3	1.11812	1.12319	0.00507	8	0.633	Fish wt. 0.683 mg
	D	4	1.09822	1.10357	0.00535	8	0.669	(using final #)
	E	5	1.13526	1.14106	0.00580	8	0.725	
1.1 25 3186	A	6	~~1.13526~~	1.13997	0.00811	8		
1.09367	B	7	~~1.13186~~	1.09992	0.00685	8		
	C	8	1.07191	1.07918	0.00727	8		Oven ID: 1
	D	9	1.17977	1.12682	0.00705	7		
	E	10	1.06945	1.07501	0.00556	8		Tins In:
34	A	11	1.08005	1.08483	0.00478	8		Date: 8/20/13
	B	12	1.07725	1.08428	0.00703	8		Time: 1506
	C	13	1.06993	1.07476	0.00483	8		Temp (°C): 103
	D	14	1.07921	1.08582	0.00661	8		Initials: AW
	E	15	1.13249	1.13816	0.00567	8		
45	A	16	1.08561	1.09353	0.00792	8		Tins Out:
	B	17	1.05641	1.06309	0.00668	8		Date: 8/20/13
	C	18	1.11798	1.12394	0.00596	8		Time: 1350
	D	19	1.13647	1.14371	0.00724	8		Temp (°C): 100
	E	20	1.09791	1.10416	0.00625	8		Initials: HM
60	A	21	1.07019	1.07775	0.00756	8		
	B	22	1.08881	1.09609	0.00728	8		
	C	23	1.11746	1.12555	0.00809	8		
	D	24	1.07570	1.08324	0.00754	8		
	E	25	1.08868	1.09545	0.00737	8		
80	A	26	1.07620	1.08263	0.00643	8		FINAL WEIGHTS
	B	27	1.06496	1.07170	0.00674	7		
	C	28	1.04086	1.04815	0.00729	7		DATE: 8/20/13
	D	29	1.04237	1.04947	0.00710	8		INITIALS: HM
	E	30	1.06153	1.06907	0.00819	7		
MH	A	31	1.08741	1.09339	0.00598	8		
	B	32	1.08113	1.08524	0.00411	8		
	C	33	1.09647	1.10040	0.00393	8		
	D	34	1.12654	1.13161	0.00507	8		
	E	35	1.06025	1.06460	0.00435	8		
	Initials / Date:		AW 8/19	HM 8/24				

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

Analysis ID:	17-7688-3460	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Aug-13 10:05	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes
Batch ID:	19-5314-9287	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	13 Aug-13	**Protocol:**	EPA/600/4-91/002 (1994)	**Diluent:**	Receiving Water
Ending Date:	20 Aug-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	11-5848-9459	**Code:**	450D2573	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	20 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

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

Fisher Exact/Bonferroni-Holm Test

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

7d Survival Rate Detail

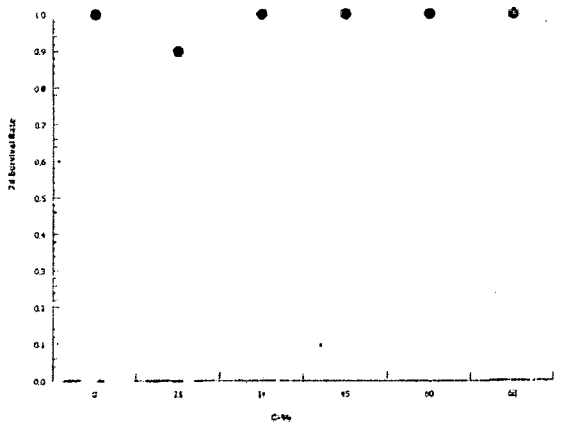
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	1	1	1	1	1	1	1	1	1	1
25		1	1	1	0	1	1	1	1	1	1
34		1	1	1	1	1	1	1	1	1	
45		1	1	1	1	1	1	1	1	1	1
60		1	1	1	1	1	1	1	1	1	1
80		1	1	1	1	1	1	1	1	1	1

7d Survival Rate Binomials

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

Analysis ID:	17-7688-3460	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Aug-13 10:05	**Analysis:**	STP 2x2 Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

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

Analysis ID:	05-4180-3201	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Aug-13 10:05	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes
Batch ID:	19-5314-9287	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	13 Aug-13	**Protocol:**	EPA/600/4-91/002 (1994)	**Diluent:**	Receiving Water
Ending Date:	20 Aug-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	11-5848-9459	**Code:**	450D2573	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	20 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	NA	C > T	NA	NA	80	>80	NA	1.25	21.2%

Wilcoxon/Bonferroni Adj Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Receiving Water		25	130	NA	3	18	1.0000	Exact	Non-Significant Effect
		34	103.5	NA	4	17	1.0000	Exact	Non-Significant Effect
		45	117.5	NA	4	18	1.0000	Exact	Non-Significant Effect
		60	110	NA	2	18	1.0000	Exact	Non-Significant Effect
		80	85	NA	3	18	0.3422	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	25.5	15 - NL	Yes	Passes Acceptability Criteria

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value	4.297	3.193	0.0002	Outlier Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	217.1252	43.42505	5	1.71	0.1483	Non-Significant Effect
Error	1345.722	25.39099	53			
Total	1562.847		58			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	13.34	15.09	0.0204	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8534	0.9451	<0.0001	Non-normal Distribution

Reproduction Summary

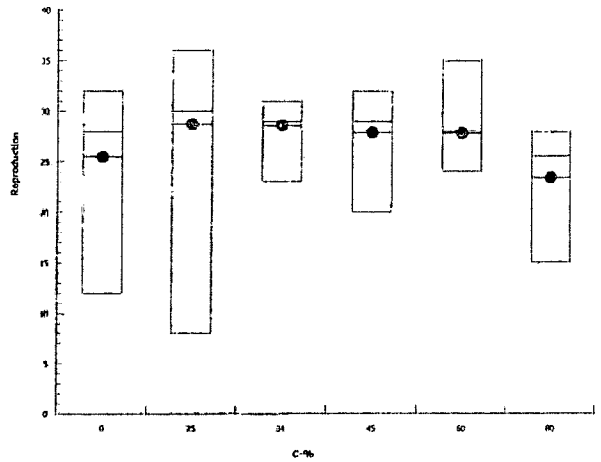
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Receiving Water	10	25.5	21.07	29.93	28	12	32	1.956	24.26%	0.0%
25		10	28.7	23.22	34.18	30	8	36	2.422	26.69%	-12.55%
34		9	28.56	26.63	30.48	29	23	31	0.8352	8.77%	-11.98%
45		10	27.9	24.95	30.85	29	20	32	1.303	14.77%	-9.41%
60		10	27.8	25.49	30.11	28	24	35	1.02	11.6%	-9.02%
80		10	23.4	20.23	26.57	25.5	15	28	1.4	18.92%	8.24%

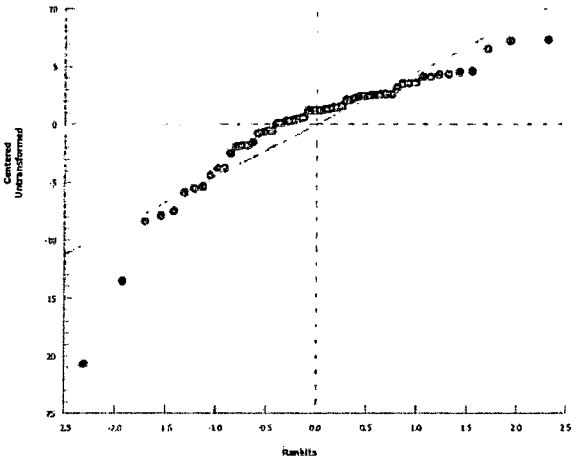
Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	32	18	26	28	29	29	28	30	12	23
25		30	29	30	8	28	31	29	36	33	33
34		29	30	28	23	27	31	31	30	28	
45		26	20	22	28	28	32	31	32	30	30
60		29	26	24	29	29	29	27	26	35	24
80		15	18	28	19	26	24	25	26	27	26

Analysis ID:	05-4180-3201	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Aug-13 10:05	**Analysis:**	Nonparametric-Multiple Comparison	**Official Results:**	Yes

Graphics





CETIS Analytical Report

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

Analysis ID:	07-7108-6339	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.8.4
Analyzed:	21 Aug-13 10:05	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	19-5314-9287	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	
Start Date:	13 Aug-13	**Protocol:**	EPA/600/4-91/002 (1994)	**Diluent:**	Receiving Water
Ending Date:	20 Aug-13	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d 0h	**Source:**	In-House Culture	**Age:**	
Sample ID:	11-5848-9459	**Code:**	450D2573	**Client:**	GPAC Crossett
Sample Date:	12 Aug-13	**Material:**	Industrial Effluent	**Project:**	WET Monthly Compliance Test (AUG)
Receive Date:	20 Aug-13	**Source:**	Discharge Monitoring Report		
Sample Age:	24h	**Station:**	001		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1450162	1000	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	25.5	15 - NL	Yes	Passes Acceptability Criteria

Point Estimates

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

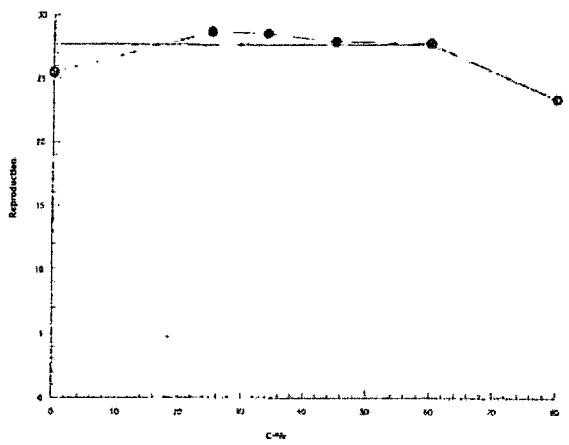
Reproduction Summary

			Calculated Variate						
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Receiving Water	10	25.5	12	32	1.956	6.187	24.26%	0.0%
25		10	28.7	8	36	2.422	7.66	26.69%	-12.55%
34		9	28.56	23	31	0.8352	2.506	8.77%	-11.98%
45		10	27.9	20	32	1.303	4.122	14.77%	-9.41%
60		10	27.8	24	35	1.02	3.225	11.6%	-9.02%
80		10	23.4	15	28	1.4	4.427	18.92%	8.24%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Receiving Water	32	18	26	28	29	29	28	30	12	23
25		30	29	30	8	28	31	29	36	33	33
34		29	30	28	23	27	31	31	30	28	
45		26	20	22	28	28	32	31	32	30	30
60		29	26	24	29	29	29	27	26	35	24
80		15	18	28	19	26	24	25	26	27	26

Graphics



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

TEST LOG NO.: 16266
JOB NUMBER.: 20-19675G
INDUSTRY: Georgia Pacific-Crossett
EFFLUENT: Outfall 001
DILUTION WATER: River Water
NPDES (Y/N) : Yes

PHOTOPERIOD: 16 hr light/8 hr dark
FEEDING REGIME: 0.1 mL YCT / 0.1 mL P. subcapitata per 15 mL
TEST VESSEL CAPACITY: 30 mL
TEST SOLUTION VOLUME: 15 mL
NO. ORGANISMS/REPLICATE: 1
NO. REPLICATES: 10

ORGANISM SOURCE INFORMATION:

AGE (date): 8/12 - 13/13
TEMP @ TEST START: 24.1°C
RANDOMIZED BY: AW

SOURCE ID:	AGE (time):
10340	2300 - 0651
10341a	2300 - 0648
10343	2300 - 0631
10344	2300 - 0700

TEST START: HOURS: 1135 DATE: 8/13/13
TEST END: HOURS: 1502 DATE: 8/20/13

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Control River Water Temp (°C)		REPLICATES (10340 / 10341a / 10343 / 10344)	1	2	3	4	5	6	7	8	9	10	Notes
					Adult	9	12	11	17 ~~16~~	~~17~~ 16	19	3	18	11	7	
AW 1135		8/13	24.1		Day 0	✓	✓	✓	AW ✓	AW ✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.2	24.4	Day 1	✓	✓	✓	✓	✓	—	✓	—	✓	—	
	AW 1001	8/15	24.2	24.4	Day 2	✓	✓	✓	✓	✓	✓	✓	—	—	—	
		8/16	25.0	25.1	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.0	24.3	Day 4	4	3	2	4	6	5	6	5	3	3	
	AW 1003	8/18	24.1	24.3	Day 5	✓	4	✓	✓	7	8	11	10	✓	8	
	AW 0900	8/19	24.2	24.3	Day 6	13	✓	7	10	✓	16	✓	15	✓	✓	
AW 1500		8/20		24.4	Day 7	15	11	17	14	16	✓	11	✓	9	12	90%
					Day 8											
				Total		32	18	26	28	29	29	28	30	12	23	255 x.75 = 191

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

TEST LOG # 16266 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 25% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1135		8/13	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.3	24.4	Day 1	✓	–	–	–	–	–	–	–	–	–	
	AW 1001	8/15	24.3	24.1	Day 2	✓	✓	✓		✓	✓	–	–	✓	✓	
	LM 1111	8/16	25.1	24.8	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.4	24.6	Day 4	4	4	4	3	3	4	4	6	5	5	
	AW 1003	8/18	24.4	24.5	Day 5	8	(1)	8	5	7	9	10	12	13	12	
	AW 0900	8/19	24.3	24.2	Day 6	✓	10	✓	✓	✓	18	15	18	✓	✓	
AW		8/20		24.3	Day 7	18	14	16	10	18	13	17	✓	15	16	
					Day 8											
			Total			30	29	30	28	28	31	29	36	33	33	287

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 1135		8/13	24.2		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.5	24.3	Day 1	✓	–	–	–	–	–	–	–	–	–	
	AW 1001	8/15	24.8	24.4	Day 2	✓	✓	–	✓	✓	✓	–	miss	✓	✓	
	LM 1111	8/16	25.1	24.1	Day 3	✓	✓	✓	✓	✓	✓	✓		✓	✓	
	AW 1051	8/17	24.1	24.6	Day 4	5	4	4	3	4	5	5		3	4	
	AW 1003	8/18	24.1	24.7	Day 5	9	10	8	5	✓	11	9		11	8	
	AW 0900	8/19	24.3	24.7	Day 6	✓	✓	✓	✓	8	15	17		16	✓	
AW		8/20		24.4	Day 7	15	16	16	15	15	16	16		✓	16	
					Day 8											
			Total			29	30	28	23	27	31	31	M-1	30	28	257/8 286

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

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

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TEST LOG # 16266 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 45% Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1135		8/13	24.7		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.3	24.4	Day 1	✓	✓	—	—	—	—	—	—	—	—	
	AW 1001	8/15	24.6	24.4	Day 2	—	—	—	—	—	—	✓	—	—	—	
	AW 1111	8/16	24.9	25.1	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.1	24.5	Day 4	4	3	4	2	4	5	5	3	5	5	
	AW 1003	8/18	24.7	24.7	Day 5	6	5	7	3	9	11	10	11	9	8	
	AW 0900	8/19	24.5	24.4	Day 6	✓	✓	✓	10	✓	16	16	18	✓	✓	
AW		8/20		24.3	Day 7	16	12	11	13	9	✓	17	15	16	17	
					Day 8					15 Surv 8/20						
			Total			26	20	22	28	28	32	31	32	30	30	279

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 1135		8/13	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.2	24.5	Day 1	✓	—	—	—	—	—	—	—	—	—	
	AW 1001	8/15	24.4	24.3	Day 2	—	—	—	—	—	—	—	—	—	—	
	AW 1111	8/16	24.8	24.9	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.5	24.8	Day 4	5	3	3	5	4	6	4	6	6	3	
	AW 1003	8/18	24.3	24.9	Day 5	✓	8	✓	10	9	8	9	11	12	✓	
	AW 0900	8/19	24.4	24.5	Day 6	10	✓	8	✓	✓	✓	✓	✓	17	8	
AW		8/20		24.2	Day 7	14	15	13	14	16	15	10	9 DR	✓	13	
					Day 8											
			Total			29	26	24	29	29	29	27	26	35	24	278

✓ = 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 # 162666 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80% Temp (°C)			1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1135		8/13	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.2	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1001	8/15	24.4	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	LM 1111	8/16	24.3	24.3	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.6	24.6	Day 4	2	3	5	3	4	6	4	3	5	2	
	AW 1003	8/18	24.1	24.9	Day 5	✓	✓	6	4	9	6	7	6	7	7	
	AH 0920	8/19	24.4	24.3	Day 6	✓	✓	13	✓	✓ 13	✓	14	17	15	✓	
AW		8/20		24.6	Day 7	13	15	5 (13-6)	~~8~~ 12	4	12	✓	✓	✓	17	WC 1134 8/20
					Day 8											
			Total			15	18	28	19	26	24	25	26	27	26	234

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration MH Temp (°C)			1	2	3	4	5	6	7	8	9	10	Notes
AW 1135		8/13	24.0		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.3	24.4	Day 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1001	8/15	24.3	24.5	Day 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	CM 1111	8/16	24.8	24.6	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.1	25.1	Day 4	5	5	4	4	4	3	6	4	5	2	
	AW 1003	8/18	24.0	24.4	Day 5	5	9	7	11	✓	11	8	7	7	✓	
	AW 0903	8/19	24.5	24.6	Day 6	✓	✓	✓	✓	14	✓	✓	✓	✓	9	
AW		8/20	~~24~~	24.6	Day 7	11	12	14	12	14	11	16	14	14	10/14	WO
					Day 8											
			Total			21	26	25	27	32	25	30	25	26	10/25	262 1/10

✓ = 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 # 16266 JOB # 20-19675G

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

SURVIVAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 80%filt. Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
					Adult											
AW 1135		8/13	24.1		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.3	24.4	Day 1	✓	–	–	–	–	–	–	–	–	–	
	AW 1001	8/15	24.4	24.2	Day 2	✓	–	–	–	–	–	–	–	–	–	
	LM 1111	8/16	24.3	24.4	Day 3	✓	✓	✓	✓	✓	✓	✓	6	5	✓	
	AW 1051	8/17	24.2	25.1	Day 4	5	4	✓	5	5	5	7	✓	✓	6	
	AW 1003	8/18	24.1	24.2	Day 5	6	7	7	8	7	8	7	9	11	8	
	AW 0900	8/19	24.4	24.5	Day 6	✓	✓	✓	✓	✓	15	16	14	17	✓	
AW 1330		8/20		24.9	Day 7	9	14	6	13	14	✓	✓	14	11	10	
					Day 8											
			Total			22	25	15	26	26	28	30	29	33	25	25-9

SURVIVIAL AND REPRODUCTION DATA

Test Start & Feeding/ End Initials/ Time	Daily Renewal & Feeding Initials/ Time	Date	Concentration 100% filtered Temp (°C)			REPLICATES 1	2	3	4	5	6	7	8	9	10	Notes
AW 1135		8/13	24.3		Day 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1231	8/14	24.2	24.3	Day 1	✓	–	–	–	–	–	–	–	–	–	
	AW 1001	8/15	24.3	24.4	Day 2	–	–	–	–	–	–	–	–	–	–	
	LM 1111	8/16	24.3	24.3	Day 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	AW 1051	8/17	24.1	25.1	Day 4	5	4	3	5	3	5	4	5	3	4	
	AW 1003	8/18	24.1	24.6	Day 5	7	3	5	5	6	7	6	7	9	4	
	AW 0900	8/19	24.3	24.4	Day 6	✓	✓ Dead		✓	✓	✓	✓	14	17	✓	
AW 1330		8/20		24.5	Day 7	9	5 Dead	6	7	7	9	11	3	✓	13	
					Day 8											
			Total			21	14	14	17	16	21	21	29	29	21	203

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

TEST LOG NO. 16266

CLIENT/SAMPLE ID: Georgia Pacific Crossett

JOB NO. 20-19675G

TEST ORGANISM: Cd

DATE: 8/13/03

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	8.5													
25	8.5													
34	8.6													
45	8.6													
60	8.5													
80	8.4													
MH	8.3													
80 filtered	8.4													
100 filtered	8.6													

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	7.23													
25	7.89													
34	7.97													
45	8.01													
60	8.04													
80	8.00													
MH	7.93													
80 filtered	8.17													
100 filtered	8.13													

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	53													
25	556													
34	765													
45	1003													
60	1277													
80	1671													
MH	215													
80 filtered	1604													
100 filtered	2160													
Params Intl/Time:	AW1031													
Dilutions Intl/Time:	AW1027													

Control Water Batch: AW16552, MH5290 | RW16552, MH5292 | AW16566 | 16566 MH 92 | 16575, 5292 | 16575, 5295 | 16575, 5295

Food Batch: 4413, 43386 | 4413, 43386 | 4413180 | 17,86 | 17,86 | 20,86 | 20,86

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

ENVIRON Test Log No. 16266

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Project Name: | Project Number:

Industry: Georgia-Pacific

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

County: Ashley | City: Crossett | State: AR

Sample Collected by (print): Rachel Johnson

Sample Collected by (signature): Rachel Johnson

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	Analysis Requested: Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
Outfall 001	Comp	Plastic	Yes	8-11-13 4:54 am	8-12-13 6:15 am	2						✓	✓					165535
River	Grab	Plastic	NA	8-12-13 9:45 am		2											Dilution water	165532

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

Remarks:

Measured TRC (if applicable): 0.0 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Rachel Johnson	8/12/13	4:00pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Christa Bryant-Winn

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

Condition: (lab use only)

Receipt Temp: 4.5, 4.8°C

Containers/Volume Received: 2 of each

Date: 8/13/13

Time: 0850

pH upon arrival: 7.95, 7.34

DO upon arrival: 8.6, 8.4

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: Georgia Pacific Crossett

Date/Time received 8/13/13 0850 by AW

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
16552	River Water	4.8	7.34	8.4	0.07
16553	Outfall 001	4.5	7.95	8.6	0.02

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ENVIRON Test Log No. 16266

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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: 870-364-9074

County: ASHLEY City: CROSSETT State: AR.

Sample Collected by (print): Rachel / Robie

NPDES Permit No.: AR0001210

Sample Collected by (signature): [signature]

NPDES Test: ☐ No ☑ Yes

Sample Location / ID	Comp/Grab	Container Type	Chilled During Collection (Y/N)	Start Date/Time	End Date/Time	No. of Cntrs	Total Volume in liters	Acute Fathead minnow	Acute Bannerfin shiner	Acute *Ceriodaphnia dubia*	Acute *Daphnia pulex*	Chronic Fathead minnow	Chronic *Ceriodaphnia dubia*	Continuous Batch Tests	Discrete Batch Tests	Other	Description Definitive or Screen	Sample B# (lab only)
RIVER	GRAB	PLASTIC	NA	8-12-13		2	20							✓			Dilution Water	1105106
OUTFALL 001	COMP	PLASTIC	YES	8-13-13 6:10am	8-14-13 6:10am	2	20					✓	✓					1105107

* 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) Good	
Relinquished by: (Signature) [signature]	8-14-13	3:00pm	Received by: (Signature)	Receipt Temp: 1.0 / 2.3	Containers/Volume Received: 10L 10L	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 8/15/13	Time: 0836	pH upon arrival:	DO upon arrival:

Sample Receipt Checklist:

Client CP Crossett

Date/Time received 8/15/13 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 #	Sample ID	Temp (C°)	pH	DO	TRC
165166	Riverwater	1.6	7.56	9.3	0.06
165167	Outfall 001	2.3	8.00	8.4	0.11

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ENVIRON Test Log No. 16266

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Project Name: Project Number:

Industry: Georgia-Pacific Crossett

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

County: Ashley City: Crossett State: AR

Sample Collected by (print): Rachel Johnson

Sample Collected by (signature): Rachel Johnson

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)
Outfall 001	Comp	Plastic	Yes	8/15/13	8/16/13	2	20					✓	✓					16574
River	Grab	Plastic	NA	8/15/13		2	20										Dilution Water	16575

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

Remarks:

Measured TRC (if applicable): 0.00 mg/L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples shipped via: ☒ FedEx ☐ Other Courier ☐ UPS ☐ Hand Delivered	Condition: (lab use only)
Rachel Johnson	8/16/13	4:00pm			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Receipt Temp: 1.9, 1.1 °C	Containers/Volume Received: 20L of each
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Jamie Bryant-Winn	Date: 8/17/13	Time: 0955

pH upon arrival: 7.97, 7.44

DO upon arrival: 9.4, 10.1

Sample Receipt Checklist:

Client: Georgia Pacific Crossett

Date/Time received 8/17/13 0955 by AW

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

Comments:

Batch #	Sample ID	Temp (C°)	pH	DO	TRC
16574	Outfall 001	1.9	7.97	9.4	0.11
16575	River	1.1	7.44	10.1	0.03

L:\Ecolab\FORMS

FedEx Express Package US Airbill

FedEx Tracking Number 8014 1914 4444

1 From
Date 8/14/13
Sender's Name REBECCA [redacted] Phone 870 567-8812
Company GEORGIA PACIFIC/ENVIRONMENTAL
Address 100 SUPPLY RD Dept/Floor/Suite/Room
City CROSSETT State AR ZIP 71635

2 Your Internal Billing Reference

3 To
Recipient's Name Teri Horslet Phone 615 377 4775
Company Environ
Address 201 Summitview Dr
We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room
Address Suite 300
Use this line for the HOLD location address or for continuation of your shipping address.
City Brentwood State TN ZIP 37027

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.
HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0110398433

8014 1914 4444

Form ID No 0215

4 Express Package Service * To most locations
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.

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

2 or 3 Business Days
- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.
- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options
- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.
- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
- [ ] Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]
- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages: 1 Total Weight: 79 lbs. Credit Card Auth:

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

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fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx Express Package US Airbill

FedEx Tracking Number 8014 1914 4488

1 From
Date 8/14/13
Sender's Name REBECCA [redacted] Phone 870 567-8812
Company GEORGIA PACIFIC/ENVIRONMENTAL
Address 100 SUPPLY RD Dept/Floor/Suite/Room
City CROSSETT State AR ZIP 71635

2 Your Internal Billing Reference

3 To
Recipient's Name Teri Horslet Phone 615 377 4775
Company Environ
Address 201 Summitview Dr
We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room
Address Suite 300
Use this line for the HOLD location address or for continuation of your shipping address.
City Brentwood State TN ZIP 37027

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.
HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0110398433

8014 1914 4488

Form ID No 0215

4 Express Package Service * To most locations
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.

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

2 or 3 Business Days
- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.
- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options
- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.
- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
- [ ] Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]
- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages: 1 Total Weight: 79 lbs. Credit Card Auth:

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

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FedEx Express — Package US Airbill

FedEx Tracking Number 8014 1914 4547

Form ID No. 0215

1 From

Date 5/1/13 [redacted]

Sender's Name REBECCA [illegible] Phone 870 567-8812

Company GEORGIA [illegible] AL

Address 100 SUPPL[illegible] Dept./Floor/Suite/Room

City CROSSETT State AR ZIP 71635

2 Your Internal Billing Reference

3 To

Recipient's Name Teri Hackley Phone 615 272 7[illegible]

Company Environ

Address 201 Summit View Drive Dept./Floor/Suite/Room

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

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

Address [illegible]

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

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

City Brentwood State TN ZIP 37027

0110598433

8014 1914 4547

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

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

Next Business Day

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

2 or 3 Business Days

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

5 Packaging * Declared value limit $500.

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

6 Special Handling and Delivery Signature Options

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

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

Does this shipment contain dangerous goods?

One box must be checked.

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

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

☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip. Acct. No. ☐

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

[redacted]

Total Packages 1 Total Weight 77 lbs. Credit Card Auth.

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

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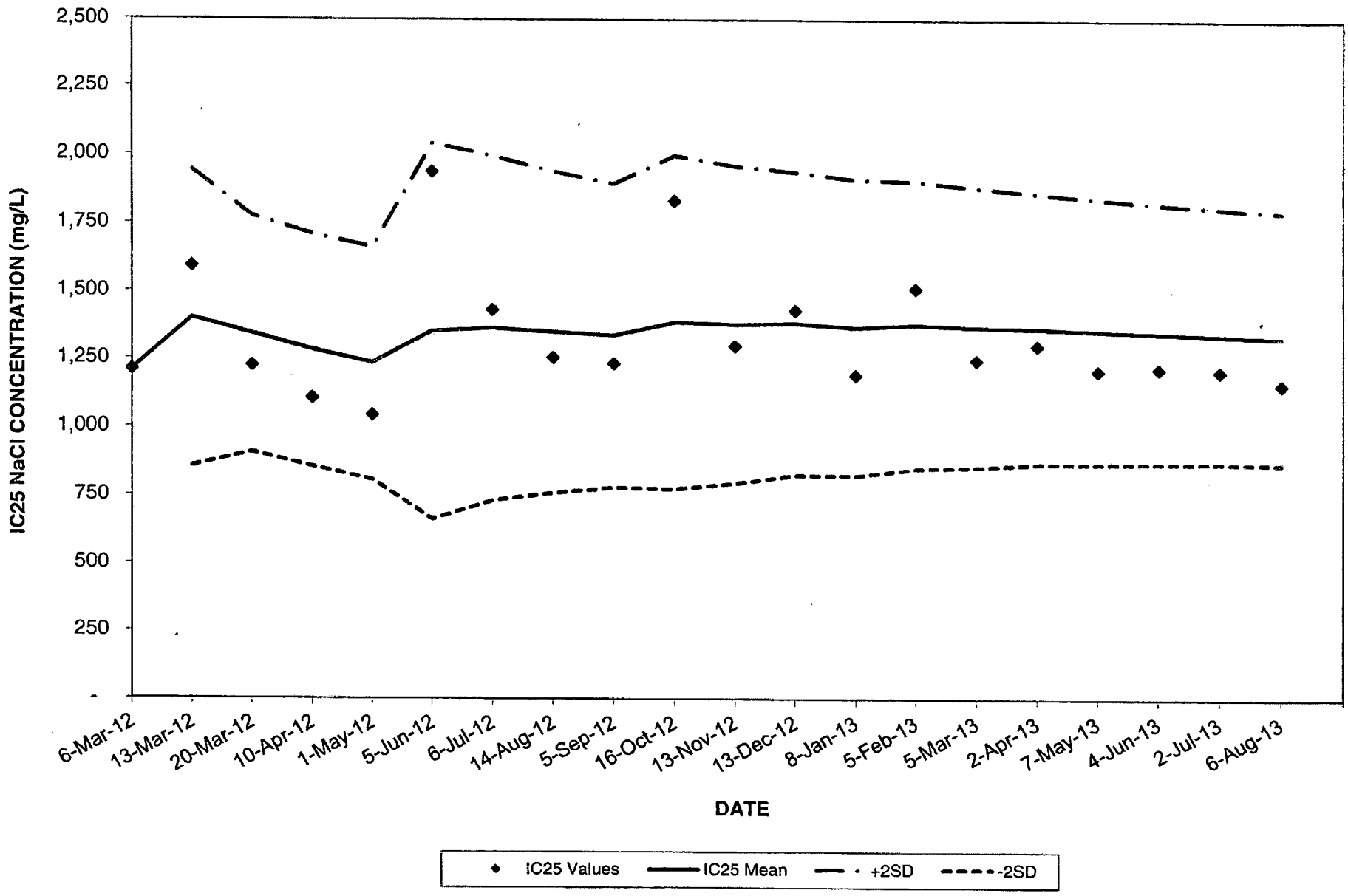
Peel-and-Stick FedEx Express Package US Airbill

1. Complete front page of the Airbill.
2. Retain "Sender's Copy" for your records.
3. Remove label backing.
4. Adhere Airbill to front of package. Please DO NOT remove "FedEx Copy."

PEEL FROM THIS CORNER.

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



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

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	Control Mean Dry Weight (mg/fish) (*)	SURVIVAL NOEC (mg/L)	SURVIVAL LOEC (mg/L)	GROWTH NOEC (mg/L)	GROWTH LOEC (mg/L)	PMSD (%)	IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
1	15207	06-Mar-12	97.5	0.372	750	1,500	1,500	3,000	39.2	1,209	1,209				
2	15225	13-Mar-12	85	0.290	6,000	>6,000	1,500	3,000	30.2	1,593	1,401	272	1,944	858	14
3	15248	20-Mar-12	100	0.383	750	1,500	750	1,500	28.1	1,225	1,342	217	1,777	908	13
4	15299	10-Apr-12	100	0.716	750	1,500	750	1,500	17.0	1,105	1,283	213	1,710	856	14
5	15343	01-May-12	100	0.562	750	1,500	750	1,500	25.0	1,042	1,235	214	1,663	807	15
6	15115	05-Jun-12	100	0.499	750	1,500	1,500	3,000	24.0	1,937	1,352	345	2,041	662	23
7	15463	06-Jul-12	100	0.397	750	1,500	1,500	3,000	26.5	1,431	1,363	316	1,995	731	21
8	15548	14-Aug-12	100	0.406	750	1,500	750	1,500	24.6	1,254	1,350	295	1,940	759	20
9	15603	05-Sep-12	100	0.429	750	1,500	750	1,500	16.7	1,232	1,336	279	1,894	779	20
10	15683	16-Oct-12	97.5	0.447	1,500	3,000	1,500	3,000	19.0	1,832	1,386	306	1,998	774	21
11	15743	13-Nov-12	100	0.514	750	1,500	750	1,500	15.9	1,297	1,378	292	1,961	795	20
12	15807	13-Dec-12	100	0.362	750	1,500	750	1,500	17.1	1,430	1,382	278	1,939	825	19
13	15863	08-Jan-13	100	0.431	750	1,500	750	1,500	15.5	1,190	1,367	272	1,911	824	19
14	15911	05-Feb-13	95	0.417	750	1,500	750	1,500	20.9	1,512	1,378	264	1,906	850	18
15	15965	05-Mar-13	100	0.538	750	1,500	750	1,500	28.1	1,246	1,369	257	1,882	856	18
16	16017	02-Apr-13	100	0.504	750	1,500	750	1,500	25.8	1,300	1,365	249	1,862	868	18
17	16088	07-May-13	100	0.390	750	1,500	750	1,500	29.3	1,207	1,355	244	1,843	868	17
18	16137	04-Jun-13	100	0.402	750	1,500	750	1,500	21.5	1,215	1,348	239	1,825	870	17
19	16189	02-Jul-13	100	0.444	750	1,500	750	1,500	26.7	1,205	1,340	234	1,809	871	17
20	16256	06-Aug-13	100	0.382	750	1,500	750	1,500	19.3	1,157	1,331	232	1,794	868	17
		Avg	99	0.444	1050	1500	938	1875	24	1331	1344	264	1879	823	

Notes:

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

NOEC - No Observable Effect Concentration (survival or growth)

LOEC - Lowest Observable Effect Concentration (survival or growth)

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

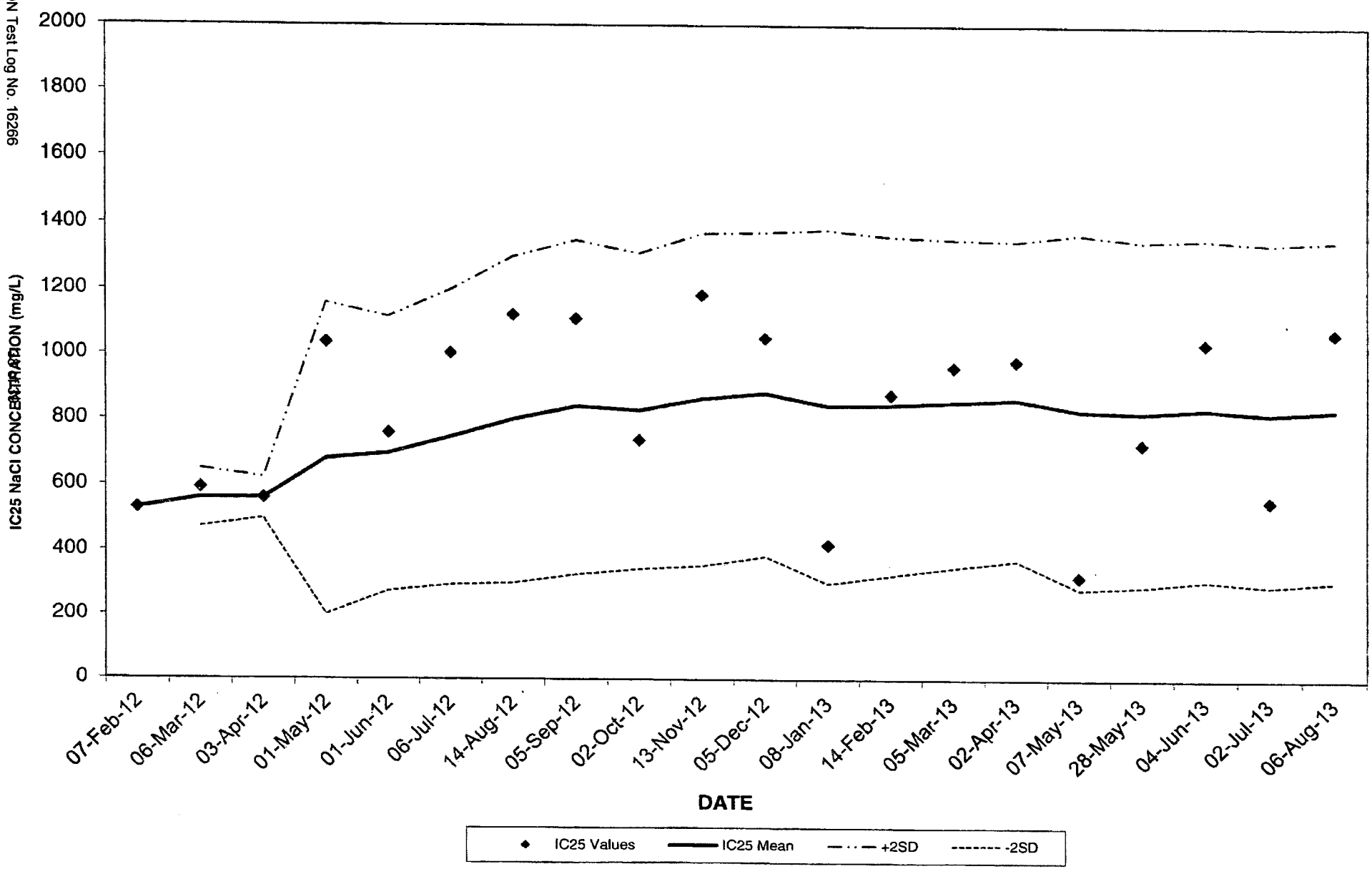
(*) Minimum USEPA CONTROL CRITERIA - 80 percent survival and average dry weight of 0.25 mg (weight based on surviving number of fish).

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

ENVIRON Test Log No. 16266

CHRONIC REFERENCE TOXICANT (NaCl) 2012-2013

Ceriodaphnia dubia



9003/05reftox/cdchronic

9/4/2013

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

Test Number	Log Number	Test Initiation Date	Control Survival (%) (*)	3 Brood Production (%) (*)	Control Average Repro (*)	Survival		Reproduction			IC25 VALUE (mg/L)	IC25 CUMULATIVE MEAN (mg/L)	IC25 ST. DEV. (mg/L)	IC25 2+ STD. DEV.	IC25 2- STD. DEV.	Coefficient of Variation (%)
						NOEC (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOEC (mg/L)	PMSD						
1	15131	07-Feb-12	100	100	27.1	1,000	2,000	500	1,000	29.7	530	530				0
2	15206	06-Mar-12	100	100	31.4	1,000	2,000	500	1,000	24.6	592	561	44	649	473	6
3	15283	03-Apr-12	100	100	33.4	500	1,000	500	1,000	27.3	560	561	31	623	499	5
4	15344	01-May-12	100	90	32.9	2,000	>2,000	500	1,000	22.4	1036	680	239	1,158	201	30
5	15100	01-Jun-12	80	100	28.8	2,000	>2,000	500	1,000	14.6	759	695	210	1,115	275	27
6	15402	06-Jul-12	100	100	27.8	1,000	2,000	500	1,000	9.9	1003	747	226	1,199	295	28
7	15549	14-Aug-12	100	100	32.7	2,000	>2,000	500	1,000	10.3	1121	800	250	1,300	300	29
8	15604	05-Sep-12	100	100	26.3	1,000	2,000	500	1,000	12.5	1109	839	256	1,351	327	29
9	15653	02-Oct-12	100	100	34.8	2,000	>2,000	500	1,000	22.0	737	827	242	1,311	344	28
10	15742	13-Nov-12	100	100	31.6	2,000	>2,000	1,000	2,000	10.4	1183	863	254	1,372	354	28
11	15784	05-Dec-12	100	100	36.6	2,000	>2,000	500	1,000	12.6	1050	880	248	1,375	385	27
12	15864	08-Jan-13	100	80	30.5	2,000	>2,000	250	500	24.3	420	842	271	1,384	300	31
13	15937	14-Feb-13	100	100	32.2	2,000	>2,000	500	1,000	18.1	875	844	260	1,363	325	30
14	15966	05-Mar-13	100	100	33.7	2,000	>2,000	500	1,000	21.8	960	853	251	1,355	350	28
15	16018	02-Apr-13	90	100	29.3	2,000	>2,000	500	1,000	16.8	979	861	244	1,350	372	27
16	16087	07-May-13	100	80	34.4	1,000	2,000	<125	125	27.3	321	827	272	1,371	283	32
17	16124	28-May-13	100	90	28.9	2,000	>2,000	500	1,000	20.5	727	821	264	1,350	292	31
18	16137	04-Jun-13	90	90	30.0	1,000	2,000	500	1,000	16.2	1034	833	261	1,356	310	30
19	16188	02-Jul-13	100	80	21.5	2,000	>2,000	500	1,000	35.1	556	819	262	1,342	295	31
20	16257	06-Aug-13	100	90	29.1	1,000	2,000	500	1,000	24.9	1068	831	261	1,353	309	31
Avg			98	95	31	1575	750	488	981	20	831	776	229	1246	331	

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.

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

Origin ID: ELDA

FedEx Express

J13201306280326

Ship Date: 23SEP13
ActWgt: 1.0 LB
CAD: 102787395/INET3430

Delivery Address Bar Code

SHIP TO: (501) 661-2623 BILL SENDER

CRAIG UYEDA
ADEQ
5301 NORTHSHORE DR

NORTH LITTLE ROCK, AR 72118

Ref # dmr's
Invoice #
PO #
Dept #

TUE - 24 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7967 4600 0290
0201

X2 LITA

72118
AR-US
LIT

51AG1/9256/1A9E

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.