



CHEMICAL COMPANY

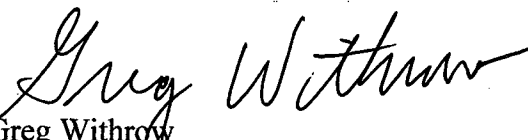
September 23, 2013

Arkansas Department of Environmental Quality
Water Enforcement Branch
5301 Northshore Drive
North Little Rock, AR 72118-5317

RE: NPDES Permit AR0000752 Discharge Monitoring Report for period ending August 31, 2013.

Enclosed you will find the Discharge Monitoring Report ending August 31, 2013.
If you have any questions regarding this report, please contact Larken Pennington at (870) 863-1125.

Sincerely,


Greg Withrow
General Manager

Enclosures

NON-COMPLIANCE REPORT

Facility Name: El Dorado Chemical Company

Permit Number: AR0000752

AFIN:

70-00040

Month / Year: Aug-13

Type of Violation	Permit Limit	Date of Violation	Cause of Violation	Corrective Action or Other Narrative
Outfall 001 / Temperature maximum (91.19°F)	88°F Temperature Maximum	8/5/13-8/14/13, 8/23/13-8/30/13	Warm temperatures, mid-day temperature spikes, temperature excursions due to ambient temperature	Daily maximum temperature readings calculated from hourly measurements are utilized as a representative daily maximum temperature for DMR preparation.
<p>I CERTIFY THAT UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C 1001 AND 33 U.S.C. 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)</p>			<p><i>Greg Withers</i> 9/24/13</p>	
			<p>Signature / Date</p>	

Bio-Analytical Laboratories (BAL)
ADEQ Certificate #88-0630
Project X5187

Bio-Analytical Laboratories' Executive Summary

Permittee: El Dorado Chemical Company
4500 Northwest Avenue
El Dorado, AR 71731

Project #: X5187

Outfall: 001 (treated process and contaminated storm water)

Permit #: AR0000752/ AFIN #70-00040

Contact: Larken Pennington

Test Dates: August 13 - 21, 2013

Test Type: Chronic Static Renewal Survival and Reproduction Test using *Ceriodaphnia dubia* (EPA Method 1002.0).
Chronic Static Renewal Survival and Growth Test using *Pimephales promelas* (EPA Method 1000.0).

Results:

For *Ceriodaphnia dubia*:

1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter TLP3B - 0 (Pass).
 2. If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter TGP3B - 1 (Fail).
 3. Report the NOEC value for survival, Parameter TOP3B - 100.0%.
 4. Report the NOEC value for reproduction, Parameter TPP3B - 75.0%.
 5. Report the largest % coefficient of variation between the control and the critical dilution, Parameter TQP3B - 25.98%.
- Treating the sample with ultraviolet light did not reduce the sublethal effect.

For *Pimephales promelas*:

1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter TLP6C - 0 (Pass).
2. If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter TGP6C - 0 (Pass).
3. Report the NOEC value for survival, Parameter TOP6C - 100.0%
4. Report the NOEC value for growth, Parameter TPP6C - 100.0%
5. Report the largest % coefficient of variation between the control and the critical dilution, Parameter TQP6C - 17.92%.

This report contains a total of 48 pages, including this page. The results in the report pertain only to the samples documented in the enclosed chain of custody documents, and meet the current standards set forth by TNI and ADEQ. The chemical data in this report is for monitoring purposes only and should not be reported on discharge monitoring reports.



Bio-Analytical Laboratories

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THE RESULTS OF TWO CHRONIC DEFINITIVE TOXICITY TESTS FOR OUTFALL 001

AT

**EL DORADO CHEMICAL COMPANY
El Dorado, Arkansas**

**NPDES #AR0000752
AFIN #70-00040**

EPA Methods 1000.0 and 1002.0

Project X5187

Test Dates: August 13 - 20, 2013

Report Date: September 3, 2013

Prepared for:
Larken Pennington
El Dorado Chemical Company
4500 Northwest Avenue
El Dorado, AR 71731

Prepared by:
Ginger Briggs
Bio-Analytical Laboratories
P.O. Box 527
Doyline, LA 71023
ADEQ #88-0630

BAL
ADEQ #88-0630
Project X5187

TABLE OF CONTENTS

1.0 Introduction	4
2.0 Methods and Materials	4
2.1 Test Methods	4
2.2 Test Organisms	4
2.3 Dilution Water	4
2.4 Test Concentrations	5
2.5 Sample Collection	5
2.6 Sample Preparation	5
2.7 Monitoring of the Tests	5
2.8 Data Analysis	6
3.0 Results and Discussion	6
4.0 Conclusions	8
5.0 References	9
Appendices	
A- Chain-of-Custody Documents	10
B- Raw Data Sheets	14
C- Statistical Analysis	28
D- Quality Assurance Charts	36
E- Agency Forms	40
F- Report Quality Assurance Form	47

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ADEQ #88-0630
Project X5187

1.0 Introduction

Bio-Analytical Laboratories (BAL), Doyline, Louisiana conducted two chronic definitive toxicity tests for Outfall 001 at El Dorado Chemical Company, El Dorado, Arkansas. The test organisms used were the cladoceran, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. The purpose of this study is to determine if appropriately dilute effluent samples adversely affect the survival, reproduction and/or growth of the test organisms. Toxicity is defined as a statistically significant difference at the 95 percent confidence level between the survival, reproduction and/or growth of the test organism in the critical dilution (the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions) compared to the survival, reproduction and/or growth of the test organism in the control. The test endpoint is the No-Observed-Effect-Concentration (NOEC), the highest effluent concentration that is not significantly different from the control.

2.0 Methods and Materials

2.1 Test Methods

All methods followed were according to the latest edition of "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA-821-R-02-013) and BAL's standard operating procedure.

2.2 Test Organisms

The *Ceriodaphnia dubia* test organisms were cultured in-house at test temperature and dilution water hardness and were less than 24 hours old at test initiation. The neonates were released within the same 8-hour period. The fathead minnow test organisms were obtained from Aquatic Biosystems, Fort Collins, Colorado (ABS) and were less than 48 hours old at test initiation. The minnows were acclimated to test temperature and dilution water hardness prior to test initiation. Monthly chronic reference toxicant tests were conducted in order to document organism sensitivity and demonstration of capability.

2.3 Dilution Water

Soft reconstituted water, made per method guidelines, was used as the dilution water and the control for the toxicity tests.

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Project X5187

2.4 Test Concentrations

The test concentrations used in the chronic toxicity tests were 100.0, 75.0, 56.0, 42.0 and 32.0 percent effluent, and a reconstituted water control. The critical dilution was 100.0 percent effluent. The *Ceriodaphnia* test was conducted using 10 replicates of one animal each for a total of 10 animals per concentration. The fathead minnow test was conducted using five replicates of eight animals each for a total of 40 animals per concentration.

2.5 Sample Collection

Three 24-hour composite samples of Outfall 001 were collected by El Dorado Chemical personnel on August 12, 14 and 16, 2013. Upon collection and completion of each composite, the samples were chilled to $\leq 6.0^{\circ}$ Celsius. The samples were delivered the day of collection to the laboratory by BAL personnel. Sample temperature upon arrival ranged from 2.4 - 5.1 $^{\circ}$ Celsius between the three samples.

2.6 Sample Preparation

Upon arrival, the samples were logged in, given an identification number and refrigerated unless needed. Prior to use, the samples were warmed to $25 \pm 1^{\circ}$ Celsius. Total residual chlorine levels were measured with a Capital Controls^R amperometric titrator and recorded if present. Total ammonia levels were measured using a HACH^R test strip. Portions of the effluent were treated with an 18 watt ultraviolet light (UV) at a rate of 113 ml per minute. An extra 100.0 percent concentration was run in the tests to determine if any toxicity was due to pathogen interference. Dissolved oxygen and pH measurements were measured on the control and each concentration at test initiation, at test renewal and at test termination. Conductivity measurements were also taken at test initiation and at each renewal. Alkalinity and hardness levels were measured on the control and the undiluted effluent samples.

2.7 Monitoring of the Tests

The cladoceran test was run in a Precision^R dual-programmable, illuminated incubator at a temperature of $25 \pm 1^{\circ}$ Celsius. The fathead minnow test was run in a circulating waterbath, using a Remcor^R heated liquid circulator to keep a constant temperature of $25 \pm 1^{\circ}$ Celsius. AEMC^R data-loggers were used to monitor diurnal test temperature. Test temperatures were recorded at the beginning of the day, after test renewal and at the end of the day. Light cycles and intensities were recorded twice a month.

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Project X5187

2.8 Data Analysis

Ceriodaphnia dubia survival data was analyzed using Fisher's Exact Test, an equality test comparing concentration data to control data. Reproduction data was analyzed using Dunnett's Test, a parametric test comparing concentration data to control data. Fathead minnow survival data was analyzed using Steel's Many-One Rank Test, a nonparametric test comparing concentration data to control data, and growth data was analyzed using Dunnett's Test. The test endpoints in the reference toxicant tests and any other quality control test endpoints were obtained by approved EPA methods of analysis.

3.0 Results and Discussion

The results of the *Ceriodaphnia dubia* test can be found in Table 1. After eight days of exposure, 100.0 percent survival occurred in the control and in the 100.0 percent critical dilution, while 80.0 percent survival occurred in the UV-treated critical dilution. The average number of neonates per female after three broods in the control was 24.0, while the average number of neonates in the 100.0 percent critical dilution and the UV-treated critical dilution was 16.9 and 15.3, respectively. The No-Observed-Effect-Concentration (NOEC) for survival and reproduction in this test was 100.0 and 75.0 percent effluent, respectively ($p=.05$). Treating the effluent with UV-light did not reduce the sublethal effects in the critical dilution.

The fathead minnow test results can be found in Table 2. Eighty-seven-point-five percent survival occurred in the control and 100.0 percent survival occurred in the 100.0 percent critical dilution after seven days of exposure. The average weight gained per minnow in the control was 0.300 milligram (mg) and the average weight gained in the critical dilution was 0.443 mg. The NOEC for survival and growth in this test was 100.0 percent effluent ($p=.05$). Treating the effluent with UV-light was not necessary as the test passed at the non-treated 100.0 percent critical dilution.

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Project X5187

Table 1: Results of the Chronic Definitive *Ceriodaphnia dubia* Test

Percent Effluent	Percent Survival	Sig.*	Mean # Neonates-Surviving	Mean # Neonates -Total	Sig.*
Control	100.0		24.0	24.0	
32.0	100.0		21.8	21.8	
42.0	100.0		23.4	23.4	
56.0	100.0		23.0	23.0	
75.0	100.0		21.0	21.3	
100.0	100.0		16.9	16.9	*
100.0 UV	80.0		19.1	15.3	*

*significant when compared to the control (p=.05). Test validity based on mean number of neonates per surviving female. NOEC value based on total mean number of neonates. +accidental death.

Table 2: Results of the Chronic Definitive Fathead Minnow Test

Percent Effluent	Percent Survival	Sig.*	Mean Dry Weight (mg)	Sig.*
Control	87.5		0.300/0.343+	
32.0	95.0		0.413	
42.0	97.5		0.448	
56.0	100.0		0.503	
75.0	100.0		0.485	
100.0	100.0		0.495	
100.0 UV	90.0		0.443	

*significant when compared to the control (p=.05). +Test validity based on mean dry weight per surviving larvae in the control. NOEC value based on mean dry weight per the number of larvae at the start of the test.

The monthly chronic reference toxicant tests showed those test organisms to be within the respective sensitivity range. The graphs of the results of the chronic reference toxicant tests can be found in Appendix D- Quality Assurance Charts.

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Project X5187

4.0 Conclusions

The three composite samples of Outfall 001 collected from El Dorado Chemical Company, El Dorado, Arkansas, on August 12, 14 and 16, 2013, 2013, were not found to be lethally toxic to the fathead minnow test organisms nor the *Ceriodaphnia dubia* test organisms in the 100.0 percent critical dilution after seven and eight days of exposure, respectively ($p=.05$). Sub-lethal effects (i.e., lack reproduction and growth) were noted in the critical dilution in the *Ceriodaphnia dubia* test but not in the fathead minnow test ($p=.05$). Treating the samples with UV-light did not reduce the toxic effect in the *Ceriodaphnia dubia* test.

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5.0 References

- EPA, 2002. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition. EPA-821-R-02-013, Office of Water.
- EPA, 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System. EPA-833-R-00-003, Office of Wastewater Management.
- EPA, 2000. Method Guidance and Recommendations for Whole Effluent (WET) Testing. EPA-821-B-00-04, Office of Water
- APHA, 1998. Standard Methods for The Examination of Water and Wastewater. 20th Edition.

APPENDIX A
CHAIN-OF-CUSTODY DOCUMENTS



Bio-Analytical Laboratories

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NELAP/LELAP 01975, ADEQ 88-0630, TCEQ T104704278

Laboratory Use Only:

Company: El Dorado Chemical Company		Phone: (870) 863-1484		Analysis:							Project Number: X5187	
Address: 4500 Norwest Ave., El Dorado, AR 71731		Fax: (870) 863-7499		Chronic Ceriodaphnia	Chronic minnow	Acute minnow (fresh/marine)	Acute Daphnia species	Acute Mysid	Acute Ceriodaphnia	Fecal Coliform	Temp. upon arrival: Temperature upon arrival: 5.1°C	
Permit #: AR0000752/AFIN 70-00040		Purchase Order:									Thermometer #: 29	
Sampler's Signature/Printed Name/Affiliation: Larken Pennington / Larken Pennington / EDCC											Tech: DH	
Date Start Date End	Time Start Time End	C	G	# and type of container	Sample Identification						Lab Control Number:	Preservative: (below)
8-13-13 8-14-13	* 0830	x		8 half gallons	001	X	X				C7818	ICE
Relinquished by/Affiliation: Larken Pennington / EDCC				Date: 8/14/13	Time: 0940	Received by/Affiliation: JRB				Date: 8/14/13	Time: 0940	
Relinquished by/Affiliation:				Date:	Time:	Received by/Affiliation:				Date:	Time:	
Relinquished by/Affiliation: JRB				Date: 8/14/13	Time: 1200	Received by/Affiliation: Doreen Haughton				Date: 8/14/13	Time: 1200	
Method of Shipment: <input type="checkbox"/> Lab <input type="checkbox"/> Bus <input type="checkbox"/> Fed Ex <input type="checkbox"/> DHL <input type="checkbox"/> UPS <input type="checkbox"/> Client <input type="checkbox"/> Other Tracking #												
Comments: * time noted on jugs AH 8/14/13												

COC Rev. 3.0



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NELAP/LELAP 01975, ADEQ 88-0630, TCEQ T104704278

Laboratory Use Only:

Company: El Dorado Chemical Company		Phone: (870) 863-1484		Analysis:				Project Number: X5187						
Address: 4500 Norwest Ave., El Dorado, AR 71731		Fax: (870) 863-7499		Chronic Ceriodaphnia	Chronic minnow	Acute minnow (fresh/marine)	Acute Daphnia species	Acute Mysid	Acute Ceriodaphnia					
Permit #: AR0000752/AFIN 70-00040		Purchase Order:								Fecal Coliform	Temp. upon arrival: 2.7°C	Thermometer #: 29	Tech: LC	Date: 8/10/13
Sampler's Signature/Printed Name/Affiliation: Larken Pennington / Larken Pennington / EDCC														
Date Start Date End	Time Start Time End	C	G	# and type of container	Sample Identification									
8-15-13 8-16-13	8:30 8:30	x		8 half gallons	001	X	X							
Relinquished by/Affiliation: Larken Pennington / EDCC		Date: 8/10/13	Time: 0910	Received by/Affiliation: L Bji		Date: 8/16/13	Time: 0910							
Relinquished by/Affiliation:		Date:	Time:	Received by/Affiliation:		Date:	Time:							
Relinquished by/Affiliation: L Bji		Date: 8/14/13	Time: 1125	Received by/Affiliation: L COB		Date: 8/16/13	Time: 1125							
Method of Shipment: <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Bus <input type="checkbox"/> Fed Ex <input type="checkbox"/> DHL <input type="checkbox"/> UPS <input type="checkbox"/> Client <input type="checkbox"/> Other Tracking # _____														
Comments:														
COC Rev. 3.0														

APPENDIX B
RAW DATA SHEETS

BIO-ANALYTICAL LABORATORIES CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

Project# X5187 Date start: 8/13/13 Date end: 8/21/13

Client/Contact: EDCC/El Dorado Chemical
 Address: 4500 Northwest Avenue El Dorado AR 71731
 NPDES#: AR0000752 AFIN70-00040
 Sample Description: 001 Dilution Water: Soft Reconstituted
 Test Temperature(°C) 25+1° Technicians: EGB/AH/LC/GW

Adults isolated: Date 8/12/13 Time: 2230

Neonates collected: Date 8/13/13 Time: 0530 Board: X05

Dissolved Oxygen Meter: Model YSI55D Serial #06E2089 AU

pH Meter: Model Orion 230A+ Serial #105253

Conductivity Meter: Model Control Company Serial# 80277924

Amperometric Titrator: Model Fischer-Porter Serial # 92W445766

Effluent	Aerate?/Minutes	Receiving Water	Aerate?/Minutes
Initial D.O.	/Final D.O.	Initial D.O.	/Final D.O.
(mg/L & %)/Tech	(mg/L & %)/Tech	(mg/L & %)/Tech	(mg/L & %)/Tech

0. <u>8.3/96.8%/bC</u>	0. <u>NO/bC</u>	0. <u>NA</u>	0. <u>NA</u>
1. <u>9.0/105.8%/bC</u>	1. <u>y/20/8.0/95.6%/bC</u>	1. <u>↓</u>	1. <u>↓</u>
2. <u>8.9/102.7%/bC</u>	2. <u>y/20/8.2/96.4%/bC</u>	2. <u>↓</u>	2. <u>↓</u>
3. <u>9.5/114.6%/bC</u>	3. <u>y/20/7.9/95.2%/bC</u>	3. <u>↓</u>	3. <u>↓</u>
4. <u>9.4/114.3%/EGB</u>	4. <u>y/20/7.8/94.3%/EGB</u>	4. <u>↓</u>	4. <u>↓</u>
5. <u>8.7/104.4%/EGB</u>	5. <u>y/16/7.8/93.3%/EGB</u>	5. <u>↓</u>	5. <u>↓</u>
6. <u>10.4/124.7%/bC</u>	6. <u>y/20/7.9/94.2%/bC</u>	6. <u>↓</u>	6. <u>↓</u>
7. <u>10.2/119.5%/bC</u>	7. <u>y/20/7.9/94.8%/bC</u>	7. <u>↓</u>	7. <u>↓</u>

Total Residual Chlorine(mg/L)/Tech

1. <u><0.01/bC</u>
2. <u><0.01/bC</u>
3. <u><0.01/EGB</u>

Dechlorinated? Amount?/Tech

1. <u>NO/bC</u>
2. <u>NO/bC</u>
3. <u>NO/EGB</u>

Ammonia (NH3) (mg/L)/Tech

1. <u>6.0/bC</u>
2. <u>3.0/bC</u>
3. <u>1.0/EGB</u>

BAL Sample # Date in Use

1. <u>C7809 8/13/13</u>
2. <u>C7818 8/15/13</u>
3. <u>C7831/8/17/13</u>

Comments:

BIO-ANALYTICAL LABORATORIES
NUMBER NEONATES PER BROOD CERIODAPHNIA

Project # X5187 Test Dates 8/13/13 - 8/21/13

Client EDCC

Replicate	% Concentration								
	0	32	42	56	75	100	100uM		
A	22	27	23	20	22	16	13		
B	27	16	28	19	19	17	X		
C	10	16	27	26	29	24	X		
D	27	25	18	20	22	18	19		
E	26	23	23	23	19	17	24		
F	19	24	22	27	21	16	23		
G	21 21	7	28	28	24	11	13		
H	27	24	18	24	16	21	19		
I	21	29	27	18	19	17	20		
J	30	27	20	25	22	12	22		
Surviving Mean	24.0	21.8	23.4	23.0	21.3	16.9	19.1		
Total Mean	24.0	21.8	23.4	23.0	21.3	16.9	15.3		
CV%*	25.98	31.10	16.88	15.47	16.57	22.39	21.91		

*coefficient of variation = standard deviation x 100/mean (calculation based on young of the surviving adults)

Key: M=male; X=dead adult

Calculated by: LC 8/21/13

Calculations checked by: AK 8/21/13

BIO-ANALYTICAL LABORATORIES

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST-LIVE NEONATE PRODUCTION

Project# X3187 Test started: Date 8/3/83 Time 1040
 Client EDCC-001 Test ended: Date 8/18/83 Time 1320
 Technician: Day 0 JC 1 JC 2 JC 3 JW 4 EGB 5 EGB 6 JW 7 JW 8 JW
 Time: Day 0 1040 1 1100 2 1245 3 1250 4 0743 5 0855 6 1345 7 1300 8 1320
 Temp. (°C): Day 0 24.0 1 24.0 2 24.0 3 24.0 4 24.0 5 24.0 6 24.0 7 24.0 8 24.0

Conc	Day	A	B	C	D	E	F	G	H	I	J	Number of Live Adults
0	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	1	3	4	3	2	4	4	1	4	10
	6	0	0	0	5	5	3	0	6	6	8	10
	7	0	18	0	0	0	5	3	0	6	6	10
	8	0	17	0	16	18	14	18	17	14	18	10
32	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	2	4	3	2	3	3	3	2	6	10
	6	0	0	0	8	5	6	0	6	0	4	10
	7	0	1	2	0	1	1	4	0	10	2	10
	8	0	14	0	14	16	15	0	13	17	15	10
40	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	2	2	2	2	1	5	0	5	0	10
	6	0	0	0	6	7	6	0	0	8	5	10
	7	0	1	0	0	1	1	0	0	8	0	10
	8	0	15	16	10	14	15	14	13	14	15	10
56	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	3	4	1	1	6	2	0	2	2	10
	6	0	3	0	5	7	8	0	4	0	4	10
	7	0	1	0	0	1	1	0	1	0	1	10
	8	0	13	12	14	15	13	14	17	16	18	10
75	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	2	2	3	2	2	3	2	3	3	10
	6	0	2	0	7	7	7	0	1	2	6	10
	7	0	1	0	0	1	1	0	0	1	1	10
	8	0	16	15	16	12	10	12	12	13	14	13
100	1	0										10
	2	0										10
	3	0										10
	4	0										10
	5	0	1	2	1	3	1	0	2	2	0	10
	6	0	3	0	4	3	0	0	6	1	2	10
	7	0	1	0	0	1	3	0	1	1	0	10
	8	0	12	13	12	13	11	12	11	13	13	10

Key: X=dead adult, Xⁿ=adult had n neonates before death, M=male CERIO2 Rev.2.0

BIO-ANALYTICAL LABORATORIES

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST-LIVE NEONATE PRODUCTION

Project# X5187 Test started: Date 8/13/0 Time 1040
 Client ENCC-001 Test ended: Date 8/15/0 Time 1320
 Technician: Day 0 2c 1 2c 2 2c 3 2c 4 2c 5 2c 6 2c 7 2c 8 2c
 Time: Day 0 1040 1 1100 2 1245 3 1250 4 1343 5 1355 6 1345 7 1330 8 1330
 Temp. (°C): Day 0 24.0 1 24.0 2 24.0 3 24.0 4 24.0 5 24.0 6 24.0 7 24.0 8 24.0

Conc	Day	A	B	C	D	E	F	G	H	I	J	Number of Live Adults
100 uv trid	1	0										10
	2	0	X	0								9
	3	0		X								8
	4	0			0							7
	5	1			4	4	3	2	2	3	3	6
	6	1			5	7	8	9	4	4	6	5
	7	1			0	1	1	1	1	0	1	4
	8	10	1	1	13	15	13	11	12	13	13	3
	1											
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	1											
	2											
	3											
	4											
	5											
	6											
	7											
	8											

Key: X=dead adult, Xⁿ=adult had n neonates before death, M=male CERIO2 Rev.2.0

Day/# water used	0522	1	2	3528	4	5	6	7	8
Concentration: Control soft									
pH	7.4	7.6 / 7.6	7.4	7.6 / 7.5	8.3 / 7.3	7.8 / 7.1	7.6 / 7.6	7.6 / 7.6	7.6
DO (mg/l)	8.1	8.1 / 8.3	8.7 / 8.3	8.6 / 8.5	8.5 / 8.4	8.2 / 8.3	8.2 / 8.3	8.2 / 8.4	8.4
Cond (umhos/cm)	1108.1	173.8	176.0	172.1	167.4	166.2	175.3	174.5	
Alkalinity (mg/L)	29.0			29.0					
Hardness (mg/L)	48.0			44.0					
Concentration: 32%									
pH	7.4	7.5 / 7.5	7.6 / 7.7	7.5 / 7.5	8.3 / 7.4	7.7 / 7.3	7.5 / 7.7	7.5 / 7.5	7.8
DO (mg/l)	8.1	8.5 / 8.2	8.0 / 8.2	8.5 / 8.3	8.4 / 8.2	8.1 / 8.1	8.1 / 8.1	8.1 / 8.2	8.3
Cond (umhos/cm)	229	236	234	231	229	224	234	232	
Concentration: 42%									
pH	7.4	7.6 / 7.6	7.7 / 7.7	7.6 / 7.7	7.8 / 7.8	7.6 / 7.5	7.6 / 7.9	7.5 / 7.5	7.5
DO (mg/l)	8.1	8.5 / 8.2	8.6 / 8.2	8.4 / 8.2	8.4 / 8.1	8.1 / 8.1	8.1 / 8.1	8.1 / 8.2	8.4
Cond (umhos/cm)	246	254	251	247	242	238	250	252	
Concentration: 54%									
pH	7.4	7.6 / 7.7	7.7 / 7.8	7.6 / 7.8	7.7 / 7.9	7.5 / 7.6	7.6 / 8.0	7.5 / 7.7	7.5
DO (mg/l)	8.1	8.4 / 8.1	8.0 / 8.2	8.4 / 8.2	8.4 / 8.1	8.1 / 8.0	8.1 / 8.1	8.1 / 8.1	8.3
Cond (umhos/cm)	270	280	276	273	266	263	275	276	
Concentration: 75%									
pH	7.4	7.7 / 7.7	7.7 / 7.9	7.7 / 7.9	7.7 / 8.0	7.5 / 7.8	7.7 / 8.0	7.5 / 7.7	7.6
DO (mg/l)	8.1	8.4 / 8.1	8.6 / 8.2	8.4 / 8.1	8.5 / 8.0	8.1 / 8.0	8.1 / 8.1	8.0 / 8.0	8.3
Cond (umhos/cm)	300	316	314	307	302	297	311	313	
Concentration: 100%									
pH	7.3	7.7 / 7.8	7.8 / 7.9	7.8 / 8.0	7.7 / 8.1	7.5 / 8.0	7.8 / 8.1	7.6 / 7.8	7.6
DO (mg/l)	8.0	8.4 / 8.3	8.5 / 8.1	8.3 / 8.0	8.3 / 7.8	8.0 / 7.8	8.0 / 8.0	8.0 / 8.0	8.2
Cond (umhos/cm)	356	364	360	355	351	343	361	365	
Tech-prerenewal		LC	LC	LC	EGB	EGB	LC	LC	
Tech-postrenewal	PH	PH	LC	PH	EGB	EGB	PH	PH	PH
Alkalinity (mg/l)	64.0		56.0		60.0				
Hardness (mg/l)	44.0		44.0		40.0				

Key: prerenewal/postrenewal

Day/# water used	0	1	2	3	4	5	6	7	8
Concentration: <u>8C 811/13</u>									
		<u>100%</u>	<u>90%</u>	<u>UV</u>	<u>trid</u>				
pH	7.5	7.7	7.8	7.8	7.9	8.0	7.9	7.7	7.7
DO (mg/l)	7.7	8.1	8.4	8.0	8.0	8.0	7.8	7.9	8.0
Cond (umhos/cm)	357	370	363	355	349	336	356	366	
Alkalinity (mg/L)									
Hardness (mg/L)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Tech-prerenewal		LC	LC	SW	EGB	EGB	SW	LC	LC
Tech-postrenewal	PH	SW	LC	SW	EGB	EGB	SW	SW	
Alkalinity (mg/l)									
Hardness (mg/l)									

Key: prerenewal/postrenewal

BIO-ANALYTICAL LABORATORIES
PIMEPHALES PROMELAS SURVIVAL AND GROWTH DATA SHEET

Project# X5187 Date started: 8/10/13 Date ended 8/20/13

Client/Contact EDCC/El Dorado Chemical
Address 4500 Northwest Avenue El Dorado AR 71731
NPDES# AR0000752 AFIN70-00040
Sample Description 001 Dilution Water Soft Reconstituted
Test Temperature(°C) 25+1° Celsius Technicians EGB/AH/LC/GW
Test organism age < 48hr Vendor/ID# ABS/756

Feeding Times

Day	Technician/Time/Amount (per replicate)		
	AM	NOON	PM
0			
1	<u>SW/10850/0.10ml</u>	<u>SW/1100/0.10ml</u>	<u>SW/11405/0.20ml</u>
2	<u>SC/10850/0.10ml</u>	<u>SC/1100/0.10ml</u>	<u>SW/11505/0.10ml</u>
3	<u>SW/10855/0.10ml</u>	<u>SW/1100/0.10ml</u>	<u>SW/11320/0.10ml</u>
4	<u>EGB/10845/0.20ml</u>	<u>---</u>	<u>EGB/11335/0.20ml</u>
5	<u>EGB/10815/0.20ml</u>	<u>---</u>	<u>EGB/11200/0.20ml</u>
6	<u>SW/10850/0.10ml</u>	<u>SW/1105/0.10ml</u>	<u>EGB/11500/0.20ml</u> <u>SC/11415/0.10ml</u>

Dissolved Oxygen Meter: Model YSI55D Serial #06E2089 AU
pH Meter: Model Orion 230A+ Serial #105253
Conductivity Meter: Model Control Company Serial #80277924
Amperometric Titrator: Model Fischer-Porter Serial #92W445766

Effluent Initial DO(mg/L & %)/Tech	Aerate?/Minutes /Final DO (mg/L & %)/Tech	Receiving Water Initial DO (mg/L & %)/Tech	Aerate?/Minutes /Final DO (mg/L & %)/Tech
0. <u>8.3/96.82/AH</u>	0. <u>NO/AH</u>	0. <u>NA</u>	0. <u>NA</u>
1. <u>9.0/105.8%/SW</u>	1. <u>Y/20/8.0/95.6%/SW</u>		
2. <u>8.9/102.7%/SC</u>	2. <u>Y/20/8.2/96.4%/SC</u>		
3. <u>9.5/114.6%/SW</u>	3. <u>Y/20/7.9/95.2%/SW</u>		
4. <u>9.4/114.3%/EGB</u>	4. <u>Y/20/7.8/94.3%/EGB</u>		
5. <u>8.7/104.4%/EGB</u>	5. <u>Y/16/7.8/93.3%/EGB</u>		
6. <u>10.4/124.7%/SW</u>	6. <u>Y/20/7.9/94.3%/SW</u>		

Total Residual Chlorine(mg/L)/Tech	Dechlorinated? Amount?/Tech	Ammonia(NH3) (mg/L)/Tech	BAL Sample # Date in use
1. <u>40.01/AH</u>	1. <u>NO/AH</u>	1. <u>6.0/AH</u>	1. <u>C7809 8/13/13</u>
2. <u>40.01/SC</u>	2. <u>NO/SC</u>	2. <u>3.0/SC</u>	2. <u>C7818 8/15/13</u>
3. <u><0.01/EGB</u>	3. <u>NO/EGB</u>	3. <u>1.0/EGB</u>	3. <u>C7831 8/17/13</u>

Comments:

BIO-ANALYTICAL LABORATORIES 7-DAY CHRONIC MINNOW SURVIVAL DATA

Project# X5187
 Client EDCC-001
 Technician: Day0 SW 1 SW 2 PH 3 SW 4 EGS 5 EGS 6 SW 7 SW
 Time: Day0 1345 1 1345 2 1040 3 1035 4 0840 5 0820 6 1030 7 0955
 Temperature Day0 24.9 1 24.7 2 25.3 3 24.8 4 25.3 5 24.9 6 25.0 7 26.2

Test started: Date 8/13/10 Time 1345
 Test ended: Date 8/20/10 Time 0955

Conc.	Rep.	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
0	A	8	8	8	7	7	7	7	7
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	6	5
	D	8	7	7	7	7	7	7	7
	E	8	8	8	8	8	8	8	8
32	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	7	7
	E	8	8	8	8	8	8	7	7
42	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8	7
	D	8	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8	8
56	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
75	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
100	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

SW 8/20/10

BIO-ANALYTICAL LABORATORIES 7-DAY CHRONIC MINNOW SURVIVAL DATA

Project# XS187
 Client EDCC-001
 Technician: Day0 940 1 942 2 944 3 946 4 948 5 950 6 952 7 954
 Time: Day0 1245 1 1235 2 1240 3 1235 4 0840 5 0600 6 1040 7 0955
 Temperature Day0 24.9 1 24.7 2 25.3 3 24.8 4 25.3 5 24.9 6 25.0 7 24.0

Test started: Date 8/15/10 Time 1345
 Test ended: Date 8/20/10 Time 0955

Conc.	Rep.	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
100 UV trid	A	8	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	7	7
	C	8	8	8	8	8	7	7	7
	D	8	8	8	8	8	7	7	7
	E	8	7	7	7	7	7	7	7
	A								
	B								
	C								
	D								
	E								
	A								
	B								
	C								
	D								
	E								
	A								
	B								
	C								
	D								
	E								
	A								
	B								
	C								
	D								
	E								

Project#/Client: X5187/EDCC Temp Start (°C): 103.0 Tech: JW Date: 8/20/13 Time: 0955
 Temp End (°C): 104.0 Tech: EH Date: 8/21/13 Time: 1030

Conc.	Replicate/ Pan number	Wt. of pan(g)/ Date weighed: Tech:	Wt. of pan + larvae(g)/ Date weighed: Tech:	Total wt. of larvae (g)	Original # of larvae at test initiation	Mean Dry wt. of larvae (mg)	Mean Dry wt. - surviving larvae (mg) Control Only*
0	A 1	0.9425 8/14/13 JW	0.9449 8/14/13 JC	0.0024	8	0.300	7) 0.343
	B 2	0.9444	0.9471	0.0027	8	0.338	
	C 3	0.9451	0.9468	0.0017	8	0.213	3) 0.340
	D 4	0.9460	0.9484	0.0024	8	0.300	7) 0.343
	E 5	0.9484	0.9512	0.0028	8	0.350	
32	A 6	0.9516	0.9552	0.0036	8	0.450	
	B 7	0.9533	0.9568	0.0035	8	0.438	
	C 8	0.9541	0.9575	0.0034	8	0.425	
	D 9	0.9507	0.9534	0.0027	8	0.338	
	E 10	0.9506	0.9539	0.0033	8	0.413	
42	A 11	0.9495	0.9530	0.0035	8	0.438	
	B 12	0.9472	0.9508	0.0036	8	0.450	
	C 13	0.9481	0.9512	0.0031	8	0.388	
	D 14	0.9455	0.9490	0.0035	8	0.438	
	E 15	0.9437	0.9479	0.0042	8	0.525	
56	A 16	0.9439	0.9476	0.0037	8	0.463	
	B 17	0.9427	0.9475	0.0048	8	0.600	
	C 18	0.9449	0.9488	0.0039	8	0.488	
	D 19	0.9458	0.9492	0.0034	8	0.425	
	E 20	0.9475	0.9518	0.0043	8	0.538	
75	A 21	0.9480	0.9518	0.0038	8	0.475	
	B 22	0.9482	0.9516	0.0034	8	0.425	
	C 23	0.9487	0.9529	0.0042	8	0.525	
	D 24	0.9480	0.9521	0.0041	8	0.513	
	E 25	0.9465	0.9504	0.0039	8	0.488	
100	A 26	0.9485	0.9525	0.0040	8	0.500	
	B 27	0.9466	0.9502	0.0036	8	0.450	
	C 28	0.9465	0.9502	0.0037	8	0.463	
	D 29	0.9456	0.9493	0.0037	8	0.463	
	E 30	0.9455	0.9503	0.0048	8	0.600	

* Test acceptance of control weight based on surviving larvae at end of test.

Calculated by: JC 8/21/13

Calculations checked by: EH 8/21/13

Project#/Client: X5197/EDCC Temp Start (°C): 103.0 Tech: SW Date: 8/20/13 Time: 0955
 Temp End (°C): 104.0 Tech: PH Date: 8/21/13 Time: 1030

Conc.	Replicate/ Pan number	Wt. of pan(g)/ Date weighed: Tech:	Wt. of pan + larvae(g)/ Date weighed: Tech:	Total wt. of larvae (g)	Original # of larvae at test initiation	Mean Dry wt. of larvae (mg)	Mean Dry wt. - surviving larvae (mg) Control Only*
100 UV trid	A 31	0.9442 8/14/13 SW	0.9482 8/21/13 SC	0.0040	8	0.500	
	B 32	0.9439 0.9439 8/14/13 SW	0.9478	0.0039	8	0.488	
	C 33	0.9421	0.9432	0.0031	8	0.388	
	D 34	0.9428	0.9455	0.0027	8	0.338	
	E 35	0.9433	0.9473	0.0040	8	0.500	
	A						
	B						
	C						
	D						
	E						
	A						
	B						
	C						
	D						
	E						
	A						
	B						
	C						
	D						
	E						

* Test acceptance of control weight, based on surviving larvae at end of test.

Calculated by: SC 8/21/13 Calculations checked by: PH 8/21/13

Day/# water used	03522	1	2	3 3528	4	5	6	7	8
Concentration: Control soft									
pH	7.4	7.4 / 7.6	7.4 / 7.4	7.3 / 7.5	7.4 / 7.3	7.2 / 7.1	7.1 / 7.6	7.0 / 7.0	
DO (mg/l)	8.1	7.9 / 8.3	7.9 / 8.3	7.6 / 8.5	7.4 / 8.4	6.8 / 8.3	5.8 / 8.3	6.1 / 6.1	
Cond (umhos/cm)	1108.1	1738	1760	1721	1674	1660	1753		
Alkalinity (mg/L)	28.0			28.0					
Hardness (mg/L)	48.0			44.0					
Concentration: 32% 7.3 pH 6.1/5									
pH	7.4	7.5 / 7.5	7.4 / 7.7	7.3 / 7.5	7.2 / 7.4	7.1 / 7.8	7.0 / 7.7	7.0 / 7.0	
DO (mg/l)	8.1	7.8 / 8.2	7.6 / 8.2	7.5 / 8.3	7.2 / 8.2	6.1 / 8.1	5.6 / 8.1	5.9 / 5.9	
Cond (umhos/cm)	229	236	234	231	229	224	234		
Concentration: 42%									
pH	7.4	7.5 / 7.6	7.4 / 7.7	7.4 / 7.7	7.3 / 7.8	7.1 / 7.5	7.0 / 7.9	7.0 / 7.0	
DO (mg/l)	8.1	7.6 / 8.2	7.5 / 8.2	7.3 / 8.2	7.1 / 8.1	5.9 / 8.1	5.5 / 8.1	6.0 / 6.0	
Cond (umhos/cm)	240	254	251	247	242	238	250		
Concentration: 56%									
pH	7.4	7.5 / 7.7	7.4 / 7.8	7.5 / 7.8	7.3 / 7.9	7.1 / 7.6	7.0 / 8.0	7.1 / 7.1	
DO (mg/l)	8.1	7.6 / 8.1	7.4 / 8.2	7.3 / 8.2	7.0 / 8.1	6.1 / 8.0	5.6 / 8.1	5.9 / 5.9	
Cond (umhos/cm)	270	280	276	273	260	263	275		
Concentration: 76%									
pH	7.4	7.6 / 7.7	7.4 / 7.9	7.5 / 7.9	7.4 / 8.0	7.2 / 7.8	7.1 / 8.0	7.1 / 7.1	
DO (mg/l)	8.1	7.5 / 8.1	7.3 / 8.2	7.2 / 8.1	7.1 / 8.0	5.9 / 8.0	5.6 / 8.1	6.1 / 6.1	
Cond (umhos/cm)	306	316	314	307	302	297	311		
Concentration: 100%									
pH	7.3	7.6 / 7.8	7.5 / 7.9	7.6 / 8.0	7.4 / 8.1	7.2 / 8.0	7.2 / 8.1	7.2 / 7.2	
DO (mg/l)	8.0	7.5 / 8.3	7.2 / 8.1	7.3 / 8.0	7.0 / 7.8	5.8 / 7.8	5.8 / 8.0	5.7 / 5.7	
Cond (umhos/cm)	356	364	360	355	351	343	361		
Tech-prerenewal		SW	PH	SW	ECB	ECB	SW	SW	
Tech-postrenewal	PH	SW	PC	SW	ECB	ECB	SW		
Alkalinity (mg/l)	64.0		56.0		60.0				
Hardness (mg/l)	44.0		48.0		40.0				

Key: prerenewal/postrenewal

Day/# water used	0	1	2	3	4	5	6	7	8
Concentration:	Control	100% UV treated							
pH	7.5	7.7	7.6	7.8	7.7	7.9	8.0	7.5	7.3
DO (mg/l)	7.7	7.8	7.8	7.7	7.5	5.9	5.9	5.9	5.9
Cond (umhos/cm)	357	370	363	355	349	336	356		
Alkalinity (mg/L)									
Hardness (mg/L)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Concentration:									
pH									
DO (mg/l)									
Cond (umhos/cm)									
Tech-prerenewal		SW	AH	SW	ECB	ECB	SW	SW	
Tech-postrenewal	AH	SW	LC	SW	ECB	ECB	SW		
Alkalinity (mg/l)									
Hardness (mg/l)									

Key: prerenewal/postrenewal

APPENDIX C
STATISTICAL ANALYSIS

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date: 8/13/2013 Test ID: X5187CD Sample ID: 1
 End Date: 8/21/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
42	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100UV	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's 1-Tailed Exact P	Critical
D-Control	1.0000	1.0000	0	10	10	10		
32	1.0000	1.0000	0	10	10	10	1.0000	0.0500
42	1.0000	1.0000	0	10	10	10	1.0000	0.0500
56	1.0000	1.0000	0	10	10	10	1.0000	0.0500
75	1.0000	1.0000	0	10	10	10	1.0000	0.0500
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500
100UV	0.8000	0.8000	2	8	10	10	0.2368	0.0500

Hypothesis Test (1-tail, 0.05)

Fisher's Exact Test Indicates no significant differences
 Treatments vs D-Control

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 8/13/2013 Test ID: X5187CD Sample ID: 1
 End Date: 8/21/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: CD-Ceriodaphnia dubia

Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	27.000	10.000	27.000	26.000	19.000	31.000	27.000	21.000	30.000
32	27.000	16.000	16.000	25.000	23.000	24.000	7.000	24.000	29.000	27.000
42	23.000	28.000	27.000	18.000	23.000	22.000	28.000	18.000	27.000	20.000
56	20.000	19.000	26.000	20.000	23.000	27.000	28.000	24.000	18.000	25.000
75	22.000	19.000	29.000	22.000	19.000	21.000	24.000	16.000	19.000	22.000
100	16.000	17.000	24.000	18.000	17.000	18.000	11.000	21.000	17.000	12.000
100UV	13.000	19.000	24.000	23.000	13.000	19.000	20.000	22.000		

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%					
D-Control	24.000	1.0000	24.000	10.000	31.000	25.984	10				
32	21.800	0.9083	21.800	7.000	29.000	31.097	10	1.034	2.462	5.240	
42	23.400	0.9750	23.400	18.000	28.000	16.879	10	0.282	2.462	5.240	
56	23.000	0.9583	23.000	18.000	28.000	15.474	10	0.470	2.462	5.240	
75	21.300	0.8875	21.300	16.000	29.000	16.569	10	1.268	2.462	5.240	
*100	16.900	0.7042	16.900	11.000	24.000	22.393	10	3.336	2.462	5.240	
100UV	19.125	0.7969	19.125	13.000	24.000	21.907	8	2.159	2.462	5.558	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Kolmogorov D Test indicates normal distribution (p > 0.05)	0.81108	0.895	-0.8423	1.29158		
Bartlett's Test indicates equal variances (p = 0.22)	8.29013	16.8119				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Bonferroni t Test indicates significant differences Treatments vs D-Control	5.55792	0.23158	63.1262	22.6537	0.01843	6, 61

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 8/13/2013 Test ID: X5187CD Sample ID: 1
 End Date: 8/21/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	27.000	10.000	27.000	26.000	19.000	31.000	27.000	21.000	30.000
32	27.000	16.000	16.000	25.000	23.000	24.000	7.000	24.000	29.000	27.000
42	23.000	28.000	27.000	18.000	23.000	22.000	28.000	18.000	27.000	20.000
56	20.000	19.000	26.000	20.000	23.000	27.000	28.000	24.000	18.000	25.000
75	22.000	19.000	29.000	22.000	19.000	21.000	24.000	16.000	19.000	22.000
100	16.000	17.000	24.000	18.000	17.000	16.000	11.000	21.000	17.000	12.000
100UV	13.000	0.000	0.000	19.000	24.000	23.000	13.000	19.000	20.000	22.000

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
D-Control	24.000	1.0000	24.000	10.000	31.000	25.984	10				
32	21.800	0.9083	21.800	7.000	29.000	31.097	10	0.880	2.347	5.865	
42	23.400	0.9750	23.400	18.000	28.000	16.879	10	0.240	2.347	5.865	
56	23.000	0.9583	23.000	18.000	28.000	15.474	10	0.400	2.347	5.865	
75	21.300	0.8875	21.300	16.000	29.000	16.569	10	1.080	2.347	5.865	
*100	16.900	0.7042	16.900	11.000	24.000	22.393	10	2.841	2.347	5.865	
*100UV	15.300	0.6375	15.300	0.000	24.000	57.974	10	3.481	2.347	5.865	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Kolmogorov D Test indicates normal distribution (p > 0.05)	0.7141	0.895	-1.0228	1.40831		
Bartlett's Test indicates equal variances (p = 0.02)	15.2339	16.8119				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnnett's Test Indicates significant differences Treatments vs D-Control	5.8654	0.24439	114.248	31.2238	0.00352	6, 63

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 8/13/2013 Test ID: X5187CD Sample ID: 1
 End Date: 8/21/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: CD-Ceriodaphnia dubia
 Comments:

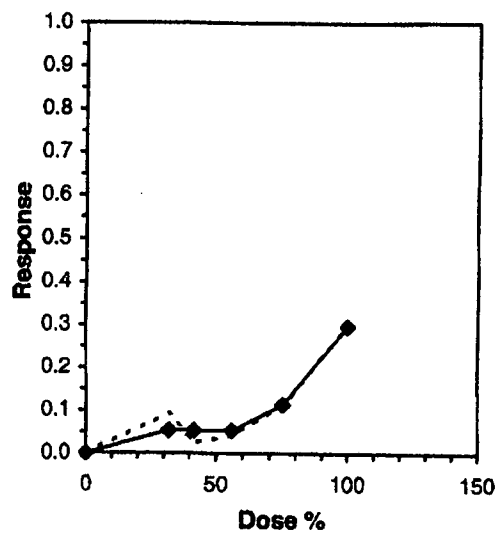
Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	27.000	10.000	27.000	26.000	19.000	31.000	27.000	21.000	30.000
32	27.000	16.000	16.000	25.000	23.000	24.000	7.000	24.000	29.000	27.000
42	23.000	28.000	27.000	18.000	23.000	22.000	28.000	18.000	27.000	20.000
56	20.000	19.000	26.000	20.000	23.000	27.000	28.000	24.000	18.000	25.000
75	22.000	19.000	29.000	22.000	19.000	21.000	24.000	16.000	19.000	22.000
100	16.000	17.000	24.000	18.000	17.000	16.000	11.000	21.000	17.000	12.000
100UV	13.000	0.000	0.000	19.000	24.000	23.000	13.000	19.000	20.000	22.000

Conc-%	Transform: Untransformed							Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	24.000	1.0000	24.000	10.000	31.000	25.984	10	24.000	1.0000
32	21.800	0.9083	21.800	7.000	29.000	31.097	10	22.733	0.9472
42	23.400	0.9750	23.400	18.000	28.000	16.879	10	22.733	0.9472
56	23.000	0.9583	23.000	18.000	28.000	15.474	10	22.733	0.9472
75	21.300	0.8875	21.300	16.000	29.000	16.569	10	21.300	0.8875
100	16.900	0.7042	16.900	11.000	24.000	22.393	10	16.900	0.7042
100UV	15.300	0.6375	15.300	0.000	24.000	57.974	10		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution ($p > 0.05$)	0.7141	0.895	-1.0228	1.40831
Bartlett's Test indicates equal variances ($p = 0.02$)	15.2339	16.8119		

Linear Interpolation (200 Resamples)					
Point	%	SD	95% CL	Skew	
IC05*	30.316	23.862	8.862	79.605	0.1453
IC10	71.023				
IC15	80.114				
IC20	86.932				
IC25	93.750				
IC40	>100				
IC50	>100				

* indicates IC estimate less than the lowest concentration



Larval Fish Growth and Survival Test-7 Day Survival

Start Date: 8/13/2013 Test ID: X5187PP Sample ID: 1
 End Date: 8/20/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: PP-Pimephales promelas

Comments:

Conc-%	1	2	3	4	5
D-Control	0.8750	1.0000	0.6250	0.8750	1.0000
32	1.0000	1.0000	1.0000	0.8750	0.8750
42	1.0000	1.0000	0.8750	1.0000	1.0000
56	1.0000	1.0000	1.0000	1.0000	1.0000
75	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000
100UV	1.0000	0.8750	0.8750	0.8750	0.8750

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%	N		
D-Control	0.8750	1.0000	1.2234	0.9117	1.3931	16.097	5		
32	0.9500	1.0857	1.3196	1.2094	1.3931	7.623	5	31.00	16.00
42	0.9750	1.1143	1.3564	1.2094	1.3931	6.055	5	33.00	16.00
56	1.0000	1.1429	1.3931	1.3931	1.3931	0.000	5	35.00	16.00
75	1.0000	1.1429	1.3931	1.3931	1.3931	0.000	5	35.00	16.00
100	1.0000	1.1429	1.3931	1.3931	1.3931	0.000	5	35.00	16.00
100UV	0.9000	1.0286	1.2462	1.2094	1.3931	6.591	5	27.00	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.84482	0.934	-1.09	4.80523
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)				
Steel's Many-One Rank Test indicates no significant differences				
Treatments vs D-Control				

Larval Fish Growth and Survival Test-7 Day Growth

Start Date: 8/13/2013 Test ID: X5187PP Sample ID: 1
 End Date: 8/20/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: PP-Pimephales promelas

Comments:

Conc-%	1	2	3	4	5
D-Control	0.3000	0.3375	0.2125	0.3000	0.3500
32	0.4500	0.4375	0.4250	0.3375	0.4125
42	0.4375	0.4500	0.3875	0.4375	0.5250
56	0.4625	0.6000	0.4875	0.4250	0.5375
75	0.4750	0.4250	0.5250	0.5125	0.4875
100	0.5000	0.4500	0.4625	0.4625	0.6000
100UV	0.5000	0.4875	0.3875	0.3375	0.5000
0-SN	0.3429	0.3375	0.3400	0.3429	0.3500

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
D-Control	0.3000	1.0000	0.3000	0.2125	0.3500	17.922	5				
32	0.4125	1.3750	0.4125	0.3375	0.4500	10.714	5	-3.322	2.443	0.0827	
42	0.4475	1.4917	0.4475	0.3875	0.5250	11.068	5	-4.355	2.443	0.0827	
56	0.5025	1.6750	0.5025	0.4250	0.6000	13.557	5	-5.979	2.443	0.0827	
75	0.4850	1.6167	0.4850	0.4250	0.5250	8.027	5	-5.462	2.443	0.0827	
100	0.4950	1.6500	0.4950	0.4500	0.6000	12.448	5	-5.757	2.443	0.0827	
100UV	0.4425	1.4750	0.4425	0.3375	0.5000	17.020	5	-4.207	2.443	0.0827	
0-SN	0.3426	1.1421	0.3426	0.3375	0.3500	1.366	5	-1.259	2.443	0.0827	

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.05$)	0.97714	0.94	-0.0345	-0.1066
Bartlett's Test indicates equal variances ($p = 0.02$)	16.826	18.4753		
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE
Dunnett's Test indicates no significant differences Treatments vs D-Control	0.08278	0.27576	0.02699	0.00287
			2.7E-06	7, 32

Larval Fish Growth and Survival Test-7 Day Growth

Start Date: 8/13/2013 Test ID: X5187PP Sample ID: 1
 End Date: 8/20/2013 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 8/13/2013 Protocol: EPAFW02-EPA/821/R-02-01 Test Species: PP-Pimephales promelas

Comments:

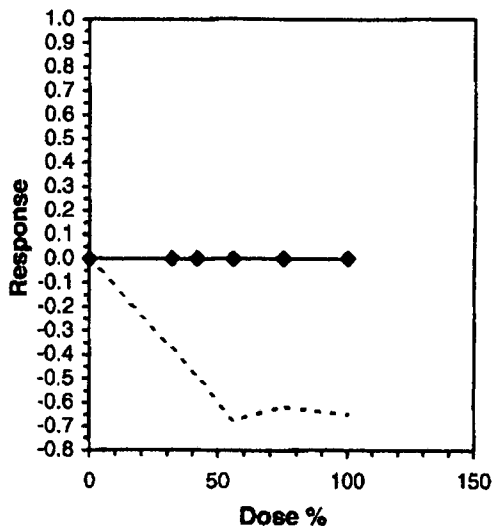
Conc-%	1	2	3	4	5
D-Control	0.3000	0.3375	0.2125	0.3000	0.3500
32	0.4500	0.4375	0.4250	0.3375	0.4125
42	0.4375	0.4500	0.3875	0.4375	0.5250
56	0.4625	0.6000	0.4875	0.4250	0.5375
75	0.4750	0.4250	0.5250	0.5125	0.4875
100	0.5000	0.4500	0.4625	0.4625	0.6000
100UV	0.5000	0.4875	0.3875	0.3375	0.5000
0-SN	0.3429	0.3375	0.3400	0.3429	0.3500

Conc-%	Transform: Untransformed							Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.3000	1.0000	0.3000	0.2125	0.3500	17.922	5	0.4404	1.0000
32	0.4125	1.3750	0.4125	0.3375	0.4500	10.714	5	0.4404	1.0000
42	0.4475	1.4917	0.4475	0.3875	0.5250	11.068	5	0.4404	1.0000
56	0.5025	1.6750	0.5025	0.4250	0.6000	13.557	5	0.4404	1.0000
75	0.4850	1.6167	0.4850	0.4250	0.5250	8.027	5	0.4404	1.0000
100	0.4950	1.8500	0.4950	0.4500	0.6000	12.448	5	0.4404	1.0000
100UV	0.4425	1.4750	0.4425	0.3375	0.5000	17.020	5		
0-SN	0.3426	1.1421	0.3426	0.3375	0.3500	1.366	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.05$)	0.97714	0.94	-0.0345	-0.1066
Bartlett's Test Indicates equal variances ($p = 0.02$)	16.826	18.4753		

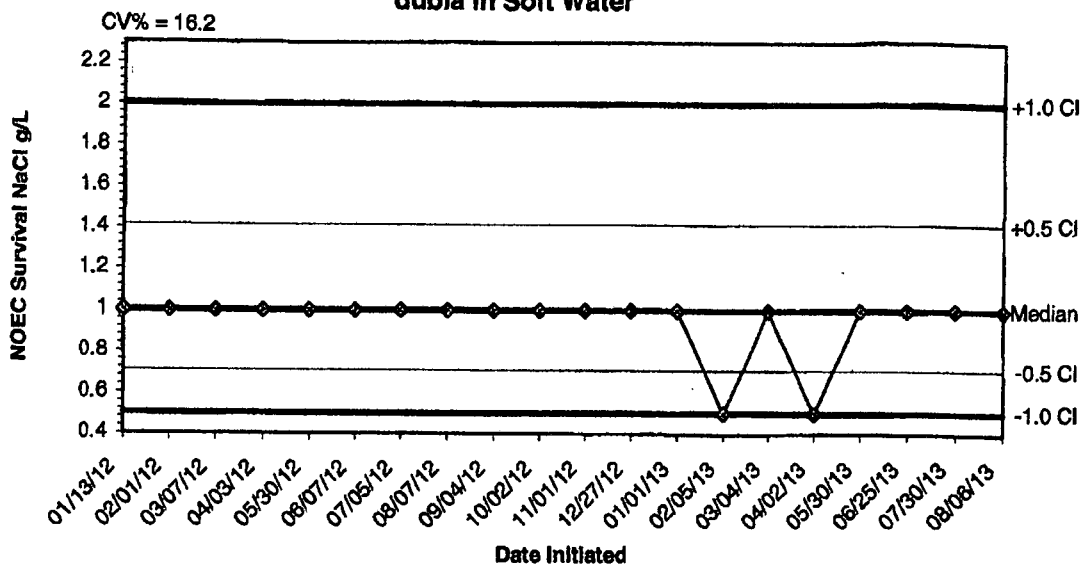
Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



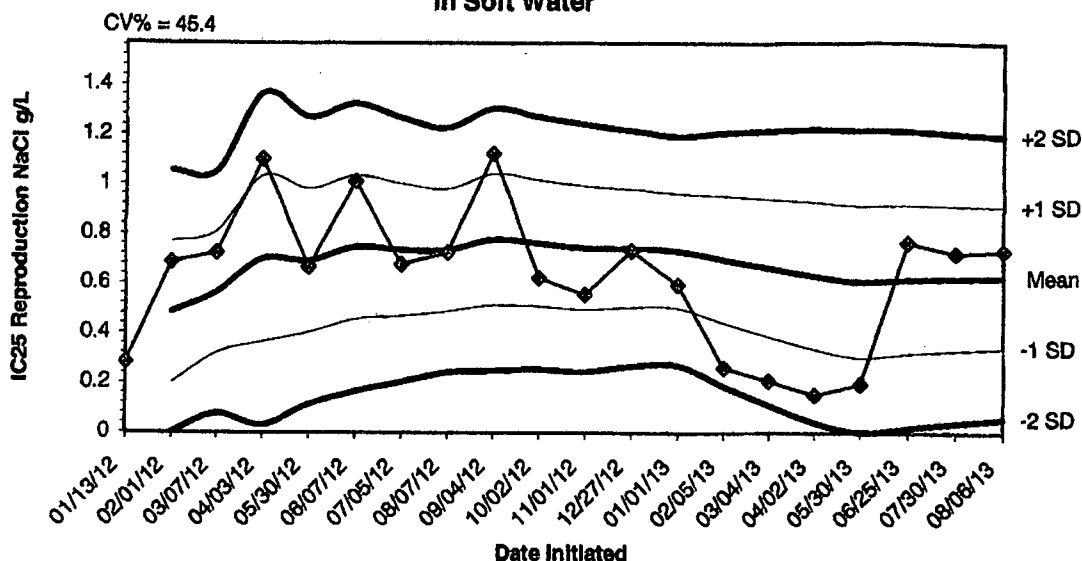
APPENDIX D
QUALITY ASSURANCE CHARTS

2013 Chronic Reference Toxicant Test Results using Ceriodaphnia dubia in Soft Water

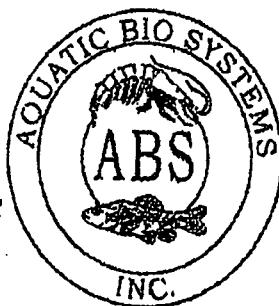


Dates	Values	Median	-0.5 CI	-1.0 CI	+0.5 CI	+1.0 CI
01/13/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
02/01/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
03/07/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
04/03/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
05/30/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
08/07/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
07/05/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
08/07/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
09/04/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
10/02/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
11/01/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
12/27/12	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
01/01/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
02/05/13	0.5000	1.0000	0.7071	0.5000	1.4142	2.0000
03/04/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
04/02/13	0.5000	1.0000	0.7071	0.5000	1.4142	2.0000
05/30/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
08/25/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
07/30/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000
08/08/13	1.0000	1.0000	0.7071	0.5000	1.4142	2.0000

**2013 Chronic Reference Toxicant Test Results for Ceriodaphnia dubia
In Soft Water**



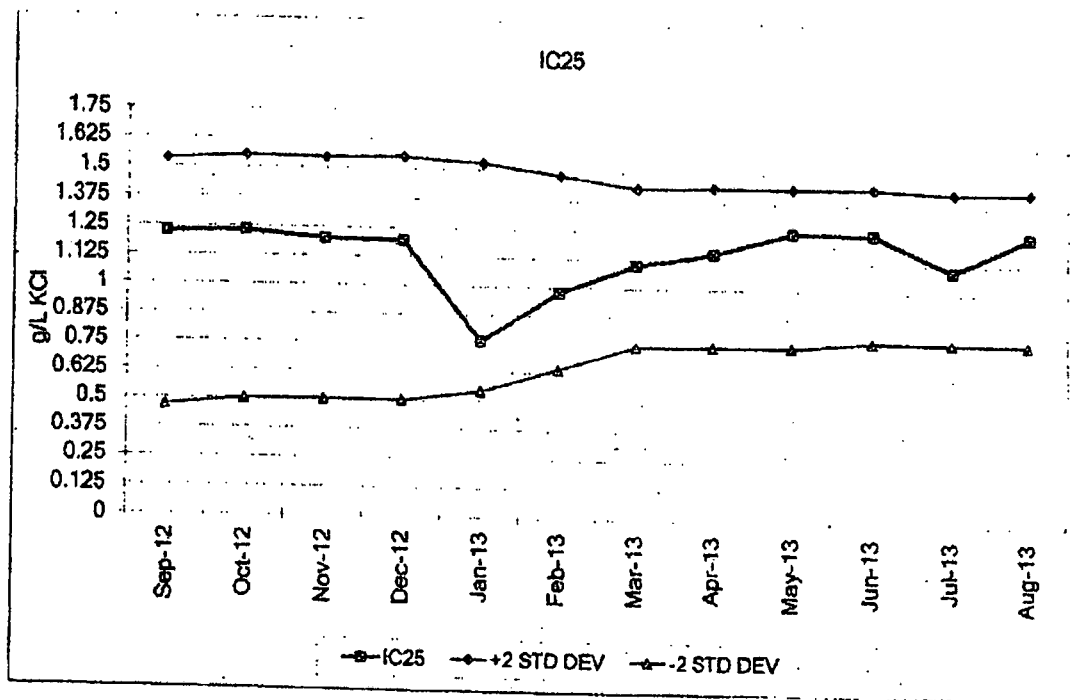
Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
01/13/12	0.2835					
02/01/12	0.6864	0.4850	0.2001	0.0000	0.7698	1.0547
03/07/12	0.7233	0.5644	0.3204	0.0765	0.8084	1.0523
04/03/12	1.1000	0.6983	0.3645	0.0308	1.0321	1.3658
05/30/12	0.6660	0.6918	0.4024	0.1130	0.9812	1.2707
06/07/12	1.0102	0.7449	0.4553	0.1656	1.0345	1.3242
07/05/12	0.6765	0.7351	0.4695	0.2038	1.0008	1.2665
08/07/12	0.7250	0.7339	0.4879	0.2419	0.9799	1.2258
09/04/12	1.1229	0.7771	0.5130	0.2488	1.0412	1.3053
10/02/12	0.8225	0.7616	0.5079	0.2541	1.0154	1.2692
11/01/12	0.5553	0.7429	0.4942	0.2455	0.9915	1.2402
12/27/12	0.7326	0.7420	0.5049	0.2678	0.9791	1.2162
01/01/13	0.5948	0.7307	0.5000	0.2694	0.9613	1.1920
02/05/13	0.2615	0.6972	0.4426	0.1879	0.9518	1.2064
03/04/13	0.2108	0.6648	0.3891	0.1135	0.9404	1.2160
04/02/13	0.1529	0.6328	0.3373	0.0419	0.9282	1.2236
05/30/13	0.1943	0.6070	0.3018	0.0000	0.9122	1.2173
06/25/13	0.7643	0.6157	0.3173	0.0189	0.9141	1.2125
07/30/13	0.7212	0.6213	0.3303	0.0393	0.9122	1.2032
08/06/13	0.7333	0.6269	0.3425	0.0582	0.9112	1.1955



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Pimephales promelas



Chronic 7 Day Survival Test Data

Date	NOEC (g/L KCl)	LOEC (g/L KCl)
Mar-13	0.50	1.0
Apr-13	0.50	1.0
May-13	0.50	1.0
Jun-13	0.50	1.0
Jul-13	0.50	1.0
Aug-13	0.50	1.0

IC 25 for Growth Test

Date	IC25 g/L KCl	95% Confidence (upper) (lower)	Avg. IC25 g/L KCl	+2 STD DEV	-2 STD DEV
Mar-13	1.103	1.288 0.885	1.090	1.433	0.748
Apr-13	1.158	1.283 0.930	1.095	1.439	0.751
May-13	1.250	1.250 1.152	1.095	1.439	0.751
Jun-13	1.250	1.250 1.162	1.114	1.446	0.782
Jul-13	1.099	1.148 0.964	1.107	1.433	0.781
Aug-13	1.250	1.250 1.250	1.109	1.439	0.780

**Current Test Dates: 7/31-8/7/2013

Aquatic BioSystems, Inc • Quality Research Organisms

APPENDIX E
AGENCY FORMS

**SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING**

Ceriodaphnia dubia Survival and Reproduction

Permittee: El Dorado Chemical
Outfall 001

NPDES No.: AR0000752
AFIN: 70-00040

	Time	Date	Time	Date
Composite 1 Collected From	0830	8/11/13 To	0830	8/12/13
Composite 2 Collected From	0830	8/13/13 To	0830	8/14/13
Composite 3 Collected From	0830	8/15/13 To	0830	8/16/13
Test initiated:	1040 am/pm		8/13/13	date
Test terminated:	1320 am/pm		8/21/13	date
Dilution water used:	Receiving	X	Reconstituted	

PERCENT SURVIVAL

Time of Reading	Percent Effluent						
	0	32	42	56	75	100	100UV
24h	100	100	100	100	100	100	100
48h	100	100	100	100	100	100	90.0
End of test	100	100	100	100	100	100	80.0

NUMBER OF YOUNG PRODUCED PER FEMALE @ END OF TEST

Rep	0	32	42	56	75	100	100UV
A	22	27	23	20	22	16	13
B	27	16	28	19	19	17	D
C	10	16	27	26	29	24	D
D	27	25	18	20	22	18	19
E	26	23	23	23	19	17	24
F	19	24	22	27	21	16	23
G	31	7	28	28	24	11	13
H	27	24	18	24	16	21	19
I	21	29	27	18	19	17	20
J	30	27	20	25	22	12	22
Surv. Mean	24.0	21.8	23.4	23.0	21.0	16.9	19.1
Total Mean	24.0	21.8	23.4	23.0	21.3	16.9	15.3
CV%*	25.98	31.10	16.88	15.47	16.57	22.39	21.91

*coefficient of variation = standard deviation x 100/mean. D=dead adult
PMSD = 24.4%

Ceriodaphnia dubia
Survival and Reproduction (cont)

1. Fisher's Exact Test:

Is the mean survival at the end of the test significantly different ($p=.05$) than the control survival for the % effluent corresponding to (lethality):

- | | | | |
|--|-----|---|----|
| a) LOW FLOW OR CRITICAL DILUTION (100%): | YES | X | NO |
| b) 1/2 LOW FLOW DILUTION (N/A %): | YES | | NO |

2. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

Is the mean number of young produced per female significantly different ($p=.05$) than the control's number of young per female for the % effluent corresponding to (significant non-lethal effects):

- | | | | |
|--|---|-----|----|
| a) LOW FLOW OR CRITICAL DILUTION (100%): | X | YES | NO |
| b) 1/2 LOW FLOW DILUTION (N/A %): | | YES | NO |

3. If you answered NO to 1. a) and 2. a) enter (0) otherwise enter (1): 1

4. If you answered NO to 1. b) and 2. b) enter (0) otherwise enter (1): N/A

5. Enter response to item 3 on DMR Form, parameter #TEP3B.

6. Enter response to item 4 on DMR Form, parameter #TFP3B.

7. Enter percent effluent corresponding to each NOEC below and circle lowest number:

- | | |
|-----------------------|-----------------|
| a) NOEC survival: | 100.0% effluent |
| b) NOEC reproduction: | 75.0% effluent |
| c) LOEC survival: | N/A% effluent |
| d) LOEC reproduction: | 100.0% effluent |

**SUMMARY REPORTING FORMS CHRONIC BIOMONITORING
FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(Pimephales promelas)**

Permittee: El Dorado Chemical
Outfall 001

NPDES No.: AR0000752
AFIN: 70-00040

	Time	Date	Time	Date
Composite 1 Collected from:	0830	8/11/13 To	0830	8/12/13
Composite 2 Collected from:	0830	8/13/13 To	0830	8/14/13
Composite 3 Collected from:	0830	8/15/13 To	0830	8/16/13
Test initiated:	1345	am/pm	8/13/13	date
Test terminated:	0955	am/pm	8/20/13	date
Dilution water used:	Receiving		Reconstituted	

DATA TABLE FOR SURVIVAL

Effluent Conc. %	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0	87.5	100.0	62.5	87.5	100.0	97.5	97.5	87.5	16.10
32	100.0	100.0	100.0	87.5	87.5	100.0	100.0	95.0	7.62
42	100.0	100.0	87.5	100.0	100.0	100.0	100.0	97.5	6.06
56	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.00
100 UV	100.0	87.5	87.5	87.5	87.5	97.5	97.5	90.0	6.59

DATA TABLE FOR GROWTH

Effluent Conc. %	Average Dry Weight in milligrams in replicate chambers					Mean Dry Weight mg	CV*
	A	B	C	D	E		
0	0.300	0.338	0.213	0.300	0.350	0.300	17.92
32	0.450	0.438	0.425	0.338	0.413	0.413	10.71
42	0.438	0.450	0.388	0.438	0.525	0.448	11.07
56	0.463	0.600	0.488	0.425	0.538	0.503	13.56
75	0.475	0.425	0.525	0.513	0.488	0.485	8.03
100	0.500	0.450	0.463	0.463	0.600	0.495	12.45
100 UV	0.500	0.488	0.388	0.338	0.500	0.443	17.02
0-SN	0.343	0.338	0.340	0.343	0.350	0.343	1.37

*coefficient of variation = standard deviation x 100/mean.

PMSD = 27.6%

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (cont)
(Pimephales promelas)

1. Dunnett's Procedure or Steels Many-One Rank Test as appropriate:

Is the mean survival at 7 days significantly different ($p=.05$) than the control survival for the % effluent corresponding to:

- | | | | |
|---|-----|---|----|
| a) LOW FLOW OR CRITICAL DILUTION (100%) | YES | X | NO |
| b) 1/2 LOW FLOW DILUTION (N/A%) | YES | | NO |

2. Dunnett's Procedure (or appropriate test):

Is the mean dry weight (growth) at 7 days significantly different ($p=.05$) than the control's dry weight for the % effluent corresponding to (significant non-lethal effects):

- | | | | |
|---|-----|---|----|
| a) LOW FLOW OR CRITICAL DILUTION (100%) | YES | X | NO |
| b) 1/2 LOW FLOW DILUTION (N/A%) | YES | | NO |

3. If you answered NO to 1. a) and 2. a) enter (0) otherwise enter (1): 0

4. If you answered NO to 1. b) and 2. b) enter (0) otherwise enter (1): N/A

5. Enter response to item 3 on DMR Form, parameter #TEP6C.

6. Enter response to item 4 on DMR Form, parameter #TFP6C.

7. Enter percent effluent corresponding to each NOEC below and circle lowest number:

- | | |
|-------------------|------------------|
| a.) NOEC survival | 100.0% effluent. |
| b.) NOEC growth | 100.0% effluent. |
| c.) LOEC survival | N/A% effluent |
| d.) LOEC growth | N/A% effluent |

APPENDIX F
REPORT QUALITY ASSURANCE FORM

From: (870) 863-1125 Origin ID: ELDA
 Larken Pennington
 EL DORADO CHEMICAL COMPANY
 4500 Northwest Ave.
 El Dorado, AR 71730



Ship Date: 24SEP13
 Act/Wgt: 2.0 LB
 CAD: 5887030/NET3430

Delivery Address Bar Code



SHIP TO: (870) 863-1484 BILL SENDER
ADEQ - Water Division Enforcement
ADEQ - Water Division Enforcement
5301 NORTSHORE DR

NORTH LITTLE ROCK, AR 72118

Ref #
 Invoice #
 PO #
 Dept #

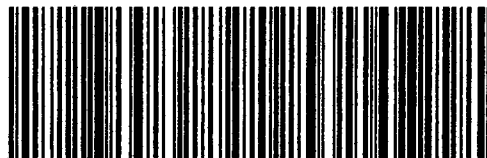
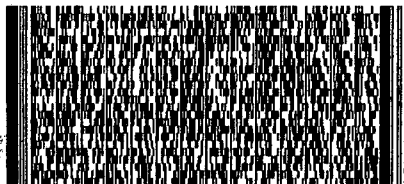
WED - 25 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7987 5592 9921

0201

72118
 AR-US
 LIT

X2 LITA



51AG132561A8E

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.

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