

4500 NORTH WEST AVE. • P.O. BOX 231 • EL DORADO, AR. 71731 • (870) 863-1400



April 23, 2015

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 March 31 , 2015.

Enclosed you will find the Discharge Monitoring Reports ending March, 2015. The DMR's for Outfall 010-A were entered on the blank DMR forms provided by Amy Schluterman, ADEQ Water Enforcement.

If you have any questions regarding this report, please contact Edward L Pearson at (870) 863-1400.

Sincerely,

A handwritten signature in cursive script that reads "Edward L Pearson".

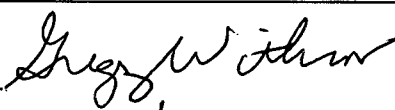
Edward L Pearson

Environmental Technician

Enclosures

NON-COMPLIANCE REPORT

Facility Name: El Dorado Chemical Company
Permit Number: AR0000752 **AFIN:** 70-00040
Month / Year: Mar-15

Type of Violation	Permit Limit	Date of Violation	Cause of Violation	Corrective Action or Other Narrative
Outfall 003 Coliform, fecal general daily Max(4600 col/100ml)	2000 col/100 ml Daily Max	1/8/2015	Unknown	EDCC has added nitrification bacteria on a weekly basis to promote bacteria growth within the Imhoff system.
Outfall 006/Zinc Monthly Average (630 ug/L)	115.62 ug/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 006 /Zinc Daily Max (630 ug/L)	231.99 ug/L Daily Max	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 006 / Lead Monthly Average (64 ug/L)	3.8 ug/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 006 / Lead Daily Max. (64 ug/L)	7.62 ug/L Daily Max.	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 006 TDS Monthly Average (700 mg/L)	291 mg/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 006 TDS Daily Max (700 mg/L)	436.5 mg/L Daily Max	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007 / Zinc Monthly Average (550 ug/L)	115.62 ug/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007 / Zinc Daily Max(550 ug/L)	231.99 ug/L Daily Max	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007 / Lead Monthly Average (6.40 ug/L)	3.8 ug/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007 / TDS Monthly Average (460 mg/L)	291 mg/L Monthly Average	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007/TDS Daily Max(460 mg/L)	436.5 mg/L Daily Max	3/2/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
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.)				 4/22/15 Signature / Date

Bio-Analytical Laboratories (BAL)
ADEQ#88-0630
Project X5680

Bio-Analytical Laboratories' Executive Summary

Permittee: El Dorado Chemical Company
P.O. Box 231
El Dorado, AR 71731

Project #: X5680

Outfall: Outfall 006 (contaminated storm water)

Permit #: AR0000752/ AFIN #70-00040

Contact: Mr. David Sartain

Test Dates: March 3 - 5, 2015

Test Type: 48-hour acute toxicity test using *Pimephales promelas* (EPA 2000.0).
48-hour acute toxicity test using *Daphnia pulex* (EPA 2021.0)

Results:

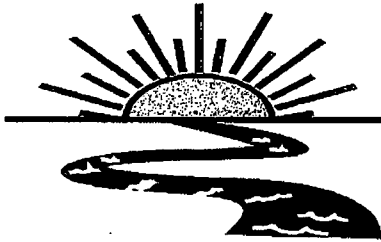
For *Pimephales promelas*:

1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter No. TEM6C- 0- **Pass**.
2. Report the NOEC for survival, Parameter TOM6C - 100.0%.
3. Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM6C - 6.06%.

For *Daphnia pulex*:

1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D- 0 - **Pass**.
 2. Report the NOEC for survival, Parameter TOM3D -100.0%.
 3. Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM3D - 0.00%.
- Due to lack of available neonates, an abbreviated daphnid test was conducted.

This report contains a total of 31 pages, including this page. The results pertain only to the samples listed in the chain of custody documents in Appendix A. The information contained within meets the requirements set forth by ADEQ. The chemical data in this report is for monitoring purposes only and should not be reported on discharge monitoring reports.



Bio-Analytical Laboratories

3240 Spurgin Road
Post Office Box 527
Doyline, LA 71023

(318) 745-2772
1-800-259-1246
Fax: (318) 745-2773

**THE RESULTS OF TWO 48-HOUR ACUTE
TOXICITY TESTS
FOR OUTFALL 006
AT**

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

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

EPA Methods 2000.0 and 2021.0

Project X5680

**Test Dates: March 3 - 5, 2015
Report Date: April 8, 2015**

Prepared for:
Mr. David Sartain
El Dorado Chemical Company
P.O. Box 231
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 X5680

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BAL
ADEQ #88-0630
Project X5680

1.0 Introduction

Bio-Analytical Laboratories (BAL), Doyline, Louisiana conducted two 48-hour acute toxicity tests for Outfall 006 at El Dorado Chemical Company, El Dorado, Arkansas. The test organisms used were the fathead minnow, *Pimephales promelas* and the cladoceran, *Daphnia pulex*. The purpose of this study is to determine if an appropriately dilute effluent sample adversely affects the survival of the test organism. Toxicity is defined as a statistically significant difference at the 95 percent confidence level between the survival of the test organisms 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 of the test organisms in the control. The test endpoints are the No-Observed-Effect-Concentration (NOEC), which is defined as the highest effluent concentration that is not statistically different from the control, and the 48-hour LC_{50} , the concentration in which 50 percent of the test organisms died.

2.0 Methods and Materials

2.1 Test Methods

All methods followed were according to the latest edition of "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA-821-R-02-012), "Standard Methods for The Examination of Water and Wastewater. 20th Edition" (APHA 1998. Chemical results using this edition are listed in the report as SM 1997), and BAL's standard operating procedures.

2.2 Test Organisms

The fathead minnows were raised in-house and were approximately seven days old at test initiation. The minnows were acclimated to dilution water hardness prior to testing. The *Daphnia pulex* test organisms were also raised in-house at test temperature and were less than 24 hours old at test initiation. Forty-eight hour reference toxicant tests, using sodium chloride (NaCl), were conducted monthly in order to document organism sensitivity and demonstration of capability.

BAL
ADEQ #88-0630
Project X5680

2.3 Dilution Water

Soft reconstituted water made per EPA guidelines was used as the dilution water and the control for the acute tests.

2.4 Test Concentrations

The test concentrations used in the fathead minnow test were 100.0, 75.0, 56.0, 45.0, 32.0 and 22.0 percent effluent and a reconstituted water control. Due to lack of available neonates, the test concentrations used in the *Daphnia pulex* test were 100.0 and 22.0 percent effluent and a reconstituted water control. The critical dilution was defined as 100.0 percent effluent. The tests were conducted using five replicates of eight animals each for a total of 40 animals per concentration.

2.5 Sample Collection

One sample of Outfall 006 was collected by El Dorado Chemical personnel on March 1, 2015. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 0.2^o Celsius.

2.6 Sample Preparation

Upon arrival, the sample was logged in, given an identification number and refrigerated unless needed. Prior to use, the sample was warmed to 25±1^o Celsius. The total residual chlorine level (SM4500-Cl D 1997) was measured with a Capital Controls^R amperometric titrator and recorded if present. The total ammonia level was measured using a HACH^R test strip. Dissolved oxygen (SM4500-O G 1997), pH (SM4500-H+ B 1997) and conductivity (SM2510-B 1997) measurements were taken on the control and each test concentration at test initiation, at each renewal and at test termination. Alkalinity (SM2320-B 1997) and hardness (SM2340-C 1997) levels were measured on the control and the highest effluent concentration.

2.7 Monitoring of the Tests

The tests were run in a Precision^R dual controlled illuminated incubator at a temperature of 25±1^o Celsius. An AEMC^R data logger was used to monitor diurnal temperature throughout the testing period. Light cycle and intensity were recorded twice a month.

2.8 Data Analysis

The NOEC and LC₅₀ values values were obtained by approved EPA methods of analysis, using the ToxCalc statistical program.

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ADEQ #88-0630
Project X5680

3.0 Results and Discussion

The results of the tests can be found in Table 1. Significant differences in survival were not noted in the critical dilution in neither test after 48 hours of exposure ($p=.05$). The NOEC values for the tests was 100.0 percent effluent ($p=.05$). The 48-hour LC_{50} values could not be calculated because greater than 50.0 percent survival occurred in each effluent concentration. See Appendix C- Statistical Analyses, for more information.

Table 1: Results of the 48-hour Acute Definitive Toxicity Tests

Percent Effluent	Percent Survival	
	<i>Pimephales promelas</i>	<i>Daphnia pulex</i>
Control	100.0	100.0
22.0	97.5	100.0
32.0	97.5	-----
45.0	97.5	-----
56.0	97.5	-----
75.0	97.5	-----
100.0	97.5	100.0

The 48-hour reference toxicant test results indicated that the test organisms were within the respective sensitivity range. The graphs of the acute reference toxicant tests can be found in Appendix D.

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ADEQ #88-0630
Project X5680

4.0 Conclusions

The sample of Outfall 006 collected from El Dorado Chemical Company, El Dorado, Arkansas, on March 1, 2015, was not found to be lethally toxic to the fathead minnow test organisms nor the *Daphnia pulex* test organisms in the 100.0 percent critical dilution after 48 hours of exposure ($p=.05$). The 48-hour LC_{50} values could not be calculated because greater than 50.0 percent survival occurred in the effluent dilutions ($p=.05$).

BAL
ADEQ #88-0630
Project X5680

5.0 References

- EPA, 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. EPA-821-R-02-012, 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

3240 Spurgin Road
Post Office Box 627
Doyline, LA 71023

(318) 745-3772
1-800-259-1246
Fax: (318) 745-2778

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

X5680
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Laboratory Use Only:

Company: El Dorado Chemical Company		Phone: (870) 863-1484		Analysis:						Project Number: X5680				
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: 0.20C			
Permit #: AR0000752/AFIN 70-00040		Purchase Order:									Lab Control Number:		Therm # 29	
Sampler's Signature/Printed Name/Affiliation: <i>Edward L Pearson / Edward L Pearson / EDCL</i>													Preservative: (below) ECB 3/2/15	
Date Start Date End	Time Start Time End	C	G	# and type of container	Sample Identification									
03-01-2015	0900 2100	X		6 half gallons	006			X	X			C10592	116	
Relinquished by/Affiliation: <i>Edward L Pearson / EDCL</i>				Date: 3/2/15	Time: 1100	Received by/Affiliation: <i>J. B. [Signature]</i>				Date: 3-2-15	Time: 1115			
Relinquished by/Affiliation:				Date:	Time:	Received by/Affiliation:				Date:	Time:			
Relinquished by/Affiliation: <i>J. B. [Signature]</i>				Date: 3/2/15	Time: 1350	Received by/Affiliation: <i>Chad D. Buapp</i>				Date: 3/2/15	Time: 1350			
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
ACUTE TOXICITY TEST WATER QUALITY DATA

X5680
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Project# X5680

Client: EDCC/El Dorado Chemical Company

Address: 4500 Northwest Ave El Dorado AR 71731

NPDES# AR0000752 Outfall 006

Technicians: EGB/RC/CR

Test initiated: Date 3/3/15 Time 0850

Test terminated: Date 3/5/15 Time 1435

Dissolved Oxygen Meter: Model # YSI550A Serial #06E2089 AV

pH Meter: Model #Orion 230A+ Serial #015253

Conductivity Meter: Model # Control Co. Serial #122175539

Amperometric Titrator: Model #Fischer-Porter Serial #92W445766

Sample Information

Sample ID#	Initial D.O. (mg/L and %)	Aerate? Minutes/ Final D.O.(mg/L & %)	Total Residual Chlorine (mg/L)	Dechlor inated? Amount?	Ammonia (NH3) mg/L	Salinity	Hard-ness	Alkal-inity	Tech
C10592	9.7 123.1%	Y/10/81 100.2%	<0.01	NO	3.0	N/A	168.0	40.0	EGB
1	10.4 124.4%	Y/15/83 100.1%							

Dilution Water Information

Dilution Water	ID#	Initial D.O (mg/L & %)	Aerate? Minutes/D.O (mg/L & %)	Total Residual Chlorine (mg/L)	Ammonia (NH3) mg/L	pH	Hard-ness	Alkal-inity	Tech
Soft H2O	3696	N/A	-----	-----	-----	7.4	40.0	32.0	EGB

Test Species Information

Test Species Info.	Species: <u>D. pulex</u> ID#: <u>LIS-NIS</u>	Species: <u>P. promelas</u> ID#: <u>BP4022415</u>	Species: ID#:	Species: ID#:
Age	<24 hours	7 days		
Test Container Size	30 ml	250 ml		
Test volume	20 ml	200 ml		
Feeding: Type Amount	Algae/YCT ≥2.0 before initiation	Artemia		
Aeration? Amount	N/A	N/A		
Condition of survivors	Good RC 3/5/15	Good RC 3/5/15		

Comments: Due to lack of available D. pulex neonates, an abbreviated test was initiated EGB 3/3/15

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5680
 Client EDCC

Test started: Date 3/3/15 Time 1540
 Test ended: Date 3/5/15 Time 1435

Sample Description 006 Test Species D. pulex
 Technician: 0hour EBB 24hour RC 48hour RC 72hour _____ 96hour _____
 Time: 0hour 1540 24hour 1510 48hour 1435 72hour _____ 96hour _____
 Temperature (°C): 0hour 25.0 24hour 25.0 48hour 25.0 72hour _____ 96hour _____

ID# 45-N15

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
05	A	N/A	8	8	8			8.1	8.4 8.0	8.2			7.4	7.3 7.4	7.4			1725	1726 1735	201		
	B	}	8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
22	A		8	8	8			8.1	8.3 8.3	8.2			7.2	7.2 7.2	7.3			297	322 299	315		
	B		8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
Chemistry Tech prerenewal/postrenewal								EBB	RC	RC			EBB	RC	RC			EBB	RC	RC		

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5680

Test started: Date 3/3/15

Time 0850

Client EDCC

Test ended: Date 3/3/15

Time 1345

Sample Description 006

Test Species P. promelas ID# BA4022415

Technician: Ohour RC 24hour OK 48hour RC 72hour _____ 96hour _____

Time: Ohour 0850 24hour 1424 48hour 1345 72hour _____ 96hour _____

Temperature (°C): Ohour 24.5 24hour 26.4 48hour 26.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
010																						
05	A	N/A	8	8	8			8.1	7.0 8.3	8.2			7.4	7.1 7.4	7.1			172.5	184.0 133.5	178.0		
	B	}	8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
22	A		8	8	8			8.1	7.5 8.3	8.1			7.2	7.1 7.2	6.9			297	299 299	295		
	B		8	8	7																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
Chemistry Tech prerenewal/postrenewal								ESB	OK RC	RC			ESB	OK RC	RC			ESB	OK RC	RC		

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5680

Test started: Date 3/3/15 Time 0850

Client EDCC

Test ended: Date 3/5/15 Time 1345

Sample Description 006

Test Species P. promelas ID# BA4022415

Technician: Ohour RC 24hour CR 48hour RC 72hour _____ 96hour _____

Time: Ohour 0850 24hour 1424 48hour 1345 72hour _____ 96hour _____

Temperature (°C): Ohour 24.5 24hour 25.4 48hour 25.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
32	A	N/A	8	8	8			8.2	7.5	8.1			7.2	7.1	7.1			351	348	338		
	B	}	8	8	7																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
45	A	}	8	8	8			8.2	7.5	8.0			7.1	7.1	7.1			426	418	411		
	B		8	8	8																	
	C		8	8	7																	
	D		8	8	8																	
	E		8	8	8																	
Chemistry Tech prerenewal/postrenewal								RC	RC				RC	RC				RC	RC			

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5680

Test started: Date 3/3/15 Time 0850

Client EDCC

Test ended: Date 3/5/15 Time 1345

Sample Description 00L

Test Species P. promelas ID# BAI/02413

Technician: Ohour RC 24hour RC 48hour RC 72hour _____ 96hour _____
 Time: Ohour 0850 24hour 1424 48hour 1345 72hour _____ 96hour _____
 Temperature (°C): Ohour 24.5 24hour 25.4 48hour 25.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity							
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96			
010																									
56	A	N/A	8	8	8			8.2	7.7	8.1	7.9			7.2	7.1	7.2	7.1	490	470	465	463				
	B	}	8	8	8																				
	C		8	7	7																				
	D		8	8	8																				
	E		8	8	8																				
75	A		8	8	7			8.2	7.5	8.1	7.8			7.1	7.1	7.2	7.1	594	570	573	567				
	B		8	8	8																				
	C		8	8	8																				
	D		8	8	8																				
	E		8	8	8																				
Chemistry Tech prerenewal/postrenewal								RC	RC	RC	RC			RC	RC	RC	RC			RC	RC	RC	RC		

APPENDIX C
STATISTICAL ANALYSES

Daphnid Acute Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5680DP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: DP-Daphnia pulex
 Comments:

Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%			
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5		
22	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	18.00
100	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	18.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test Indicates normal distribution ($p > 0.05$)	1	0.881		
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1
Treatments vs D-Control				

Acute Fish Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5680PP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: PP-Plmephales promelas

Comments:

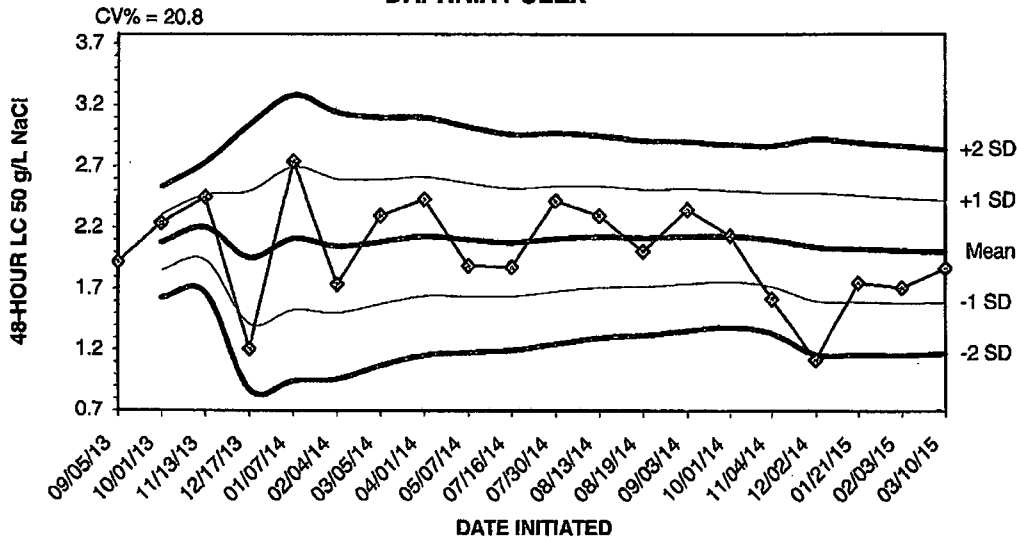
Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	0.8750	1.0000	1.0000	1.0000
32	1.0000	0.8750	1.0000	1.0000	1.0000
45	1.0000	1.0000	0.8750	1.0000	1.0000
56	1.0000	1.0000	0.8750	1.0000	1.0000
75	0.8750	1.0000	1.0000	1.0000	1.0000
100	1.0000	0.8750	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%			
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5		
22	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00
32	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00
45	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00
56	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00
75	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00
100	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.05$)	0.54743	0.934	-1.6937	1.1108
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1
Treatments vs D-Control				

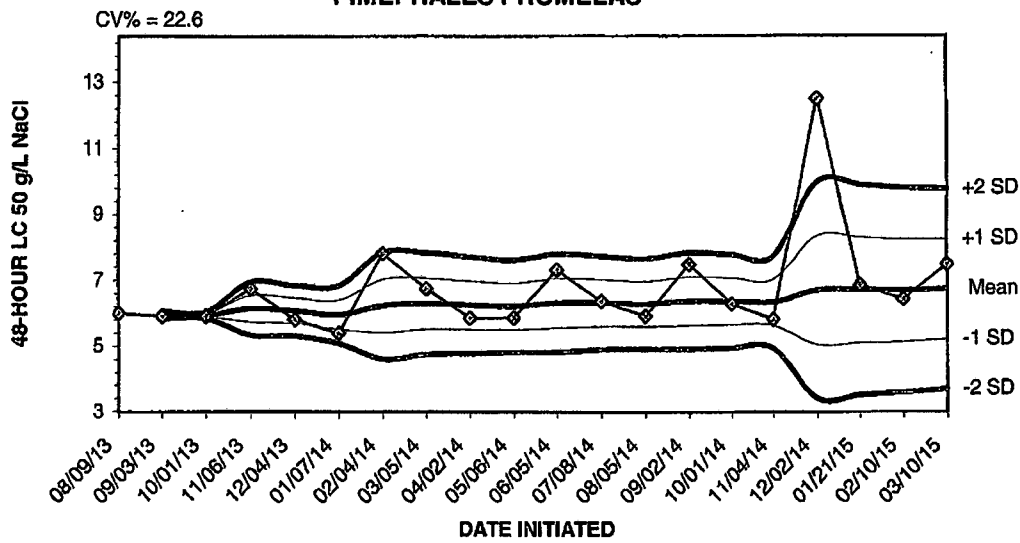
APPENDIX D
QUALITY ASSURANCE CHARTS

**2015 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING
DAPHNIA PULEX**



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
09/05/13	1.9200					
10/01/13	2.2400	2.0800	1.8537	1.6275	2.3063	2.5325
11/13/13	2.4500	2.2033	1.9364	1.6695	2.4702	2.7371
12/17/13	1.2100	1.9550	1.4126	0.8703	2.4974	3.0397
01/07/14	2.7400	2.1120	1.5256	0.9392	2.6984	3.2848
02/04/14	1.7400	2.0500	1.5040	0.9579	2.5960	3.1421
03/05/14	2.3000	2.0857	1.5784	1.0710	2.5931	3.1004
04/01/14	2.4300	2.1288	1.6435	1.1583	2.6140	3.0992
05/07/14	1.8900	2.1022	1.6414	1.1806	2.5630	3.0238
07/16/14	1.8800	2.0800	1.6399	1.1998	2.5201	2.9602
07/30/14	2.4200	2.1109	1.6810	1.2511	2.5408	2.9707
08/13/14	2.3000	2.1287	1.7131	1.2996	2.5402	2.9537
08/19/14	2.0100	2.1177	1.7204	1.3232	2.5149	2.9122
09/03/14	2.3500	2.1343	1.7476	1.3609	2.5210	2.9076
10/01/14	2.1400	2.1347	1.7621	1.3894	2.5073	2.8799
11/04/14	1.6200	2.1025	1.7202	1.3379	2.4848	2.8671
12/02/14	1.1200	2.0447	1.6045	1.1643	2.4849	2.9251
01/21/15	1.7500	2.0283	1.5957	1.1630	2.4610	2.8937
02/03/15	1.7100	2.0116	1.5848	1.1580	2.4384	2.8652
03/10/15	1.8700	2.0045	1.5879	1.1713	2.4211	2.8377

**2015 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING
PIMEPHALES PROMELAS**



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
08/09/13	6.0000					
09/03/13	5.9200	5.9600	5.9034	5.8469	6.0166	6.0731
10/01/13	5.9200	5.9467	5.9005	5.8543	5.9929	6.0390
11/06/13	6.7500	6.1475	5.7441	5.3406	6.5509	6.9544
12/04/13	5.8100	6.0800	5.6994	5.3188	6.4606	6.8412
01/07/14	5.4000	5.9667	5.5274	5.0882	6.4059	6.8452
02/04/14	7.8200	6.2314	5.4243	4.6171	7.0386	7.8457
03/05/14	6.7500	6.2963	5.5268	4.7574	7.0657	7.8351
04/02/14	5.8600	6.2478	5.5135	4.7792	6.9821	7.7163
05/06/14	5.8600	6.2090	5.5059	4.8029	6.9121	7.6151
06/05/14	7.3100	6.3091	5.5641	4.8190	7.0541	7.7992
07/08/14	6.3700	6.3142	5.6036	4.8930	7.0247	7.7353
08/05/14	5.9200	6.2838	5.5948	4.9057	6.9729	7.6619
09/02/14	7.4800	6.3693	5.6341	4.8990	7.1045	7.8396
10/01/14	6.2800	6.3633	5.6545	4.9457	7.0721	7.7809
11/04/14	5.8100	6.3288	5.6302	4.9316	7.0273	7.7259
12/02/14	12.5000	6.6918	5.0493	3.4068	8.3343	9.9768
01/21/15	6.8500	6.7006	5.1067	3.5128	8.2944	9.8883
02/10/15	6.4200	6.6858	5.1355	3.5851	8.2361	9.7864
03/10/15	7.4800	6.7255	5.2061	3.6867	8.2448	9.7643

APPENDIX E
AGENCY FORMS

Acute Forms
Daphnia pulex Survival

Permittee: El Dorado Chemical - Outfall 006
NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected From: 3/01/15 To: 3/01/15
From: To:

Test Initiated: 3/03/15

Dilution Water Used: Receiving Water X Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	0	22.0	100.0				
24-hour	A	100.0	100.0	100.0				
	B	100.0	100.0	100.0				
	C	100.0	100.0	100.0				
	D	100.0	100.0	100.0				
	E	100.0	100.0	100.0				
48-hour	A	100.0	100.0	100.0				
	B	100.0	100.0	100.0				
	C	100.0	100.0	100.0				
	D	100.0	100.0	100.0				
	E	100.0	100.0	100.0				
	Mean	100.0	100.0	100.0				

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate: Is the mean survival at 48 hours significantly different (p=.05) than the control survival for the % effluent corresponding to:

- a.) **LOW FLOW OR CRITICAL DILUTION (100.0%)** YES X NO
b.) **1/2 LOW FLOW OR 2X CRITICAL DILUTION (N/A%)** YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

LC₅₀ = N/A% effluent

95 % confidence limits:

Method of LC₅₀ calculation:

- 3. If you answered NO to 1.a) enter (P) otherwise enter (F) P**
4. Enter response to item 3 on DMR Form, parameter TEM3D
5. If you answered NO to 1.b) enter (P) otherwise enter (F): N/A
6. Enter response to item 5 on DMR Form, parameter TFM3D

**Biomonitoring
Daphnia pulex 48 hour Acute Static Renewal
Chemical Parameters Chart***

Permittee: El Dorado Chemical - Outfall 006
NPDES Number: AR0000752/ AFIN 70-00040
Contact: David Sartain

Analyst: Briggs, Callahan

Sample Collected From: Date 3/01/15 Time 0900

To: Date 3/01/15 Time 2100

Test Begin Date 3/03/15 Time 1540

Test End Date 3/05/15 Time 1435

Parameter	D.O.			Temperature			Alkalinity			Hardness			pH			
	Dilut./Time	0hrs.	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs
0	8.1	8.3	8.2	25.0	25.0	25.0	32.0				40.0			7.4	7.4	7.4
22.0	8.1	8.3	8.2	25.0	25.0	25.0								7.2	7.2	7.3
100.0	8.0	8.0	8.1	25.0	25.0	25.0	40.0				168.0			7.1	7.2	7.1

*This Form is to be submitted with each DMR.
Alkalinity and hardness to be reported as mg/l CaCO₃

Acute Forms
Pimephales promelas Survival

Permittee: El Dorado Chemical - Outfall 006
NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected From: 3/01/15 To: 3/01/15
From: To:

Test Initiated: 3/03/15

Dilution Water Used: Receiving Water Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	0	22.0	32.0	45.0	56.0	75.0	100.0
24-hour	A	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	B	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	C	100.0	100.0	100.0	100.0	87.5	100.0	100.0
	D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	E	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48-hour	A	100.0	100.0	100.0	100.0	100.0	87.5	100.0
	B	100.0	87.5	87.5	100.0	100.0	100.0	87.5
	C	100.0	100.0	100.0	87.5	87.5	100.0	100.0
	D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	E	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Mean	100.0	97.5	97.5	97.5	97.5	97.5	97.5

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate: Is the mean survival at 48 hours significantly different (p=.05) than the control survival for the % effluent corresponding to:

- a.) LOW FLOW OR CRITICAL DILUTION (100.0%) YES NO
b.) 1/2 LOW FLOW OR 2X CRITICAL DILUTION (N/A %) YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

LC₅₀ = N/A % effluent

95 % confidence limits:

Method of LC₅₀ calculation:

3. If you answered NO to 1.a) enter (P) otherwise enter (F) P
4. Enter response to item 3 on DMR Form, parameter TEM3D
5. If you answered NO to 1.b) enter (P) otherwise enter (F): N/A
6. Enter response to item 5 on DMR Form, parameter TFM3D

**Biomonitoring
Pimephales promelas 48 hour Acute Static Renewal
Chemical Parameters Chart***

Permittee: El Dorado Chemical - Outfall 006
NPDES Number: AR0000752/ AFIN 70-00040
Contact: David Sartain

Analyst: Briggs, Callahan, Rose
Sample Collected

From: Date 3/01/15 Time 0900
To: Date 3/01/15 Time 2100
Date 3/03/15 Time 0850
Date 3/05/15 Time 1345

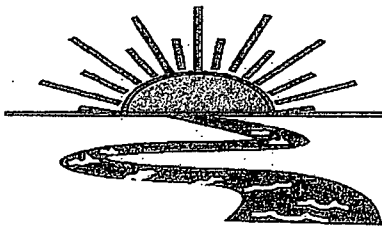
Test Begin
Test End

Parameter	D.O.			Temperature			Alkalinity			Hardness			pH			
	Dilut./Time	0hrs.	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs
0		8.1	8.3	8.2	24.5	25.4	25.0	32.0			40.0			7.4	7.4	7.1
22.0		8.1	8.3	8.1	24.5	25.4	25.0							7.2	7.2	6.9
32.0		8.2	8.3	8.1	24.5	25.4	25.0							7.2	7.3	7.1
45.0		8.2	8.2	8.0	24.5	25.4	25.0							7.1	7.2	7.1
56.0		8.2	8.1	7.9	24.5	25.4	25.0							7.2	7.2	7.1
75.0		8.2	8.1	7.8	24.5	25.4	25.0							7.1	7.2	7.1
100.0		8.0	8.0	7.8	24.5	25.4	25.0	40.0			168.0			7.1	7.2	7.1

*This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO₃

APPENDIX F
REPORT QUALITY ASSURANCE FORM



Bio-Analytical Laboratories

3240 Spurgin Road
Post Office Box 527
Doyline, LA 71023

(318) 745-2772
1-800-259-1246
Fax: (318) 745-2773

REPORT QUALITY ASSURANCE FORM

Client: El Dorado Chemical 006

Project#: X5680

Chain of Custody Documents Checked by: EGB/4-8-15
Technician/Date

Raw Data Documents Checked by: EGB/4-8-15
Technician/Date

Statistical Analysis Package Checked by: EGB/4-8-15
Quality Manager/Date

Quality Control Data Checked by: EGB/3-30-15
Quality Manager/Date

Report Checked by: EGB/4-8-15
Quality Manager/Date

I certify that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information contained in this document, to the best of my knowledge, is true, accurate and complete.

Erin L. Baugh, BS
Quality Manager

4-8-15
Date

No part of this work may be altered in any form or by any means without written permission from Bio-Analytical Laboratories.

Bio-Analytical Laboratories (BAL)
ADEQ#88-0630
Project X5681

Bio-Analytical Laboratories' Executive Summary

Permittee: El Dorado Chemical Company
P.O. Box 231
El Dorado, AR 71731

Project #: X5681

Outfall: Outfall 007 (contaminated storm water)

Permit #: AR0000752/ AFIN #70-00040

Contact: Mr. David Sartain

Test Dates: March 3 - 5, 2015

Test Type: 48-hour acute toxicity test using *Pimephales promelas* (EPA 2000.0).
48-hour acute toxicity test using *Daphnia pulex* (EPA 2021.0)

Results:

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 No. TEM6C- 1 - **Fail**
2. Report the NOEC for survival, Parameter TOM6C - 32.0%.
3. Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM6C - 0.00%.

For *Daphnia pulex*:

1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D- 1-**Fail**
2. Report the NOEC for survival, Parameter TOM3D - 0.0%.
3. Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM3D - 0.00%.

-Due to lack of available neonates, this test was abbreviated.

-Note: Increasing the pH from 3.9 to a range of 6.0-9.0, increased the survival in both tests, but not enough to not be statistically significantly different from the control.

This report contains a total of 34 pages, including this page. The results pertain only to the samples listed in the chain of custody documents in Appendix A. The information contained within meets the requirements set forth by ADEQ. The chemical data in this report is for monitoring purposes only and should not be reported on discharge monitoring reports.



Bio-Analytical Laboratories

3240 Spurgin Road
Post Office Box 527
Doyline, LA 71023

(318) 745-2772
1-800-259-1246
Fax: (318) 745-2773

**THE RESULTS OF TWO 48-HOUR ACUTE
TOXICITY TESTS
FOR OUTFALL 007
AT**

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

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

EPA Methods 2000.0 and 2021.0

Project X5681

**Test Dates: March 3 - 5, 2015
Report Date: April 8, 2015**

Prepared for:
Mr. David Sartain
El Dorado Chemical Company
P.O. Box 231
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 X5681

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BAL
ADEQ #88-0630
Project X5681

1.0 Introduction

Bio-Analytical Laboratories (BAL), Doyline, Louisiana conducted two 48-hour acute toxicity tests for Outfall 007 at El Dorado Chemical Company, El Dorado, Arkansas. The test organisms used were the fathead minnow, *Pimephales promelas* and the cladoceran, *Daphnia pulex*. The purpose of this study is to determine if an appropriately dilute effluent sample adversely affects the survival of the test organism. Toxicity is defined as a statistically significant difference at the 95 percent confidence level between the survival of the test organisms 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 of the test organisms in the control. The test endpoints are the No-Observed-Effect-Concentration (NOEC), which is defined as the highest effluent concentration that is not statistically different from the control, and the 48-hour LC_{50} , the concentration in which 50 percent of the test organisms died.

2.0 Methods and Materials

2.1 Test Methods

All methods followed were according to the latest edition of "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA-821-R-02-012), "Standard Methods for The Examination of Water and Wastewater, 20th Edition" (APHA 1998. Chemical results using this edition are listed in the report as SM 1997), and BAL's standard operating procedures.

2.2 Test Organisms

The fathead minnows were raised in-house at test temperature and were approximately seven days old at test initiation. The minnows were acclimated to dilution water hardness prior to test initiation. The *Daphnia pulex* test organisms were also raised in-house at test temperature and were less than 24 hours old at test initiation. Forty-eight hour reference toxicant tests, using sodium chloride (NaCl), were conducted monthly in order to document organism sensitivity and demonstration of capability.

BAL
ADEQ #88-0630
Project X5681

2.3 Dilution Water

Soft reconstituted water made per EPA guidelines was used as the dilution water and the control for the acute tests.

2.4 Test Concentrations

The test concentrations used in the fathead minnow test were 100.0, 75.0, 56.0, 50.0, 45.0, and 32.0 percent effluent and a reconstituted water control. Due to lack of available neonates, the test concentrations used in the *Daphnia pulex* test were 50.0 percent effluent and a reconstituted water control. The critical dilution was defined as 100.0 percent effluent. The tests were conducted using five replicates of eight animals each for a total of 40 animals per concentration.

2.5 Sample Collection

One sample of Outfall 007 was collected by El Dorado Chemical personnel on March 1, 2015. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 0.4^o Celsius.

2.6 Sample Preparation

Upon arrival, the sample was logged in, given an identification number and refrigerated unless needed. Prior to use, the sample was warmed to 25±1^o Celsius. The total residual chlorine level (SM4500-Cl D 1997) was measured with a Capital Controls^R amperometric titrator and recorded if present. The total ammonia level was measured using a HACH^R test strip. An aliquot of the sample was adjusted from an initial pH of 3.9 to a pH range of 6.0-9.0. An extra 100.0 percent dilution was added to each test in order to document any lethality due to low pH. Dissolved oxygen (SM4500-O G 1997), pH (SM4500-H+ B 1997) and conductivity (SM2510-B 1997) measurements were taken on the control and each test concentration at test initiation, at each renewal and at test termination. Alkalinity (SM2320-B 1997) and hardness (SM2340-C 1997) levels were measured on the control and the highest effluent concentration.

2.7 Monitoring of the Tests

The tests were run in a Precision^R dual controlled illuminated incubator at a temperature of 25±1^o Celsius. An AEMC^R data logger was used to monitor diurnal temperature throughout the testing period. Light cycle and intensity were recorded twice a month.

BAL
ADEQ #88-0630
Project X5681

2.8 Data Analysis

The NOEC and LC₅₀ values were obtained by approved EPA methods of analysis, using the ToxCalc statistical program.

3.0 Results and Discussion

The results of the tests can be found in Table 1. Significant differences in survival were noted in the critical dilution in both tests after 48 hours of exposure (p=.05). The NOEC for survival for the *Daphnia pulex* and the fathead minnow test was zero and 32.0 percent effluent, respectively (p=.05). The 48 hour LC₅₀ value for the *Daphnia pulex* and the fathead minnow test was 26.32 and 37.95 percent, respectively (p=.05). Increasing the pH increased the survival rate in both tests, but not enough to not be significantly different from the control.

Table 1: Results of the 48-hour Acute Definitive Toxicity Tests

Percent Effluent	Percent Survival	
	<i>Pimephales promelas</i>	<i>Daphnia pulex</i>
Test Organism		
Control	100.0	100.0
32.0	100.0	-----
45.0	0.0	-----
50.0	0.0	5.0
56.0	0.0	-----
75.0	0.0	-----
100.0	0.0	-----
100.0 pH adjusted	77.5	67.5

The 48-hour reference toxicant test results indicated that the test organisms were within the respective sensitivity range. The graphs of the acute reference toxicant tests can be found in Appendix D.

BAL
ADEQ #88-0630
Project X5681

4.0 Conclusions

The sample of Outfall 007 collected from El Dorado Chemical Company, El Dorado, Arkansas, on March 1, 2015, was found to be lethally toxic to the fathead minnow test organisms and the *Daphnia pulex* test organisms in the 100.0 percent critical dilution after 48 hours of exposure ($p=.05$). Increasing the pH reduced the lethal effect in both tests, but not significantly.

BAL
ADEQ #88-0630
Project X5681

5.0 References

- EPA, 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. EPA-821-R-02-012, 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

3240 Spurgin Road
Post Office Box 527
Codyville, LA 71023

(510) 745-2772
1-800-259-1248
Fax: (510) 745-2773

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

Laboratory Use Only:

Company: El Dorado Chemical Company		Phone: (870) 863-1484		Analysis:				Project Number: 15681 Temp. upon arrival: 0.4°C Therm #29 ECB 3/2/15 Preservative: (below) Lab Control Number: C10593 / ICE			
Address: 4500 Norwest Ave., El Dorado, AR 71731		Fax: (870) 863-7499		Chronic Ceriodaphnia	Chronic minnow	Acute minnow (fresh/marine)	Acute Daphnia species				
Permit #: AR0000752/AFIN 70-00040		Purchase Order:							Acute Mysid	Acute Ceriodaphnia	Feecal Coliform
Sampler's Signature/Printed Name/Affiliation: <i>Edward L Pearson / Edward L Pearson / EDCC</i>											
Date Start Date End	Time Start Time End	C	G					# and type of container			
3-01-2015	0930 2130	X		6 half gallons	007						
Relinquished by/Affiliation: <i>Edward L Pearson / EDCC</i>				Date: 3/2/15	Time: 1100	Received by/Affiliation: <i>L. B. J.</i>		Date: 3/2/15	Time: 1115		
Relinquished by/Affiliation:				Date:	Time:	Received by/Affiliation:		Date:	Time:		
Relinquished by/Affiliation: <i>L. B. J.</i>				Date: 3/2/15	Time: 1350	Received by/Affiliation: <i>Clara St. Baupp</i>		Date: 3/2/15	Time: 1350		
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
ACUTE TOXICITY TEST WATER QUALITY DATA

X5681
Page 12 of 34

Project# X5681

Client: EDCC/El Dorado Chemical Company

Address: 4500 Northwest Ave El Dorado AR 71731

NPDES#AR0000752 Outfall 007

Technicians: EGB/RC/CR

Test initiated: Date 3/3/15 Time 0935

Test terminated: Date 3/5/15 Time 1440

Dissolved Oxygen Meter: Model # YSI550A Serial #06E2089 AV

pH Meter: Model #Orion 230A+ Serial #015253

Conductivity Meter: Model # Control Co. Serial #80277924

Amperometric Titrator: Model #Fischer-Porter Serial #92W445766

Sample Information

Sample ID#	Initial D.O. (mg/L and %)	Aerate? Minutes/Final D.O.(mg/L & %)	Total Residual Chlorine (mg/L)	Dechlorinated? Amount?	Ammonia (NH3) mg/L	Salinity	Hardness	Alkalinity	Tech
C10093	10.6 135.8%	Y/10/7.8 98.7%	<0.01	NO	6.0	N/A	308.0	0.0	EGB
	11.2 136.3%	Y/15/8.1 98.4%							

Dilution Water Information

Dilution Water	ID#	Initial D.O. (mg/L & %)	Aerate? Minutes/D.O. (mg/L & %)	Total Residual Chlorine (mg/L)	Ammonia (NH3) mg/L	pH	Hardness	Alkalinity	Tech
Soft H2O	3696	N/A				7.4	40.0	32.0	EGB
↓	3699	↓				7.3	44.0	28.0	EGB

Test Species Information

Test Species Info.	Species: <u>D.pulex</u> ID#: <u>L15-N15</u>	Species: <u>Promelas</u> ID#: <u>ABC/023415</u>	Species: ID#:	Species: ID#:
Age	<24hrs	7 days		
Test Container Size	30ml	250ml		
Test volume	20ml	200ml		
Feeding: Type	Algae/YCT	Artemia		
Amount	≥2.0 hours before initiation			
Aeration?	N/A	N/A		
Amount				
Condition of survivors	Good RC 3/5/15		Good RC 3/5/15	

Comments: Adjusted the pH from 4.2 to 6.0-9.0 using 1.00N NaOH/Cole Parmer/Lot 201411102 ^{EGB} 3/3/15
Due to lack of available D.pulex neonates, an abbreviated test was initiated ^{EGB} 3/3/15

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681

Test started: Date 3/3/15 Time 1540

Client EDCC -

Test ended: Date 3/3/15 Time 1440

Sample Description 007

Test Species D. pulex ID# L15-N15

Technician: Ohour EDG 24hour RC 48hour RC 72hour _____ 96hour _____

Time: Ohour 1540 24hour 1530 48hour 1440 72hour _____ 96hour _____

Temperature (°C): Ohour 25.0 24hour 25.0 48hour 25.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
05	A	N/A	8	8	8			8.2	8.0 8.4	8.1			7.4	7.2 7.4	7.3			173.2	225 169	206		
	B	}	8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
32	A	}	8					8.1	X				7.0	X				435	X			
	B		8																			
	C		8			N/A															N/A	
	D		8																			
	E		8																			
Chemistry Tech prerenewal/postrenewal								EDG	RC RC	RC			EDG	RC RC	RC			EDG	RC RC	RC		

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681

Test started: Date 3/3/15 Time 1540

Client EDCC

Test ended: Date 3/5/15 Time 1440

Sample Description 007

Test Species D. pulex ID# L15-N15

Technician: 0hour PLB 24hour RC 48hour RC 72hour _____ 96hour _____
 Time: 0hour 1540 24hour 1530 48hour 1440 72hour _____ 96hour _____
 Temperature (°C): 0hour 25.0 24hour 25.0 48hour 25.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
45	A	N/A	8					8.4					4.6				5.4					
	B	}	8	N/A					N/A					N/A								
	C		8	N/A					N/A					N/A								
	D		8	N/A					N/A					N/A								
	E		8	N/A					N/A					N/A								
				N/A					N/A					N/A								
50	A		8	8	2			8.4	7.9	8.5	8.1		4.5	6.1	4.5	4.7	5.7	5.6	5.7	6.4		
	B		8	6	0																	
	C		8	8	0																	
	D		8	1	0																	
	E		8	2	0																	
Chemistry Tech prerenewal/postrenewal			EIB RC RC					EIB RC RC					EIB RC RC									

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681

Test started: Date 3/3/15 Time 1540

Client EDCC

Test ended: Date 3/5/15 Time 15440

Sample Description 007

Test Species D. pulex ID# 45-N15

Technician: 0hour EBB 24hour RC 48hour RC 72hour _____ 96hour _____

Time: 0hour 1540 24hour 1530 48hour 1440 72hour _____ 96hour _____

Temperature (°C): 0hour 25.0 24hour 25.0 48hour 25.0 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
100	A	N/A	8					7.7					4.2				1000					
	B	}	8	N/A					N/A					N/A								
	C		8																			
	D		8																			
	E		8																			
			8																			
100 PNAdj	A		8	8	4			8.1	7.8	7.9	8.0		7.7	6.9	8.8	7.8	1062	996	1032	1086		
	B		8	8	6																	
	C		8	6	5																	
	D		8	7	5																	
	E		8	8	7																	
Chemistry Tech prerenewal/postrenewal			EBB	RC	RC			EBB	RC	RC			EBB	RC	RC			EBB	RC	RC		

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681

Test started: Date 3/3/15 Time 0935

Client EDCC

Test ended: Date 3/5/15 Time 1400

Sample Description 007

Test Species P. promelas ID# BAL/022415

Technician: Ohour RC 24hour CR 48hour RC 72hour _____ 96hour _____
 Time: Ohour 0935 24hour 1540 48hour 1900 72hour _____ 96hour _____
 Temperature (°C): Ohour 24.5 24hour 25.3 48hour 24.9 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
05	A	N/A	8	8	8			8.2	8.4 ^{8.5}	8.1			7.4	7.4 ^{7.1}	7.0			173.2	168.9 ^{171.9}	173.8		
	B	}	8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
32	A		8	8	8			8.1	8.5 ^{8.6}	8.2			7.0	6.4 ^{6.4}	6.6			435	435 ⁴¹⁹	431		
	B		8	8	8																	
	C		8	8	8																	
	D		8	8	8																	
	E		8	8	8																	
Chemistry Tech prerenewal/postrenewal								EBB	CR ^{CR}	RC	RC		EBB	CR ^{CR}	RC	RC		EBB	CR ^{CR}	RC	RC	

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681

Test started: Date 3/3/15 Time 0935

Client EDCC

Test ended: Date 3/5/15 Time 1400

Sample Description 007

Test Species P. promelas ID# BAL/022415

Technician: 0hour RC 24hour CR 48hour RC 72hour _____ 96hour _____

Time: 0hour 0935 24hour 1540 48hour 1400 72hour _____ 96hour _____

Temperature (°C): 0hour 24.5 24hour 25.3 48hour 24.9 72hour _____ 96hour _____

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
45	A	N/A	8	0	-			8.4	8.6	-			4.6	4.6	-			541	512	-		
	B	}	8	0	-																	
	C		8	0	-																	
	D		8	0	-																	
	E		8	0	-																	
50	A			8	0	-			8.4	8.5	-			4.5	4.7	-			579	512	-	
	B		8	0	-																	
	C		8	0	-																	
	D		8	0	-																	
	E		8	0	-																	
Chemistry Tech prerenewal/postrenewal								RC	RC				RC	RC				RC	RC			

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Project# X5681
 Client EDCC

Test started: Date 3/3/15 Time 0935
 Test ended: Date 3/5/15 Time 1400

Sample Description 007
 Technician: RC 0hour RC 24hour CR 48hour RC 72hour _____ 96hour _____
 Time: RC 0hour 2093 24hour 1540 48hour 1400 72hour _____ 96hour _____
 Temperature (°C): 0hour 24.5 24hour 25.3 48hour 24.9 72hour _____ 96hour _____

Test Species P. promelas ID# BAL/022415

Test Dilution	Replicate	Test Salinity	# Live Organisms					Dissolved Oxygen					pH					Conductivity				
			0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0/0																						
100	A	N/A	8	0	-			7.7	7.1	-			4.2	4.3	-			1006	916	-		
	B	}	8	0	-																	
	C		8	0	-																	
	D		8	0	-																	
	E		8	0	-																	
100pH adj	A			8	8	7			8.1	7.3	7.9			7.7	7.8	7.8			1062	1022	1032	1053
	B		8	7	7																	
	C		8	7	6																	
	D		8	8	6																	
	E		8	6	5																	
Chemistry Tech prerenewal/postrenewal			RC RC RC					RC RC RC					RC RC RC									

RC
3/3/15

APPENDIX C
STATISTICAL ANALYSES

Daphnid Acute Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5681DP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: DP-Daphnia pulex
 Comments:

Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.2500	0.0000	0.0000	0.0000	0.0000
100 PH	0.5000	0.7500	0.6250	0.6250	0.8750

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%			
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5		
*50	0.0500	0.0500	0.2469	0.1777	0.5236	62.654	5	15.00	18.00
*100 PH	0.6750	0.6750	0.9731	0.7854	1.2094	16.579	5	15.00	18.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.82628	0.881	1.27578	1.82685
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)				
Steel's Many-One Rank Test indicates significant differences				
Treatments vs D-Control				

Daphnid Acute Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5681DP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: DP-Daphnia pulex
 Comments:

Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.2500	0.0000	0.0000	0.0000	0.0000
100 PH	0.5000	0.7500	0.6250	0.6250	0.8750

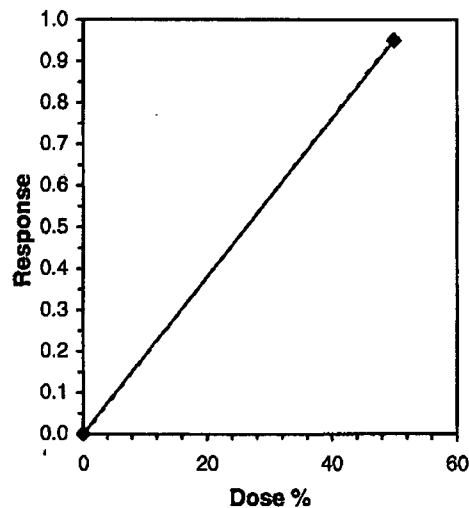
Conc-%	Transform: Arcsin Square Root							Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	1.0000	1.0000
50	0.0500	0.0500	0.2469	0.1777	0.5236	62.654	5	0.0500	0.0500
100 PH	0.6750	0.6750	0.9731	0.7854	1.2094	16.579	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05) Equality of variance cannot be confirmed	0.62485	0.842	2.51558	7.15179

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05*	2.632	0.133	2.421	3.127	0.8928
IC10*	5.263	0.267	4.842	6.254	0.8928
IC15*	7.895	0.400	7.263	9.381	0.8928
IC20*	10.526	0.534	9.684	12.508	0.8928
IC25*	13.158	0.667	12.105	15.635	0.8928
IC40*	21.053	1.068	19.368	25.015	0.8928
IC50*	26.316	1.335	24.211	31.269	0.8928

* indicates IC estimate less than the lowest concentration



Acute Fish Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5681PP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: PP-Pimephales promelas
 Comments:

Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000
75	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000
100 PH	0.8750	0.8750	0.7500	0.7500	0.6250

Conc-%	Transform: Arcsin Square Root						Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%		
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	
32	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50
*45	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00
*50	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00
*56	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00
*75	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00
*100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00
*100 PH	0.7750	0.7750	1.0850	0.9117	1.2094	11.644	5	15.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test Indicates non-normal distribution (p <= 0.05)	0.45994	0.94	-0.5933	12.2088
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)				
Steel's Many-One Rank Test Indicates significant differences				
Treatments vs D-Control				

Acute Fish Test-48 Hr Survival

Start Date: 3/3/2015 Test ID: X5681PP Sample ID: AR0000752
 End Date: 3/5/2015 Lab ID: ADEQ880630 Sample Type: EFF2-Industrial
 Sample Date: 3/2/2015 Protocol: EPAAW02-EPA/821/R-02-01 Test Species: PP-Pimephales promelas
 Comments:

Conc-%	1	2	3	4	5
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0000	1.0000	1.0000	1.0000	1.0000
45	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000
75	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000
100 PH	0.8750	0.8750	0.7500	0.7500	0.6250

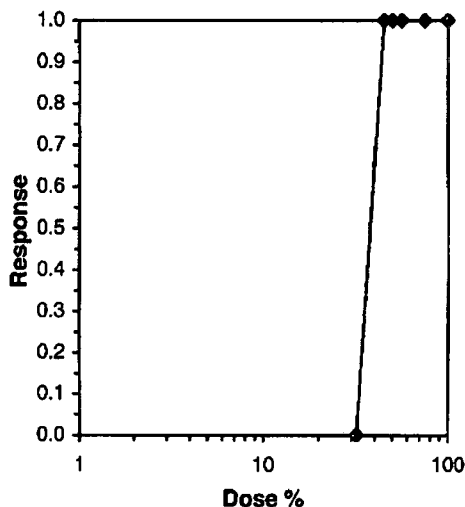
Conc-%	Transform: Arcsin Square Root						N	Number Resp	Total Number
	Mean	N-Mean	Mean	Min	Max	CV%			
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	0	40
32	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	0	40
45	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
50	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
56	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
75	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
100 PH	0.7750	0.7750	1.0850	0.9117	1.2094	11.644	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.73334	0.881	-0.3897	3.54784
Equality of variance cannot be confirmed				

Graphical Method

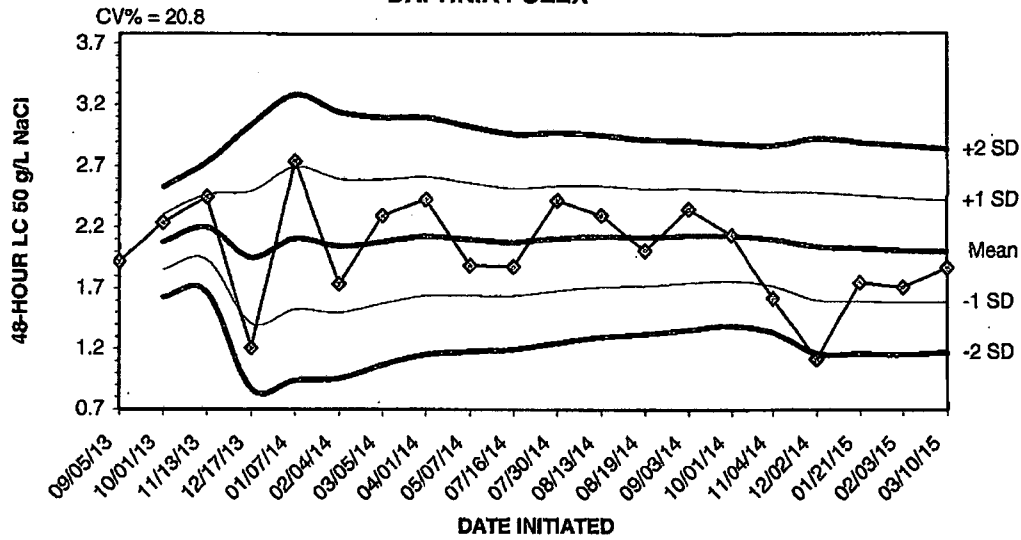
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37.947



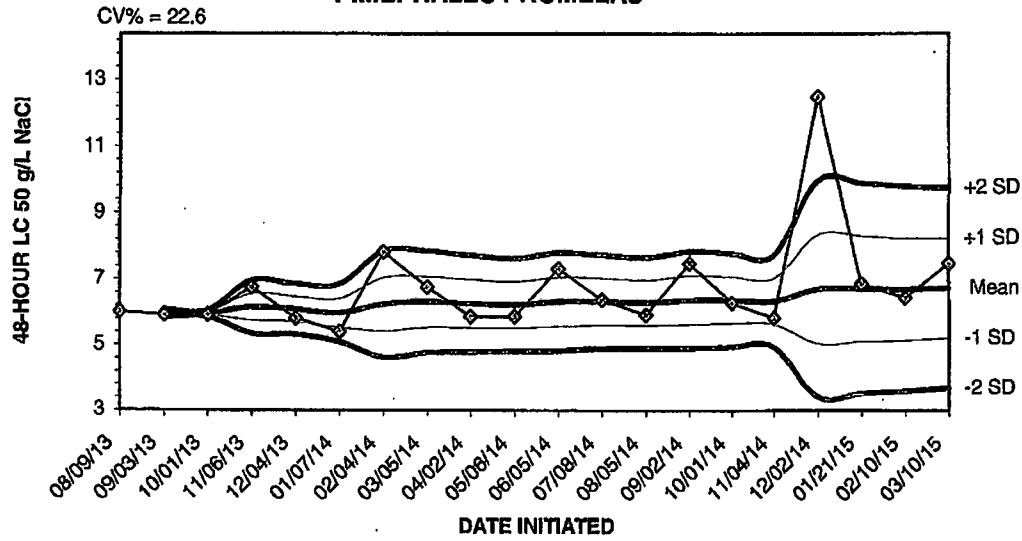
APPENDIX D
QUALITY ASSURANCE CHARTS

2015 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING
DAPHNIA PULEX



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
09/05/13	1.9200	2.0800	1.8537	1.6275	2.3063	2.5325
10/01/13	2.2400	2.2033	1.9364	1.6695	2.4702	2.7371
11/13/13	2.4500	1.9550	1.4126	0.8703	2.4974	3.0397
12/17/13	1.2100	2.1120	1.5256	0.9392	2.6984	3.2848
01/07/14	2.7400	2.0500	1.5040	0.9579	2.5960	3.1421
02/04/14	1.7400	2.0857	1.5784	1.0710	2.5931	3.1004
03/05/14	2.3000	2.1288	1.6435	1.1583	2.6140	3.0992
04/01/14	2.4300	2.1022	1.6414	1.1806	2.5630	3.0238
05/07/14	1.8900	2.0800	1.6399	1.1998	2.5201	2.9602
07/16/14	1.8800	2.1109	1.6810	1.2511	2.5408	2.9707
07/30/14	2.4200	2.1267	1.7131	1.2996	2.5402	2.9537
08/13/14	2.3000	2.1177	1.7204	1.3232	2.5149	2.9122
08/19/14	2.0100	2.1343	1.7476	1.3609	2.5210	2.9076
09/03/14	2.3500	2.1347	1.7621	1.3894	2.5073	2.8799
10/01/14	2.1400	2.1025	1.7202	1.3379	2.4848	2.8671
11/04/14	1.6200	2.0447	1.6045	1.1643	2.4849	2.9251
12/02/14	1.1200	2.0283	1.5957	1.1630	2.4610	2.8937
01/21/15	1.7500	2.0116	1.5848	1.1580	2.4384	2.8652
02/03/15	1.7100	2.0045	1.5879	1.1713	2.4211	2.8377
03/10/15	1.8700					

**2015 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING
PIMEPHALES PROMELAS**



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
08/09/13	6.0000					
09/03/13	5.9200	5.9600	5.9034	5.8469	6.0166	6.0731
10/01/13	5.9200	5.9467	5.9005	5.8543	5.9929	6.0390
11/06/13	6.7500	6.1475	5.7441	5.3406	6.5509	6.9544
12/04/13	5.8100	6.0800	5.6994	5.3188	6.4606	6.8412
01/07/14	5.4000	5.9667	5.5274	5.0882	6.4059	6.8452
02/04/14	7.8200	6.2314	5.4243	4.6171	7.0386	7.8457
03/05/14	6.7500	6.2963	5.5268	4.7574	7.0657	7.8351
04/02/14	5.8600	6.2478	5.5135	4.7792	6.9821	7.7163
05/06/14	5.8600	6.2090	5.5059	4.8029	6.9121	7.6151
06/05/14	7.3100	6.3091	5.5641	4.8190	7.0541	7.7992
07/08/14	6.3700	6.3142	5.6036	4.8930	7.0247	7.7353
08/05/14	5.9200	6.2838	5.5948	4.9057	6.9729	7.6619
09/02/14	7.4800	6.3693	5.6341	4.8990	7.1045	7.8396
10/01/14	6.2800	6.3633	5.6545	4.9457	7.0721	7.7809
11/04/14	5.8100	6.3288	5.6302	4.9316	7.0273	7.7259
12/02/14	12.5000	6.6918	5.0493	3.4068	8.3343	9.9768
01/21/15	6.8500	6.7006	5.1067	3.5128	8.2944	9.8883
02/10/15	6.4200	6.6858	5.1355	3.5851	8.2361	9.7864
03/10/15	7.4800	6.7255	5.2061	3.6867	8.2449	9.7643

APPENDIX E
AGENCY FORMS

Acute Forms
Daphnia pulex Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected

From: 3/01/15

To: 3/01/15

From:

To:

Test Initiated: 3/03/15

Dilution Water Used:

Receiving Water

X Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	0	50.0	100.0 pH adj					
24-hour	A	100.0	100.0	100.0					
	B	100.0	75.0	100.0					
	C	100.0	100.0	75.0					
	D	100.0	12.5	87.5					
	E	100.0	25.0	100.0					
48-hour	A	100.0	25.0	50.0					
	B	100.0	0.0	75.0					
	C	100.0	0.0	62.5					
	D	100.0	0.0	62.5					
	E	100.0	0.0	87.5					
	Mean	100.0	5.0	67.5					

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate: Is the mean survival at 48 hours significantly different ($p=.05$) than the control survival for the % effluent corresponding to:

- a.) LOW FLOW OR CRITICAL DILUTION (100.0%) X YES NO
 b.) 1/2 LOW FLOW OR 2X CRITICAL DILUTION (N/A%) YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

LC₅₀ = 26.32% effluent

95 % confidence limits: 31.27 - 24.21 %

Method of LC₅₀ calculation: Graphical

3. If you answered NO to 1.a) enter (P) otherwise enter (F): F

4. Enter response to item 3 on DMR Form, parameter TEM3D

5. If you answered NO to 1.b) enter (P) otherwise enter (F): N/A

6. Enter response to item 5 on DMR Form, parameter TFM3D

Adjusting the pH of the sample to neutral increased survival, but not enough to be significant when compared to the control.

Acute Forms
Pimephales promelas Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected From: 3/01/15 To: 3/01/15
From: To:

Test Initiated: 3/03/15

Dilution Water Used: Receiving Water X Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	0	32.0	45.0	50.0	56.0	75.0	100.0	100.0 pH adj
24-hour	A	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
	B	100.0	100.0	0.0	0.0	0.0	0.0	0.0	87.5
	C	100.0	100.0	0.0	0.0	0.0	0.0	0.0	87.5
	D	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
	E	100.0	100.0	0.0	0.0	0.0	0.0	0.0	75.0
48-hour	A	100.0	100.0	0.0	0.0	0.0	0.0	0.0	87.5
	B	100.0	100.0	0.0	0.0	0.0	0.0	0.0	87.5
	C	100.0	100.0	0.0	0.0	0.0	0.0	0.0	75.0
	D	100.0	100.0	0.0	0.0	0.0	0.0	0.0	75.0
	E	100.0	100.0	0.0	0.0	0.0	0.0	0.0	62.5
	Mean	100.0	100.0	0.0	0.0	0.0	0.0	0.0	77.5

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate: Is the mean survival at 48 hours significantly different (p=.05) than the control survival for the % effluent corresponding to:

- a.) LOW FLOW OR CRITICAL DILUTION (100.0%) X YES NO
b.) 1/2 LOW FLOW OR 2X CRITICAL DILUTION (N/A%) YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

LC₅₀ = 37.95% effluent

95 % confidence limits: N/A

Method of LC₅₀ calculation: Graphical

3. If you answered NO to 1.a) enter (P) otherwise enter (F): F

4. Enter response to item 3 on DMR Form, parameter TEM3D

5. If you answered NO to 1.b) enter (P) otherwise enter (F): N/A

6. Enter response to item 5 on DMR Form, parameter TFM3D

Adjusting the pH of the sample to neutral increased survival, but not enough to not be significant when compared to the control.

**Biomonitoring
Pimephales promelas 48 hour Acute Static Renewal
Chemical Parameters Chart***

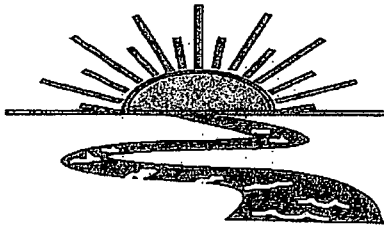
Permittee: El Dorado Chemical - Outfall 007
NPDES Number: AR0000752/ AFIN 70-00040
Contact: David Sartain
Analyst: Briggs, Callahan, Rose

Sample Collected From: Date 3/01/15 Time 0930
To: Date 3/01/15 Time 2130
Test Begin Date 3/03/15 Time 0935
Test End Date 3/05/15 Time 1400

Parameter	D:O			Temperature			Alkalinity			Hardness			pH			
	Dilut./Time	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs	0hrs	24hrs	48hrs
0	8.2	8.4	8.1	24.5	25.3	24.9	32.0				40.0			7.1	7.4	7.0
32.0	8.1	8.5	8.2	24.5	25.3	24.9								7.0	6.4	6.6
45.0	8.4	7.6		24.5	25.3									4.6	5.1	
50.0	8.4	7.6		24.5	25.3									4.5	4.7	
56.0	8.2	7.7		24.5	24.3									4.4	4.5	
75.0	8.1	7.7		24.5	24.3									4.3	4.4	
100.0	7.7	7.7		24.5	24.3		0.0				308.0			4.2	4.3	
100.0 pH	8.1	7.9	7.9	24.5	24.3	24.9								7.7	8.8	7.8

*This Form is to be submitted with each DMR.
 Alkalinity and hardness to be reported as mg/l CaCO₃

APPENDIX F
REPORT QUALITY ASSURANCE FORM



Bio-Analytical Laboratories

3240 Spurgin Road
Post Office Box 527
Doyline, LA 71023

(318) 745-2772
1-800-259-1246
Fax: (318) 745-2773

REPORT QUALITY ASSURANCE FORM

Client: Eldorado Chemical 007

Project#: X5681

Chain of Custody Documents Checked by: EOB/4-8-15
Technician/Date

Raw Data Documents Checked by: EOB/4-8-15
Technician/Date

Statistical Analysis Package Checked by: EOB/4-8-15
Quality Manager/Date

Quality Control Data Checked by: EOB/3-30-15
Quality Manager/Date

Report Checked by: EOB/4-8-15
Quality Manager/Date

I certify that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information contained in this document, to the best of my knowledge, is true, accurate and complete.

Erin D. Brugg, BS 4-8-15
Quality Manager Date

No part of this work may be altered in any form or by any means without written permission from Bio-Analytical Laboratories.

From: (870) 863-1403
David Sartain
El Dorado Chemical Company
4500 NW Ave

Origin ID: ELDA



J151215022303uv

Ship Date: 24APR15
ActWgt: 1.0 LB
CAD: 5887030/INET3610

El Dorado, AR 71730

Delivery Address Bar Code



SHIP TO: (501) 682-0744 **BILL SENDER**
Loretta Reiber P.E.
ADEQ - Permits BranchWater Divisio
5301 NORTSHORE DR

Ref #
Invoice #
PO #
Dept #

NORTH LITTLE ROCK, AR 72118

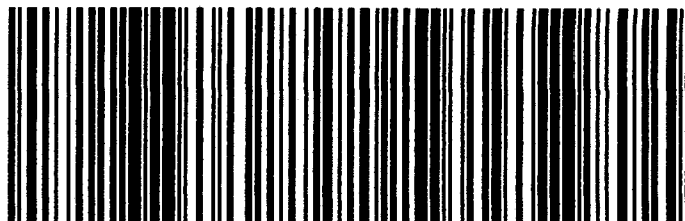
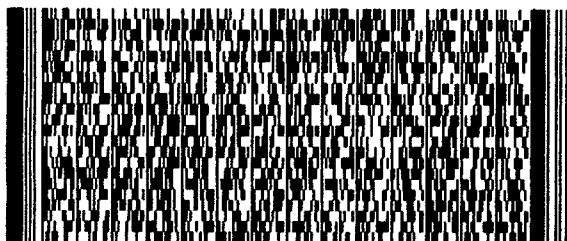
MON - 27 APR 10:30A
PRIORITY OVERNIGHT

TRK# 7734 5150 6009

0201

72118
AR-US
LIT

X2 LITA



537.I2/8FC5/EE4B

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