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



November 21, 2014

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 October 31, 2014.

Enclosed you will find the Discharge Monitoring Reports ending October 31, 2014. 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 David Sartain at (870) 863-1400.

Sincerely,

Kelly Olivier EHS Manager

Enclosures

NON-COMPLIANCE REPORT

Facility Name:

El Dorado Chemical Company

Permit Number:

AR0000752

AFIN:

70-00040

Month / Year:

Oct-14

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Type of Violation	Permit Limit	Date of Violation	Cause of Violation	Corrective Action or Other Narrative
Outfall 010 / TSS (1047.19 lb / day)	750.6 Daily Max	10/11/2014	Unknown	Seasonal Algae bloom. All parameters are back in permitted limits.
Outfall 010 / pH (5.9 su / minimum)	6 SU / Minimum	10/9/2014	Unknown	Seasonal Algae bloom. All parameters are back in permitted limits.
Outfall 010 / pH (9.1 su / maximum)	9 SU / Maximum	10/20/2014	Unknown	Seasonal Algae bloom. All parameters are back in permitted limits.
Outfall 003 / pH (5.150 su / minimum)	6 SU / Minimum	10/28/2014	Unknown	Seasonal Algae bloom. All parameters are back in permitted limits.
Outfall 006 / Zinc Monthly Average (415 ug/L)	115.62 ug/L Monthly Average	10/28/2014	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 (640 ug/L)	231.99 ug/L Daily Max	10/28/2014	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 (33.35 ug/L)	3.8 ug/L Monthly Average	10/28/2014	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. (61.0 ug/L)	7.62 ug/L Daily Max.	10/28/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 006 / TDS Daily Max (530 mg/L)	436.5 mg/L Daily Max	10/28/2014	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 (430 mg/L)	291 mg/L Monthly Average	10/28/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 007 / pH Minimum (4.29 su)	6 su/ Minimum	10/28/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 007 / Lead Monthly Average (10.20 ug/L)	3.8 ug/L Monthly Average	10/28/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 007 / Lead Daily Maximum (13.00 ug/L)	7.62 ug/L Daily Max.	10/28/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 006 in an effort to promote vegetative cover.
Outfall 007 / Zinc Monthly Average (200 ug/L)	115.62 ug/L Monthly Average	10/28/2014	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 (1000 mg/L)	291 mg/L Monthly Average	9/2/2014	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
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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 X5574

Test Dates: October 14 - 16, 2014 Report Date: November 19, 2014

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

Bio-Analytical Laboratories (BAL) ADEQ#88-0630 Project X5574

Bio-Analytical Laboratories' Executive Summary

Permittee:

El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #:

X5574

Outfall:

Outfall 007 (contaminated storm water)

Permit #:

AR0000752/ AFIN #70-00040

Contact:

Mr. David Sartain

Test Dates:

October 14 - 16, 2014

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%.

This report contains a total of 33 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.

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	5
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	5
3.0 Results and Discussion	6
4.0 Conclusions	7
5.0 References	8
Appendices	
A- Chain-of-Custody Documents	9
B- Raw Data Sheets	11
C- Statistical Analyses	21
D- Quality Assurance Charts	24
E- Agency Forms	27
F- Report Quality Assurance Form	32

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 LC₅₀, 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 dilution water hardness and were approximately eleven days old at 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.

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 tests were 100.0, 75.0, 56.0, 50.0, 45.0, and 32.0 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 October 14, 2014. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 1.4° 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^{0} 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 4.1 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^{0} 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.

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 either test after 48 hours of exposure (p=.05). The NOEC for survival for both tests was 100.0 percent (p=.05).

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

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Test Organism	Pimephales promelas	Daphnia pulex
Control	100.0	100.0
32.0	92.5	90.0
45.0	100.0	97.5
50.0	95.0	87.5
56.0	95.0	92.5
75.0	97.5	92.5
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.

4.0 Conclusions

The sample of Outfall 007 collected from El Dorado Chemical Company, El Dorado, Arkansas, on October 14, 2014, was not found to be lethally toxic to the fathead minnow test organisms and the *Daphnia pulex* in the 100.0 percent critical dilution after 48 hours of exposure (p=.05).

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 Doyline, LA 71023 (318) 745-2777 1-800-259-1240 Pape (318) 748-2777

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

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APPENDIX B
RAW DATA SHEETS

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prerenewal/postrenewal

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

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Project#_	EDC		<u> </u>											D-+-	MIK	hu	100	rime_	1635	<u> </u>		
Client	intim	00	7_	24ho	2140	or .	 ₄₈₁	our	. RC.	Tes 72	st Si hour	peci	es\	6hor	m	<u>m</u> 2) ID	<u> </u>	4/10) 31 4	1
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	prere	STIGMOT' L						<u> </u>	1/11	<u> </u>	1	*********		<u></u>								•

ACUTE2 Rev 1.0

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA Test started: Date to/14/14 Time 1635 Project# Test ended: EDCC Orome OS ID# BAL/10314 Client Test Species_ Sample Description Contechnician: 96hour 72hour 24hour 48hour Ohour 48hour 163 96hour 72bour_ 24hour 7625 Ohour 1885 72hour 96hour 24hour 25 | 48hour 34.9 Time: Ohour 24-7 Temperature (°C): Conductivity pΕ Dissolved Oxygen # Idve Organisms Test Salinity Replicate Test Dilution 96 72 96 48 96 72 24 48 72 96 24 48 % br al 100.0 Chemistry Tech

ACUTE2 Rev 1.0

prerenewal/postrenewal

APPENDIX C STATISTICAL ANALYSES

		والمراوات والمستحد		Dapl	nnid Acute Test-	8 Hr Survival		X5574
Start Date: End Date: Sample Date: Comments:	10/14/2014 10/16/2014 10/13/2014		Test ID: Lab ID: Protocol:	X5574DP 880630	-EPA/821/R-02-01	Sample ID: Sample Type:	AR0000752-007 EFF2-industrial DP-Daphnia pulex	Page 22 of
Conc-%	1	2	3	4	5			
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000			
32	1.0000	0.7500	1.0000	0.7500	1.0000			
45	1.0000	1.0000	0.8750	1.0000	1.0000			
50	0.6250	0.8750	1.0000	0.8750	1.0000			
56	1.0000	1.0000	0.7500	1.0000	0.8750			
75	1.0000	0.7500	0.8750	1.0000	1.0000			
100	1.0000	1.0000	1.0000	1.0000	1.0000			

			Tra	ansform:	Arcsin Sc	quare Roo	t	Rank	1-Talled	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5		_	
32	0.9000	0.9000	1.2547	1.0472	1.3931	15.099	5	22.50	16.00	
45 .	0.9750	0.9750	1.3564	1.2094	1.3931	6.055	5	25.00	16.00	
50	0.8750	0.8750	1.2234	0.9117	1.3931	16.097	5	20.00	16.00	
56	0.9250	0.9250	1.2872	1.0472	1.3931	12.116	5	22.50	16.00	•
75	0.9250	0.9250	1.2872	1.0472	1.3931	12.116	5	22.50	16.00	
100	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	

Auxillary Tests					Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	n-normal dis	stribution (p <= 0.05		0.89129	0.934	-0.9039	0.28842
Equality of variance cannot be co	onfirmed	•						
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU				
Steel's Many-One Rank Test	100	>100		1				
Treatments vs D-Control								

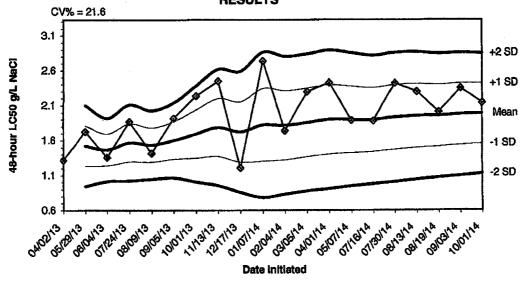
				Ac	ute Fish Test-48	Hr Survival		X5574
Start Date: End Date: Sample Date: Comments:	10/14/2014 10/16/2014 10/13/2014	•	Test ID: Lab ID: Protocol:	X5574PP 880630 EPAAW02	:-EPA/821/R-02-01	Sample ID: Sample Type: Test Species:	AR0000752 EFF2-Industrial PP-Pimephales promelas	Page 23 of 3
Conc-%	1	2	3	4	5			
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000			
32	1.0000	0.7500	1.0000	1.0000	0.8750			
45	1.0000	1.0000	1.0000	1.0000	1.0000			
50	1.0000	1.0000	0.8750	0.8750	1.0000			
56	1.0000	1.0000	0.7500	1.0000	1.0000			
75	1.0000	1.0000	0.8750	1.0000	1.0000			
100	1.0000	1.0000	0.8750	1.0000	1.0000			

		_	Tra	Transform: Arcsin Square Root Rank 1-Taile				1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5		
32	0.9250	0.9250	1.2872	1.0472	1.3931	12.116	5	22.50	16.00
45	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00
50	0.9500	0.9500	1.3196	1.2094	1.3931	7.623	5	22.50	16.00
56	0.9500	0.9500	1.3239	1.0472	1.3931	11.684	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 nor	n-normal dis	stribution (p <= 0.05		0.82465	0.934	-1.5259	2.12384
Equality of variance cannot be co		• `						
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	· · · · · · · · · · · · · · · · · · ·			
Steel's Many-One Rank Test	100	>100		1				
Treatments vs D-Control								

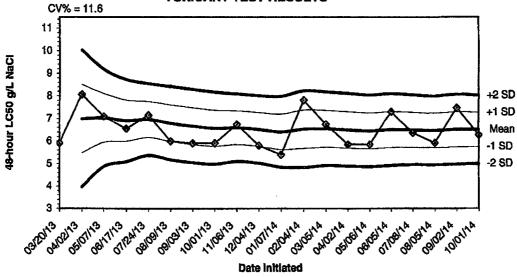
APPENDIX D QUALITY ASSURANCE CHARTS

2014 DAPHNIA PULEX 48 HOUR ACUTE REFERENCE TOXICANT TEST RESULTS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
04/02/13	1,3200					
05/29/13	1.7300	1.5250	1.2351	0.9452	1.8149	2.1048
06/04/13	1.3600	1.4700	1.2439	1.0179	1.6961	1.9221
07/24/13	1.8700	1.5700	1.2978	1.0257	1.8422	2.1143
08/09/13	1.4200	1.5400	1.2949	1.0499	1.7851	2.0301
09/05/13	1.9200	1.6033	1.3348	1.0863	1.8719	2.1404
10/01/13	2.2400	1.6943	1.3508	1.0073	2.0378	2.3813
11/13/13	2.4500	1.7888	1.3734	0.9580	2.2041	2.6195
12/17/13	1.2100	1.7244	1.2906	0.8569	2.1582	2.5920
01/07/14	2.7400	1.8260	1.3060	0.7860	2.3460	2.8660
02/04/14	1.7400	1.8182	1.3242	0.8302	2.3122	2.8062
03/05/14	2.3000	1.8583	1.3672	0.8761	2.3495	2.8406
04/01/14	2.4300	1.9023	1.4061	0.9099	2.3985	2.8948
05/07/14	1.8900	1.9014	1.4247	0.9479	2.3782	2.8550
07/16/14	1.8800	1.9000	1.4405	0.9811	2.3595	2.8189
07/30/14	2.4200	1.9325	1.4700	1.0075	2.3950	2.8575
08/13/14	2.3000	1.9541	1.4975	1.0409	2.4107	2.8674
08/19/14	2.0100	1.9572	1.5140	1.0709	2.4004	2.8436
09/03/14	2.3500	1.9779	1.5379	1.0979	2.4179	2.857 9
10/01/14	2.1400	1.9860	1.5562	1.1264	2.4158	2.8456

2014 PIMEPHALES PROMELAS 48 HOUR ACUTE REFERENCE TOXICANT TEST RESULTS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
03/20/13	5.9200					
04/02/13	8.0700	6.9950	5,4747	3.9544	8.5153	10.0356
05/07/13	7.0900	7.0267	5.9503	4.8739	8.1031	9.1795
06/17/13	6.5600	6.9100	6.0007	5.0914	7.8193	8.7286
07/24/13	7.1600	6.9600	6.1646	5.3692	7.7554	8.5508
08/09/13	6.0000	6.8000	5.9878	5.1755	7.6122	8.4245
09/03/13	5.9200	6.6743	5.8616	5.0490	7.4869	8.2996
10/01/13	5.9200	6.5800	5.7818	4.9835	7.3782	8.1765
11/06/13	6.7500	6.5989	5.8501	5.1012	7.3477	8.0965
12/04/13	5.8100	6.5200	5.7712	5.0224	7.2688	8.0176
01/07/14	5.4000	6.4182	5.6316	4.8451	7.2047	7.9913
02/04/14	7.8200	6.5350	5.6829	4.8307	7.3871	8.2393
03/05/14	6.7500	6.5515	5.7335	4.9154	7.3696	8.1876
04/02/14	5.8600	6.5021	5.6948	4.8874	7.3095	8.1169
05/06/14	5.8600	6.4593	5.6638	4.8684	7.2548	8.0503
06/05/14	7.3100	6.5125	5.7151	4.9177	7.3099	8.1073
07/08/14	6.3700	6.5041	5.7313	4.9584	7.2770	8.0498
08/05/14	5.9200	6.4717	5.7094	4.9470	7.2340	7.9963
09/02/14	7.4800	6.5247	5.7486	4.9725	7.3008	8.0770
10/01/14	6.2800	6.5125	5.7551	4.9977	7.2699	8.0273

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: 10/13/14

To: 10/14/14

From:

To:

Test Initiated: 10/14/14

Dilution Water Used:

Receiving Water

X Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	Ŏ	32.0	45.0	50.0	56.0	75.0	100.0
24-hour	A	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	В	100.0	100.0	100.0	87.5	100.0	100.0	100.0
	С	100.0	100.0	87.5	100.0	100.0	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	87.5	100.0	100.0
48-hour	A	100.0	100.0	100.0	62.5	100.0	100.0	100.0
	В	100.0	75.0	100.0	87.5	100.0	75.0	100.0
	С	100.0	100.0	87.5	100.0	75.0	87.5	100.0
	D	100.0	100.0	100.0	87.5	100.0	100.0	100.0
	E	100.0	100.0	100.0	100.0	87.5	100.0	100.0
	Mean	100.0	90.0	97.5	87.5	92.5	92.5	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.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)

YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

 $LC_{50} =$

N/A% effluent

95 % confidence limits: N/A

Method of LC₅₀ calculation: N/A

- 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 007 NPDES Number: AR0000752/ AFIN 70-00040

Contact: David Sartain Analyst: Briggs, Callahan

Sample Collected From:

Date 10/13/14

Time 1000

To:

Date 10/14/14 Date 9/3/14

Time 1000 Time 1715

Test Begin Test End

Date 9/5/14

Time 1525

1 CSt Dille														·· · · · · · · · · · · · · · · · · · ·	
Parameter		D.O			Temperatur			Alkalinity			Hardness		3: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:	pН	
Dilut/Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs '	24hrs	48hrs
0	8.3	8.2	8.1	24.7	25.0	24.9	32.0			44.0			7.2	7.2	7.4
32.0	8.3	8.3	8.1	24.7	25.0	24.9							6.9	6.9	7.2
45.0	8.3	8.4	8.0	24.7	25.0	24.9							6.8	6.8	7.2
50.0	8.3	8.4	8.0	24.7	25.0	24.9							6.7	6.8	7.1
56.0	8.2	8.3	8.0	24.7	25.0	24.9	•						6.7	6.7	7.1
75.0	8.2	8.4	8.1	24.7	25.0	24.9						<u> </u>	6.6	6.7	7.0
100.0	8.2	8.4	8.2	24.7	25.0	24.9	8.0			204.0			6.3	6.4	6.7

*This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO₃

Acute Forms Pimephales promelas (Fathead Minnow) Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected

From: 10/13/14

From:

To: 10/14/14

To:

Test Initiated: 10/14/14

Dilution Water Used:

Receiving Water

X Reconstituted Water

Dilution Series Results - Percent Survival

Dilu	HOH SEL	ies Vesa	uts - Pei	Cent Su	TALACTI			
TIME OF READING	REP	Ö	32.0	45.0	50.0	56.0	75.0	100.0
24-hour	A	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	C	100.0	100.0	100.0	87.5	100.0	87.5	87.5
	D	100.0	100.0	100.0	87.5	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	100.0	100.0
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	С	100.0	100.0	100.0	87.5	100.0	87.5	87.5
	D	100.0	100.0	100.0	87.5	100.0	100.0	100.0
	E	100.0	87.5	100.0	100.0	100.0	100.0	100.0
	Mean	100.0	92.5	100.0	95.0	95.0	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 X NO

b.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)

YES NO

2. Enter percent effluent corresponding to the LC₅₀ below:

 $LC_{so} =$

N/A% effluent

95 % confidence limits: N/A

Method of LC₅₀ calculation: N/A

- 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 Fathead Minnow 48 hour Acute Static Renewal Chemical Parameters Chart*

Permittee: El Dorado Chemical - Outfall 007 NPDES Number: AR0000752/ AFIN 70-00040

Contact: David Sartain Analyst: Callahan

Sample Collected

From:

Date 10/13/14

/13/14 Time 1000

To:

Date 10/14/14 Date 9/3/14 Time 1000 Time 1835

Test Begin

Date 9/5/14

		1 est Lin	1			Date :	7/3/14	1 111110 103	3						
Parameter		D.O.			l'emperatur	e		Alkalinity			Hardness			рĦ	
Dilut/Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	0hrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs
0	8.3	8.2	7.5	24.7	25.0	24.9	32.0			44.0			7.2	7.2	7.2
32.0	8.3	8.3	7.5	24.7	25.0	24.9							6.9	6.9	7.0
45.0	8.3	8.4	7.5	24.7	25.0	24.9							6.8	6.8	6.9
50.0	8.3	8.4	7.5	24.7	25.0	24.9							6.7	6.8	6.9
56.0	8.2	8.3	7.4	24.7	25.0	24.9							6.7	6.7	6.9
75.0	8.2	8.4	7.5	24.7	25.0	24.9							6.6	6.7	6.8
100.0	8.2	8.4	7.3	24.7	25.0	24.9	8.0			204.0			6.3	6.4	6.5

*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 007
Project#: \(\lambda 5574 \)
Chain of Custody Documents Checked by: ESB 11 1914 Technician/Date
Raw Data Documents Checked by: 508 111914 Technician/Date
Statistical Analysis Package Checked by: EDB 11/18/14 Quality Manager/Date
Quality Control Data Checked by: EGO 11/1/4 Ouality Manager/Date
Report Checked by: ECO 11/19/14 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.
Quality Manager Bruger Box 11 19 14 Date

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

Report Rev. 3.0

Bio-Analytical Laboratories (BAL) ADEQ#88-0630 Project X5573

Bio-Analytical Laboratories' Executive Summary

Permittee: El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #:

X5573

Outfall:

Outfall 006 (contaminated storm water)

Permit #:

AR0000752/ AFIN #70-00040

Contact:

Mr. David Sartain

Test Dates:

October 14 - 16, 2014

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 7.62%.

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 24.48%.

This report contains a total of 33 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 X5573

Test Dates: October 14 - 16, 2014 Report Date: November 19, 2014

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

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	5
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	5
3.0 Results and Discussion	6
4.0 Conclusions	7
5.0 References	8
Appendices	
A- Chain-of-Custody Documents	9
B- Raw Data Sheets	11
C- Statistical Analyses	21
D- Quality Assurance Charts	24
E- Agency Forms	27
F- Report Quality Assurance Form	32

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 LC₅₀, 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 obtained from Environmental Testing and Consulting, Superior, Wisconsin(ECT) and were approximately 10 days old at test initiation. The minnows were acclimated to test temperature and dilution water hardness prior to testing. The *Daphnia pulex* test organisms were 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.

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 acute tests were 100.0, 75.0, 56.0, 45.0, 32.0 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 October 14, 2014. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 0.7° 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^{0} 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^{0} 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.

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 either test after 48 hours of exposure (p=.05). The NOEC values for both tests was 100.0 percent effluent (p=.05). The 48-hour LC₅₀ 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

	and of the 40-hour Action De	ercon Survivill
Test Organism	Pimephales promelas	Daphnia pulex
Control	100.0	97.5
22.0	95.0	95.0
32.0	100.0	92.5
45.0	95.0	95.0
56.0	100.0	95.0
75.0	100.0	92.5
100.0	95.0	80.0

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.

4.0 Conclusions

The sample of Outfall 006 collected from El Dorado Chemical Company, El Dorado, Arkansas, on October 14, 2014, 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).

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 Bax 527 Daylina, LA 71023 (318) 745-277 1-800-259-124 Fox: (318) 745-277

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APPENDIX B RAW DATA SHEETS

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST WATER QUALITY DATA

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

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CUTE2 Re	v 1.0																						

APPENDIX C STATISTICAL ANALYSES

				Dap	hnid Acute Te	est-48 Hr Survival		X5573
Start Date: End Date: Sample Date:	10/14/2014 10/16/2014 10/13/2014	ŀ	Test ID: Lab ID: Protocol:	X5573DP 880630		Sample ID: Sample Type: 2-01 Test Species:	AR0000752-006 EFF2-Industrial DP-Daphnia pulex	Page 22 of 3
Conc-%	1	2	3	4	5			
D-Control	1.0000	1.0000	1.0000	1.0000	0.8750	•		
22	1.0000	1.0000	1.0000	0.7500	1.0000			
32	0.8750	1.0000	1.0000	1.0000	0.7500			
45	1.0000	1.0000	0.7500	1.0000	1.0000			
56	1.0000	1.0000	1.0000	1.0000	0.7500			
75	0.6250	1.0000	1.0000	1.0000	1.0000		•	
100	0.8750	1.0000	0.6250	1.0000	0.5000			

			Tra	ansform:	Arcsin Sc	quare Root	t	Rank	1-Talled	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	0.9750	1.0000	1.3564	1.2094	1.3931	6.055	5			
22	0.9500	0.9744	1.3239	1.0472	1.3931	11.684	5	27.00	16.00	
32	0.9250	0.9487	1.2872	1.0472	1.3931	12.116	5	24.50	16.00	
45	0.9500	0.9744	1.3239	1.0472	1.3931	11.684	5	27.00	16.00	
56	0.9500	0.9744	1.3239	1.0472	1.3931	11.684	5	27.00	16.00	
75	0.9250	0.9487	1.2968	0.9117	1.3931	16.600	5	27.00	16.00	
100	0.8000	0.8205	1.1385	0.7854	1.3931	24.481	5	21.50	16.00	

Auxiliary Tests		***************************************			Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	n-normal dis	stribution (p <= 0.05		0.79178	0.934	-1.0672	0.21418
Bartlett's Test indicates equal var			•		5.60771	16.8119		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU				
Steel's Many-One Rank Test	100	>100		1				
Treatments vs D-Control								

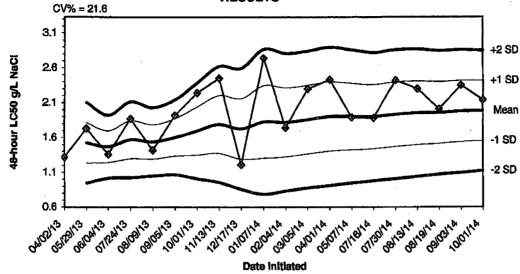
e ^r	Acute Fish Test-48 Hr Survival											
Start Date:	10/14/2014		Test ID:	X5573PP		Sample ID:	AR0000752-006	Page 23 of 3				
End Date:	10/16/2014		Lab ID:	880630		Sample Type:	EFF2-Industrial					
Sample Date:	10/13/2014		Protocol:	EPAAW02	-EPA/821/R-02-01	Test Species:	PP-Pimephales promelas					
Comments:												
Conc-%	1	2	3	4	5							
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000							
22	1.0000	1.0000	1.0000	0.7500	1.0000							
32	1.0000	1.0000	1.0000	1.0000	1.0000							
45	1.0000	1.0000	0.7500	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	0.8750	1.0000	1.0000	1.0000	0.8750	•	•					

		_	Tra	ansform:	Arcein So	quare Root	t	Rank	1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5			
22	0.9500	0.9500	1.3239	1.0472	1.3931	11.684	5	25.00	16.00	
32	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
45	0.9500	0.9500	1.3239	1.0472	1.3931	11.684	5	25.00	16.00	
56	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
75	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
100	0.9500	0.9500	1.3196	1.2094	1.3931	7.623	5	22.50	16.00	

Auxiliary Tests				Statistic	Critical	Skew	Kurt	
Shapiro-Wilk's Test Indicates nor	-normal di	stribution (0.65746	0.934	-2.2824	5.98808	
Equality of variance cannot be co	nfirmed	`	•					
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

2014 DAPHNIA PULEX 48 HOUR ACUTE REFERENCE TOXICANT TEST RESULTS

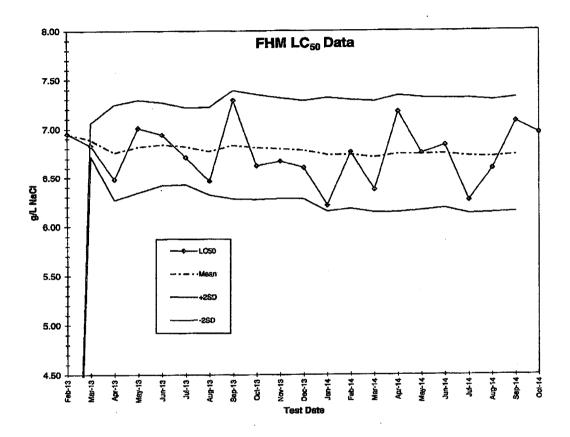


Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
04/02/13	1.3200					
05/29/13	1.7300	1.5250	1.2351	0.9452	1.8149	2.1048
06/04/13	1.3600	1.4700	1.2439	1.0179	1.6961	1.9221
07/24/13	1.8700	1.5700	1.2978	1.0257	1.8422	2.1143
08/09/13	1.4200	1.5400	1.2949	1.0499	1.7851	2.0301
09/05/13	1.9200	1.6033	1.3348	1.0663	1.8719	2.1404
10/01/13	2.2400	1.6943	1.3508	1.0073	2.0378	2.3813
11/13/13	2.4500	1.7888	1.3734	0.9580	2.2041	2.6195
12/17/13	1.2100	1.7244	1.2906	0.8569	2.1582	2.5920
01/07/14	2.7400	1.8260	1.3060	0.7860	2.3460	2.8660
02/04/14	1.7400	1.8182	1.3242	0.8302	2.3122	2.8062
03/05/14	2.3000	1.8583	1.3672	0.8761	2.3495	2.8406
04/01/14	2.4300	1.9023	1.4061	0.9099	2.3985	2.8948
05/07/14	1.8900	1.9014	1.4247	0.9479	2.3782	2.8550
07/16/14	1.8800	1.9000	1.4405	0.9811	2.3595	2.8189
07/30/14	2.4200	1.9325	1.4700	1.0075	2.3950	2.8575
08/13/14	2.3000	1.9541	1.4975	1.0409	2.4107	2.8674
08/19/14	2.0100	1.9572	1.5140	1.0709	2.4004	2.8436
09/03/14	2.3500	1.9779	1.5379	1.0979	2.4179	2.8579
10/01/14	2.1400	1.9860	1.5562	1.1264	2.4158	2.8456

Environmental Consulting and Testing Inc. Fathead Minnow Acute RTT

11/5/2014

Test	Date	LC50	+2SD	-2SD	Mean	std dev
1	Feb-13	6.95	#DIV/0!	#DIV/OI	#DIV/0!	#DIV/0!
2	Mar-13	6.83	#DIV/0!	#DIV/0!	6.95	#DIV/0!
3	Apr-13	6.48	7.08	6.72	6.89	80.0
4	May-13	7.01	7.24	6.26	6.75	0.24
5	Jun-13	6.94	7.29	6.34	6.82	0.24
6	Jul-13	6.71	7.27	6.42	6.84	0.21
7	Aug-13	6.46	7.22	6.42	6.82	0.20
8	Sep-13	7.29	7.22	6.32	6.77	0.23
9	Oct-13	6.62	7.39	6.28	6.83	0.28
10	Nov-13	6.67	7.35	6.27	6.81	0.27
11	Dec-13	6.60	7.31 ·	6.28	6.80	0.26
12	Jan-14	6.21	7.28	6.27	6.78	0.25
13	Feb-14	6.76	7.31	6.15	6.73	0.29
14	Mar-14	6.37	7.29	6.18	6.73	0.28
15	Apr-14	7.17	7.28	6.14	6.71	0.28
16	May-14	6.75	7.34	6.14	6.74	0.30
17	Jun-14	6.83	7,32	6.16	6.74	0.29
18	Jul-14	6.26	7.31	6.18	6.74	0.28
19	Aug-14	6.59	7.31	6.13	6.72	0.30
20	Sep-14	7.07	7.29	6.13	6.71	0.29
21	Oct-14	6.95	7.31	6.14	6.73	0.29



sd 0.29 cv 4% 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: 10/13/14

To: 10/14/14

From:

To:

Test Initiated: 10/14/14

Dilution Water Used:

Receiving Water

X Reconstituted Water

Dilution Series Results - Percent Survival

TIME OF READING	REP	ò	22.0	32.0	45,0	56.0	<i>7</i> 5.0	100.0
24-hour	A	100.0	100.0	100.0	100.0	100.0	100.0	87.5
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	С	100.0	100.0	100.0	75.0	100.0	100.0	75.0
	D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	E	87.5	100.0	100.0	100.0	75.0	10.0	100.0
48-hour	A	100.0	100.0	87.5	100.0	100.0	75.0	87.5
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	C	100.0	100.0	100.0	75.0	100.0	100.0	75.0
	D	100.0	75.0	100.0	100.0	100.0	100.0	100.0
	E .	87.5	100.0	75.0	100.0	75.0	100.0	50.0
	Mean	97.5	95.0	92.5	95.0	95.0	92.5	80.0

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.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)

YES

NO

2. Enter percent effluent corresponding to the LC₅₀ below:

 $LC_{50} =$

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 10/13/14

Time 1000

To:

Date 10/14/14 Date 10/14/14 Time 1000 Time 1630

Test Begin Test End

Date 10/16/14

Time 1510

Parameter		D.O.			l'emperatur	e		Alkalinity			Hardness			рН	
Dilut/Time	Ohrs.	24hts	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs :	Ohrs	24hrs	48hrs	Ohrs .	1.00	48hrs
0	8.3	8.3	8.2	24.7	25.0	24.9	32.0			44.0			7.3	7.7	7.4
22.0	8.2	8.4	8.0	24.7	25.0	24.9				:			7.2	7.2	7.1
32.0	8.2	8.4	7.9	24.7	25.0	24.9							7.0	7.1	7.1
45.0	8.2	8.5	8.0	24.7	25.0	24.9							6.9	7.0	7.1
56.0	8.2	8.3	8.0	24.7	25.0	24.9							6.9	7.0	7.0
75.0	8.2	8.5	8.0	24.7	25.0	24.9							6.9	6.9	6.9
100.0	8.2	8.5	7.9	24.7	25.0	24.9	24.0			100.0			6.8	6.8	6.8

^{*}This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO₃

Acute Forms Pimephales promelas (Fathead Minnow) Survival

Permittee: El Dorado Chemical - Outfall 006

NPDES Permit Number: AR0000752/ AFIN 70-00040

Composite Collected

From: 10/13/14

From:

To: 10/14/14

To:

Test Initiated: 10/14/14

Dilution Water Used:

Receiving Water

X Reconstituted Water

Dilution Series Results - Percent Survival

	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	87.5						
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0						
	С	100.0	100.0	100.0	75.0	100.0	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	10.0	87.5						
48-hour	A	100.0	100.0	100.0	100.0	100.0	75.0	87.5						
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0						
	С	100.0	100.0	100.0	75.0	100.0	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	87.5						
. •	Mean	100.0	95.0	100.0	95.0	100.0	100.0	95.0						

- 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.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)

YES

NO

2. Enter percent effluent corresponding to the LC_{50} below:

LC_{so} =

N/A% effluent

95 % confidence limits:

Method of LC_{50} 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 Fathead minnow 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 10/13/14

Time 1000

To:

Date 10/14/14 Date 10/14/14 Time 1000 Time 1805

Test Begin Test End

Date 10/16/14

Time 1605

Parameter		D.O.			l'emperatur	6		Alkalinity			Hardness			pΗ	
Dilut./Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Óhrs	24hrs	48hrs
0	8.3	8.3	7.6	24.7	25.1	24.9	32.0			44.0			7.3	7.7	7.1
22.0	8.2	8.4	7.5	24.7	25.1	24.9							7.2	7.2	7.0
32.0	8.2	8.4	7.5	24.7	25.1	24.9							7.0	7.1	7.0
45.0	8.2	8.5	7.5	24.7	25.1	24.9							6.9	7.0	6.9
56.0	8.2	8.3	7.4	24.7	25.1	24.9							6.9	7.0	6.9
75.0	8.2	8.5	7.3	24.7	25.1	24.9							6.9	6.9	6.8
100.0	8.2	8.5	7.3	24.7	25.1	24.9	24.0			100.0			6.8	6.8	6.7

^{*}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

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.

Calify Brugo BS

Quality Manager

11/19/14 Date

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

Report Rev. 3.0

From: (870) 863-1400 Scott Brice El Dorado Chemical Cor 4500 NW Ave

El Dorado, AR 71730

Origin ID: ELDA



Ship Date: 24NOV14 ActWgt: 2.0 LB CAD: 5887030/INET3550

SHIP TO: (501) 682-0744

BILL SENDER

ADEQ - Water Division Enforcement 5301 Northshore Drive

NORTH LITTLE ROCK, AR 72118

Ref# Invoice # PO # Dept #

TUE - 25 NOV 10:30A **PRIORITY OVERNIGHT**

7719 7241 3154

72118 AR-US LIT



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