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



May 22, 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 April 30, 2015.

Enclosed you will find the Discharge Monitoring Reports ending April 30, 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,

**Edward L Pearson** 

**Environmental Technician** 

**Enclosures** 

### **NON-COMPLIANCE REPORT**

**Facility Name:** 

**El Dorado Chemical Company** 

**Permit Number:** 

AR0000752

AFIN:

70-00040

Month / Year:

Apr-15

Type of Violation	Permit Limit	Date of Violation	Cause of Violation	Corrective Action or Other Narrative
Outfall 010 Fecal Coliform Bacteria (No Result Available)	Report Dally	4/26/2015	Lab thermistor dislodged which caused the sample to be overheated.	American Interplex has dealt with the laboratory units and alarms to insure equipment operates property.
Outfall 006/Zinc Monthly Average (480 ug/L)	115.62 ug/L Monthly Average	4/9/2015	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 (480 ug/L)	231.99 ug/L Daily Max	4/9/2015	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	4/9/2015	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.	4/9/2015	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 (600 mg/L)	291 mg/L Monthly Average	4/9/2015	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 (600 mg/L)	436.5 mg/L Daily Max	4/9/2015	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 (120 ug/L)	115.62 ug/L Monthly Average	4/9/2015	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 (10 ug/L)	3.8 ug/L Monthly Average	4/9/2015	Unknown	EDCC has land applied pelletized lime in the area of outfall 007 in an effort to promote vegetative cover.
Outfall 007 / Lead Daily Average (10 ug/L)	7.62 ug/L Daily Max.	4/9/2015	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 (2100 mg/L)	291 mg/L Monthly Average	4/9/2015	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(2100 mg/L)	436.5 mg/L Daily Max	4/9/2015	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 (BAL) ADEQ#88-0630 Project X5713

### **Bio-Analytical Laboratories' Executive Summary**

Permittee:

El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #:

X5713

Outfall:

Outfall 006 (contaminated storm water)

Permit #:

AR0000752/ AFIN #70-00040

Contact:

Mr. David Sartain

**Test Dates:** 

April 10 - 12, 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 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-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 12.12%.

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 X5713

Test Dates: April 10 - 12, 2015 Report Date: April 16, 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

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#### 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<sub>50</sub>, 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. 20<sup>th</sup> 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 six 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.

#### 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, 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 April 9, 2015. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 0.8° 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  $25\pm1^{0}$  Celsius. The total residual chlorine level (SM4500-Cl D 1997) was measured with a Capital Controls<sup>R</sup> amperometric titrator and recorded if present. The total ammonia level was measured using a HACH<sup>R</sup> 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<sup>R</sup> dual controlled illuminated incubator at a temperature of  $25\pm1^{\circ}$  Celsius. An AEMC<sup>R</sup> 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 LC<sub>50</sub> 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 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<sub>50</sub> 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

Hercand Efficiency	mis of the 40-hour Active De	from Survivile
Test Organism	Pimephales promelas	Daphnia pulex
Control	100.0	92.5
22.0	100.0	97.5
32.0	100.0	100.0
45.0	100.0	100.0
56.0	100.0	100.0
75.0	100.0	100.0
100.0	100.0	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 006 collected from El Dorado Chemical Company, El Dorado, Arkansas, on April 9, 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).

### **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 (918) 745-2772 1-800-259-1246 Pax: (918) 745-2773

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

														Lab	oratory Use Only:	
Company: El Dorado Cher	mical Compan	y		Phone: (870) 863-1484			Ana	alysis:	:						Project Number: X5713	
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APPENDIX B
RAW DATA SHEETS

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X5713 Page 16 of 33

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X5713 Page 17 of 3;

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Dilution 610		MA	0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
56.0	A		8	<u> </u>	8			8.1	800	716			7.4		73			276	230 2712	340		
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X5713 Page 19 of 33

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	prere	nemistry newal/pos	recn trene	wal				RC	级	Al	<b>þ</b>	despitation of the last	RC	以	ar			Ro	Sec.	E C	7_	

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### APPENDIX C STATISTICAL ANALYSES

3				Dap	hnid Acute	Fest-48 Hr Survival		Page 22 of 33
Start Date:	4/10/2015		Test ID:	X5713DP		Sample ID:	AR0000752006	
End Date:	4/12/2015		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial	
Sample Date:	4/10/2015		Protocol:	EPAAW02	2-EPA/821/R	-02-01 Test Species:	DP-Daphnia pulex	
Comments:	-					·		
Conc-%	1	2	3	4	5			
D-Control	0.8750	1.0000	0.7500	1.0000	1.0000			
22	1.0000	1.0000	1.0000	0.8750	1.0000			
32	1.0000	1.0000	1.0000	1.0000	1.0000			
45	1.0000	1.0000	1.0000	1.0000	1.0000			
56	1.0000	1.0000	1.0000	1.0000	1.0000			
75	1.0000	1.0000	1.0000	1.0000	1.0000			
100	1.0000	1.0000	1.0000	1.0000	1.0000			

			Tra	ansform:	Arcsin So	uare Roo	t	Rank	1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	0.9250	1.0000	1.2872	1.0472	1.3931	12.116	5			
22	0.9750	1.0541	1.3564	1.2094	1.3931	6.055	5	30.50	16.00	
32	1.0000	1.0811	1.3931	1.3931	1.3931	0.000	5	32.50	16.00	
45	1.0000	1.0811	1.3931	1.3931	1.3931	0.000	5	32.50	16.00	
56	1.0000	1.0811	1.3931	1.3931	1.3931	0.000	5	32.50	16.00	
75	1.0000	1.0811	1.3931	1.3931	1.3931	0.000	5	32.50	16.00	
100	1.0000	1.0811	1.3931	1.3931	1.3931	0.000	5	32.50	16.00	

Auxillary Tests					Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates no	n-normal di	stribution (	p <= 0.05	)	0.65014	0.934	-1.9341	7.75955
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								

3				A	cute Fish Tes	t-48 Hr Survival	Page 23 of 3
Start Date:	4/10/2015		Test ID:	X5713PP		Sample ID:	AR0000752006
End Date:	4/12/2015		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial
Sample Date:	4/10/2015		Protocol:	EPAAW02	2-EPA/821/R-0	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	1.0000	1.0000		
32	1.0000	1.0000	1.0000	1.0000	1.0000		
45	1.0000	1.0000	1.0000	1.0000	1.0000		
56	1.0000	1.0000	1.0000	1.0000	1.0000		
75	1.0000	1.0000	1.0000	1.0000	1.0000		
100	1.0000	1.0000	1.0000	1.0000	1.0000		

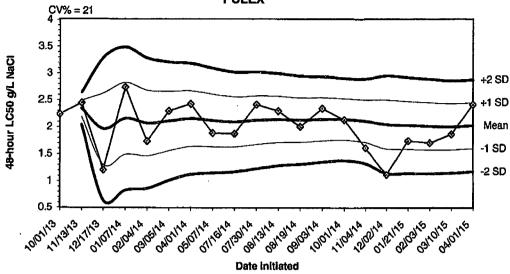
			Tr	ansform:	Arcsin Sc	uare Roof	t	Rank	1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5			
22	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
32	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
45	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
5 <del>6</del>	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	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	

Auxiliary Tests					Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	mal distribu	ition (p > 0	).05)		1	0.934		
Equality of variance cannot be co	nfirmed	•	·					
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU		· · · · · · · · · · · · · · · · · · ·		<u> </u>
Steel's Many-One Rank Test	100	>100		1				
Treatments vs D-Control								

10 m

# APPENDIX D QUALITY ASSURANCE CHARTS

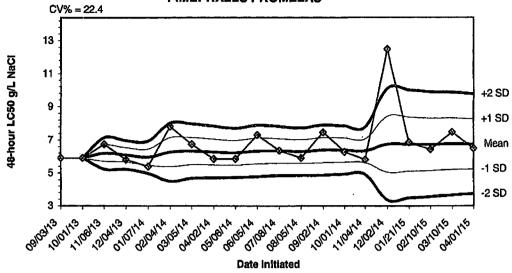
### 2015 ACUTE REFERENCE TOXICANT TEST RESULTS USING DAPHNIA PULEX



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
10/01/13	2.2400			•		
11/13/13	2.4500	2.3450	2.1965	2.0480	2.4935	2.6420
12/17/13	1.2100	1.9667	1.3030	0.6394	2.6303	3.2940
01/07/14	2.7400	2.1600	1.4943	0.8286	2.8257	3.4914
02/04/14	1.7400	2.0760	1.4697	0.8634	2.6823	3.2886
03/05/14	2.3000	2.1133	1.5634	1.0134	2.6633	3.2133
04/01/14	2.4300	2.1586	1.6425	1.1263	2.6747	3.1908
05/07/14	1.8900	2.1250	1.6378	1.1506	2.6122	3.0994
07/16/14	1.8800	2.0978	1.6348	1.1718	2.5608	3.0237
07/30/14	2.4200	2.1300	1.6818	1.2335	2.5782	3.0265
08/13/14	2.3000	2.1455	1.7171	1.2888	2.5738	3.0021
08/19/14	2.0100	2.1342	1.7239	1.3137	2.5444	2.9547
09/03/14	2.3500	2.1508	1.7535	1.3561	2.5481	2.9454
10/01/14	2.1400	2.1500	1.7683	1.3865	2.5317	2.9135
11/04/14	1.6200	2.1147	1.7222	1.3297	2.5071	2.8996
12/02/14	1.1200	2.0525	1.5991	1.1456	2.5059	2.9594
01/21/15	1.7500	2.0347	1.5896	1.1444	2.4798	2.9250
02/03/15	1.7100	2.0167	1.5781	1.1395	2.4552	2.8938
03/10/15	1.8700	2.0089	1.5814	1.1539	2.4365	2.8640
04/01/15	2.4200	2.0295	1.6033	1.1772	2.4557	2.8818

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### 2016 ACUTE REFERENCE TOXICANT TEST RESULTS USING PIMEPHALES PROMELAS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
09/03/13	5.9200					
10/01/13	5.9200	5.9200	5.9200	5.9200	5.9200	5.9200
11/06/13	6.7500	6.1967	5.7175	5.2383	6.6759	7.1551
12/04/13	5.8100	6.1000	5.6636	5.2272	6.5364	6.9728
01/07/14	5.4000	5.9600	5.4692	4.9785	6.4508	6.9415
02/04/14	7.8200	6.2700	5.3929	4.5158	7.1471	8.0242
03/05/14	6.7500	6.3386	5.5176	4.6966	7.1595	7.9805
04/02/14	5.8600	6.2788	5.5001	4.7214	7.0574	7.8361
05/06/14	5.8600	6.2322	5.4906	4.7490	6.9739	7.7155
06/05/14	7.3100	6.3400	5.5621	4.7843	7.1179	7.8957
07/08/14	6.3700	6.3427	5.6047	4.8667	7.0807	7.8187
08/05/14	5.9200	6.3075	5.5933	4.8792	7.0217	7.7358
09/02/14	7.4800	6.3977	5.6405	4.8834	7.1548	7.9120
10/01/14	6.2800	6.3893	5.6612	4.9330	7.1174	7.8455
11/04/14	5.8100	6.3507	5.6333	4.9159	7.0681	7.7855
12/02/14	12.5000	6.7350	5.0487	3.3623	8.4213	10.1077
01/21/15	6.8500	6.7418	5.1087	3.4757	8.3748	10.0078
02/10/15	6.4200	6.7239	5.1378	3.5517	8.3100	9.8961
03/10/15	7.4800	6.7637	5.2126	3.6614	8.3148	9.8659
04/01/15	6.4800	6.7495	5.2384	3.7273	8.2606	9.7717

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: 4/09/15

To: 4/09/15

From:

To:

Test Initiated: 4/10/15

**Dilution Water Used:** 

**Receiving Water** 

X Reconstituted Water

#### **Dilution Series Results - Percent Survival**

TIME OF READING	REP	o Rest	22.0	32.0	45.0	56.0	75.0	100.0
					<i>7</i> 88			
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
	С	100.0	100.0	100.0	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	100.0	100.0	100.0
48-hour	A	87.5	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	75.0	100.0	100.0	100.0	100.0	100.0	100.0
	D	100.0	87.5	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	92.5	97.5	100.0	100.0	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%)

X NO YES NO

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

YES

2. Enter percent effluent corresponding to the LC<sub>50</sub> below:

 $LC_{50} =$ 

N/A% effluent

95 % confidence limits:

Method of LC<sub>50</sub> 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, Rose

Sample Collected From:

To:

Date 4/09/15

Time 1800

Date 4/09/15 Date 4/10/15 Time 2400 Time 1600

Test Begin Test End

Date 4/12/15

Time 1615

		I COL LUIR				a) till	17 127 10	Z RAIAC AUL							
Parameter		D.O.			Cemperatur	é		Alkalinity			Hardness			ρĦ	
Dilut/Time	Ohrs.	24hrs.	48hrs	Ohrs :	24hrs	48hrs	Ohrs	24hrs	<b>进程的分别是1900年</b>	Section 18 Section 18	24hrs.	48hrs	Ohrs	SEC GLOSS SECTION	48hrs
0	8.4	8.4	8.3	24.3	24.3	24.0	28.0			40.0			7.6	7.7	7.9
22.0	8.2	8.4	8.3	24.3	24.3	24.0							7.5	7.6	7.7
32.0	8.2	8.0	8.2	24.3	24.3	24.0							7.4	7.4	7.7
45.0	8.2	8.2	8.1	24.3	24.3	24.0							7.4	7.5	7.6
56.0	8.1	8.1	8.1	24.3	24.3	24.0							7.4	7.5	7.5
75.0	8.1	8.1	8.0	24.3	24.3	24.0							7.3	7.6	7.5
100.0	7.9	8.2	8.0	24.3	24.3	24.0	32.0			92.0			7.3	7.4	7.4

<sup>\*</sup>This Form is to be submitted with each DMR.

A A

Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

### Acute Forms <u>Pimephales promelas</u> Survival

Permittee: El Dorado Chemical - Outfall 006

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 4/09/15

To: 4/09/15

From:

To:

Test Initiated: 4/10/15

**Dilution Water Used:** 

**Receiving Water** 

X Reconstituted Water

#### **Dilution Series Results - Percent Survival**

ווענ	unon Ser	169 1/69	1112 - 1 61	CCIII Su	TATAT			m
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
	В	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	C	100.0	100.0	100.0	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	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	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	100.0	100.0	100.0
	Mean	100.0	100.0	100.0	100.0	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.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)

YES NO

2. Enter percent effluent corresponding to the LC<sub>50</sub> below:

 $LC_{50} =$ 

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

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

李俊 章

**Contact: David Sartain** 

Analyst: Briggs, Callahan, Rose

Sample Collected From:

To:

Date 4/09/15 Date 4/09/15

Da

Time 1800 Time 2400 Time 1655

Test Begin Test End Date 4/10/15 Date 4/12/15

Time 1630

Parameter		D.O:			l'emperatur	e		Alkalinity			Hardness			рН	
Dilut./Time	Ohrs.	· 24hrs	48hrs	0hrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	:Ohrš	24hrs	48hrs
0	8.4	8.4	7.9	24.3	24.3	24.0	28.0			40.0			7.6	7.7	7.8
22.0	8.2	8.4	7.9	24.3	24.3	24.0							7.5	7.6	7.4
32.0	8.2	8.0	7.7	24.3	24.3	24.0							7.4	7.4	7.4
45.0	8.2	8.2	7.6	24.3	24.3	24.0							7.4	7.5	7.4
56.0	8.1	8.1	7.6	24.3	24.3	24.0							7.4	7.5	7.3
75.0	8.1	8.1	7.6	24.3	24.3	24.0							7.3	7.6	7.3
100.0	7.9	8.2	7.3	24.3	24.3	24.0	32.0			92.0			7.3	7.4	7.2

<sup>\*</sup>This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

### 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 Chemica 1 006
Project#: X5713
Chain of Custody Documents Checked by: EGG 14-20-15
1 echnician/Date
Raw Data Documents Checked by: E68 4-20-15
Technician/Date
Statistical Analysis Package Checked by: EGG 4-16-15
Quality Manager/Date
Quality Control Data Checked by: ECB 4-16-15
Quality Manager/Date
Report Checked by: <u>E68</u> 4-20-15
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.

Quality Manager

Bayon BS 4-20-15

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 X5714

### **Bio-Analytical Laboratories' Executive Summary**

Permittee: El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #:

X5714

Outfall:

Outfall 007 (contaminated storm water)

Permit #:

AR0000752/ AFIN #70-00040

Contact:

Mr. David Sartain

**Test Dates:** 

April 10 - 12, 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 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-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 12.12%.

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 007 AT

EL DORADO CHEMICAL COMPANY El Dorado, Arkansas

> NPDES #AR0000752 AFIN #70-00040

EPA Methods 2000.0 and 2021.0

Project X5714

Test Dates: April 10 - 12, 2015 Report Date: April 16, 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

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2.1 Test Methods	4
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2.3 Dilution Water	5
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2.6 Sample Preparation	5
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#### 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<sub>50</sub>, 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 six 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.

#### 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 tests were conducted using five replicates of eight animals each for a total of 40 animals per concentration.

### 2.5 Sample Collection

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One sample of Outfall 007 was collected by El Dorado Chemical personnel on April 10, 2015. Upon completion of collection, the sample was packed in ice and delivered to the laboratory by BAL personnel. The temperature upon arrival was 0.9° 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  $25\pm1^{\circ}$  Celsius. The total residual chlorine level (SM4500-Cl D 1997) was measured with a Capital Controls<sup>R</sup> amperometric titrator and recorded if present. The total ammonia level was measured using a HACH<sup>R</sup> 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<sup>R</sup> dual controlled illuminated incubator at a temperature of 25±1<sup>0</sup> Celsius. An AEMC<sup>R</sup> 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  $LC_{50}$  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 neither tests after 48 hours of exposure (p=.05). The NOEC for survival for the *Daphnia pulex* and the fathead minnow test was 100.0 percent effluent (p=.05). The 48 hour  $LC_{50}$  values for the *Daphnia pulex* and the fathead minnow test could not be determined because greater than 50.0 percent survival occurred in the 100.0 percent effluent dilution.

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

	S of the 40-hour Active De	taj dani Suavitzili
Test Organism	Pimephales promelas	Daphnia pulex
Control	100.0	92.5
32.0	100.0	95.0
45.0	100.0	92.5
50.0	100.0	92.5
56.0	100.0	95.0
75.0	100.0	92.5
100.0	100.0	92.5

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.

### 4.0 Conclusions

The sample of Outfall 007 collected from El Dorado Chemical Company, El Dorado, Arkansas, on April 10, 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).

### 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) 745-277: 1-800-259-124 Fax: (318) 745-277:

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

														Lal	oratory Use Only:	
Company: El Dorado Ch	emical Compar	ıy		Phone: (870) 863-1484			An	alysis	:						Project Number:	
Address: 4500 Norwest	Ave., El Dorad	lo, AR	7173	Fax: 1 (870) 863-7499		:	Chronic	Chroni	Acute	Acute	Acute Mysid	Acute	Fecal		X5714	
Permit #: AR0000752/A	FIN 70-00040			Purchase Order:			c Ceriodaphnia	Chronic minnow	minnow(	Acute Daphnia species	Mysid	Acute Ceriodaphnia	Fecal Coliform	remperatur Thermome	e #: 29	/al:-
Sampler's Sig	nature/Printed	Name	/Affil	lation: A. L. Pearson	16DCC		aphnia	*	Acute minnow(fresh/marine)	species		hnia		Tech: ICC Date: 4/10/	/ rs	
Date Start Date End	Time Start Time End	C	G	# and type of container	Sample Identific				ine)					Lab Control Number:	Preservative: (below)	
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# APPENDIX B RAW DATA SHEETS

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pH Met	er:		ľ	iode1	L #C	)ri	on 2	/SI550A 230A+	Seria	al :	#01	525	53		
Ampero	OH Meter: Model #Orion 230A+ Serial #015253 Conductivity Meter: Model # Control Co. Serial #80277924 Imperometric Titrator: Model #Fischer-Porter Serial #92W445766  Sample Information  Sample Initial Aerate? Total Dechlor Ammonia Salinity Hard- Nimutes/ Residual inated? (NH3)  Tech Total Dechlor Ammonia Salinity Hard- Nimutes/ Residual inated? (NH3)														
	Sample Initial Aerate? Total Dechlor Ammonia Salinity Hard- Alkal- Tech ID# D.O. Minutes/ Residual inated? (NH3)														
IO#	mperometric Titrator: Model #Fischer-Porter Serial #92W445766  Sample Information  Sample Initial D.O. Minutes/ Residual Chlorine (mg/L) Amount? Mg/L  10761 8:1101.47. Viol.146 Co.O.I NO 3.0 N/A 412.0 48.0														
C10761	ID# D.O. Minutes/ Residual inated? (NH3) ness inity (mg/L final Chlorine Amount? mg/L D.O(mg/L) (mg/L)														
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									'						
<u></u>			D	ilut	ion	W	ater	Inform	nation						
Dilution	Water	ID#	Initial (mg/L &	€}	Aera Minu (mg/	tes		Total Residual Chlorine (mg/L)	Ammonia (NH3) mg/L	рН	Har nes		Alkal- inity	Tech	
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### APPENDIX C STATISTICAL ANALYSES

								X5/14
				Dap	hnid Acute	Test-48 Hr Survival	<del></del>	Page 22 of 33
Start Date:	4/10/2015		Test ID:	X5714DP		Sample ID:	AR0000752007	
End Date:	4/12/2015		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial	
Sample Date:	4/10/2015		Protocol:	EPAAW02	2-EPA/821/F	R-02-01 Test Species:	DP-Daphnia pulex	
Comments:								
Conc-%	1	2	3	4	5			
D-Control	1.0000	0.7500	1.0000	0.8750	1.0000		•	
32	1.0000	1.0000	0.8750	0.8750	1.0000			
45	1.0000	1.0000	0.8750	0.8750	0.8750			
50	1.0000	0.8750	0.8750	0.8750	1.0000			
56	1.0000	0.7500	1.0000	1.0000	1.0000			
75	1.0000	0.8750	0.8750	0.8750	1.0000			
100	1.0000	1.0000	0.8750	0.8750	0.8750			

			Tra	ansform:	Arcsin S	quare Roo	Rank	1-Talled		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical	
D-Control	0.9250	1.0000	1.2872	1.0472	1.3931	12.116	5		-	
32	0.9500	1.0270	1.3196	1.2094	1.3931	7.623	5	28.50	16.00	
45	0.9250	1.0000	1.2829	1.2094	1.3931	7.841	5	26.50	16.00	
50	0.9250	1.0000	1.2829	1.2094	1.3931	7.841	5	26.50	16.00	
56	0.9500	1.0270	1.3239	1.0472	1.3931	11.684	5	29.50	16.00	
75	0.9250	1.0000	1.2829	1.2094	1.3931	7.841	5	26.50	16.00	
100	0.9250	1.0000	1.2829	1.2094	1.3931	7.841	5	26.50	16.00	

Auxiliary Tests					Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	n-normal dis	stribution (	p <= 0.05)		0.81461	0.934	-0.65	-0.2746
Bartlett's Test indicates equal var	riances (p =	0.90)			2.17295	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								

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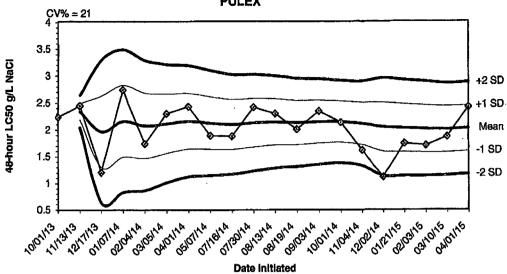
<u>:</u>	Acute Fish Test-48 Hr Survival												
Start Date:	4/10/2015		Test ID:	X5714PP		Sam	ple ID:	AR0000752007					
End Date:	4/12/2015		Lab ID:	ADEQ880	630	Sam	ple Type:	EFF2-Industrial					
Sample Date:	4/10/2015		Protocol:	EPAAW02	2-EPA/821/F	R-02-01 Test	Species:	PP-Pimephales pr	omelas				
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	1.0000	1.0000	1.0000	1.0000	1.0000								
50	1.0000	1.0000	1.0000	1.0000	1.0000								
5 <b>6</b>	1.0000	1.0000	1.0000	1.0000	1.0000								
75	1.0000	1.0000	1.0000	1.0000	1.0000								
100	1.0000	1.0000	1.0000	1.0000	1.0000								

			Tra	ansform:	Arcsin Sc	uare Roo	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			
32	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
45	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	
50	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	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	1.0000	1.0000	1.3931	1.3931	1.3931	0.000	5	27.50	16.00	

Auxiliary Tests					Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates nor	mal distribu	rtion (p > 0	).05)		1	0.934		
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	,							

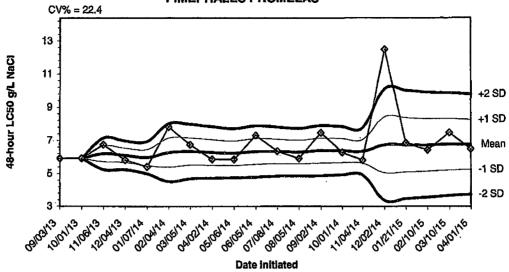
# APPENDIX D QUALITY ASSURANCE CHARTS

### 2015 ACUTE REFERENCE TOXICANT TEST RESULTS USING DAPHNIA PULEX



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
10/01/13	2.2400					
11/13/13	2.4500	2.3450	2.1965	2.0480	2.4935	2.6420
12/17/13	1.2100	1.9667	1.3030	0.6394	2.6303	3.2940
01/07/14	2.7400	2.1600	1.4943	0.8286	2.8257	3.4914
02/04/14	1.7400	2.0760	1.4697	0.8634	2.6823	3.2886
03/05/14	2.3000	2.1133	1.5634	1.0134	2.6633	3.2133
04/01/14	2.4300	2.1586	1.6425	1.1263	2.6747	3.1908
05/07/14	1.8900	2.1250	1.6378	1.1506	2.6122	3.0994
07/16/14	1.8800	2.0978	1.6348	1.1718	2.5608	3.0237
07/30/14	2.4200	2.1300	1.6818	1.2335	2.5782	3.0265
08/13/14	2.3000	2.1455	1.7171	1.2888	2.5738	3.0021
08/19/14	2.0100	2.1342	1.7239	1.3137	2.5444	2.9547
09/03/14	2.3500	2.1508	1.7535	1.3561	2.5481	2.9454
10/01/14	2.1400	2.1500	1.7683	1.3865	2.5317	2.9135
11/04/14	1.6200	2.1147	1.7222	1.3297	2.5071	2.8996
12/02/14	1.1200	2.0525	1.5991	1.1456	2.5059	2.9594
01/21/15	1.7500	2.0347	1.5896	1.1444	2.4798	2.9250
02/03/15	1.7100	2.0167	1.5781	1.1395	2.4552	2.8938
03/10/15	1.8700	2.0089	1.5814	1.1539	2.4365	2.8640
04/01/15	2.4200	2.0295	1.6033	1.1772	2.4557	2.8818

### 2015 ACUTE REFERENCE TOXICANT TEST RESULTS USING PIMEPHALES PROMELAS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
09/03/13	5.9200					
10/01/13	5.9200	5.9200	5.9200	5.9200	5.9200	5.9200
11/06/13	6.7500	6.1967	5.7175	5.2383	6.6759	7.1551
12/04/13	5.8100	6.1000	5.6636	5.2272	6.5364	6.9728
01/07/14	5.4000	5.9600	5.4692	4.9785	6.4508	6.9415
02/04/14	7.8200	6.2700	5.3929	4.5158	7.1471	8.0242
03/05/14	6.7500	6.3386	5.5176	4.6966	7.1595	7.9805
04/02/14	5.8600	6.2788	5.5001	4.7214	7.0574	7.8361
05/06/14	5.8600	6.2322	5.4906	4.7490	6.9739	7.7155
06/05/14	7.3100	6.3400	5.5621	4.7843	7.1179	7.8957
07/08/14	6.3700	6.3427	5.6047	4.8667	7.0807	7.8187
08/05/14	5.9200	6.3075	5.5933	4.8792	7.0217	7.7358
09/02/14	7.4800	6.3977	5.6405	4.8834	7.1548	7.9120
10/01/14	6.2800	6.3893	5.6612	4.9330	7.1174	7.8455
11/04/14	5.8100	6.3507	5.6333	4.9159	7.0681	7.7855
12/02/14	12.5000	6.7350	5.0487	3.3623	8.4213	10.1077
01/21/15	6.8500	6.7418	5.1087	3.4757	8.3748	10.0078
02/10/15	6.4200	6.7239	5.1378	3.5517	8.3100	9.8961
03/10/15	7.4800	6.7637	5.2126	3.6614	8.3148	9.8659
04/01/15	6.4800	6.7495	5.2384	3.7273	8.2606	9.7717

### APPENDIX E AGENCY FORMS

### Acute Forms <u>Daphnia pulex</u> Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 4/09/15

To: 4/10/15

From:

To:

Test Initiated: 4/10/15

**Dilution Water Used:** 

**Receiving Water** 

X Reconstituted Water

Dilution Series Results - Percent Survival

Dilution Series Results - Percent Survival													
TIME OF READING	REP.	0	32.0	45:0	50.0	56.0	75.0	100.0					
								\$73.3					
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	75.0	87.5	100.0					
	C	100.0	87.5	87.5	87.5	100.0	87.5	87.5					
-	D	87.5	87.5	87.5	87.5	100.0	87.5	87.5					
	E	100.0	100.0	87.5	100.0	100.0	100.0	87.5					
48-hour	A	100.0	100.0	100.0	100.0	100.0	100.0	100.0					
	В	75.0	100.0	100.0	87.5	75.0	87.5	100.0					
	С	100.0	87.5	87.5	87.5	100.0	87.5	87.5					
	D	87.5	87.5	87.5	87.5	100.0	87.5	87.5					
	E	100.0	100.0	87.5	100.0	100.0	100.0	87.5					
	Mean	92.5	95.0	92.5	92.5	95.0	92.5	92.5					

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 LC<sub>50</sub> below:

 $LC_{50} =$ 

% effluent

95 % confidence limits: %

Method of LC<sub>50</sub> 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 007 NPDES Number: AR0000752/ AFIN 70-00040

1 1961年 大学の大学ので

**Contact: David Sartain** 

Analyst: Briggs, Callahan, Rose Sample Collected From: From:

To:

Date 4/09/15

Time 1830

Test Begin

Date 4/10/15 Date 4/10/15 Time 0030 Time 1620

Test End

Date 4/12/15

Time 1620

Parameter		D.Ö.			l'empératur	e		Alkalinity			Hardness			ρĦ	
Dilut/Time	Ohrs.	24hrs	25.42.22.23	COMPANY AND TOTAL PARTY.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs .	24hrs	48hrs
0	8.3	8.3	8.2	24.3	24.3	24.0	28.0			40.0			7.6	7.7	7.9
32.0	8.2	8.2	8.2	24.3	24.3	24.0							7.4	7.5	7.7
45.0	8.2	8.2	8.1	24.3	24.3	24.0							7.4	7.4	7.7
50.0	8.2	8.2	8.1	24.3	24.3	24.0							7.4	7.4	7.7
56.0	8.1	8.1	8.1	24.3	24.3	24.0							7.4	7.3	7.7
75.0	8.1	8.0	8.1	24.3	24.3	24.0							7.4	7.3	7.7
100.0	8.0	8.0	8.1	24.3	24.3	24.0	48.0			412.0			7.3	7.2	7.7

<sup>\*</sup>This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

### Acute Forms <u>Pimephales promelas</u> Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 4/09/15

From:

To: 4/10/15

To:

Test Initiated: 4/10/15

**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
Tivit Of AEADING			32.0					<b>X00.</b> 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	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	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
	C	100.0	100.0	100.0	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	100.0	100.0	100.0
	Mean	100.0	100.0	100.0	100.0	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%)

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

YES

YES X NO

NO

b.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%)
2. Enter percent effluent corresponding to the LC<sub>50</sub> below:

 $LC_{50} =$  % effluent

95 % confidence limits: % Method of LC<sub>50</sub> 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 007 NPDES Number: AR0000752/ AFIN 70-00040

A. 18

**Contact: David Sartain** 

Analyst: Briggs, Callahan, Rose

Sample Collected

From:

Date 4/09/15

Time 1830

To:

Date 4/10/15 Date 4/10/15 Time 0030 Time 1715

**Test Begin** Test End

Date 4/12/15

Time 1640

Parameter		D:O7 Temperature				<b>6</b>	PER AND A	Alkalinity		Hardness			рН		
Dilut./Time	Ohrs.	24hrs	Secretaria de la composição de la compos	NEW A ANDREW OF	24hrs	48hrs	0hrs	24hrs	Mack Dates College	Ohrs	24hrs	48hrs	Ohrs.	24hrs	48hrs
0	8.3	8.3	7.9	24.3	24.3	24.0	28.0			40.0		-	7.6	7.7	7.6
32.0	8.2	8.2	7.5	24.3	24.3	24.0							7.4	7.5	7.5
45.0	8.2	8.2	7.3	24.3	24.3	24.0							7.4	7.4	7.4
50.0	8.2	8.2	7.4	24.3	24.3	24.0							7.4	7.4	7.4
56.0	8.1	8.1	7.5	24.3	24.3	24.0							7.4	7.3	7.4
75.0	8.1	8.0	7.5	24.3	24.3	24.0							7.4	7.3	7.4
100.0	8.0	8.0	7.4	24.3	24.3	24.0	48.0			412.0			7.3	7.2	7.4

<sup>\*</sup>This Form is to be submitted with each DMR.

Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

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: Elborado Chemical 007
Project#: X5714
Chain of Custody Documents Checked by: 868 4-30-15
Technician/Date
Raw Data Documents Checked by: E68 4-20-15
Technician/Date
Statistical Analysis Package Checked by: 66 4-16-15
Quality Manager/Date
Quality Control Data Checked by: EGB 4-16-15
Quality Manager/Date
Report Checked by: EGS 14-20-15

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/Date

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.

Report Rev. 3.0

Origin ID: ELDA

From: (870) 863-1400 Eddie Pearson ELDORADO CHEMICAL COMPANY 4500 NORTH WEST AVE

ELDORADO, AR 71730

Ship Date: 21MAY15 ActWgt: 1.5 LB CAD: 5887030/INET3810

BILL SENDER

Ref# Invoice # PO # Dept #

SHIP TO: (501) 682-0744

**Water Enforcement Branch** ADEQ - AR. DEPT. ENVIR. QUALITY 5301 Northshore Drive

**NORTH LITTLE ROCK, AR 72118** 

FRI - 22 MAY 9:00A FIRST OVERNIGHT

TRK# 7736 5849 0576

72118



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