

**CHEMICAL COMPANY** 

October 24, 2013

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

RE: NPDES Permit AR0000752 Discharge Monitoring Report for period ending September 30, 2013.

Enclosed you will find the Discharge Monitoring Report ending September 30, 2013. The DMR's for Outfall 010-A were entered on the blank DMR forms provided by Amy Schluterman, ADEQ Water Enforcement. See enclosed email correspondence.

If you have any questions regarding this report, please contact Larken Pennington at (870) 863-

1125.

Sincerely,

Greg Withrow General Manager

**Enclosures** 

# **NON-COMPLIANCE REPORT**

Facility Name:

El Dorado Chemical Company

Permit Number:

AR0000752

70-00040

Month / Year:

Sep-13

Type of Violation	Permit Limit	Date of Violation	Cause of Violation	Corrective Action or Other Narrative
Outfall 006 / Zinc Monthly Average (218.0 ug/L)	115.62 ug/L Monthly Average	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Zinc excursion.
Outfall 006 / Lead Monthly Average (21.4 ug/L)	3.8 ug/L Monthly Average	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Lead excursion.
Outfall 006 / Lead Daily Max (21.4 ug/L)	7.62 ug/L Daily Max	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Lead excursion.
Outfall 007 / Zinc Monthly Average (202.0 ug/L)	115.62 ug/L Monthly Average	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Zinc excursion.
Outfall 007 / Lead Monthly Average (53.8 ug/L)	3.8 ug/L. Monthly Average	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Lead excursion.
Outfall 007 / Lead Daily Max (53.8 ug/L)	7.62 ug/L. Daily Max	9/20/2013	Unknown	EDCC continues to monitor and evaluate potential sources of the Lead excursion.
				/

AFIN:

I CERTIFY THAT UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C 1001 AND 33 U.S.C. 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

Signature / Date 10 \$2/13

## Larken Pennington

From:

Schluterman, Amy [SCHLUTERMAN@adeq.state.ar.us]

Sent:

Wednesday, October 23, 2013 3:28 PM

To:

Larken Pennington

Subject:

RE: El Dorado Chemical Co. DMR preprints 2013-2014

Attachments:

Blank DMR Form (Fillable).pdf

Larken,

Because the DMRs cannot be generated by our ICIS system the Assistant Chief has given us permission to send you a blank DMR for reporting the necessary permit limits for Outfall 010. Please also include a copy of the lab reports with the DMRs. I apologize for this taking so long to clear up. If there is anything else you need, please let me know.

Thanks,

Amy Schluterman Water Enforcement, ADEQ 501-682-0633

From: Larken Pennington [mailto:LPennington@edc-ark.com]

Sent: Tuesday, October 22, 2013 3:31 PM

To: Schluterman, Amy

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

Since the government shutdown is over, when can we get the preprinted DMR forms?

Thanks,

## Larken Pennington

El Dorado Chemical Company Environmental Technician Office: 870-863-1125

Cell: 870-312-1752

Email: <a href="mailto:lpennington@edc-ark.com">lpennington@edc-ark.com</a>

From: Schluterman, Amy [mailto:SCHLUTERMAN@adeq.state.ar.us]

Sent: Wednesday, October 16, 2013 9:21 AM

To: Larken Pennington

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Larken,

I do not have any blank forms to send you and we are not able to accept the forms unless they are the preprinted versions that the Department generates. Until the government shutdown is over we will not be able to generate any preprinted forms.

From: Larken Pennington [mailto:LPennington@edc-ark.com]

Sent: Tuesday, October 15, 2013 3:31 PM

To: Schluterman, Amy

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

Do you have a blank DMR that you can send me? That way I can go ahead and submit all of the data.

Thanks,

## Larken Tennington

El Dorado Chemical Company Environmental Technician Office: 870-863-1125

Cell: 870-312-1752

Email: <a href="mailton@edc-ark.com">lpennington@edc-ark.com</a>

From: Schluterman, Amy [mailto:SCHLUTERMAN@adeq.state.ar.us]

Sent: Wednesday, October 09, 2013 8:58 AM

To: Larken Pennington

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Larken,

The system that generates the DMRs is still not operational because of the government shutdown. I would go ahead and submit what you have and hold onto all your data and we can have you submit a corrected DMR once the preprints are have been generated.

Thanks, Amy

From: Larken Pennington [mailto:LPennington@edc-ark.com]

Sent: Wednesday, October 09, 2013 8:53 AM

To: Schluterman, Amy

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

Just checking back with you to see if anything has been done to correct the DMR's. Since I do not have the correct DMR's, what do you advise me to do for completing Septembers DMR's?

Thanks,

# Larken Tennington

El Dorado Chemical Company

Environmental Technician Office: 870-863-1125 Cell: 870-312-1752

Email: lpennington@edc-ark.com

From: Schluterman, Amy [mailto:SCHLUTERMAN@adeg.state.ar.us]

Sent: Tuesday, October 01, 2013 3:29 PM

To: Larken Pennington

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Larken,

We do not have them corrected yet and unfortunately the program that generates the DMRs is currently down because of the government shutdown. As soon as the system is back up we should be able to get corrections made and DMRs generated for you.

Thanks, Amy

From: Larken Pennington [mailto:LPennington@edc-ark.com]

Sent: Tuesday, October 01, 2013 3:04 PM

To: Schluterman, Amy

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

I am checking to see if you have our DMR's corrected yet.

Thanks,

# Larken Tennington

El Dorado Chemical Company Environmental Technician Office: 870-863-1125

Cell: 870-312-1752

Email: <a href="mailto:lpennington@edc-ark.com">lpennington@edc-ark.com</a>

From: Schluterman, Amy [mailto:SCHLUTERMAN@adeq.state.ar.us]

Sent: Thursday, September 26, 2013 3:22 PM

To: Larken Pennington

Subject: RE: El Dorado Chemical Co. DMR preprints 2013-2014

Larken,

Yes, I did receive your email. I am just trying to make sure they are correct before making corrections.

Thanks, Amy From: Larken Pennington [mailto:LPennington@edc-ark.com]

Sent: Thursday, September 26, 2013 3:12 PM

To: Schluterman, Amy

Subject: FW: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

I am just making sure you received the email below sent on September 19. Please assist.

Thanks,

# Larken Tennington

El Dorado Chemical Company Environmental Technician

Office: 870-863-1125 Cell: 870-312-1752

Email: <a href="mailto:lpennington@edc-ark.com">lpennington@edc-ark.com</a>

From: Larken Pennington

Sent: Thursday, September 19, 2013 4:35 PM

To: 'schluterman@adeq.state.ar.us'

Subject: El Dorado Chemical Co. DMR preprints 2013-2014

Amy,

Attached are the DMR preprints for September 2013 that were emailed to El Dorado Chemical Co. in April 2013. Will you please check the DMR's against the permit? The parameters for Discharge Number 010-A are not all there. We received DMR preprints until March 2014; these will need to be edited as well. Please advise.

Thanks,

# Larken Tennington

El Dorado Chemical Company Environmental Technician Office: 870-863-1125

Cell: 870-312-1752

Email: Ipennington@edc-ark.com



September 27, 2013

Test Results of Third Quarter Chronic 7 day Renewal Biomonitoring Testing for Outfall 010 El Dorado Chemical

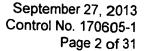
Control No. 170605-1

Prepared for:

Ms. Larken Pennington El Dorado Chemical Company 4500 North West Avenue El Dorado, AR 71730

Prepared by:

AMERICAN INTERPLEX CORPORATION 8600 Kanis Road Little Rock, AR 72204-2322





El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

Re: Chronic 7 day Renewal utilizing *Pimephales promelas* (Fathead minnow) and *Ceriodaphnia dubia* Outfall 010 - El Dorado Chemical NPDES Permit No.

Dear Ms. Larken Pennington:

This report is the analytical results and supporting information for the samples submitted to American Interplex Corporation (AIC). The following results are applicable only to the sample identified by the control number referenced above. Accurate assessment of the data requires access to the entire document. Each section of the report has been reviewed and approved by the laboratory director or qualified designee.

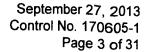
Testing procedures and Quality Assurance were in accordance with "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" EPA-821-R-02-013, Fourth Edition, October 2002. Test results are summarized below:

Method 1000.0 Chronic *Pimephales promelas* (Fathead minnow) Survival and Growth Test: The No Observable Effects Concentration (NOEC) for survival occurred at 2.1 % effluent, which is above the critical dilution of 1.6 %. The NOEC for growth occurred at 2.1 % effluent, which is above the critical dilution of 1.6 %. **The sample, therefore, PASSED both lethal and sub-lethal effects for the Fathead minnow test.** 

Method 1002.0 Chronic *Ceriodaphnia dubia* Survival and Reproduction Test: The No Observable Effects Concentration (NOEC) for survival occurred at 2.1 % effluent, which is above the critical dilution of 1.6 %. Any statistical difference with sublethal effects cannot be considered toxic due to the minimum significant difference (PMSD) calculated result being below the lower PMSD bounds. The sample, therefore PASSED both lethal and sub-lethal effects for the *Ceriodaphnia dubia* test.

**AMERICAN INTERPLEX CORPORATION** 

/ fin Overbey / Laboratory Director





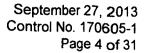
PDF cc: El Dorado Chemical Company ATTN: Ms. Larken Pennington lpennington@edc-ark.com

> El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

> El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com





#### **Table of Contents**

- I. Control Acceptance Criteria
- II. Outlined Report
- III. Data Analysis
- IV. Standard Reference Toxicants
- V. Chemical Analysis/Quality Control
- VI. Organism History
- VII. Results Summary

Pimephales promelas (Fathead minnow) Ceriodaphnia dubia

Appendix A: Raw Data

A1: Test 1000.0

Pimephales promelas (Fathead minnow) Survival and Growth

Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

A2: Statistics

A3: Water Chemistry

A4: Reference Toxicant

Appendix B: Chains of Custody



#### I. Control Acceptance Criteria

#### Pimephales promelas (Fathead minnow) Method 1000.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	97.5	PASS
Control Growth > or = 0.25 mg per Surviving minnow	0.398	PASS
Control Growth CV < or = 40%	15.0	PASS
Growth Minimum Significant Difference 12 to 30%	17.7	PASS
Critical Dilution CV < or = 40%	7.16	PASS

#### Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	27.0	PASS
Control CV < or = 40% per Surviving Female	9.56	PASS
Reproduction Minimum Significant Difference 13 to 47%	9.25	BELOW
Critical Dilution CV < or = 40%	7.32	PASS

#### II. Outlined Report

- A. Introduction
  - 1. Permit Number:
  - 2. Test Requirements:

Test Methods 1000.0 and 1002.0

- 3. Receiving Stream:
- B. Source of Effluent/Dilution Water
  - 1. Effluent Samples:
    - a. Sampling Point: Outfall 010
    - b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.1	7.4	7.8
pH (standard units)	8.0	8.6	7.8
Alkalinity (mg/l as CaCO3)	73	54	62
Hardness (mg/l as CaCO3)	29	29	30
Conductivity (umhos/cm)	320	290	280
Residual Chlorine (mg/l)	0.11	0.070	0.070
Ammonia as N (mg/l)	0.89	0.61	0.70

# 2. Dilution Water Samples: Natural Receiving Water

a. Dates Prepared: Sept. 16, 2013 at 0807, 0820 & Sept. 19, 2013 at 0807, 0811

b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.1	7.4	7.7
pH (standard units)	6.9	7.9	7.2
Alkalinity (mg/l as CaCO3)	15	18	NA
Hardness (mg/l as CaCO3)	19	19	NA
Conductivity (umhos/cm)	63	65	60
Residual Chlorine (mg/l)	0.070	0.080	NA



#### C. Test Methods

1. Test methods used:

Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013; test Methods 1000.0 and 1002.0, Fathead Minnow Survival and Growth and Ceriodaphnia dubia Survival and Reproduction.

2. Endpoint: No Observable Effects Concentration (NOEC)

3. Test Conditions:

Pimephales promelas (Fathead minnow) Survival and Growth Method 1000.0

Date & Time Test Initiated:
Date & Time Test Terminated:

September 17, 2013 at 1815 September 24, 2013 at 1700

Type & Volume of Test Chamber:

500 ml disposable beaker

Volume of Sample:

250 ml

Number of Organisms per replicate: 8
Number of Replicates per dilution: 5

Ceriodaphnia dubia Survival and Growth Method 1002.0

Date & Time Test Initiated:

September 17, 2013 at 1710

Date & Time Test Terminated:

September 24, 2013 at 1600

Type & Volume of Test Chamber:

30 ml disposable beaker

Volume of Sample:

15 ml

Number of Organisms per replicate: 1 Number of Replicates per dilution: 10

4. Acclimation of test organisms: Obtained from in-house cultures

5. Test Temperature: 25 +/- 1 degree Celsius

#### D. Test Organisms

- 1. Scientific Name
  - a. Test 1000.0 Pimephales promelas
  - b. Test 1002.0 Ceriodaphnia dubia

#### III. Data Analysis

The data was analyzed using American Interplex Corporation's Laboratory Information Management Software based on Toxstat.

Pimephales promelas (Fathead minnow) survival data was transformed using the Arc Sine transformation. Normality and homogeneity of variance were checked using Shapiro-Wilk's. The survival data was then analyzed using Steel's Many-One Rank Test to determine the No Observable Effects Concentration (NOEC).

Fathead minnow growth data was analyzed for normality and homogeneity of variance using Shapiro-Wilk's and Bartlett's test. Dunnett's Test was used to determine the No Observable Effects Concentration (NOEC) for growth.

Ceriodaphnia dubia survival data was analyzed with Fisher's Exact Test. Reproduction data was analyzed using Kolmogorov's Test for Normality and Bartlett's test and analyzed with Dunnett's Test to determine the No Observable Effects Concentration (NOEC) for Reproduction.



#### IV. Standard Reference Toxicants

American Interplex Corporation has an ongoing test organism culturing program. The sensitivity of the offspring is determined by performing a standard reference toxicant test with each effluent test. Sodium chloride in synthetic moderately hard water is used as prescribed in EPA-821-R-02-013.

#### Pimephales promelas (Fathead minnow)

Chronic reference tests are performed monthly.

A chronic reference test was performed on September 10, 2013 at 1435 to September 17, 2013 at 1316

The results were as follows: (Control No. 170403-1.)

Survival LC-50: 6398.6 mg/l Growth IC-25: 2808 mg/l Growth PMSD: 12.9

#### Ceriodaphnia dubia

Chronic reference tests are performed monthly.

A chronic reference test was performed on August 20, 2013 at 1505 to August 28, 2013 at 1450

The results were as follows: (Control No. 169867-2.)

Survival LC-50: 2125 mg/l Growth IC-25: 1610 mg/l Growth PMSD: 18.3

#### V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	8.09
Hardness	EPA 200.7	100	0.750
рН	SM 4500-H+ B	100	0.939
Conductivity	EPA 120.1	101	6.99

#### VI. Organism History

Pimephales promelas (Fathead minnow)

Date: September 17, 2013

Age: <24 hours
Source: In-house culture

Water Chemistry Record:

Alkalinity: 57-64 mg/l Hardness: 80-100 mg/l

Temperature: 25 deg.C

Ceriodaphnia dubia

Date: September 17, 2013

Age: <24 hours Source: In-house culture

Water Chemistry Record:
Alkalinity: 57-64 mg/l

Hardness: 80-100 mg/l Temperature: 25 deg.C



VII. Results Summary Pimephales promelas, Fathead minnow Larval Survival and Growth Test -- Method 1000.0

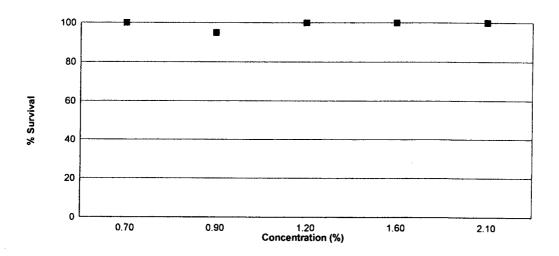
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

Effluent dilutions for this test were 0.7 %, 0.9 %, 1.2 %, 1.6 %, 2.1 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 1.6 % effluent.

The test was initiated on September 17, 2013 at 1815 and continued through September 24, 2013 at 1700. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 2.1 % effluent
- b.) NOEC growth = 2.1 % effluent



Summary of the 7	Summary of the 7-day Fathead Minnow Survival and Growth											
Concentration	Concentration Percent Survival Mean Growtl											
Control	97.5	0.388										
0.7 %	100	0.352										
0.9 %	95.0	0.330										
1.2 %	100	0.325										
1.6 %	100	0.338										
2.1 %	100	0.348										



VII. Results Summary Ceriodaphnia dubia, Cladoceran Survival and Reproduction Test -- Method 1002.0

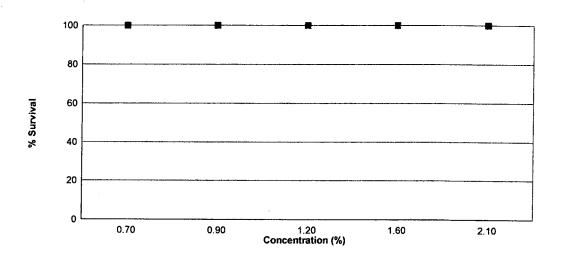
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

Effluent dilutions for this test were 0.7 %, 0.9 %, 1.2 %, 1.6 %, 2.1 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 1.6 % effluent.

The test was initiated on September 17, 2013 at 1710 and continued through September 24, 2013 at 1600. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 2.1 % effluent
- b.) NOEC reproduction = 2.1 % effluent



Summary of the 7-day Ceriodaphnia dubia Survival and Reproduction Data											
Concentration Percent Survival Mean Reprod											
Control	100	27.0									
0.7 %	100	26.6									
0.9 %	100	28.0									
1.2 %	100	28.5									
1.6 %	100	27.5									
2.1 %	100	27.6									



Appendix A1: Test 1000.0

## Pimephales promelas (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: September 17, 2013 at 1815 Date and Time Test Terminated: September 24, 2013 at 1700

				Numbe	er of Sur	vivors		
Concentration	Replicate	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Control	A	8	8	8	8	8	8	8
	В	8	8	8	8	8	8	8
	С	8	8	8	8	8	8	8
ļ	D	8	8	8	8	8	8	7
	E	8	8	8	8	8	8	8
0.7 %	Α	8	8	8	8	8	8	8
	В	8	8	8	8	8	8	8
	С	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8
0.9 %	Α	8	8	8	8	8	8	8
	В	8	8	8	8	8	8	8
	С	8	8	8	8	7	7	7
	D	8	8	8	8	7	7	7
	E	8	8	8	8	8	8	8
1.2 %	Α	8	8	8	8	8	8	8
	В	8	8	8	8	8	8	8
	Ċ	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	Е	8	8	8	8	8	8	8
1.6 %	Α	8	8	8	8	8	8	8
_	В	8	8	8	8	8	8	8
· _	С	8	8	8	8	8	8	8
_	D	8	8	8	8	8	8	8
	Е	8	8	8	8	8	8	8
2.1 %	Α	8	8	8	8	8	8	8
_	В	8	8	8	8	8	8	8
_	С	8	8	8	8	8	8	8
_	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8



Appendix A1: Test 1000.0

#### Pimephales promelas (Fathead Minnow) 7-Day Growth

Test Initiated:

September 17, 2013 at 1815

Drying Started: September 22, 2013 at 1323 Drying Ended: September 25, 2013 at 1345

Test Terminated: September 24, 2013 at 1700

Weight of Weight of Total weight Original # Mean dry Concentration Replicate pan pan + fish of fish (g) of fish weight (mg) Control .94397 .94751 0.00354 8 0.442 В .94582 .94821 0.00239 8 0.299 C .94473 .94765 0.00292 8 0.365 D .94503 .94850 0.00347 8 0.434 Ē .94985 .95306 0.00321 8 0.401 0.7 % A 0.00251 94999 .95250 8 0.314 B .96146 .96432 0.00286 8 0.358  $\overline{\mathsf{c}}$ 96124 .96442 0.00318 8 0.398 D .95946 .96255 0.00309 8 0.386 E .96022 .96264 0.00242 8 0.302 0.9 % A .95691 .95956 0.00265 8 0.331 B .95529 .95801 0.00272 8 0.340  $\overline{\mathsf{c}}$ .95602 .95861 0.00259 8 0.324 D .95213 .95463 0.00250 8 0.312 .95117 Ε .95391 0.00274 8 0.342 1.2 % .95292 8 Α .95542 0.00250 0.312 В .95266 .95559 0.00293 8 0.366 Ċ .95602 .95881 0.00279 8 0.349 D .95625 .95905 0.00280 8 0.350 E .95509 .95706 0.00197 8 0.246 1.6 % A 95523 .95785 0.00262 8 0.328 В .95243 .95541 0.00298 8 0.372 C .95178 .95423 0.00245 8 0.306 D .95098 95368 0.00270 8 0.338 E .94777 .95054 0.00277 8 0.346 2.1 % A .95043 .95230 0.00187 8 0.234 В .94873 .95160 0.00287 8 0.359 C .95195 .95477 0.00282 8 0.352 D .96525 .96841 0.00316 8 0.395

.96548

0.00319

8

E

.96229

0.399



Appendix A1: Test 1002.0

## Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated:

September 17, 2013 at 1710 Date and Time Test Terminated: September 24, 2013 at 1600

	Concentration: Control													
Day					Rep	icate					No. of	No. of	Young per	
Day	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult	
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
4	5	3	4	5	4	4	3	5	4	4	41	10	4.10	
5	0	8	8	0	0	8	0	10	8	0	42	10	4.20	
6	8	0	0	10	8	0	8	0	0	10	44	10	4.40	
7	15	14	14	15	12	16	12	15	14	16	143	10	14.3	
8														
TOTAL	28	25	26	30	24	28	23	30	26	30	270	10	27.0	

	Concentration: 0.7 %													
Day					Rep	licate					No. of	No. of	Young per	
Day	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult	
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
4	4	4	4	3	3	3	3	4	3	4	35	10	3.50	
5	9	0	0	0	0	8	8	10	8	0	43	10	4.30	
6	0	9	10	8	11	1	0	0	0	9	48	10	4.80	
7	16	13	16	12	14	15	13	13	14	14	140	10	14.0	
8														
TOTAL	29	26	30	23	28	27	24	27	25	27	266	10	26.6	

						Cor	ncentra	tion: 0	.9 %				
Day					Rep	licate					No. of	No. of	Young per
Day	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	4	3	4	3	4	4	3	4	2	3	34	10	3.40
5	9	0	8	0	0	8	0	9	9	0	43	10	4.30
6	0	10	3	11	8	0	8	0	0	10	50	10	5.00
7	17	15	15	19	12	16	14	14	15	16	153	10	15.3
8													
TOTAL	30	28	30	33	24	28	25	27	26	29	280	10	28.0



Appendix A1: Test 1002.0

## Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated:

September 17, 2013 at 1710 Date and Time Test Terminated: September 24, 2013 at 1600

						Cor	ncentra	tion: 1	.2 %				
Day					Repl	icate					No. of	No. of	Young per
Duy	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	4	3	4	4	4	3	4	4	3	3	36	10	3.60
5	9	0	0	0	0	0	8	11	0	0	28	10	2.80
6	0	8	11	10	10	10	0	0	10	10	69	10	6.90
7	16	12	18	15	15	16	15	15	14	16	152	10	15.2
8													
TOTAL	29	23	33	29	29	29	27	30	27	29	285	10	28.5

						Cor	ncentra	tion: 1	.6 %				
Day					Rep	licate					No. of	No. of	Young per
Day	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	4	3	4	3	4	4	2	3	3	3	33	10	3.30
5	9	0	0	11	0	8	8	9	9	0	54	10	5.40
6	0	8	10	0	12	0	0	0	0	10	40	10	4.00
7	15	16	15	13	16	15	14	15	15	14	148	10	14.8
8													
TOTAL	28	27	29	27	32	27	24	27	27	27	275	10	27.5

						Cor	ncentra	tion: 2	.1 %				
Day					Rep	icate					No. of	No. of	Young per
Day	1	2	3	4	5	. 6	7	8	9	10	Young	Adults	Adult
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	4	5	4	3	3	3	4	3	2	2	33	10	3.30
5	9	9	0	0	8	9	9	8	0	0	52	10	5.20
6	0	0	8	8	0	0	0	0	8	12	36	10	3.60
7	14	19	14	16	15	16	14	17	14	16	155	10	15.5
8													
TOTAL	27	33	26	27	26	28	27	28	24	30	276	10	27.6



## Pimephales promelas (Fathead minnow) Survival

		Transformation of	of Data	Transform: Arc Sin(Square Root(Y)
Group	Identification	Rep	Value	Transformed
1	Control	1	1.00000	1.39310
1	Control	2	1.00000	1.39310
1	Control	3	1.00000	1.39310
1	Control	4	0.87500	1.20940
1	Control	5	1.00000	1.39310
2	0.7 %	1	1.00000	1.39310
2	0.7 %	2	1.00000	1.39310
2	0.7 %	3	1.00000	1.39310
2 2 2 2 3 3 3	0.7 %	4	1.00000	1.39310
2	0.7 %	5	1.00000	1.39310
3	0.9 %	1	1.00000	1.39310
3	0.9 %	2	1.00000	1.39310
3	0.9 %	3	0.87500	1.20940
3	0.9 %	4	0.87500	1.20940
3	0.9 %	5	1.00000	1.39310
4	1.2 %	1	1.00000	1.39310
4	1.2 %	ż	1.00000	1.39310
4	1.2 %	3	1.00000	1.39310
4	1.2 %	ă	1.00000	1.39310
4	1.2 %	5	1.00000	1.39310
5	1.6 %	1	1.00000	1.39310
5	1.6 %	2	1.00000	1.39310
5	1.6 %	3	1.00000	1.39310
5	1.6 %	4	1.00000	1.39310
5	1.6 %	5	1.00000	1.39310
6	2.1 %	1	1.00000	1.39310
5 5 5 5 6 6 6 6	2.1 %	2	1.00000	1.39310
6	2.1 %	2 3	1.00000	1.39310
ĕ	2.1 %	4	1.00000	
6	2.1 %	5	1.00000	1.39310 1.39310



## Pimephales promelas (Fathead minnow) Survival

Shapiro - Wilk's Test f	or Normality	Transform: Arc Sin(Square Root(Y))
D = 0.06749		
W = 0.7138		
Critical W = 0.9	(alpha = 0.0	01, <b>N</b> = 30)
Critical W = 0.927	(alpha = 0.0	05, N = 30)
Data FAIL normality test	(alpha = 0.01).	

		Ho:Control <trea< th=""><th>tti i i Ci i t</th><th colspan="2">Transform: Arc Sin(Square R</th></trea<>	tti i i Ci i t	Transform: Arc Sin(Square R	
Group	Identification	Rank Sum	Critical Value	DF	Sig 0.05
1	Control				0.9 0.00
2	0.7 %	30.00	16.00	5.00	
3	0.9 %				
4					
5		30.00			
6	2.1 %	30.00	16.00	5.00	
	4 5	3 0.9 % 4 1.2 % 5 1.6 %	2 0.7 % 30.00 3 0.9 % 25.00 4 1.2 % 30.00 5 1.6 % 30.00	2     0.7 %     30.00     16.00       3     0.9 %     25.00     16.00       4     1.2 %     30.00     16.00       5     1.6 %     30.00     16.00	1 Control 2 0.7 % 30.00 16.00 5.00 3 0.9 % 25.00 16.00 5.00 4 1.2 % 30.00 16.00 5.00 5 1.6 % 30.00 16.00 5.00



#### Pimephales promelas (Fathead minnow) Growth

Shapiro - Wilk's Test for Normality

No Transformation

D = 0.05108

W = 0.9128

Critical W = 0.9

(alpha = 0.01, N = 30)

Critical W = 0.927

(alpha = 0.05, N = 30)

Data PASS normality test (alpha = 0.01).

Bartlett's Test for Homogeneity of Variance

No Transformation

Calculated B1 statistic = 10.17

Critical B = 15.086

(alpha = 0.01, df = 5)

Data PASS B1 homogeneity test at 0.01 level.



# Pimephales promelas (Fathead minnow) Growth

	ANOV	'A Table	No T	ransformatio
SOURCE	DF	SS	MS	F
Between	5	0.01299	0.002598	1.221
Within (Error)	24	0.05108	0.002128	
Total	29	0.06407		
	Critical F = 3.9 (alpha =			
	2.62 (alpha	= 0.05, df = 5,24)		
Since	F < Critical F FAIL TO RE	JECT Ho: All equal (alpha	a = 0.05)	

		Dunnett's Test - Ta	ble 1 of 2		No Transformation	
		Ho:Control <trea< th=""><th>atment</th><th></th><th></th></trea<>	atment			
Group	Identification	Transformed Mean	Mean In Original Units	T Stat	Sig 0.05	
1	Control	0.3882	0.3882		<b>.</b>	
2	0.7 %	0.3516	0.3516	1.254		
3	0.9 %	0.3298	0.3298	2.002		
4	1.2 %	0.3246	0.3246	2.18		
5	1.6 %	0.338	0.338	1.721		
6	2.1 %	0.3478	0.3478	1.385		

		Dunnett's Test - Ta	ble 2 of 2	No	Transformation
		Ho:Control <trea< th=""><th>atment</th><th></th><th></th></trea<>	atment		
Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control
1	Control	5			
2	0.7 %	5	0.06885	17.7	0.0366
3	0.9 %	5	0.06885	17.7	0.0584
4	1.2 %	5	0.06885	17.7	0.0636
5	1.6 %	5	0.06885	17.7	0.0502
6	2.1 %	5	0.06885	17.7	0.0404



#### Ceriodaphnia dubia Survival

	Fisher's Exact	Test	
Identification	Alive	Dead	Total Animals
Control	10	0	10
0.7 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) (alpha=0.05) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

	Fisher's Exact	Test	
Identification	Alive	Dead	Total Animals
Control	10	0	10
0.9 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) (alpha=0.05) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

 	Fisher's Exact	Test		
Identification	Alive	Dead	Total Animals	
Control	10	0	10	
1.2 %	10	0	10	
Total	20	0	20	

Critical Fisher's value (10,10,10) (alpha=0.05) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

	Fisher's Exact	Test	
Identification	Alive	Dead	Total Animals
Control	10	0	10
1.6 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) (alpha=0.05) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.



#### Ceriodaphnia dubia Survival

Fisher's Exact Test							
	Identification	Alive	Dead	Total Animals			
	Control	10	0	10			
	2.1 %	10	0	10			
	Total	20	0	20			

Critical Fisher's value (10,10,10) (alpha=0.05) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

	Summary of Fisher's Exact Test							
Group	Identification	Exposed	Dead	Sig 0.05				
0	Control	10	0	•				
1	0.7 %	10	0					
2	0.9 %	10	0					
3	1.2 %	10	0					
4	1.6 %	10	0					
5	2.1 %	10	0					



## Ceriodaphnia dubia Reproduction

Kolmogorov	Test for	Normality
NOTHINGOLOW	1631101	INUITIGITE

No Transformation

D = 0.1129

 $D^* = 0.8858$ 

Critical  $D^* = 1.035$ 

(alpha = 0.01, N = 60)

Data PASS normality test (alpha = 0.01).

Bartlett's Test for Homogeneity of Variance

No Transformation

Calculated B1 statistic = 1.010

Critical B = 15.086

(alpha = 0.01, df = 5)

Data PASS B1 homogeneity test at 0.01 level.



# Ceriodaphnia dubia Reproduction

	ANOVA Table							
SOURCE	DF	SS	MS	F				
Between	5	23.13	4.626	0.791				
Within (Error)	54	315.8	5.848					
Total	59	338.9						
	Critical F = 3.38 (alpha =	= 0.01, df = 5,54)						
	2.38 (alpha =	= 0.05, df = 5,54)						
	Since F < Critical F FAIL TO RE	JECT Ho: All equal (alph	na = 0.05)					

	Ho:Control <treatment< th=""></treatment<>									
Group	Identification	Transformed Mean M	Mean In Original Units	T Stat	Sig 0.05					
1	Control	27	27		Ü					
2	0.7 %	26.6	26.6	0.3699						
3	0.9 %	28	28	-0.9247						
4	1.2 %	28.5	28.5	-1.387						
5	1.6 %	27.5	27.5	-0.4623						
6	2.1 %	27.6	27.6	-0.5548						

			Dunnett's Test - Table 2 of 2					
			Ho:Control <trea< th=""><th>tment</th><th></th><th></th></trea<>	tment				
	Group 1	Identification Control	Num of Reps 10	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control		
	2	0.7 %	10	2.498	9.25	0.4.		
l	3	0.9 %	10	2.498	9.25	-1		
1	4	1.2 %	10	2.498	9.25	-1.5		
	5	1.6 %	10	2.498	9.25	-0.5		
	6	2.1 %	10	2.498	9.25	-0.6		



Appendix A3: Water Chemistry

### Routine Chemical and Physical Data

Date and Time Test Initiated:

Hardness, mg CaCO3/I

Conductivity, umhos/cm

Res. Chlorine, mg/l

September 17, 2013 at 0812 Date and Time Test Terminated: September 24, 2013 at 1700

NA

70

NA

19

63

0.070

Effluent Co	nc.: Control	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.1	8.2	7.4	8.0	7.7	7.7	7.6
_	Final *1	7.4	7.4	6.8	7.3	7.2	5.8	7.9
	Final *2	8.5	7.6	7.9	7.8	7.8	6.4	7.2
pH, units	Initial	6.9	7.0	7.9	7.4	7.2	7.0	7.9
•	Final *1	8.1	7.5	6.9	7.2	7.0	7.0	6.9
	Final *2	7.5	8.2	7.6	7.2	7.8	7.7	7.7
Alkalinity, m	g CaCO3/I	15	NA	18	NA	NA	NA	NA

19

65

0.080

NA

50

NA

NA

60

NA

NA

55

NA

NA

58

Effluent Cor	nc.: 0.7 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.1	8.2	7.5	8.0	7.7	7.7	7.8
	Final *1	7.5	7.0	7.0	7.4	7.1	5.8	7.8
	Final *2	8.4	7.4	7.8	7.9	7.8	6.3	7.2
pH, units	Initial	6.9	7.0	7.9	7.5	7.3	7.1	7.3
	Final *1	7.8	7.4	6.9	7.2	7.1	7.0	6.9
	Final *2	7.6	8.3	7.6	7.3	7.8	7.7	7.7

Effluent Co	nc.: 0.9 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.0	8.2	7.6	7.9	7.7	7.6	7.8
	Final *1	7.5	7.2	6.6	7.4	7.1	5.9	7.6
	Final *2	8.4	7.4	7.9	7.9	7.7	6.2	7.4
pH, units	Initial	6.9	7.1	7.9	7.5	7.3	7.1	7.2
	Final *1	7.7	7.5	6.8	7.2	7.1	7.1	6.9
	Final *2	7.6	8.3	7.6	7.4	7.8	7.7	7.8



Appendix A3: Water Chemistry

#### Routine Chemical and Physical Data

Date and Time Test Initiated: September 17, 2013 at 0812 Date and Time Test Terminated: September 24, 2013 at 1700

Effluent Cor	nc.: 1.2 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.6	8.2	7.7	7.8	7.9	7.7	7.8
_	Final *1	7.1	6.9	6.8	7.2	7.1	5.7	7.6
	Final *2	8.4	7.7	8.0	7.6	7.8	6.0	7.2
pH, units	Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
	Final *1	7.8	7.4	6.9	7.2	7.0	7.0	6.9
	Final *2	7.5	8.3	7.6	7.4	7.8	7.6	7.8

Effluent Co	nc.: 1.6 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.0	8.2	7.4	8.0	7.9	7.8	7.8
1	Final *1	7.4	7.4	6.8	7.0	7.2	5.8	8.1
	Final *2	8.4	7.7	8.0	7.7	7.6	6.3	7.1
pH, units	Initial	6.9	7.1	8.0	7.6	7.4	7.2	7.3
	Final *1	7.8	7.5	6.8	7.1	7.1	7.1	7.0
	Final *2	7.6	8.4	7.7	7.4	7.8	7.7	7.8
Alkalinity, m	g CaCO3/I	17	NA	20	NA	14	NA	NA
Hardness, m	ng CaCO3/I	19	NA	18	NA	19	NA	NA
Conductivity		66	80	72	56	78	60	58
Res. Chlorin	e, mg/l	0.050	NA	0.080	NA	0.080	NA	NA

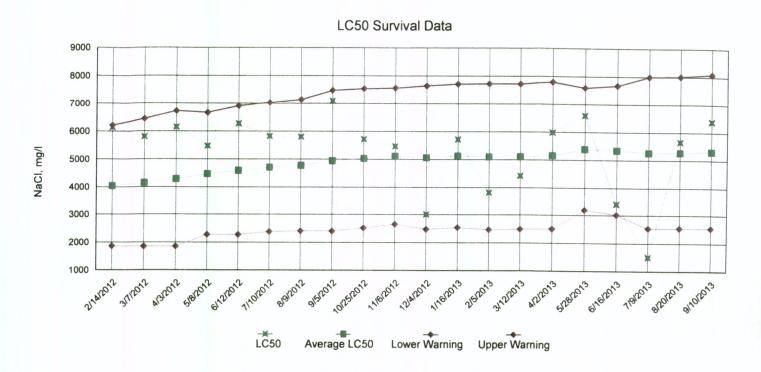
Effluent Co	nc.: 2.1 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.0	8.2	7.5	7.9	7.7	7.6	7.8
	Final *1	7.4	7.1	7.3	7.3	7.2	5.5	7.7
	Final *2	8.4	7.6	8.0	7.7	7.8	6.2	7.3
pH, units	Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
. *	Final *1	7.8	7.4	7.0	7.2	7.1	7.1	6.9
	Final *2	7.6	8.4	7.6	7.4	7.8	7.6	7.8

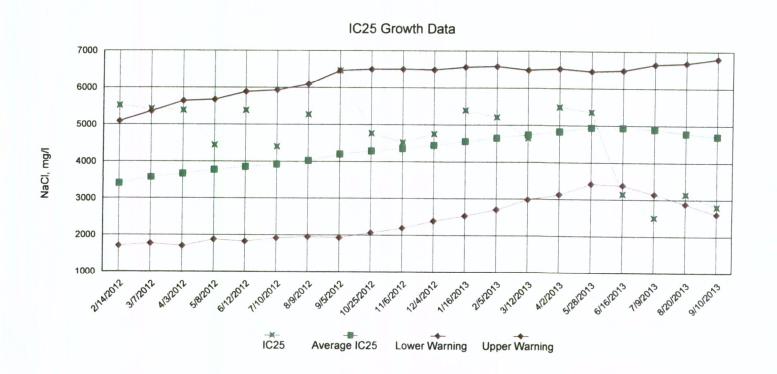


September 27, 2013 Control No. 170605-1 Page 24 of 31

Appendix A4: Test 1000.0

Chronic Reference Toxicant, *Pimephales promelas* (Fathead Minnow)

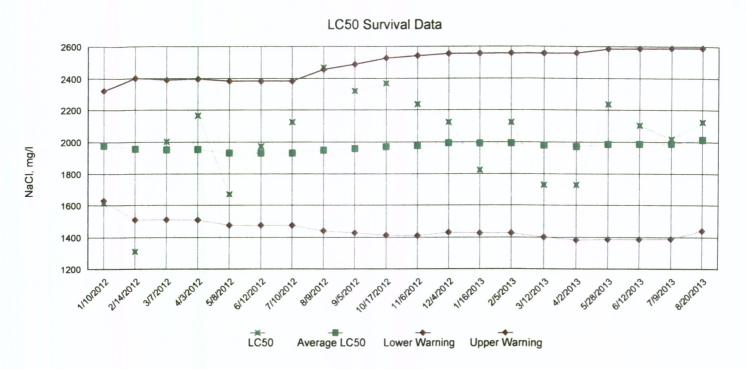


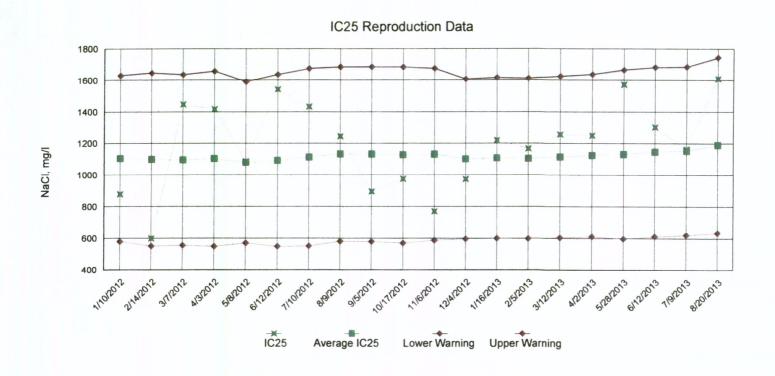




Appendix A4: Test 1002.0

Chronic Reference Toxicant, Ceriodaphnia dubia







Appendix B: Test 1000.0

### **SUMMARY REPORTING FORMS** CHRONIC BIOMONITORING Pimephales promelas (Fathead Minnow) SURVIVAL AND GROWTH

Permittee: El Dorado Chemical Company

NPDES No.:

Date and Time Test Initiated:

September 17, 2013 at 1815 Date and Time Test Terminated: September 24, 2013 at 1700

Dilution water used: Natural Receiving Water

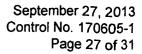
#### DATA TABLE FOR SURVIVAL

Effluent			cent Survivicate cham		N				
Conc. %	Α	В	С	D	Ε	24 hr	48 hr	7 days	CV%
Control	100	100	100	87.5	100	100	100	97.5	5.73
0.7 %	100	100	100	100	100	100	100	100	0.00
0.9 %	100	100	87.5	87.5	100	100	100	95.0	7.21
1.2 %	100	100	100	100	100	100	100	100	0.00
1.6 %	100	100	100	100	100	100	100	100	0.00
2.1 %	100	100	100	100	100	100	100	100	0.00

#### **DATA TABLE FOR GROWTH**

Effluent			age dry wei	Mean dry			
Conc. %	Α	В	C	D	E	weight, mg	cv%
Control	0.442	0.299	0.365	0.434	0.401	0.388	15.0
0.7 %	0.314	0.358	0.398	0.386	0.302	0.352	12.1
0.9 %	0.331	0.340	0.324	0.312	0.342	0.33	3.73
1.2 %	0.312	0.366	0.349	0.350	0.246	0.325	14.8
1.6 %	0.328	0.372	0.306	0.338	0.346	0.338	7.16
2.1 %	0.234	0.359	0.352	0.395	0.399	0.348	19.3

CV = Coefficient of variation = standard deviation \* 100 / mean





Appendix B: Test 1000.0

# SUMMARY REPORTING FORMS CHRONIC BIOMONITORING Pimephales promelas (Fathead Minnow) SURVIVAL AND GROWTH

1.	Steel's Many-One Rank Test:			-
	Is the mean survival significantly different (p=0.05) than corresponding to (lethality):	the contro	survival for the %	effluent
	<ul><li>a.) LOW FLOW OR CRITICAL DILUTION</li><li>b.) 1/2 LOW FLOW DILUTION</li></ul>	(1.6 %) (NA)	YES YES	XNC
2.	Dunnett's Test:			
	Is the mean dry weight (growth) significantly different (pedry weight (growth) for the % effluent corresponding to			
	<ul><li>a.) LOW FLOW OR CRITICAL DILUTION</li><li>b.) 1/2 LOW FLOW DILUTION</li></ul>	(1.6 %) (NA)	YES	XNC
3.	If you answered NO to 1.a) enter [0] otherwise enter [1]:	0	(TLP6C)	
4.	If you answered NO to 2.a) enter [0] otherwise enter [1]:	0	(TGP6C)	
5.	NOEC Pimephales Lethality:	2.1 %	(TOP6C)	
6.	LOEC Pimephales Lethality:	2.1 %	(TXP6C)	
7.	NOEC Pimephales Sublethality:	2.1 %	(TPP6C)	
8.	LOEC Pimephales Sublethality:	2.1 %	(TYP6C)	
9.	Coefficient of variation for Pimephales growth:	15	(TQP6C)	



September 27, 2013 Control No. 170605-1 Page 28 of 31

Appendix B: Test 1000.0

# CHRONIC TOXICITY SUMMARY FORM <u>Pimephales promelas</u> (Fathead minnow)

CHEMICAL PARAMETERS CHART

PERMITTEE: El Dorado Chemical Company

SAMPLE No. 1 COLLECTED ending: DATE: September 16, 2013 TIME: 0955

NPDES NO.:

Ms. Larken Pennington

SAMPLE No. 3 COLLECTED ending: DATE: September 20, 2013 TIME: 0955

CONTACT: ANALYST:

280, 298, 304, 307

Test Initiated: DATE: September 17, 2013 TIME: 1815

Test Terminated: DATE: September 24, 2013 TIME: 1700

DILUTION				DAY			
Control	1	2	3	4	5	6	7
D.O. Initia	8.1	8.2	7.4	8.0	7.7	7.7	7.6
Fina	7.4	7.4	6.8	7.3	7.2	5.8	7.9
pH Initia	6.9	7.0	7.9	7.4	7.2	7.0	7.9
Fina	8.1	7.5	6.9	7.2	7.0	7.0	6.9
Alkalinity	15	NA	18	NA	NA	NA	NA
Hardness	19	NA	19	NA	NA	NA	NA
Conductivity	/ 63	70	65	50	60	55	58
Chlorine	0.070	NA	0.080	NA	NA	NA	NA
DILUTION				DAY			

DILUTION				DAY	· · · · · · · · · · · · · · · · · · ·		
0.7 %	1	2	3	4	5	6	7
D.O. Initial	8.1	8.2	7.5	8.0	7.7	7.7	7.8
Final	7.5	7.0	7.0	7.4	7.1	5.8	7.8
pH Initial	6.9	7.0	7.9	7.5	7.3	7.1	7.3
Final	7.8	7.4	6.9	7.2	7.1	7.0	6.9
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	64	71	66	54	73	60	68
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION				DAY			
0.9 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.6	7.9	7.7	7.6	7.8
Final	7.5	7.2	6.6	7.4	7.1	5.9	7.6
pH Initial	6.9	7.1	7.9	7.5	7.3	7.1	7.2
Final	7.7	7.5	6.8	7.2	7.1	7.1	6.9
Alkalinity	NA						
Hardness	NA						
Conductivity	65	69	63	54	64	61	60
Chlorine	NA						
DILUTION				DAY			,

DILUTION				DAY			
1.2 %	1	2	3	4	5	6	7
D.O. Initial	7.6	8.2	7.7	7.8	7.9	7.7	7.8
Final	7.1	6.9	6.8	7.2	7.1	5.7	7.6
pH Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
Final	7.8	7.4	6.9	7.2	7.0	7.0	6.9
Alkalinity	NA						
Hardness	NA						
Conductivity	66	69	65	56	60	62	57
Chlorine	NA						

DILUTION			<del> </del>	DAY			
1.6 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.4	8.0	7.9	7.8	7.8
Final	7.4	7.4	6.8	7.0	7.2	5.8	8.1
pH Initial	6.9	7.1	8.0	7.6	7.4	7.2	7.3
Final	7.8	7.5	6.8	7.1	7.1	7.1	7.0
Alkalinity	17	NA	20	NA	14	NA	NA
Hardness	19	NA	18	NA	19	NA	NA
Conductivity	66	80	72	56	78	60	58
Chlorine	0.050	NA	0.080	NA	0.080	NA	NA

DILUTION				DAY			
2.1 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.5	7.9	7.7	7.6	7.8
Final	7.4	7.1	7.3	7.3	7.2	5.5	7.7
pH Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
Final	7.8	7.4	7.0	7.2	7.1	7.1	6.9
Alkalinity	NA						
Hardness	NA						
Conductivity	68	77	69	58	61	66	56
Chlorine	NA						



Appendix B: Test 1002.0

# SUMMARY REPORTING FORMS CHRONIC BIOMONITORING Ceriodaphnia dubia SURVIVAL AND REPRODUCTION

Permittee: El Dorado Chemical Company

NPDES No.:

Date and Time Test Initiated: September 17, 2013 at 1710 Date and Time Test Terminated: September 24, 2013 at 1600

Dilution water used: Natural Receiving Water

#### PERCENT SURVIVAL

				Percent	Effluent		
Time of Reading	Control	0.7 %	0.9 %	1.2 %	1.6 %	2.1 %	
24 hour	100	100	100	100	100	100	
48 hour	100	100	100	100	100	100	
7 day	100	100	100	100	100	100	

#### NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

				Percent	Effluent		
Replicates	Control	0.7 %	0.9 %	1.2 %	1.6 %	2.1 %	
Α	28	29	30	29	28	27	
В	25	26	28	23	27	33	
С	26	30	30	33	29	26	
D	30	23	33	29	27	27	· · · · · · · · · · · · · · · · · · ·
E	24	28	24	29	32	26	
F	28	27	28	29	27	28	
G	23	24	25	27	24	27	
Н	30	27	27	30	27	28	
	26	25	26	27	27	24	
J	30	27	29	29	27	30	
Mean per Adult	27.0	26.6	28.0	28.5	27.5	27.6	
Mean per Surviving Adult	27.0	26.6	28.0	28.5	27.5	27.6	
CV %	9.56	8.16	9.52	8.95	7.32	8.91	

CV = Coefficient of variation = standard deviation \* 100 / mean (calculated based on young produced by surviving females)



September 27, 2013 Control No. 170605-1 Page 30 of 31

Appendix B: Test 1002.0

# SUMMARY REPORTING FORMS CHRONIC BIOMONITORING Ceriodaphnia dubia SURVIVAL AND REPRODUCTION

1.	Fisher's Exact Test:					
	Is the mean survival significantly different (p=0.05) than the control survival for the % effluence corresponding to (lethality):					
	<ul><li>a.) LOW FLOW OR CRITICAL DILUTION</li><li>b.) 1/2 LOW FLOW DILUTION</li></ul>	(1.6 %) (NA)		YES YES	X	_NO
2.	Dunnett's Test:					
	Is the mean number of young produced per female significantly different (p=0.05) than the control's number of young per female for the % effluent corresponding to (significant non-lethal effects):					
	<ul><li>a.) LOW FLOW OR CRITICAL DILUTION</li><li>b.) 1/2 LOW FLOW DILUTION</li></ul>	(1.6 %) (NA)		YES YES	X	_NO
3.	If you answered NO to 1.a) enter [0] otherwise enter [1]:	0	(TLP3B)			
4.	If you answered NO to 2.a) enter [0] otherwise enter [1]:	0	(TGP3B)			
5.	NOEC Ceriodaphnia Lethality:	2.1 %	(TOP3B)			
6.	LOEC Ceriodaphnia Lethality:	2.1 %	(TXP3B)			
7.	NOEC Ceriodaphnia Sublethality:	2.1 %	(TPP3B)			
8.	LOEC Ceriodaphnia Sublethality:	2.1 %	(TYP3B)			
9.	Coefficient of variation for Ceriodaphnia Reproduction:	9.56	(TQP3B)			



September 27, 2013 Control No. 170605-1

Page 31 of 31

Appendix B: Test 1002.0

#### CHRONIC TOXICITY SUMMARY FORM Ceriodaphnia dubia

CHEMICAL PARAMETERS CHART

PERMITTEE: El Dorado Chemical Company

SAMPLE No. 1 COLLECTED ending: DATE: September 16, 2013 TIME: 0955

NPDES NO.:

SAMPLE No. 3 COLLECTED ending: DATE: September 20, 2013 TIME: 0955

CONTACT: ANALYST:

Ms. Larken Pennington

Test Initiated: DATE: September 17, 2013 TIME: 1710

280, 298, 304, 307

Test Terminated: DATE: September 24, 2013 TIME: 1600

DILUTION				DAY		<del>- ''</del> '	
Control	1	2	3	4	5	6	7
D.O. Initial	8.1	8.2	7.4	8.0	7.7	7.7	7.6
Final	8.5	7.6	7.9	7.8	7.8	6.4	7.2
pH Initial	6.9	7.0	7.9	7.4	7.2	7.0	7.9
Final	7.5	8.2	7.6	7.2	7.8	7.7	7.7
Alkalinity	15	NA	18	NA	NA	NA	NA
Hardness	19	NA	19	NA	NA	NA	NA
Conductivity	63	70	65	50	60	55	58
Chlorine	0.070	NA	0.080	NA	NA	NA	NA

DILUTION			_	DAY			
0.7 %	1	2	3	4	5	6	7
D.O. Initial	8.1	8.2	7.5	8.0	7.7	7.7	7.8
Final	8.4	7.4	7.8	7.9	7.8	6.3	7.2
pH Initial	6.9	7.0	7.9	7.5	7.3	7.1	7.3
Final	7.6	8.3	7.6	7.3	7.8	7.7	7.7
Alkalinity	NA						
Hardness	NA						
Conductivity	64	71	66	54	73	60	68
Chlorine	NA						

DILUTION				DAY			
0.9 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.6	7.9	7.7	7.6	7.8
Final	8.4	7.4	7.9	7.9	7.7	6.2	7.4
pH Initial	6.9	7.1	7.9	7.5	7.3	7.1	7.2
Final	7.6	8.3	7.6	7.4	7.8	7.7	7.8
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	65	69	63	54	64	61	60
Chlorine	NA	NA	NA	NA	NA	NA	NA
DILUTION I				5414			

DILUTION				DAY			
1.2 %	1	2	3	4	5	6	7
D.O. Initial	7.6	8.2	7.7	7.8	7.9	7.7	7.8
Final	8.4	7.7	8.0	7.6	7.8	6.0	7.2
pH Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
Final	7.5	8.3	7.6	7.4	7.8	7.6	7.8
Alkalinity	NA						
Hardness	NA						
Conductivity	66	69	65	56	60	62	57
Chlorine	NA						

DILUTION				DAY	<del></del>		
1.6 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.4	8.0	7.9	7.8	7.8
Final	8.4	7.7	8.0	7.7	7.6	6.3	7.1
pH Initial	6.9	7.1	8.0	7.6	7.4	7.2	7.3
Final	7.6	8.4	7.7	7.4	7.8	7.7	7.8
Alkalinity	17	NA	20	NA	14	NA	NA
Hardness	19	NA	18	NA	19	NA	NA
Conductivity	66	80	72	56	78	60	58
Chlorine	0.050	NA	0.080	NA	0.080	NA	NA

DILUTION				DAY			
2.1 %	1	2	3	4	5	6	7
D.O. Initial	8.0	8.2	7.5	7.9	7.7	7.6	7.8
Final	8.4	7.6	8.0	7.7	7.8	6.2	7.3
pH Initial	6.9	7.1	8.0	7.6	7.3	7.2	7.3
Final	7.6	8.4	7.6	7.4	7.8	7.6	7.8
Alkalinity	NA						
Hardness	NA						
Conductivity	68	77	69	58	61	66	56
Chlorine	NA						



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Bio-Analytical Laboratories (BAL) ADEQ#88-0630 Project X5214

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

Permittee: El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #: X5214

**Outfall:** Outfall 006 (contaminated storm water)

Permit #: AR0000752/ AFIN #70-00040

Ms. Larken Pennington Contact: **Test Dates:** September 21 - 23, 2013

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

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 -14.20%.

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) 746-2772 1-800-259-1246 Fex: (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 X5214

Test Dates: September 21 - 23, 2013 Report Date: October 3, 2013

Prepared for:

Ms. Larken Pennington 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	6
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 Analysis	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 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).

#### 2.2 Test Organisms

The fathead minnows were raised in-house at test temperature and were approximately two days old at test initiation. 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 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, 42.0, 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 September 20, 2013. Upon completion of collection, the sample was chilled and personally delivered to Bio-Analytical Laboratories. The sample 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  $25\pm1^0$  Celsius. The total residual chlorine level was measured with a Capital Controls<sup>R</sup> amperometric titrator and recorded if present. Dissolved oxygen, pH and conductivity measurements were taken on the control and each test concentration at test initiation, at each renewal and at test termination. Alkalinity and hardness 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 100 percent critical dilution after 48 hours of exposure (p=.05). The NOEC value for both tests was 100.0 percent effluent (p=.05). The 48-hour LC<sub>50</sub> values could not be determined because greater than 50.0 percent survival occurred in the 100.0 percent dilution.

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

CONTRACTOR OF THE PROPERTY OF	Re	com Sunyival (5.4)
Test Organism	Pimephales promelas (Fathead Minnow)	Daphnia pulex
Control	100.0	97.5
22.0	100.0	95.0
32.0	100.0	87.5
42.0	100.0	85.0
56.0	100.0	87.5
75.0	100.0	92.5
100.0	100.0	87.5

The 48-hour reference toxicant test results indicate 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 September 20, 2013, was not found to be lethally toxic to the *Daphnia pulex* test organisms nor the fathead minnow 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) 746-277 1-800-259-124 Fax: (318) 746-277

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

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# APPENDIX B RAW DATA SHEETS

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X5214 Page 15 of 3

ACUTE2 Rev 1.0

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BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA Test started: Date 0 2113 Project#\_\_\_XS214 Test ended: Date 12313 Client El Darado Chemical Sample Description Officer Ashour Ash Conductivity рĦ Dissolved Oxygen # Live Organisms Test Salinity Replicate Test Dilution 24 48 96 72 96 24 48 72 96 72 48 96 40 hr MA

ACUTE2 Rev 1.0

Chemistry Tech prerenewal/postrenewal

Project#_	XS	2.14		<u></u>				_			Te	st s	tart	ed:	Date	alai	با		Time	149	5-11	FE.	13 <sub>ec</sub>
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BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Test started: Date 90103 Time 1405

Project#_	<u> </u>	3/4													~i~	1.5			131	١٧ -		
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Test	Replicate	Test Salinity			e Org			;		olved					pH				c	onduct	ivity	
Dilution		Salamoj	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
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H	•							V_	<b>₹</b> /		1	1	<u> </u>	47								

APPENDIX C STATISTICAL ANALYSIS

				Dap	hnid Acute Tes	t-48 Hr Survival		
Start Date:	9/21/2013		Test ID:	X5214DP		Sample ID:	6	
End Date:	9/23/2013		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial	
Sample Date:	9/21/2013		Protocol:	EPAAW02	2-EPA/821/R-02-	01 Test Species:	DP-Daphnia pulex	
Comments:								
Conc-%	1	2	3	4	5			
D-Control	1.0000	1.0000	0.8750	1.0000	1.0000			
22	0.8750	1.0000	1.0000	0.8750	1.0000			
32	0.8750	0.7500	0.8750	1.0000	0.8750			
42	1.0000	1.0000	1.0000	0.7500	0.5000			
56	1.0000	0.7500	0.8750	0.7500	1.0000			
75	0.8750	1.0000	0.8750	1.0000	0.8750			
100	1.0000	0.7500	1.0000	0.8750	0.7500			

		_	Tra	ansform:	Arcsin Sc	uare Roo	Rank	1-Tailed		
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			, <u>* 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. </u>
22	0.9500	0.9744	1.3196	1.2094	1.3931	7.623	5	25.00	16.00	
32	0.8750	0.8974	1.2137	1.0472	1.3931	10.087	5	19.50	16.00	
42	0.8500	0.8718	1.2024	0.7854	1.3931	23.043	5	24.00	16.00	
56	0.8750	0.8974	1.2180	1.0472	1.3931	14.204	5	21.50	16.00	
75	0.9250	0.9487	1.2829	1.2094	1.3931	7.841	5	22.50	16.00	
100	0.8750	0.8974	1.2180	1.0472	1.3931	14.204	5	21.50	16.00	

Auxiliary Tests				Statistic	Critical	Skew	Kurt	
Shapiro-Wilk's Test Indicates nor	-normal dis	stribution (		0.92568	0.934	-0.5705	0.29139	
Bartlett's Test indicates equal var	0.21)			8.3674	16.8119			
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU				<del></del>
Steel's Many-One Rank Test	100	>100	<del></del>	1	<del></del>			
Treatments vs D-Control				-				

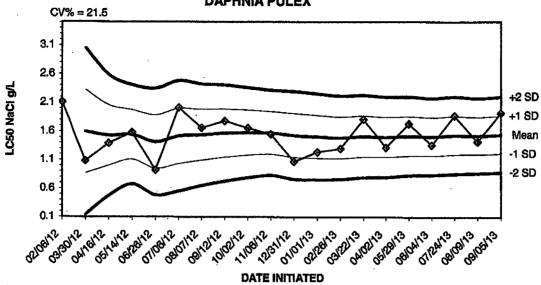
					<u> </u>		Page 23 of 33
			A	cute Fish Tes	t-48 Hr Survival		
3/21/2013		Test ID:	X5214PP		Sample ID:	8	<del></del>
3/23/2013		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial	
9/21/2013		Protocol:	EPAAW02	2-EPA/821/R-(		PP-Pimephales promelas	
						F	
1	2	3	4	5			
1.0000	1.0000	1.0000	1.0000	1.0000			-
1.0000	1.0000	1.0000	1.0000	1.0000			
1.0000	1.0000	1.0000	1.0000	1.0000			
1.0000	1.0000	1.0000	1.0000	1.0000			
1.0000	1.0000	1.0000	1.0000	1.0000			
1.0000	1.0000	1.0000	1.0000	1.0000			
1.0000	1.0000	1.0000	1.0000	1.0000			
	#23/2013 #21/2013 #1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1/23/2013         Lab ID:           1/21/2013         Protocol:           1         2         3           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000           1.0000         1.0000         1.0000	I/21/2013         Test ID:         X5214PP           I/23/2013         Lab ID:         ADEQ880           I/21/2013         Protocol:         EPAAW02           1         2         3         4           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000	I/21/2013         Test ID:         X5214PP           I/23/2013         Lab ID:         ADEQ880630           I/21/2013         Protocol:         EPAAW02-EPA/821/R-0           1         2         3         4         5           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000	J/23/2013         Lab ID:         ADEQ880630         Sample Type:           J/21/2013         Protocol:         EPAAW02-EPA/821/R-02-01 Test Species:           1         2         3         4         5           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000	I/21/2013         Test ID:         X5214PP         Sample ID:         6           I/23/2013         Lab ID:         ADEQ880630         Sample Type:         EFF2-Industrial           I/21/2013         Protocol:         EPAAW02-EPA/821/R-02-01 Test Species:         PP-Pimephales promelas           1         2         3         4         5           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000           1.0000         1.0000         1.0000         1.0000         1.0000

		_	Transform: Arcsin Square Root					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	
42	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	

Auxillary Tests				Statistic	Critical	Skew	Kurt	
Shapiro-Wilk's Test indicates nor	mal distribu	ition (p > 0		1	0.934			
Equality of variance cannot be co		. 11	• •		-			
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU			<del>- 1</del>	
Steel's Many-One Rank Test	100	>100		1	· · · · · · · · · · · · · · · · · · ·		······································	
Treatments vs D-Control								

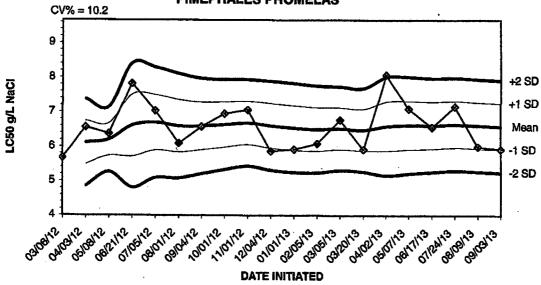
# APPENDIX D QUALITY ASSURANCE CHARTS

### 2013 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING DAPHNIA PULEX



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
02/06/12	2.1100					
03/30/12	1.0800	1.5950	0.8667	0.1384	2.3233	3.0516
04/16/12	1.3900	1.5267	0.9982	0.4698	2.0551	2.5835
05/14/12	1.5800	1.5400	1.1077	0.6754	1.9723	2,4046
06/26/12	0.9200	1.4160	0.9501	0.4843	1.8819	2.3477
07/06/12	2.0100	1.5150	1.0329	0.5508	1.9971	2.4792
08/07/12	1.6600	1.5357	1.0922	0.6487	1.9792	2.4227
09/12/12	1.7800	1.5663	1.1467	0.7271	1.9858	2.4054
10/02/12	1.6600	1.5767	1.1829	0.7892	1.9704	2.3641
11/06/12	1.5500	1.5740	1.2027	0.8314	1.9453	2.3166
12/31/12	1.0700	1.5282	1.1445	0.7609	1.9118	2.2955
01/01/13	1.2400	1.5042	1.1290	0.7539	1.8793	2.2544
02/26/13	1.3000	1.4885	1.1249	0.7613	1.8521	2.2156
03/22/13	1.8100	1.5114	1.1517	0.7919	1.8712	2.2309
04/02/13	1.3200	1.4987	1.1485	0.7983	1.8488	2.1990
05/29/13	1.7300	1.5131	1.1699	0.8267	1.8563	2.1995
06/04/13	1.3600	1.5041	1.1698	0.8354	1.8385	2.1728
07/24/13	1.8700	1.5244	1.1888	0.8531	1.8601	2.1957
08/09/13	1.4200	1.5189	1.1919	0.8648	1.8460	2.1731
09/05/13	1.9200	1.5390	1.2083	0.8775	1.8697	2.2005

### 2013 48-HOUR REFERENCE TOXICANT TEST RESULTS FOR PIMEPHALES PROMELAS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
03/06/12	5.6700					
04/03/12	6.5600	6.1150	5.4857	4.8563	6.7443	7.3737
05/08/12	6.3700	6.2000	5.7313	5.2626	6.6687	7.1374
06/21/12	7.8200	6.6050	5.7091	4.8133	7.5009	8.3967
07/05/12	7.0300	6.6900	5.8912	5.0924	7.4888	8.2876
08/01/12	6.0900	6.5900	5.8347	5.0795	7.3453	8.1005
09/04/12	6.5700	6.5871	5.8976	5.2081	7.2767	7.9662
10/01/12	6.9500	6.6325	5.9814	5.3302	7.2836	7.9348
11/01/12	7.0600	6.6800	6.0545	5.4290	7.3055	7.9310
12/04/12	5.8600	6.5980	5.9538	5.3095	7.2422	7.8865
01/01/13	5.9200	6.5364	5.8919	5.2474	7.1808	7.8253
02/05/13	6.0900	6.4992	5.8713	5.2435	7.1270	7.7548
03/05/13	6.7700	6.5200	5.9142	5.3084	7.1258	7.7316
03/20/13	5.9200	6.4771	5.8734	5.2697	7.0808	7.6845
04/02/13	8.0700	6.5833	5.8709	5.1585	7.2958	8.0082
05/07/13	7.0900	6.6150	5.9152	5.2153	7.3148	8.0147
06/17/13	6.5600	6.6118	5.9340	5.2563	7.2895	7.9673
07/24/13	7.1600	6.6422	5.9721	5.3020	7.3123	7.9824
08/09/13	6.0000	6.6084	5.9408	5.2731	7.2761	7.9438
09/03/13	5.9200	6.5740	5.9062	5.2383	7.2418	7.9097

APPENDIX E AGENCY FORMS

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

Permittee: El Dorado Chemical - Outfall 006

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 9/20/13

To: 9/20/13

From:

To:

Test Initiated: 9/21/13

**Dilution Water Used:** 

**Receiving Water** 

Reconstituted Water

**Dilution Series Results - Percent Survival** 

Programme and the second section of the second								
TIME OF READING	REP	0	22	32	42	56	75	100
24-hour	A	100.0	87.5	87.5	100.0	100.0	87.5	100.0
	В	100.0	100.0	75.0	100.0	75.0	100.0	75.0
	C	87.5	100.0	87.5	100.0	87.5	87.5	100.0
	D	100.0	87.5	100.0	75.0	75.0	100.0	87.5
	E	100.0	100.0	87.5	50.0	100.0	87.5	75.0
48-hour	A	100.0	87.5	87.5	100.0	100.0	87.5	100.0
	В	100.0	100.0	75.0	100.0	75.0	100.0	75.0
	С	87.5	100.0	87.5	100.0	87.5	87.5	100.0
	D	100.0	87.5	100.0	75.0	75.0	100.0	87.5
	E	100.0	100.0	87.5	50.0	100.0	87.5	75.0
	Mean	97.5	95.0	87.5	85.0	87.5	92.5	87.5

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%)

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:

 $LC_{so} =$ 

N/A% effluent

95 % confidence limits: N/A

Method of LC<sub>50</sub> 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 48 hour Acute Static Renewal Chemical Parameters Chart\*

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

Contact: Larken Pennington Analyst: Cotty, Haughton

Sample Collected F

From:

Date 9/20/13

Time 1340

To:

Date 9/20/13 Date 9/21/13 Time 2140 Time 1405

Test Begin Test End

Date 9/23/13

Time 1310

Parameter	D.O.				l'emperatur	В		Alkalinity			Hardness			pН	
Dilut/Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs
0	8.2	8.3	8.5	24.9	24.7	24.5	36.0			48.0			7.3	7.6	7.7
22	8.2	8.3	8.5	24.9	24.7	24.5							7.1	7.2	7.5
32	8.3	8.3	8.5	24.9	24.7	24.5			-				7.1	7.1	7.4
42	8.3	8.2	8.5	24.9	24.7	24.5							7.1	7.1	7.4
56	8.3	8.2	8.5	24.9	24.7	24.5							7.1	7.1	7.4
75	8.3	8.2	8.5	24.9	24.7	24.5							7.1	7.1	7.3
100	8.3	8.1	8.5	24.9	24.7	24.5	20.0			116.0			7.0	7.0	7.2

\*This Form is to be submitted with each DMR.6.6
Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

# Acute Forms <u>Pimephales promelas (Fathead minnow)</u> Survival

Permittee: El Dorado Chemical - Outfall 006

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 9/20/13

To: 9/20/13

From:

To:

Test Initiated: 9/21/13

**Dilution Water Used:** 

**Receiving Water** 

Reconstituted Water

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

		II Deries	In the same of	7 OI COM	Sui viva	·		
TIME OF READING	REP	0	22	32	42	56	75	100
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	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%)

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: N/A

Method of LC<sub>50</sub> 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 48 hour Acute Static Renewal Chemical Parameters Chart\*

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

Contact: Larken Pennington Analyst: Cotty, Haughton

Sample Collected

From:

Date 9/20/13

Time 1340

To:

Date 9/20/13 Date 9/21/13 Time 2140 Time 1425

Test Begin Test End

Date 9/23/13

Time 1245

Parameter		D.O.			Cemperatur	в .		Alkalinity			Hardness			рĤ	
Dilut/Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs -	24hrs	48hrs	Ohrs	24hrs	48hrs
0	8.2	8.3	7.7	24.9	25.0	25.0	36.0			48.0			7.3	7.6	7.3
22	8.2	8.3	7.6	24.9	25.0	25.0							7.1	7.2	7.2
32	8.3	8.3	7.6	24.9	25.0	25.0							7.1	7.1	7.2
42	8.3	8.2	7.6	24.9	25.0	25.0							7.1	7.1	7.1
56	8.3	8.2	7.5	24.9	25.0	25.0							7.1	7.1	7.1
75	8.3	8.2	7.5	24.9	25.0	25.0							7.1	7.1	7.0
100	8.3	8.1	7.4	24.9	25.0	25.0	20.0			116.0			7.0	7.0	6.9

<sup>\*</sup>This Form is to be submitted with each DMR.6.6 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 Dora do Chremical - 006 Project#: X5014 Chain of Custody Documents Checked by: A4 10113 Technician/Date Raw Data Documents Checked by: A4 10113 Technician/Date Statistical Analysis Package Checked by: E66 10-1-13 Quality Manager/Date Quality Control Data Checked by: E66 9-16-13 Quality Manager/Date Report Checked by: E66 10-13 Report Checked by: E66 10-13

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

Drugger

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

Bio-Analytical Laboratories (BAL) ADEQ#88-0630 Project X5215

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

Permittee:

El Dorado Chemical Company

P.O. Box 231

El Dorado, AR 71731

Project #:

X5215

Outfall:

Outfall 007 (contaminated storm water)

Permit #:

AR0000752/ AFIN #70-00040

Contact:

Ms. Larken Pennington

**Test Dates:** 

September 21 - 23, 2013

Test Type:

48-hour acute toxicity test using Pimephales promelas (EPA 2000.0).

48-hour acute toxicity test using *Daphnia pulex* (EPA 2021.0)

### Results:

### For Pimephales promelas:

- 1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter No. TEM6C-1 (Fail).
- 2. Report the NOEC for survival, Parameter TOM6C 56.0%.
- 3. Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM6C 6.06%.

Note: Toxicity was removed when the 100% effluent concentration's pH level was maintained at a range of 7.1-7.6.

### For Daphnia pulex:

- 1. If the NOEC for survival is less than the critical dilution (100.0%), enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D-1 (Fail).
- 2. Report the NOEC for survival, Parameter TOM3D 56.0%.
- 3.Report the highest (critical dilution or control) Coefficient of Variation, Parameter TQM3D 12.12%.

Note: Toxicity was removed when the 100% effluent concentration's pH level was maintained at a range of 7.1-7.6.

This report contains a total of 35 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 X5215

Test Dates: September 21 - 23, 2013 Report Date: October 3, 2013

Prepared for:
Ms. Larken Pennington
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	6
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 Analysis	21
D- Quality Assurance Charts	26
E- Agency Forms	29
F- Report Quality Assurance Form	34

### 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).

### 2.2 Test Organisms

The fathead minnows were raised in-house at test temperature and were approximately two 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 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, 42.0 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 September 20, 2013. Upon completion of collection, the sample was chilled and personally delivered to Bio-Analytical Laboratories. The sample temperature upon arrival was 1.0° 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 was measured with a Capital Controls<sup>R</sup> amperometric titrator and recorded if present. The initial pH of the sample was 4.6; therefore, an aliquot was adjusted to a range of 7.1-7.6 using 1.0 Normal Sodium Hydroxide solution. A pH-adjusted 100.0 percent effluent concentration was then run with the test in order to document toxicity due to low pH. Dissolved oxygen, pH and conductivity measurements were taken on the control and each test concentration at test initiation, at each renewal and at test termination. Alkalinity and hardness 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° 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 noted in the 100 percent critical dilution after 48 hours of exposure (p=.05). The NOEC value for both the *Daphnia pulex* test and the fathead minnow test was 56.0 percent effluent (p=.05). The 48-hour  $LC_{50}$  value for the *Daphnia pulex* test and the fathead minnow test was 64.16 and 64.71 percent effluent, respectively (p=.05).

Adjusting the pH of the sample removed the toxicity in both tests.

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

Percent/Effluent 28	A Property of the Control of the Con	zem/Survivali
Test Organism	Pimephales promelas (Fathead Minnow)	Daphnia pulex
Control	97.5	92.5
32.0	100.0	97.5
42.0	100.0	92.5
50.0	97.5	92.5
56.0	100.0	95.0
75.0	0.0	0.0
100.0	0.0	0.0
100.0 pH	100.0	72.5

The 48-hour reference toxicant test results indicate 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 September 20, 2013, was found to be lethally toxic to the *Daphnia pulex* test organisms and the fathead minnow test organisms in the 100.0 percent critical dilution after 48 hours of exposure (p=.05). Adjusting the pH from 4.6, and maintaining it in a range of 7.1-7.6 reduced the toxicity at the 100.0 percent critical dilution.

### 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 52 Doyfine, LA 71023 (318) 745-277 1-800-259-124 Fex: (318) 746-277

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

														Lai	boratory Use Only:
Company: El Dorado Cl	nemical Compa	ny		Phone: (870) 863-1484			An	alysis	:						Project Number:
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Permit #: AR0000752/A	AFIN 70-00040			Purchase Order:				Chronic minnow	minnow	Acute Daphnia species	Mysid	Acute Ceriodaphnia	Fecal Coliform		Temp. upon arrival:  O UPON CITIVO
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# APPENDIX B RAW DATA SHEETS

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

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Client Floorodo Chemicol Test ended: Date 12313 Time 1315

Test species Douldy ID# BAU KOMMO

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Dilution %		11		0 hr	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
42	A			8	8	8			8,3	13/3	7.4			67	100	1.0			379	1380	460		
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	XS	215								Te	st st	tart	ed: 1	Date	1/2/1	<u> </u>			143			
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Temperatu			350	# Liv				,		olved				,	рH				Co	onduct	ivity	
Test Dilution	Replicate	Test Salinit	у	# 131.4	e 0+8									24	48	72	96	0	24	48	72	96
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				-		-	-	1			-	<del> </del>	5.7	VK.	-		†	244	519	1		
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	D			15	<del>                                     </del>	<b>†</b>														}		
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	1		8	10		<u> </u>			<u> </u>		<u> </u>		<del>  '</del>	<u> </u>	<b>_</b>	╂	-	-	+	+	┼─	<del> </del>
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		hemistr	V VIGER					+	JC	-				81	In			L.An	197	40		
	prere	newal/p	ostrene	wal				84	3c	X		<u></u>	K.	SAC.		1		12C	1/8°C		<u></u>	<u> </u>

BIO-ANALYTICAL LABORATORIES ACUTE TOXICITY TEST SURVIVAL AND WATER QUALITY DATA Test started: Date 12/13 Time / 435 Project# <del>\* \* 2515</del> X5815 10613 Date 9 2 3 226 Time Client El Darado Chemical Test ended: Test Species Pormelas ID# BAU 9/9/3 Sample Description\_\_\_\_\_\_ Ohour Occ 24hour Occ 48hour Occ 72hour Ohour Occ 24hour Occ 48hour Occ 72hour Ohour Occ 24hour Occ 48hour Occ 72hour Occ 96hour Technician: 72hour 96hour\_ Time: 96hour Temperature (°C): Conductivity Dissolved Oxygen pН # Live Organisms Test Replicate Test Salinity Dilution 96 24 72 96 48 72 96 24 24 48 72 72 96 24 48 % hr NA 4.600 417 8 8 71176884 Chemistry Tech prerenewal/postrenewal

APPENDIX C
STATISTICAL ANALYSIS

					hnid Acut	e Test-4	8 Hr Survi				
Start Date:	9/21/2013		Test ID:	X5215DP			Sample ID	:	7		
nd Date:	9/23/2013		Lab ID:	ADEQ880	630		Sample Ty	rpe:	EFF2-Industrial		
Sample Date:	9/21/2013		Protocol:	EPAAW02	2-EPA/821/	' <del>R-02-</del> 01	<b>Test Speci</b>	ies:	DP-Daphnia pulex		
Comments:											
Conc-%	1	2	3	4	5						
D-Control	0.7500	1.0000	1.0000	1.0000	0.8750						
32	1.0000	1.0000	1.0000	1.0000	0.8750						
42	1.0000	0.8750	0.8750	1.0000	0.8750						
50	1.0000	1.0000	0.7500	0.8750	1.0000						
56	1.0000	0.8750	0.8750	1.0000	1.0000						
75	0.0000	0.0000	0.0000	0.0000	0.0000						
100	0.0000	0.0000	0.0000	0.0000	0.0000			•			
100PHADJ	0.7500	0.6250	0.8750	0.7500	0.6250						
				ransform:				Rank	1-Tailed		
Conc-%		N-Mean		Min	Max	CV%	N	Sum	Critical		- · · · · · · · · · · · · · · · · · · ·
D-Control		1.0000			1.3931	12.116					
32		1.0541			1.3931	6.055		30.50			
42		1.0000	1.2829		1.3931	7.841	5	26.50			
50		1.0000			1.3931	12.116		27.50		•	
56		1.0270			1.3931	7.623		28.50			
*75	0.0000	0.0000	0.1777	0.1777	0.1777	0.000		15.00			
*100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000		15.00			
100PHADJ	0.7250	0.7838	1.0255	0.9117.	1.2094	12.008	5	17.50	16.00		
uxillary Tes	ts	<del></del>		<del></del>		<del> </del>	Statistic		Critical	Skew	Kurt
hapiro-Wilk's	s Test indic	ates non	-normal di	stribution (p	o <= 0.05)		0.93674		0.94	-0.6344	0.2657
quality of va											
lypothesis T	est (1-tail,	0.05)									
teel's Many-	One Rank	est indic	ates signi	ficant differ	ences						

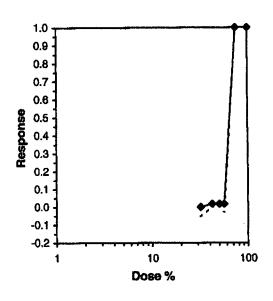
				Dap	hnid Acute T	est-48 Hr Survival			
	9/21/2013 9/23/2013 9/21/2013		Lab ID:	X5215DP ADEQ880 EPAAW02		Sample ID: Sample Type: 02-01 Test Species:	7 EFF2-Industrial DP-Daphnia pulex		
Conc-%	1	2	3	4	5				
D-Control	0.7500	1.0000	1.0000	1.0000	0.8750				
32	1.0000	1.0000	1.0000	1.0000	0.8750				
42	1.0000	0.8750	0.8750	1.0000	0.8750				•
50	1,0000	1.0000	0.7500	0.8750	1.0000				
56	1.0000	0.8750	0.8750	1.0000	1.0000				
75	0.0000	0.0000	0.0000	0.0000	0.0000				
100	0.0000	0.0000	0.0000	0.0000	0.0000				
100PHADJ	0.7500	0.6250	0.8750	0.7500	0.6250				
			T.	raneform:	Arcein Saus	re Boot		Number	Total

	<del></del>		Tra	ansform:	Arcein Sc	uare Root		Number To	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp Num	nber
D-Control	0.9250	1.0000	1.2872	1.0472	1.3931	12.116	5	3	40
32	0.9750	1.0541	1.3564	1.2094	1.3931	6.055	5	1	40
42	0.9250	1.0000	1.2829	1.2094	1.3931	7.841	5	3	40
50	0.9250	1.0000	1.2872	1.0472	1.3931	12.116	5	3	40
56	0.9500	1.0270	1.3196	1.2094	1.3931	7.623	5	2	40
75	0.0000		0.1777	0.1777	0.1777	0.000	5	40	40
100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
100PHADJ	0.7250	0.7838	1.0255	0.9117	1.2094	12.008	5		

Auxiliary Tests	Statistic	Critical	Skew Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.84809	0.918	-0.7818 -0.4843
Bartlett's Test indicates equal variances (p = 0.66)	2.40499	13.2767	

Trimmed Spearman-Karber

Trim Level	EC50	95%	CL	
0.0%	64.163	63.279	65.059	
5.0%	64.639	64.234	65.046	
10.0%	64.639	64.234	65.046	
20.0%	64.639	64.234	65.046	
Auto-0.0%	64.163	63.279	65.059	



Start Date:	9/21/2013	<del></del>	Test ID:	X5215PP		st-48 Hr Survival Sample ID:	7
	9/23/2013		Lab ID:	ADEQ880	630	Sample Type:	EFF2-Industrial
Sample Date:	9/21/2013		Protocol:	EPAAW02	P-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	0.8750		
32	1.0000	1.0000	1.0000	1.0000	1.0000		
42	1.0000	1.0000	1.0000	1.0000	1.0000		
50	1.0000	1.0000	1.0000	1.0000	0.8750		
56	1.0000	1.0000	1.0000	1.0000	1.0000		
75	0.0000	0.0000	0.0000	0.0000	0.0000		
100	0.0000	0.0000	0.0000	0.0000	0.0000		
100PHADJ	1.0000	1.0000	1.0000	1.0000	1.0000		

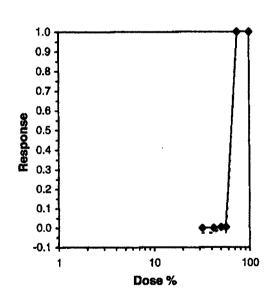
	·		Tr	ansform:	Arcsin Sc	uare Root		Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
D-Control	0.9750	1.0000	1.3564	1.2094	1.3931	6.055	5	1	40
32	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	0	40
42	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	0	40
50	0.9750	1.0000	1.3564	1.2094	1.3931	6.055	5	1	40
56	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	0	40
75	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	40	40
100PHADJ	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew Kurt
Shapiro-Wilk's Test Indicates non-normal distribution (p <= 0.05)	0.5466	0.927	-2.7369 8.25694

Trimmed Spearman-Karber

Equality of variance cannot be confirmed

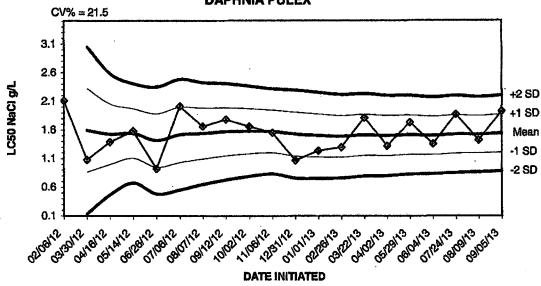
Trim Level	EC50	95%	CL
0.0%	64.713	64.385	65.043
5.0%	64.767	64.573	64.963
10.0%	64.767	64.573	64.963
20.0%	64.767	64.573	64.963
Auto-0.0%	64.713	64.385	65.043



					outo Eleb	Toct-19	Hr Surviva	1		· · · · · · · · · · · · · · · · · · ·	Page 24 of
Start Date:	9/21/2013	<del> </del>	Test ID:	X5215PP	GULE FISH	1 851-40	Sample ID		7	<del></del>	* .:
End Date:	9/23/2013		Lab ID:	ADEQ880	630		Sample Ty		EFF2-Industrial		
Sample Date:						/B_02_01	Test Spec	•	PP-Pimephales prome	alas	
Comments:	3/21/2013		FIOLOGOI.	EFAAVVO	2-11-7/02/1	11-02-01	reat opec	163.	Transplato prome	,iau	
Conc-%	1	2	3	4	5						
D-Control	1.0000	1.0000	1.0000	1.0000	0.8750						
32	1.0000	1.0000	1.0000	1.0000	1.0000						
42	1.0000	1.0000	1.0000	1.0000	1.0000						
50	1.0000	1.0000	1.0000	1.0000	0.8750						
56	1.0000	1.0000	1.0000	1.0000	1.0000						
75	0.0000	0.0000	0.0000	0.0000	0.0000						
100	0.0000	0.0000	0.0000	0.0000	0.0000						
100PHADJ	1.0000	1.0000	1.0000	1.0000	1.0000						
			T	ransform:	Arcsin Sq	uare Ro	ot	Rank	1-Tailed	<del></del>	
Conc-%	Mean	N-Mean		Min	Mex	CV%	N	Sum	Critical		
D-Control	0.9750	1.0000	1.3564	1.2094	1.3931	6.055	5				
32	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	30.00	16.00		
42	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	30.00	16.00		
50	0.9750	1.0000	1.3564	1.2094	1.3931	6.055	5	27.50	16.00		
56	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	30.00	16.00		
*75	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00	16.00		
*100	0.0000	0.0000	0.1777	0.1777	0.1777	0.000	5	15.00	16.00		
100PHADJ	1.0000	1.0256	1.3931	1.3931	1.3931	0.000	5	30.00	16.00		
Auxiliary Tes	ts						Statistic		Critical :	Skew	Kurt
Shapiro-Wilk's	Test indic	ates non	normal di	stribution (	o <= 0.05)		0.49377		0.94 -3	3.1182	11.539
Equality of var											
lypothesis T	est (1-tail,	0.05)	· · · · · · · · · · · · · · · · · · ·								
Steel's Many-	One Rank	est indic	ates signi	ficant differ	ences						
reatments vs	D-Control		_								

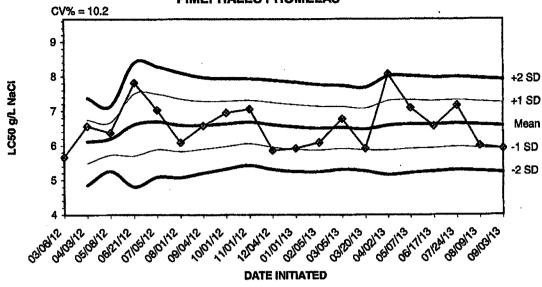
269/3 Reviewed by:\_\_\_\_\_ APPENDIX D
QUALITY ASSURANCE CHARTS

# 2013 48-HOUR ACUTE REFERENCE TOXICANT TEST RESULTS USING DAPHNIA PULEX



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
02/06/12	2.1100					
03/30/12	1.0800	1.5950	0.8667	0.1384	2.3233	3.0516
04/16/12	1.3900	1.5267	0.9982	0.4698	2.0551	2.5835
05/14/12	1.5800	1.5400	1.1077	0.6754	1.9723	2.4046
06/26/12	0.9200	1.4160	0.9501	0.4843	1.8819	2.3477
07/06/12	2.0100	1.5150	1.0329	0.5508	1.9971	2.4792
08/07/12	1.6600	1.5357	1.0922	0.6487	1.9792	2.4227
09/12/12	1.7800	1.5663	1.1467	0.7271	1.9858	2.4054
10/02/12	1.6600	1.5767	1.1829	0.7892	1.9704	2.3641
11/06/12	1.5500	1.5740	1.2027	0.8314	1.9453	2.3166
12/31/12	1.0700	1.5282	1.1445	0.7609	1.9118	2.2955
01/01/13	1.2400	1.5042	1.1290	0.7539	1.8793	2.2544
02/26/13	1.3000	1.4885	1.1249	0.7613	1.8521	2.2156
03/22/13	1.8100	1.5114	1.1517	0.7919	1.8712	2.2309
04/02/13	1.3200	1.4987	1.1485	0.7983	1.8488	2.1990
05/29/13	1.7300	1.5131	1.1699	0.8267	1.8563	2.1995
06/04/13	1.3600	1.5041	1.1698	0.8354	1.8385	2.1728
07/24/13	1.8700	1.5244	1.1888	0.8531	1.8601	2.1957
08/09/13	1.4200	1.5189	1.1919	0.8648	1.8460	2.1731
09/05/13	1.9200	1.5390	1.2083	0.8775	1.8697	2.2005

# 2013 48-HOUR REFERENCE TOXICANT TEST RESULTS FOR PIMEPHALES PROMELAS



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
03/06/12	5.6700					. ]
04/03/12	6.5600	6.1150	5.4857	4.8563	6.7443	7.3737
05/08/12	6.3700	6.2000	5.7313	5.2626	6.6687	7.1374
08/21/12	7.8200	6.6050	5.7091	4.8133	7.5009	8.3967
07/05/12	7.0300	6.6900	5.8912	5.0924	7.4888	8.2876
08/01/12	6.0900	6.5900	5.8347	5.0795	7.3453	8.1005
09/04/12	6.5700	6.5871	5.8976	5.2081	7.2767	7.9662
10/01/12	6.9500	6.6325	5.9814	5.3302	7.2836	7.9348
11/01/12	7.0600	6.6800	6.0545	5.4290	7.3055	7.9310
12/04/12	5.8600	6.5980	5.9538	5.3095	7.2422	7.8865
01/01/13	5.9200	6.5364	5.8919	5.2474	7.1808	7.8253
02/05/13	6.0900	6.4992	5.8713	5.2435	7.1270	7.7548
03/05/13	6.7700	6.5200	5.9142	5.3084	7.1258	7.7316
03/20/13	5.9200	6.4771	5.8734	5.2697	7.0808	7.6845
04/02/13	8.0700	6.5833	5.8709	5.1585	7.2958	8.0082
05/07/13	7.0900	6.6150	5.9152	5.2153	7.3148	8.0147
06/17/13	6.5600	6.6118	5.9340	5.2563	7.2895	7.9673
07/24/13	7.1600	6.6422	5.9721	5.3020	7.3123	7.9824
08/09/13	6.0000	6.6084	5.9408	5.2731	7.2761	7.9438
09/03/13	5.9200	6.5740	5.9062	5.2383	7.2418	7.9097

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: 9/20/13

To: 9/20/13

From:

To:

Test Initiated: 9/21/13

**Dilution Water Used:** 

**Receiving Water** 

Reconstituted Water

**Dilution Series Results - Percent Survival** 

Diation Series Results - Percent Survival										
TIME OF READING	REP	0	32	42	50	56	75	100	100 pH	
24-hour	A	87.5	100.0	100.0	100.0	100.0	0	0	75.0	
	В	100.0	100.0	100.0	100.0	87.5	0	0	62.5	
	C	100.0	100.0	87.5	75.0	87.5	0	0	87.5	
	D	100.0	100.0	100.0	87.5	100.0	0	0	75.0	
	E	100.0	87.5	87.5	100.0	100.0	0	0	62.5	
48-hour	A	75.0	100.0	100.0	100.0	100.0	0	0	75.0	
	В	100.0	100.0	87.5	100.0	87.5	0	0	62.5	
	C	100.0	100.0	87.5	75.0	87.5	0	0	87.5	
•	D	100.0	100.0	100.0	87.5	100.0	0	0	75.0	
	E	87.5	87.5	87.5	100.0	100.0	0	0	62.5	
	Mean	92.5	97.5	92.5	92.5	95.0	0.0	0.0	72.5	

- 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%) X YES NO b.)½ LOW FLOW OR 2X CRITICAL DILUTION (N/A%) YES NO
- 2. Enter percent effluent corresponding to the  $LC_{50}$  below:

 $LC_{so} =$ 

64.16% effluent

95 % confidence limits: 65.06 - 63.28%

Method of LC<sub>50</sub> calculation: Spearman Karber

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

Note: Lethal effects not noted between control and 100% pH adjusted treatment.

# Biomonitoring Daphnia 48 hour Acute Static Renewal Chemical Parameters Chart\*

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

Contact: Larken Pennington Analyst: Cotty, Haughton

Sample Collected

From: To: Date 9/20/13 Date 9/20/13 Time 1345 Time 2145

Test Begin Test End Date 9/21/13 Date 9/23/13 Time 1410 Time 1315

Parameter		D.O.		7	<b>Cemperatur</b>	ė		Alkalinity			Hardness			pН	
Dilut/Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs
0	8.2	8.4	8.5	24.8	24.7	24.5	36.0			48.0			7.4	7.2	7.7
32	8.3	8.3	8.5	24.8	24.7	24.5							6.9	6.8	7.6
42	8.3	8.2	8.4	24.8	24.7	24.5							6.7	6.6	7.5
50	8.4	8.2	8.4	24.8	24.7	24.5							6.5	6.5	7.4
56	8.4	8.2	8.5	24.8	24.7	24.7							6.3	6.3	7.3
75	8.4	8.5		24.8	24.7								5.7	5.8	·
100	8.5	8.4		24.8	24.7		0.0			188.0			4.6	5.6	
100 pH	8.5	8.1	8.6	24.8	24.7	24.7							7.6	7.1	7.1

<sup>\*</sup>This Form is to be submitted with each DMR.6.6
Alkalinity and hardness to be reported as mg/l CaCO<sub>3</sub>

## Acute Forms <u>Pimephales promelas (Fathead minnow)</u> Survival

Permittee: El Dorado Chemical - Outfall 007

NPDES Permit Number: AR0000752/ AFIN 70-00040

**Composite Collected** 

From: 9/20/13

To: 9/20/13

From:

To:

Test Initiated: 9/21/13

**Dilution Water Used:** 

**Receiving Water** 

Reconstituted Water

**Dilution Series Results - Percent Survival** 

	Diluu	OH DOLL	co 1/com	19 - T CI	cent Sui	VIVAL			
TIME OF READING	REP	0	32	42	50	56	75	100	100 pH
24-hour	A	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	В	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	С	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	D	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	E	87.5	100.0	100.0	100.0	100.0	0	0	100.0
48-hour	A	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	В	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	C	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	D	100.0	100.0	100.0	100.0	100.0	0	0	100.0
	E	87.5	100.0	100.0	87.5	100.0	0	0	100.0
	Mean	97.5	100.0	100.0	97.5	100.0	0	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%)

X YES

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:

 $LC_{50} =$ 

**64.71%** effluent

95 % confidence limits: 65.04% - 64.39%

Method of LC<sub>50</sub> calculation: Spearman Karber

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

Note: Lethal effects not noted between control and 100% pH adjusted treatment.

# Biomonitoring Fathead minnow 48 hour Acute Static Renewal Chemical Parameters Chart\*

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

**Contact: Larken Pennington** 

**Analyst: Cotty** 

Sample Collected

From:

Date 9/20/13 Date 9/20/13

Time 1345 Time 2145

To:

Date 9/21/13

Time 1435

Test Begin Test End

Date 9/23/13

Time 1255

		1631 1344	-			25 0100 3	7.207.20								
Parameter		D.O.			Femperatur	<b>e</b>		Alkalinity			Hardness			рH	
Dilut./Time	Ohrs.	24hrs	48hrs	Ohrs	24hrs	48hrs	Ohrs	24hrs	48hrs	0hrs	24hrs	48hrs	Ohrs	24hrs	48hrs
0	8.2	8.4	7.7	25.0	25.0	25.0	36.0			48.0			7.4	7.2	7.3
32	8.3	8.3	7.6	25.0	25.0	25.0							6.9	6.8	7.0
42	8.3	8.2	7.6	25.0	25.0	25.0							6.7	6.6	7.0
50	8.4	8.2	7.6	25.0	25.0	25.0							6.5	6.5	6.9
56	8.4	8.2	7.6	25.0	25.0	25.0							6.3	6.3	6.8
75	8.4	7.6		25.0	25.0								5.7	6.4	
100	8.5	7.4		25.0	25.0		0.0			188.0			4.6	5.0	
100 pH	8.5	8.1	7.5	25.0	25.0	25.0							7.6	7.1	6.7

<sup>\*</sup>This Form is to be submitted with each DMR.6.6
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 1-800-269-1246 Fax: (318) 745-2773

### REPORT QUALITY ASSURANCE FORM

Client: El Dorado Chemical 007
Project#: X5915
Chain of Custody Documents Checked by: DL 10113  Technician/Date
Raw Data Documents Checked by:
Statistical Analysis Package Checked by: EGG   10-1-13  Quality Manager/Date
Quality Control Data Checked by: EGO Q-16-13  Quality Manager/Date
Report Checked by: 68 10/3/13  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.
Crish Buggo, BS 10/3/13

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

Date

Report Rev. 3.0

Quality Manager





September 10, 2013 Control No. 170396 Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for the sample submitted on September 9, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 10, 2013 Control No. 170396 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

One (1) water sample(s) received on September 9, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170396-1	010 9/9/13 9:45am	09-Sep-2013 0945

#### **Case Narrative:**

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

"Standard Methods for the Examination of Water and Wastewaters", 21st edition.

"American Society for Testing and Materials" (ASTM).

"Association of Analytical Chemists" (AOAC).



**LABORATORIES** 

El Dorado Chemical Company 4500 North West Avenue El Dorado, AR 71730 September 10, 2013 Control No. 170396 Page 3 of 4

#### **ANALYTICAL RESULTS**

AIC No. 170396-1

Sample Identification: 010 9/9/13 9:45am

Analyte	Result RL	Units	Qualifier
Fecal Coliform	<b>650</b> 1	/100ml	
SM 9222 D	Analyzed: 09-Sen-2013 15	MQ hv 21 Ratch: M3Q33	)



#### **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Fecal Coliform	< 1 /100ml	1	1	M3932-1	****	09Sep13 1419 by 304	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Q!:4					PO	No.		NO	T			ΔΝΔ	1 700	SREC	VIEC	TCO		<del></del>		PAGE	1 OF 1
Client: Project Refere	ct ence: Daily	do Chemical Company - Permit AR0000752			_	<del></del>		OF B			sphore			J REC	JUES	IED				17	NTROL NO: U394 OPOSAL NO:
Project Manac Sampl	ger: Ms. t	Larken Pennington			W	1 1				Coli. F	1 d d								-	Carrier:	
By: AIC	Sample Identification	Penning Ton Date/Time Collected	GRA	002	A T E	S 0 -	1	T L E	<del>331 '3689 </del>	ŏ	NH3N, Tetal Phesphore									Receive	Gold Star ed Temperature C
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Phone 8 Report /	nould AIC contact v 870-312-1752 Fax: Attention to:	Ms. Larken Penning	ton					1,	Reling By:	uishe	d		U <u> </u>	Date/	Time	- 0041		ived in	ı Lab		Date/Time 9/4/13 /3:30
Report /	Address to:	Post Office Box 231 El Dorado, AR 717; Lpennington@edc-a	31	m				d	Comm	ents:		<u> </u>		1			<u> [/                                    </u>	1	n_		13:30

FORM 0060



September 16, 2013 Control No. 170433 Page 1 of 5

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 10, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 16, 2013 Control No. 170433 Page 2 of 5

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 10, 2013 Outfall 010 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170433-1	010 9-10-13 0950	10-Sep-2013 0950
170433-2	010 9-10-13 0950	10-Sep-2013 0950

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 16, 2013 Control No. 170433 Page 3 of 5

#### **ANALYTICAL RESULTS**

AIC No. 170433-1

Sample Identification: 010 9-10-13 0950

Analyte		Result	RL	Units	Qualifier
<b>Total Dissolved Solids</b> SM 2540 C	Prep: 11-Sep-2013 1136 by 302	200 Analyzed: 12-Sep-	10 2013 1545 by 302	<b>mg/l</b> Batch: W44866	
Ammonia as N SM 4500-NH3 G	Prep: 10-Sep-2013 1628 by 308	0.55 Analyzed: 10-Sep-	0.1 2013 1702 by 308	<b>mg/l</b> Batch: W44850	
Carbonaceous BOD 5-day SM 5210 B	Prep: 11-Sep-2013 1401 by 285	2.2 Analyzed: 16-Sep-	2 2013 0935 by 285	<b>mg/l</b> Batch: W44870	
Total Suspended Solids USGS 3765	Prep: 11-Sep-2013 1039 by 302	7.6 Analyzed: 11-Sep-	4 2013 1449 by 302	<b>mg/l</b> Batch: W44863	
Phosphorus EPA 200.7	Prep: 11-Sep-2013 0826 by 305	<b>0.12</b> Analyzed: 11-Sep-2	0.02 2013 1651 by 305	<b>mg/l</b> Batch: S35386	
Chloride EPA 300.0	Prep: 11-Sep-2013 0809 by 07	15 Analyzed: 11-Sep-2	0.2 2013 1727 by 07	<b>mg/l</b> Batch: C16035	
Nitrate as N EPA 300.0	Prep: 11-Sep-2013 0809 by 07	<b>4.6</b> Analyzed: 11-Sep-2	0.05 2013 1727 by 07	<b>mg/l</b> Batch: C16035	
Sulfate EPA 300.0	Prep: 11-Sep-2013 0809 by 07	23 Analyzed: 11-Sep-2	0.2 2013 1727 by 07	<b>mg/l</b> Batch: C16035	

**AIC No.** 170433-2

Sample Identification: 010 9-10-13 0950

Analyte		Result	RL	Units	Qualifier
Oil and Grease EPA 1664A	Prep: 11-Sep-2013 1347 by 295	< 5 Analyzed: 11-9	5 Sep-2013 1611 by 295	mg/l Batch: B8545	
Fecal Coliform SM 9222 D		<b>250</b> Analyzed: 10-5	50 Sep-2013 1558 by 21	/100ml Batch: M3933	D Dil: 50



· j3

September 16, 2013 Control No. 170433 Page 4 of 5

#### **DUPLICATE RESULTS**

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Total Suspended Solids	Batch: W44863	170394-1	< 4 mg/l			11Sep13 1039 by 302	11Sep13 1449 by 302		- <del>Quai</del>
Total Suspended Solids	Dalcii. VV44003	Duplicate 170400-1	< 4 mg/l < 4 mg/l	0.00	20.0	11Sep13 1040 by 302 11Sep13 1039 by 302	11Sep13 1449 by 302 11Sep13 1449 by 302		
	Batch: W44863	Duplicate	< 4 mg/l	0.00	20.0	11Sep13 1040 by 302	11Sep13 1449 by 302		
Total Dissolved Solids	Batch: W44866	170429-2 Duplicate	250 mg/l 240 mg/l	2.42	10.0	11Sep13 1136 by 302 11Sep13 1136 by 302	•		
Total Dissolved Solids	Batch: W44866	170430-2 Duplicate	1600 mg/l 1600 mg/l	0.254	10.0	11Sep13 1136 by 302 11Sep13 1136 by 302			
Carbonaceous BOD 5-day	Batch: W44870	170411-1 Duplicate	< 2 mg/l < 2 mg/l	0.00	20.0	11Sep13 1401 by 285 11Sep13 1402 by 285	16Sep13 0917 by 285 16Sep13 0919 by 285		

#### **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	ĐiI	Qual
Ammonia as N	1 mg/l	104	80.0-120			W44850	10Sep13 1404 by 308	10Sep13 1611 by 308		
Carbonaceous BOD 5-day	200 mg/l	85.4	84.5-115			W44870	11Sep13 1402 by 285	16Sep13 0914 by 285		
Phosphorus	5 mg/l	112	85.0-115			S35386	11Sep13 0826 by 305	11Sep13 1556 by 305		
Chloride	20 mg/l	99.0	90.0-110			C16035	11Sep13 0809 by 07	11Sep13 1009 by 07		
Nitrate as N	4 mg/l	98.8	90.0-110			C16035	11Sep13 0809 by 07	11Sep13 1009 by 07		
Sulfate	20 mg/l	101	90.0-110			C16035	11Sep13 0809 by 07	11Sep13 1009 by 07		
Oil and Grease	40 mg/l 40 mg/l	94.0 88.5	78.0-114 78.0-114	6.03	20.0	B8545 B8545	11Sep13 1348 by 295 11Sep13 1348 by 295	11Sep13 1611 by 295 11Sep13 1611 by 295		

#### **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170411-1 1 mg/l 170411-1 1 mg/l Relative Percent Difference:	114 112 1.53	80.0-120 80.0-120 25.0	W44850 W44850 W44850	10Sep13 1404 by 308 10Sep13 1404 by 308	10Sep13 1615 by 308 10Sep13 1616 by 308	-	
Phosphorus	170429-2 5 mg/l 170429-2 5 mg/l Relative Percent Difference:	107 107 0.0542	75.0-125 75.0-125 20.0	S35386 S35386 S35386	11Sep13 0826 by 305 11Sep13 0826 by 305	11Sep13 1600 by 305 11Sep13 1604 by 305		
Chloride	170429-2 20 mg/l 170429-2 20 mg/l Relative Percent Difference:	91.6 93.4 1.65	80.0-120 80.0-120 10.0	C16035 C16035 C16035	11Sep13 0809 by 07 11Sep13 0809 by 07	11Sep13 1036 by 07 11Sep13 1103 by 07		
Nitrate as N	170429-2 4 mg/l 170429-2 4 mg/l Relative Percent Difference:	94.9 96.6 1.77	80.0-120 80.0-120 10.0	C16035 C16035 C16035	11Sep13 0809 by 07 11Sep13 0809 by 07	11Sep13 1036 by 07 11Sep13 1103 by 07		
Sulfate	170429-2 20 mg/l 170429-2 20 mg/l Relative Percent Difference:	97.1 98.4 1.31	80.0-120 80.0-120 10.0	C16035 C16035 C16035	11Sep13 0809 by 07 11Sep13 0809 by 07	11Sep13 1036 by 07 11Sep13 1103 by 07		



September 16, 2013 Control No. 170433 Page 5 of 5

#### **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Total Dissolved Solids	< 10 mg/l	10	10	W44866-1	11Sep13 1136 by 302	12Sep13 1545 by 302	-
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44850-1	10Sep13 1404 by 308	10Sep13 1610 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44870-1	11Sep13 1402 by 285	16Sep13 0913 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44863-1	11Sep13 1040 by 302	11Sep13 1449 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35386-1	11Sep13 0826 by 305	11Sep13 1552 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16035-1	11Sep13 0809 by 07	11Sep13 0943 by 07	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16035-1	11Sep13 0809 by 07	11Sep13 0943 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16035-1	11Sep13 0809 by 07	11Sep13 0943 by 07	
Oil and Grease	< 5 mg/l	5	5	B8545-1	11Sep13 1348 by 295	11Sep13 1611 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3933-1		10Sep13 1416 by 21	



8600 Kanis Road Little Rock, AR 72204-2322 (501) 224-5060 FAX (501) 224-5072

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 11, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 17, 2013 Control No. 170475 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 11, 2013 Daily,Monthly-AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170475-1	010 9/11/13 0940	11-Sep-2013 0940
170475-2	010 9/11/13 0940	11-Sep-2013 0940

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



#### **ANALYTICAL RESULTS**

**AIC No.** 170475-1

Sample Identification: 010 9/11/13 0940

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 11-Sep-2013 1504 by 308	<b>0.67</b> Analyzed: 11-Se	0.1 ep-2013 1726 by 308	mg/l Batch: W44865	
Carbonaceous BOD 5-day SM 5210 B	Prep: 12-Sep-2013 0927 by 285	< 2 Analyzed: 17-Se	2 ep-2013 0956 by 308	<b>mg/l</b> Batch: W44883	
Total Suspended Solids USGS 3765	Prep: 11-Sep-2013 1648 by 302	6.8 Analyzed: 12-Se	4 ep-2013 0856 by 302	<b>mg/l</b> Batch: W44876	
<b>Phosphorus</b> EPA 200.7	Prep: 12-Sep-2013 0923 by 305	<b>0.12</b> Analyzed: 12-Se	0.02 ep-2013 1759 by 305	<b>mg/l</b> Batch: S35394	
<b>Nitrate as N</b> EPA 300.0	Prep: 12-Sep-2013 0917 by 302	<b>5.1</b> Analyzėd: 12-Se	0.05 ep-2013 1055 by 07	<b>mg/l</b> Batch: C16037	

**AIC No.** 170475-2

Sample Identification: 010 9/11/13 0940

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	200	50	/100ml	D
SM 9222 D	Analyzed: 11-Sep	-2013 1503 by 21	Batch: M3939	Dil: 50



September 17, 2013 Control No. 170475 Page 4 of 4

### **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Total Suspended Solids		170437-3	23 mg/l			11Sep13 1648 by 302	12Sep13 0856 by 302		
	Batch: W44876	Duplicate	22 mg/l	5.41	20.0	11Sep13 1648 by 302	12Sep13 0856 by 302		
Total Suspended Solids		170437-5	4.8 mg/l			11Sep13 1648 by 302	12Sep13 0856 by 302		
	Batch: W44876	Duplicate	4.0 mg/l	18.1	20.0	11Sep13 1648 by 302	12Sep13 0856 by 302		
Carbonaceous BOD 5-day		170444-1	< 2 mg/l			12Sep13 0927 by 285	17Sep13 0940 by 308		
	Batch: W44883	Duplicate	< 2 mg/l	0.00	20.0	12Sep13 0927 by 285	17Sep13 0942 by 308		

#### **LABORATORY CONTROL SAMPLE RESULTS**

	Spike									
Analyte	Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	97.9	80.0-120			W44865	11Sep13 1132 by 308	11Sep13 1217 by 308		
Carbonaceous BOD 5-day	200 mg/l	113	84.5-115			W44883	12Sep13 0927 by 285	17Sep13 0936 by 308		
Phosphorus	5 mg/l	109	85.0-115			S35394	12Sep13 0923 by 305	12Sep13 1744 by 305		
Nitrate as N	4 mg/l	95.0	90.0-110			C16037	12Sep13 0917 by 302	12Sep13 1029 by 07		

#### **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170444-1 1 mg/l	100	80.0-120	W44865	11Sep13 1132 by 308	11Sep13 1417 by 308		
	170444-1 1 mg/l	100	80.0-120	W44865	11Sep13 1132 by 308	11Sep13 1418 by 308		
	Relative Percent Difference:	0.0764	25.0	W44865				
Phosphorus	170473-1 5 mg/l	109	75.0-125	S35394	12Sep13 0923 by 305	12Sep13 1747 by 305		
	170473-1 5 mg/l	110	75.0-125	S35394	12Sep13 0923 by 305	12Sep13 1750 by 305		
	Relative Percent Difference:	0.560	20.0	S35394				
Nitrate as N	170475-1 4 mg/l	93.8	80.0-120	C16037	12Sep13 0917 by 302	12Sep13 1122 by 07		
	170475-1 4 mg/l	95.2	80.0-120	C16037	12Sep13 0917 by 302	12Sep13 1149 by 07		
	Relative Percent Difference:	0.713	10.0	C16037				

#### **LABORATORY BLANK RESULTS**

					QC			
Analyte		Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N		< 0.1 mg/l	0.1	0.1	W44865-1	11Sep13 1132 by 308	11Sep13 1215 by 308	-
Carbonaceous BOD 5-day		< 2 mg/l	2	2	W44883-1	12Sep13 0927 by 285	17Sep13 0933 by 308	
Total Suspended Solids		< 4 mg/l	4	4	W44876-1	11Sep13 1648 by 302	12Sep13 0856 by 302	
Phosphorus		< 0.02 mg/l	0.02	0.02	S35394-1	12Sep13 0923 by 305	12Sep13 1740 by 305	
Nitrate as N		< 0.05 mg/l	0.05	0.05	C16037-1	12Sep13 0917 by 302	12Sep13 1002 by 07	
Fecal Coliform	*	< 1 /100ml	1	1	M3939-1		11Sep13 1504 by 21	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



### CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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		Lpennington@edc-	<u>ark.c</u>	<u>om</u>				l												

FORM 0060



September 18, 2013 Control No. 170510 Page 1 of 5

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 12, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey
Læboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 18, 2013 Control No. 170510 Page 2 of 5

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 12, 2013 Daily / Weekly - Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170510-1	010 9-12-13 0955	12-Sep-2013 0955
170510-2	010 9-12-13 0955	12-Sep-2013 0955

#### **Qualifiers:**

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 18, 2013 Control No. 170510 Page 3 of 5

#### **ANALYTICAL RESULTS**

**AIC No.** 170510-1

Sample Identification: 010 9-12-13 0955

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 13-Sep-2013 0801 by 308	1.0 Analyzed: 13-Se	0.1 p-2013 0901 by 308	mg/l Batch: W44897	
Carbonaceous BOD 5-day SM 5210 B	Prep: 13-Sep-2013 1013 by 285	< 2 Analyzed: 18-Se	2 p-2013 0925 by 285	<b>mg/l</b> Batch: W44905	
Total Suspended Solids USGS 3765	Prep: 12-Sep-2013 1540 by 302	8.0 Analyzed: 13-Se	4 ' p-2013 0902 by 302	<b>mg/l</b> Batch: W44894	
Phosphorus EPA 200.7	Prep: 12-Sep-2013 1448 by 305	0.12 Analyzed: 13-Se	0.02 p-2013 1612 by 305	<b>mg/l</b> Batch: S35394	

AIC No. 170510-2

Sample Identification: 010 9-12-13 0955

Analyte		Result	RL	Units	Qualifier
Total Dissolved Solids SM 2540 C	Prep: 12-Sep-2013 1456 by 302	<b>260</b> Analyzed: 13-S	10 Sep-2013 1633 by 302	mg/l Batch: W44891	
Chloride EPA 300.0	Prep: 12-Sep-2013 1452 by 07	17 Analyzed: 12-S	0.2 Sep-2013 1621 by 07	<b>mg/l</b> Batch: C16037	
<b>Sulfate</b> EPA 300.0	Prep: 12-Sep-2013 1452 by 07	<b>26</b> Analyzed: 12-S	0.2 Sep-2013 1621 by 07	<b>mg/i</b> Batch: C16037	
<b>Oil and Grease</b> EPA 1664A	Prep: 13-Sep-2013 1244 by 295	< 5 Analyzed: 13-S	5 Sep-2013 1652 by 295	<b>mg/l</b> Batch: B8549	
Fecal Coliform SM 9222 D		<b>350</b> Analyzed: 12-S	50 Sep-2013 1427 by 21	/ <b>100m!</b> Batch: M3944	D Dil: 50



September 18, 2013 Control No. 170510 Page 4 of 5

#### **DUPLICATE RESULTS**

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Total Dissolved Solids		170493-1	12 mg/l			12Sep13 1456 by 302			
	Batch: W44891	Duplicate	11 mg/l	8.70	10.0	12Sep13 1456 by 302	13Sep13 1633 by 302		
Total Suspended Solids		170495-2	< 4 mg/l			12Sep13 1540 by 302	13Sep13 0902 by 302		
	Batch: W44894	Duplicate	< 4 mg/l	0.00	20.0	12Sep13 1540 by 302	13Sep13 0902 by 302		
Total Suspended Solids		170482-5	6100 mg/l			12Sep13 1540 by 302	13Sep13 0902 by 302		
	Batch: W44894	Duplicate	6100 mg/l	0.329	20.0	12Sep13 1540 by 302	13Sep13 0902 by 302		
Carbonaceous BOD 5-day		170502-1	< 2 mg/l			13Sep13 1013 by 285	18Sep13 0909 by 285		
·	Batch: W44905	Duplicate	< 2 mg/l	0.00	20.0	13Sep13 1014 by 285	18Sep13 0911 by 285		

#### **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	103	80.0-120			W44897	13Sep13 0802 by 308	13Sep13 0851 by 308		
Carbonaceous BOD 5-day	200 mg/l	107	84.5-115			W44905	13Sep13 1014 by 285	18Sep13 0906 by 285		
Phosphorus	5 mg/l	109	85.0-115			S35394	12Sep13 0923 by 305	12Sep13 1744 by 305		
Chloride	20 mg/l	96.9	90.0-110			C16037	12Sep13 0917 by 07	12Sep13 1029 by 07		
Sulfate	20 mg/l	103	90.0-110			C16037	12Sep13 0917 by 07	12Sep13 1029 by 07		
Oil and Grease	40 mg/l 40 mg/l	92.0 90.0	78.0-114 78.0-114	2.20	20.0	B8549 B8549	13Sep13 1244 by 295 13Sep13 1244 by 295	13Sep13 1652 by 295 13Sep13 1652 by 295		

#### **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170504-1	1 mg/l	110	80.0-120	W44897	13Sep13 0802 by 308	13Sep13 0950 by 308	<u> </u>	Quai
	170504-1	1 mg/l	113	80.0-120	W44897	13Sep13 0802 by 308	13Sep13 1013 by 308		
	Relative Per	cent Difference:	2.15	25.0	W44897				
Phosphorus	170473-1	5 mg/l	109	75.0-125	S35394	12Sep13 0923 by 305	12Sep13 1747 by 305		
·	170473-1	5 mg/l	110	75.0-125	S35394	12Sep13 0923 by 305	12Sep13 1750 by 305		
	Relative Per	cent Difference:	0.560	20.0	S35394				
Chloride	170475-1	20 mg/l	93.0	80.0-120	C16037	12Sep13 0917 by 07	12Sep13 1122 by 07		
	170475-1	20 mg/l	89.8	80.0-120	C16037	12Sep13 0917 by 07	12Sep13 1149 by 07		
	Relative Per	cent Difference:	2.00	10.0	C16037				
Sulfate	170475-1	20 mg/l	99.1	80.0-120	C16037	12Sep13 0917 by 07	12Sep13 1122 by 07		
	170475-1	20 mg/l	94.6	80.0-120	C16037	12Sep13 0917 by 07	12Sep13 1149 by 07		
	Relative Per	cent Difference:	2.28	10.0	C16037				



September 18, 2013 Control No. 170510 Page 5 of 5

#### **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Total Dissolved Solids	< 10 mg/l	10	10	W44891-1	12Sep13 1456 by 302	13Sep13 1633 by 302	
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44897-1	13Sep13 0802 by 308	13Sep13 0849 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44905-1	13Sep13 1014 by 285	18Sep13 0906 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44894-1	12Sep13 1540 by 302	13Sep13 0902 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35394-1	12Sep13 0923 by 305	12Sep13 1740 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16037-1	12Sep13 0917 by 07	12Sep13 1002 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16037-1	12Sep13 0917 by 07	12Sep13 1002 by 07	
Oil and Grease	< 5 mg/l	5	5	B8549-1	13Sep13 1244 by 295	13Sep13 1652 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3944-1		12Sep13 1421 by 21	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 13, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey | Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 18, 2013 Control No. 170556 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

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Two (2) water sample(s) received on September 13, 2013 Daily - Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170556-1	010 9-13-13 0950	13-Sep-2013 0950
170556-2	010 9-13-13 0950	13-Sep-2013 0950

#### Case Narrative:

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 18, 2013 Control No. 170556 Page 3 of 4

#### **ANALYTICAL RESULTS**

**AIC No.** 170556-1

Sample Identification: 010 9-13-13 0950

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 13-Sep-2013 1613 by 308	<b>0.62</b> Analyzed: 13-S	0.1 ep-2013 1738 by 308	mg/l Batch: W44910	
Carbonaceous BOD 5-day SM 5210 B	Prep: 13-Sep-2013 1617 by 285	< 2 Analyzed: 18-S	2 ep-2013 1017 by 285	<b>mg/l</b> Batch: W44905	
Total Suspended Solids USGS 3765	Prep: 13-Sep-2013 1553 by 302	8.8 Analyzed: 14-S	4 ep-2013 1354 by 302	<b>mg/l</b> Batch: W44917	
<b>Phosphorus</b> EPA 200.7	Prep: 16-Sep-2013 0914 by 271	<b>0.12</b> Analyzed: 16-S	0.02 ep-2013 2003 by 305	<b>mg/l</b> Batch: S35409	
<b>Nitrate as N</b> EPA 300.0	Prep: 13-Sep-2013 1521 by 07	<b>5.3</b> Analyzed: 13-S	0.05 ep-2013 1607 by 07	mg/l Batch: C16040	

AIC No. 170556-2

Sample Identification: 010 9-13-13 0950

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	150	1	/100ml	
SM 9222 D	Analyzed: 13-Se	ep-2013 1450 by 304	Batch: M3947	



September 18, 2013 Control No. 170556 Page 4 of 4

#### **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day	•	170502-1	< 2 mg/l			13Sep13 1013 by 285	18Sep13 0909 by 285	<del></del>	
	Batch: W44905	Duplicate	< 2 mg/l	0.00	20.0	13Sep13 1014 by 285	18Sep13 0911 by 285		
Total Suspended Solids		170549-1	5.6 mg/l			13Sep13 1553 by 302	14Sep13 1354 by 302		
	Batch: W44917	Duplicate	5.6 mg/l	0.00	20.0	13Sep13 1553 by 302	14Sep13 1354 by 302		
Total Suspended Solids		170550-1	< 4 mg/l			13Sep13 1553 by 302	14Sep13 1354 by 302		
	Batch: W44917	Duplicate	< 4 mg/l	0.00	20.0	13Sep13 1553 by 302	14Sep13 1354 by 302		

#### **LABORATORY CONTROL SAMPLE RESULTS**

	Spike									
Analyte	Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	103	80.0-120			W44910	13Sep13 1429 by 308	13Sep13 1612 by 308		
Carbonaceous BOD 5-day	200 mg/l	107	84.5-115			W44905	13Sep13 1014 by 285	18Sep13 0906 by 285		
Phosphorus	5 mg/l	99.7	85.0-115			S35409	16Sep13 0914 by 271	17Sep13 0939 by 305		
Nitrate as N	4 mg/l	107	90.0-110			C16040	13Sep13 1316 by 07	13Sep13 1408 by 07		

#### **MATRIX SPIKE SAMPLE RESULTS**

	Spike							
Analyte	Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170550-1 1 mg/l	103	80.0-120	W44910	13Sep13 1429 by 308	13Sep13 1616 by 308		- —
	170550-1 1 mg/l	105	80.0-120	W44910	13Sep13 1429 by 308	13Sep13 1617 by 308		
	Relative Percent Difference:	1.97	25.0	W44910				
Phosphorus	170553-2 5 mg/l	112	75.0-125	S35409	16Sep13 0914 by 271	16Sep13 1932 by 305		
	170553-2 5 mg/l	112	75.0-125	S35409	16Sep13 0914 by 271	16Sep13 1937 by 305		
	Relative Percent Difference:	0.0415	20.0	S35409				
Nitrate as N	170535-1 4 mg/l	105	80.0-120	C16040	13Sep13 1316 by 07	13Sep13 1555 by 07		
	170535-1 4 mg/l	108	80.0-120	C16040	13Sep13 1316 by 07	13Sep13 1622 by 07		
	Relative Percent Difference:	2.69	10.0	C16040				

#### **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44910-1	13Sep13 1429 by 308	13Sep13 1610 by 308	_
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44905-1	13Sep13 1014 by 285	18Sep13 0906 by 285	
Total Suspended Solids	< 4 mg/i	4	4	W44917-1	13Sep13 1553 by 302	14Sep13 1354 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35409-1	16Sep13 0914 by 271	16Sep13 1924 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16040-1	13Sep13 1316 by 07	13Sep13 1341 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3947-1		13Sep13 1450 by 310	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



September 19, 2013 Control No. 170580 Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 14, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 19, 2013 Control No. 170580 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 14, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170580-1	010 9-14-13 0950	14-Sep-2013 0950
170580-2	010 9-14-13 0950	14-Sep-2013 0950

#### Case Narrative:

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 19, 2013 Control No. 170580 Page 3 of 4

#### **ANALYTICAL RESULTS**

**AIC No.** 170580-1

Sample Identification: 010 9-14-13 0950

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 16-Sep-2013 0840 by 308	1.1 Analyzed: 16-S	0.1 ep-2013 0955 by 308	mg/l Batch: W44924	
Carbonaceous BOD 5-day SM 5210 B	Prep: 14-Sep-2013 1353 by 308	< 2 Analyzed: 19-S	2 ep-2013 1153 by 308	<b>mg/l</b> Batch: W44921	
Total Suspended Solids USGS 3765	Prep: 16-Sep-2013 1517 by 285	<b>8.4</b> Analyzed: 17-S	4 ep-2013 0947 by 285	<b>mg/l</b> Batch: W44929	
Phosphorus EPA 200.7	Prep: 16-Sep-2013 0914 by 271	<b>0.12</b> Analyzed: 16-S	0.02 ep-2013 2043 by 305	<b>mg/l</b> Batch: S35409	

**AIC No.** 170580-2

Sample Identification: 010 9-14-13 0950

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	120	1	/100ml	
SM 9222 D	Analyzed: 14-S	ep-2013 1450 by 304	Batch: M3948	



September 19, 2013 Control No. 170580 Page 4 of 4

## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170575-1	< 2 mg/l			14Sep13 1353 by 308	19Sep13 1141 by 308	. —	
	Batch: W44921	Duplicate	< 2 mg/l	0.00	20.0	14Sep13 1353 by 308	19Sep13 1143 by 308		
Total Suspended Solids		170576-1	< 4 mg/i			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		
Total Suspended Solids		170577-1	< 4 mg/l			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	101	80.0-120			W44924	16Sep13 0840 by 308	16Sep13 0936 by 308		
Carbonaceous BOD 5-day	200 mg/l	96.2	84.5-115			W44921	14Sep13 1353 by 308	19Sep13 1140 by 308		
Phosphorus	5 mg/l	99.7	85.0-115			S35409	16Sep13 0914 by 271	17Sep13 0939 by 305		

## MATRIX SPIKE SAMPLE RESULTS

		Spike							
Analyte	Sample	Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170553-1	1 mg/l	110	80.0-120	W44924	16Sep13 0840 by 308	16Sep13 1022 by 308		
	170553-1	1 mg/l	116	80.0-120	W44924	16Sep13 0840 by 308	16Sep13 1044 by 308		
	Relative Pe	rcent Difference:	4.48	25.0	W44924	·			
Phosphorus	170553-2	5 mg/l	112	75.0-125	S35409	16Sep13 0914 by 271	16Sep13 1932 by 305		
	170553-2	5 mg/l	112	75.0-125	S35409	16Sep13 0914 by 271	16Sep13 1937 by 305		
	Relative Pe	rcent Difference:	0.0415	20.0	S35409				

#### **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Quai
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44924-1	16Sep13 0840 by 308	16Sep13 0934 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44921-1	14Sep13 1353 by 308	19Sep13 1139 by 308	
Total Suspended Solids	< 4 mg/l	4	4	W44929-1	16Sep13 1518 by 285	17Sep13 0947 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35409-1	16Sep13 0914 by 271	16Sep13 1924 by 305	
Fecal Coliform	< 1 /100ml	1	1	M3948-1		14Sep13 1450 by 310	



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CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 15, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 23, 2013 Control No. 170585 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 15, 2013 Daily - Permit AR0000752 P.O. No. 357042

## Receipt Details:

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

## **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170585-1	010 9-15-13 0955	15-Sep-2013 0955
170585-2	010 9-15-13 0955	15-Sep-2013 0955

## **Case Narrative:**

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 23, 2013 Control No. 170585 Page 3 of 4

## **ANALYTICAL RESULTS**

**AIC No.** 170585-1

Sample Identification: 010 9-15-13 0955

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 16-Sep-2013 1110 by 308	<b>0.81</b> Analyzed: 16-S	0.1 ep-2013 1140 by 308	<b>mg/l</b> Batch: W44924	
Carbonaceous BOD 5-day SM 5210 B	Prep: 16-Sep-2013 1143 by 285	< 2 Analyzed: 21-S	2 ep-2013 1232 by 285	<b>mg/l</b> Batch: W44926	
<b>Total Suspended Solids</b> USGS 3765	Prep: 16-Sep-2013 1517 by 285	11 Analyzed: 17-S	4 ep-2013 0947 by 285	<b>mg/i</b> Batch: W44929	
Phosphorus EPA 200.7	Prep: 16-Sep-2013 1655 by 305	<b>0.11</b> Analyzed: 17-S	0.02 ep-2013 1721 by 305	<b>mg/l</b> Batch: S35415	

AIC No. 170585-2

Sample Identification: 010 9-15-13 0955

Analyte	Result RL	Units	Qualifier
Fecal Coliform	770 1	/100ml	
SM 9222 D	Analyzed: 15-Sep-2013 1430 by	304 Batch: M3949	



## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Quai
Carbonaceous BOD 5-day		170583-1	< 2 mg/l			16Sep13 1143 by 285	21Sep13 1216 by 285		- —
	Batch: W44926	Duplicate	< 2 mg/l	0.00	20.0	16Sep13 1143 by 285	21Sep13 1218 by 285		
Total Suspended Solids		170576-1	< 4 mg/l			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		
Total Suspended Solids		170577-1	< 4 mg/l			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		

## LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Quai
Ammonia as N	1 mg/l	101	80.0-120			W44924	16Sep13 0840 by 308	16Sep13 0936 by 308		
Carbonaceous BOD 5-day	200 mg/l	108	84.5-115			W44926	16Sep13 1143 by 285	21Sep13 1226 by 285		
Phosphorus	5 mg/l	109	85.0-115			S35415	16Sep13 1655 by 305	17Sep13 1707 by 305		

## **MATRIX SPIKE SAMPLE RESULTS**

	Spike							
Analyte	Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170553-1 1 mg/l	110	80.0-120	W44924	16Sep13 0840 by 308	16Sep13 1022 by 308		
	170553-1 1 mg/l	116	80.0-120	W44924	16Sep13 0840 by 308	16Sep13 1044 by 308		
	Relative Percent Difference	4.48	25.0	W44924				
Phosphorus	170583-1 5 mg/l	109	75.0-125	S35415	16Sep13 1655 by 305	17Sep13 1710 by 305		
	170583-1 5 mg/l	108	75.0-125	S35415	16Sep13 1655 by 305	17Sep13 1713 by 305		
	Relative Percent Difference	0.369	20.0	S35415				

## **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44924-1	16Sep13 0840 by 308	16Sep13 0934 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44926-1	16Sep13 1143 by 285	21Sep13 1213 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44929-1	16Sep13 1518 by 285	17Sep13 0947 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35415-1	16Sep13 1655 by 305	17Sep13 1705 by 305	
Fecal Coliform	< 1 /100ml	1	1	M3949-1		15Sep13 1430 by 310	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 16, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 23, 2013 Control No. 170598 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 16, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

## Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170598-1	010 9-16-13 9:55am	16-Sep-2013 0955
170598-2	010 9-16-13 9:55am	16-Sep-2013 0955

#### Qualifiers:

D Result is from a secondary dilution factor

#### **References:**

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

"Standard Methods for the Examination of Water and Wastewaters", 21st edition.

"American Society for Testing and Materials" (ASTM).

"Association of Analytical Chemists" (AOAC).



September 23, 2013 Control No. 170598 Page 3 of 4

## **ANALYTICAL RESULTS**

**AIC No.** 170598-1

Sample Identification: 010 9-16-13 9:55am

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Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 17-Sep-2013 0758 by 308	0.66 Analyzed: 17-Sep-	0.1 -2013 0953 by 308	mg/l Batch: W44932	
Carbonaceous BOD 5-day SM 5210 B	Prep: 18-Sep-2013 0800 by 302	< 2 Analyzed: 23-Sep-	2 -2013 0957 by 285	<b>mg/l</b> Batch: W44942	
Total Suspended Solids USGS 3765	Prep: 16-Sep-2013 1517 by 285	<b>12</b> Analyzed: 17-Sep-	4 -2013 0947 by 285	<b>mg/l</b> Batch: W44929	
<b>Phosphorus</b> EPA 200.7	Prep: 16-Sep-2013 1655 by 305	<b>0.12</b> Analyzed: 17-Sep-	0.02 -2013 1802 by 305	<b>mg/l</b> Batch: S35415	
Nitrate as N EPA 300.0	Prep: 16-Sep-2013 1454 by 07	<b>5.5</b> Analyzed: 17-Sep-	0.05 2013 1025 by 07	mg/l Batch: C16045	

**AIC No.** 170598-2

Sample Identification: 010 9-16-13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	150	50	/100ml	_ <u>D</u>
SM 9222 D	Analyzed: 16-Se	p-2013 1447 by 21	Batch: M3950	Dil: 50



## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Total Suspended Solids		170576-1	< 4 mg/l			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		
Total Suspended Solids		170577-1	< 4 mg/l			16Sep13 1517 by 285	17Sep13 0947 by 285		
	Batch: W44929	Duplicate	< 4 mg/l	0.00	20.0	16Sep13 1518 by 285	17Sep13 0947 by 285		
Carbonaceous BOD 5-day		170595-1	< 2 mg/l			18Sep13 0800 by 302	23Sep13 0937 by 285		
	Batch: W44942	Duplicate	< 2 mg/l	0.00	20.0	18Sep13 0800 by 302	23Sep13 0939 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	99.2	80.0-120			W44932	17Sep13 0758 by 308	17Sep13 0943 by 308		
Carbonaceous BOD 5-day	200 mg/l	112	84.5-115			W44942	18Sep13 0800 by 302	23Sep13 0935 by 285		
Phosphorus	5 mg/l	109	85.0-115			S35415	16Sep13 1655 by 305	17Sep13 1707 by 305		
Nitrate as N	4 mg/l	107	90.0-110			C16045	16Sep13 1454 by 07	16Sep13 1627 by 07		

## MATRIX SPIKE SAMPLE RESULTS

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170595-1 1 mg/l	113	80.0-120	W44932	17Sep13 0758 by 308	17Sep13 0946 by 308		
	170595-1 1 mg/l	114	80.0-120	W44932	17Sep13 0758 by 308	17Sep13 0948 by 308		
	Relative Percent Difference:	1.00	25.0	W44932				
Phosphorus	170583-1 5 mg/l	109	75.0-125	S35415	16Sep13 1655 by 305	17Sep13 1710 by 305		
	170583-1 5 mg/l	108	75.0-125	S35415	16Sep13 1655 by 305	17Sep13 1713 by 305		
	Relative Percent Difference:	0.369	20.0	S35415				
Nitrate as N	170598-1 4 mg/l	109	80.0-120	C16045	16Sep13 1454 by 07	16Sep13 1654 by 07		
	170598-1 4 mg/l	105	80.0-120	C16045	16Sep13 1454 by 07	16Sep13 1721 by 07		
	Relative Percent Difference:	3.40	10.0	C16045				

## **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Branaustian Data	Ameliaio Deta	01
		<u> </u>			Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44932-1	17Sep13 0758 by 308	17Sep13 0941 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44942-1	18Sep13 0800 by 302	23Sep13 0934 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44929-1	16Sep13 1518 by 285	17Sep13 0947 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35415-1	16Sep13 1655 by 305	17Sep13 1705 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16045-1	16Sep13 1454 by 07	16Sep13 1600 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3950-1		16Sep13 1337 by 304	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 17, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey | Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 23, 2013 Control No. 170633 Page 2 of 5

#### SAMPLE INFORMATION

#### **Project Description:**

Two (2) water sample(s) received on September 17, 2013 Daily-Permit AR0000752 P.O. No. 357042

### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with shipping documentation.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170633-1	Outfall 010 9/16/13 9/17/13 9:55am, 9:55am	17-Sep-2013 0955	
170633-2	Outfall 010 9/17/13 9:55am	17-Sep-2013 0955	

#### **Case Narrative:**

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



## **ANALYTICAL RESULTS**

AIC No. 170633-1

Sample Identification: Outfall 010 9/16/13 9/17/13 9:55am, 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 17-Sep-2013 1435 by 308	<b>0.67</b> Analyzed: 17-Se	0.1 ep-2013 1535 by 308	mg/l Batch: W44932	
Carbonaceous BOD 5-day SM 5210 B	Prep: 18-Sep-2013 0800 by 302	< 2 Analyzed: 23-Se	2 ep-2013 1006 by 285	<b>mg/l</b> Batch: W44942	
Total Suspended Solids USGS 3765	Prep: 17-Sep-2013 1500 by 285	<b>12</b> Analyzed: 18-Se	4 ep-2013 1413 by 285	<b>mg/l</b> Batch: W44936	
Phosphorus EPA 200.7	Prep: 17-Sep-2013 1454 by 271	<b>0.11</b> Analyzed: 18-Se	0.02 ep-2013 1118 by 305	<b>mg/l</b> Batch: S35420	

**AIC No.** 170633-2

Sample Identification: Outfall 010 9/17/13 9:55am

Analyte		Result	RL	Units	Qualifier
Total Dissolved Solids SM 2540 C	Prep: 17-Sep-2013 1533 by 285	<b>220</b> Analyzed: 18-S	10 ep-2013 1536 by 285	mg/l Batch: W44939	
Chloride EPA 300.0	Prep: 17-Sep-2013 1437 by 07	<b>19</b> Analyzed: 17-S	0.2 ep-2013 1547 by 07	<b>mg/l</b> Batch: C16047	
Sulfate EPA 300.0	Prep: 17-Sep-2013 1437 by 07	<b>26</b> Analyzed: 17-S	0.2 ep-2013 1547 by 07	<b>mg/l</b> Batch: C16047	
Oil and Grease EPA 1664A	Prep: 18-Sep-2013 0809 by 295	< 5 Analyzed: 18-S	5 ep-2013 0924 by 295	<b>mg/l</b> Batch: B8555	
Fecal Coliform SM 9222 D		<b>56</b> Analyzed: 17-S	1 ep-2013 1651 by 21	/100ml Batch: M3959	



## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Total Suspended Solids		170607-1	< 4 mg/l			17Sep13 1500 by 285	18Sep13 1413 by 285		
	Batch: W44936	Duplicate	< 4 mg/l	0.00	20.0	17Sep13 1500 by 285	18Sep13 1413 by 285		
Total Suspended Solids		170618-1	28 mg/l			17Sep13 1500 by 285	18Sep13 1413 by 285		
	Batch: W44936	Duplicate	28 mg/l	1.42	20.0	17Sep13 1500 by 285	18Sep13 1413 by 285		
Total Dissolved Solids		170607-1	1300 mg/l			17Sep13 1533 by 285	18Sep13 1536 by 285		
	Batch: W44939	Duplicate	1300 mg/l	0.786	10.0	17Sep13 1533 by 285	18Sep13 1536 by 285		
Carbonaceous BOD 5-day		170595-1	< 2 mg/l			18Sep13 0800 by 302	23Sep13 0937 by 285		
	Batch: W44942	Duplicate	< 2 mg/l	0.00	20.0	18Sep13 0800 by 302	23Sep13 0939 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	99.2	80.0-120	- 101 -		W44932	17Sep13 0758 by 308	17Sep13 0943 by 308		_ <del>Quai</del>
Carbonaceous BOD 5-day	200 mg/l	112	84.5-115			W44942	18Sep13 0800 by 302	23Sep13 0935 by 285		
Phosphorus	5 mg/l	110	85.0-115			S35420	17Sep13 1455 by 271	18Sep13 1029 by 305		
Chloride	20 mg/l	102	90.0-110			C16047	17Sep13 1109 by 07	17Sep13 1212 by 07		
Sulfate	20 mg/l	103	90.0-110			C16047	17Sep13 1109 by 07	17Sep13 1212 by 07		
Oil and Grease	40 mg/l 40 mg/l	96.5 98.0	78.0-114 78.0-114	1.54	20.0	B8555 B8555	18Sep13 0809 by 295 18Sep13 0809 by 295	18Sep13 0858 by 295 18Sep13 0858 by 295		

## **MATRIX SPIKE SAMPLE RESULTS**

	Spike							
Analyte	Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170595-1 1 mg/l	113	80.0-120	W44932	17Sep13 0758 by 308	17Sep13 0946 by 308		
	170595-1 1 mg/l	114	80.0-120	W44932	17Sep13 0758 by 308	17Sep13 0948 by 308		
	Relative Percent Difference:	1.00	25.0	W44932				
Phosphorus	170638-1 5 mg/l	111	75.0-125	S35420	17Sep13 1455 by 271	18Sep13 1032 by 305		
	170638-1 5 mg/l	111	75.0-125	S35420	17Sep13 1455 by 271	18Sep13 1035 by 305		
	Relative Percent Difference:	0.164	20.0	S35420				
Chloride	170610-1 20 mg/l	111	80.0-120	C16047	17Sep13 1109 by 07	17Sep13 1239 by 07		
	170610-1 20 mg/l	109	80.0-120	C16047	17Sep13 1109 by 07	17Sep13 1306 by 07		
	Relative Percent Difference:	1.75	10.0	C16047		•		
Sulfate	170610-1 20 mg/l	114	80.0-120	C16047	17Sep13 1109 by 07	17Sep13 1239 by 07		
	170610-1 20 mg/l	120	80.0-120	C16047	17Sep13 1109 by 07	17Sep13 1306 by 07		
	Relative Percent Difference:	5.09	10.0	C16047	•	•		



## **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Total Dissolved Solids	< 10 mg/l	10	10	W44939-1	17Sep13 1533 by 285	18Sep13 1536 by 285	· ——
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44932-1	17Sep13 0758 by 308	17Sep13 0941 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44942-1	18Sep13 0800 by 302	23Sep13 0934 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44936-1	17Sep13 1500 by 285	18Sep13 1413 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35420-1	17Sep13 1455 by 271	18Sep13 1026 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16047-1	17Sep13 1109 by 07	17Sep13 1146 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16047-1	17Sep13 1109 by 07	17Sep13 1146 by 07	
Oil and Grease	< 5 mg/l	5	5	B8555-1	18Sep13 0809 by 295	18Sep13 0858 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3959-1		17Sep13 1652 by 21	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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FORM 0060



El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 18, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey
Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 24, 2013 Control No. 170675 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 18, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with shipping documentation.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170675-1	010 9-18-13 0955	18-Sep-2013 0955
170675-2	010 9-18-13 0955	18-Sep-2013 0955

## Qualifiers:

D Result is from a secondary dilution factor

## References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



## **ANALYTICAL RESULTS**

AIC No. 170675-1

Sample Identification: 010 9-18-13 0955

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 19-Sep-2013 0800 by 308	<b>0.49</b> Analyzed: 19-Se	0.1 ep-2013 0940 by 308	mg/l Batch: W44957	
Carbonaceous BOD 5-day SM 5210 B	Prep: 19-Sep-2013 0859 by 285	< 2 Analyzed: 24-Se	2 ep-2013 0916 by 285	<b>mg/l</b> Batch: W44963	
Total Suspended Solids USGS 3765	Prep: 19-Sep-2013 1435 by 285	<b>15</b> Analyzed: 20-Se	4 ep-2013 1428 by 285	<b>mg/l</b> Batch: W44965	
<b>Phosphorus</b> EPA 200.7	Prep: 19-Sep-2013 0822 by 305	0.15 Analyzed: 19-Se	0.02 p-2013 1535 by 305	<b>mg/l</b> Batch: S35429	
Nitrate as N EPA 300.0	Prep: 18-Sep-2013 1525 by 07	<b>5.4</b> Analyzed: 18-Se	0.05 p-2013 1657 by 07	<b>mg/i</b> Batch: C16050	

AIC No. 170675-2

Sample Identification: 010 9-18-13 0955

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	850	50	/100ml	D
SM 9222 D	Analyzed: 18-Se	p-2013 1421 by 21	Batch: M3964	Dil: 50



## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170669-1	< 2 mg/l			19Sep13 0859 by 285	24Sep13 0901 by 285	. —	
	Batch: W44963	Duplicate	< 2 mg/l	0.00	20.0	19Sep13 0859 by 285	24Sep13 0903 by 285		
Total Suspended Solids		170650-1	< 4 mg/l			19Sep13 1435 by 285	20Sep13 1428 by 285		
	Batch: W44965	Duplicate	< 4 mg/l	0.00	20.0	19Sep13 1435 by 285	20Sep13 1428 by 285		
Total Suspended Solids		170654-1	110 mg/l			19Sep13 1435 by 285	20Sep13 1428 by 285		
	Batch: W44965	Duplicate	110 mg/l	1.58	20.0	19Sep13 1435 by 285	20Sep13 1428 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	109	80.0-120			W44957	19Sep13 0800 by 308	19Sep13 0938 by 308		
Carbonaceous BOD 5-day	200 mg/l	108	84.5-115			W44963	19Sep13 0859 by 285	24Sep13 0855 by 285		
Phosphorus	5 mg/l	106	85.0-115			S35429	19Sep13 0822 by 305	19Sep13 1415 by 305		
Nitrate as N	4 mg/l	105	90.0-110			C16050	18Sep13 1343 by 07	18Sep13 1416 by 07		

## **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170675-1 1 mg/l	117	80.0-120	W44957	19Sep13 0800 by 308			
	170675-1 1 mg/l	115	80.0-120	W44957	19Sep13 0800 by 308	19Sep13 0944 by 308		
	Relative Percent Difference:	1.48	25.0	W44957				
Phosphorus	170672-1 5 mg/l	110	75.0-125	S35429	19Sep13 0822 by 305	19Sep13 1418 by 305		
	170672-1 5 mg/l	108	75.0-125	S35429	19Sep13 0822 by 305	19Sep13 1423 by 305		
	Relative Percent Difference:	1.22	20.0	S35429				
Nitrate as N	170661-1 4 mg/l	115	80.0-120	C16050	18Sep13 1343 by 07	18Sep13 1443 by 07		
	170661-1 4 mg/l	115	80.0-120	C16050	18Sep13 1343 by 07	18Sep13 1510 by 07		
	Relative Percent Difference:	0.131	10.0	C16050	•	. ,		

## **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44957-1	19Sep13 0800 by 308	19Sep13 0937 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44963-1	19Sep13 0859 by 285	24Sep13 0854 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44965-1	19Sep13 1435 by 285	20Sep13 1428 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35429-1	19Sep13 0822 by 305	19Sep13 1411 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16050-1	18Sep13 1343 by 07	18Sep13 1349 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3964-1		18Sep13 1434 by 304	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 19, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com

September 25, 2013 Control No. 170736 Page 2 of 5

El Dorado Chemical Company 4500 North West Avenue El Dorado, AR 71730

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 19, 2013 Daily, Weekly-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

### **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170736-1	010 9-18-13-9-19-13 9:55am-9:55am	19-Sep-2013 0955	
170736-2	010 9-19-13 9:55am	19-Sep-2013 0955	

#### **Case Narrative:**

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

"Standard Methods for the Examination of Water and Wastewaters", 21st edition.

"American Society for Testing and Materials" (ASTM).

"Association of Analytical Chemists" (AOAC).



## **ANALYTICAL RESULTS**

AIC No. 170736-1

Sample Identification: 010 9-18-13-9-19-13 9:55am-9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 20-Sep-2013 1121 by 308	0.81 Analyzed: 20-Sep-	0.1 -2013 1420 by 308	<b>mg/l</b> Batch: W44978	
Carbonaceous BOD 5-day SM 5210 B	Prep: 20-Sep-2013 0807 by 285	< 2 Analyzed: 25-Sep-	2 -2013 0935 by 285	<b>mg/l</b> Batch: W44974	
Total Suspended Solids USGS 3765	Prep: 20-Sep-2013 1546 by 285	14 Analyzed: 23-Sep-	4 -2013 0936 by 285	<b>mg/l</b> Batch: W44984	
Phosphorus EPA 200.7	Prep: 19-Sep-2013 1556 by 305	0.12 Analyzed: 20-Sep-	0.02 -2013 1432 by 305	<b>mg/l</b> Batch: S35438	

AIC No. 170736-2

Sample Identification: 010 9-19-13 9:55am

Analyte		Result	RL	Units	Qualifier
Total Dissolved Solids SM 2540 C	Prep: 20-Sep-2013 1631 by 302	180 Analyzed: 23-S	10 ep-2013 1540 by 302	mg/l Batch: W44985	
Chloride EPA 300.0	Prep: 19-Sep-2013 1539 by 07	<b>20</b> Analyzed: 19-S	0.2 ep-2013 2302 by 07	<b>mg/l</b> Batch: C16053	
Sulfate EPA 300.0	Prep: 19-Sep-2013 1539 by 07	<b>26</b> Analyzed: 19-S	0.2 ep-2013 2302 by 07	<b>mg/l</b> Batch: C16053	
<b>Oil and Grease</b> EPA 1664A	Prep: 20-Sep-2013 1252 by 295	< 5 Analyzed: 20-S	5 ep-2013 1510 by 295	<b>mg/l</b> Batch: B8561	
Fecal Coliform SM 9222 D		<b>6.0</b> Analyzed: 19-S	1 ep-2013 1505 by 21	<b>/100mi</b> Batch: M3968	



## **DUPLICATE RESULTS**

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day	Batch: W44974	170731-1 Duplicate	< 2 mg/l < 2 mg/l	0.00	20.0	20Sep13 0807 by 285 20Sep13 0807 by 285	25Sep13 0919 by 285		
Total Suspended Solids	Batch: W44984	170710-1 Duplicate	< 4 mg/l < 4 mg/l	0.00	20.0	20Sep13 1546 by 285 20Sep13 1546 by 285	,,		
Total Suspended Solids	Batch: W44984	170706-3 Duplicate	350 mg/l 350 mg/l	0.570	20.0	20Sep13 1546 by 285 20Sep13 1546 by 285			
Total Dissolved Solids	Batch: W44985	170702-1 Duplicate	< 10 mg/l < 10 mg/l	0.00	10.0	20Sep13 1631 by 302 20Sep13 1632 by 302			
Total Dissolved Solids	Batch: W44985	170658-1 Duplicate	72000 mg/l 72000 mg/l	0.418	10.0	20Sep13 1648 by 302 20Sep13 1649 by 302			

## **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	109	80.0-120			W44978	20Sep13 1121 by 308	20Sep13 1345 by 308		
Carbonaceous BOD 5-day	200 mg/l	113	84.5-115			W44974	20Sep13 0807 by 285	25Sep13 0918 by 285		
Phosphorus	5 mg/l	104	85.0-115			S35438	19Sep13 1557 by 305	20Sep13 1345 by 305		
Chloride	20 mg/l	102	90.0-110			C16053	19Sep13 1540 by 07	19Sep13 1620 by 07		
Sulfate	20 mg/l	104	90.0-110			C16053	19Sep13 1540 by 07	19Sep13 1620 by 07		
Oil and Grease	40 mg/l 40 mg/l	94.5 105	78.0-114 78.0-114	10.5	20.0	B8561 B8561	20Sep13 1253 by 295 20Sep13 1253 by 295	20Sep13 1510 by 295 20Sep13 1510 by 295		

## **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170693-1 1 mg/l	98.9	80.0-120	W44978	20Sep13 1121 by 308	20Sep13 1349 by 308		
	170693-1 1 mg/l	111	80.0-120	W44978	20Sep13 1121 by 308	20Sep13 1351 by 308		
	Relative Percent Difference:	9.14	25.0	W44978	•			
Phosphorus	170740-1 5 mg/l	98.6	75.0-125	S35438	19Sep13 1557 by 305	20Sep13 1348 by 305		
	170740-1 5 mg/l	99.2	75.0-125	S35438	19Sep13 1557 by 305	20Sep13 1351 by 305		
	Relative Percent Difference:	0.192	20.0	S35438				
Chloride	170734-2 20 mg/l	101	80.0-120	C16053	19Sep13 1540 by 07	19Sep13 1647 by 07		
	170734-2 20 mg/l	98.5	80.0-120	C16053	19Sep13 1540 by 07	19Sep13 1714 by 07		
	Relative Percent Difference:	2.14	10.0	C16053				
Sulfate	170734-2 20 mg/l	103	80.0-120	C16053	19Sep13 1540 by 07	19Sep13 1647 by 07		
	170734-2 20 mg/l	102	80.0-120	C16053	19Sep13 1540 by 07	19Sep13 1714 by 07		
	Relative Percent Difference:	1.74	10.0	C16053	·			



## **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Ouel
Total Dissolved Solids	< 10 mg/l	— <del>KL</del>	10	W44985-1		23Sep13 1540 by 302	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44978-1		20Sep13 1343 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44974-1	20Sep13 0807 by 285	25Sep13 0917 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44984-1	20Sep13 1546 by 285	23Sep13 0936 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35438-1	19Sep13 1557 by 305	20Sep13 1341 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16053-1	19Sep13 1540 by 07	19Sep13 1553 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16053-1	19Sep13 1540 by 07	19Sep13 1553 by 07	
Oil and Grease	< 5 mg/l	5	5	B8561-1	20Sep13 1253 by 295	20Sep13 1510 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3968-1		19Sep13 1506 by 304	



## CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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# CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

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September 26, 2013 Control No. 170767R Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report replaces American Interplex Corporation (AIC) Control No. 170767 originally sent on September 25, 2013. This report contains the analytical results and supporting information for samples submitted on September 20, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Revised report to correct collection time for AIC control number 170767-1.

John Overbey aboratory Director

This document has been distributed to the following:

PDF cc:

El Dorado Chemical Company ATTN: Ms. Larken Pennington lpennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 26, 2013 Control No. 170767R Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 20, 2013 Daily - Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with a custody seal intact and signed

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170767-1	010 9/19/13 9:55am - 9/20/13 9:55am	20-Sep-2013 0955	
170767-2	010 9/20/13 9:55am	20-Sep-2013 0955	

## Case Narrative:

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



September 26, 2013 Control No. 170767R Page 3 of 4

## **ANALYTICAL RESULTS**

**AIC No.** 170767-1

Sample Identification: 010 9/19/13 9:55am - 9/20/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 23-Sep-2013 1513 by 308	<b>0.30</b> Analyzed: 23-Se	0.1 ep-2013 1739 by 308	mg/l Batch: W44998	
Carbonaceous BOD 5-day SM 5210 B	Prep: 20-Sep-2013 1501 by 271	< <b>2</b> Analyzed: 25-Se	2 ep-2013 1015 by 285	<b>mg/i</b> Batch: W44974	
Total Suspended Solids USGS 3765	Prep: 23-Sep-2013 1331 by 285	<b>12</b> Analyzed: 24-Se	<b>4</b> ep-2013 0915 by 285	<b>mg/l</b> Batch: W44996	
<b>Phosphorus</b> EPA 200.7	Prep: 23-Sep-2013 0836 by 305	<b>0.12</b> Analyzed: 23-Se	0.02 ep-2013 1930 by 305	<b>mg/l</b> Batch: S35442	
<b>Nitrate as N</b> EPA 300.0	Prep: 20-Sep-2013 1448 by 07	< 0.05 Analyzed: 20-Se	0.05 ep-2013 1856 by 07	<b>mg/i</b> Batch: C16057	

AIC No. 170767-2

Sample Identification: 010 9/20/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	50	1	/100ml	
SM 9222 D	Analyzed: 20-S	ep-2013 1440 by 304	Batch: M3970	



September 26, 2013 Control No. 170767R Page 4 of 4

## **DUPLICATE RESULTS**

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170731-1	< 2 mg/l			20Sep13 0807 by 285			
-	Batch: W44974	Duplicate	< 2 mg/l	0.00	20.0	20Sep13 0807 by 285	25Sep13 0921 by 285		
Total Suspended Solids		170658-1	310 mg/l			23Sep13 1331 by 285	24Sep13 0915 by 285		
	Batch: W44996	Duplicate	310 mg/l	0.650	20.0	23Sep13 1332 by 285	24Sep13 0915 by 285		
Total Suspended Solids		170740-3	4300 mg/l			23Sep13 1331 by 285	24Sep13 0915 by 285		
	Batch: W44996	Duplicate	4200 mg/l	0.943	20.0	23Sep13 1332 by 285	24Sep13 0915 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

	Spike									
Analyte	Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	104	80.0-120			W44998	23Sep13 1513 by 308	23Sep13 1726 by 308		
Carbonaceous BOD 5-day	200 mg/l	113	84.5-115			W44974	20Sep13 0807 by 285	25Sep13 0918 by 285		
Phosphorus	5 mg/l	104	85.0-115			S35442	23Sep13 0837 by 305	23Sep13 1737 by 305		
Nitrate as N	4 mg/l	103	90.0-110			C16057	20Sep13 1448 by 07	20Sep13 1522 by 07		

## **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Quai
Ammonia as N	170749-1 1 mg/l	89.6	80.0-120	W44998	23Sep13 1513 by 308	23Sep13 1730 by 308		
	170749-1 1 mg/l	89.3	80.0-120	W44998	23Sep13 1513 by 308	23Sep13 1731 by 308		
	Relative Percent Difference:	0.258	25.0	W44998				
Phosphorus	170770-2 5 mg/l	106	75.0-125	S35442	23Sep13 0837 by 305	23Sep13 1741 by 305		
	170770-2 5 mg/l	106	75.0-125	S35442	23Sep13 0837 by 305	23Sep13 1744 by 305		
	Relative Percent Difference:	0.0592	20.0	S35442		•		
Nitrate as N	170767-1 4 mg/l	118	80.0-120	C16057	20Sep13 1448 by 07	20Sep13 1548 by 07		
	170767-1 4 mg/l	119	80.0-120	C16057	20Sep13 1448 by 07	20Sep13 1615 by 07		
	Relative Percent Difference:	0.295	10.0	C16057	•	•		

## **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44998-1	23Sep13 1513 by 308	23Sep13 1724 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44974-1	20Sep13 0807 by 285	25Sep13 0917 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W44996-1	23Sep13 1332 by 285	24Sep13 0915 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35442-1	23Sep13 0837 by 305	23Sep13 1734 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16057-1	20Sep13 1448 by 07	20Sep13 1455 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3970-1	•	20Sep13 1441 by 304	



## **CHAIN OF CUSTODY / ANALYSIS REQUEST FORM**

Client:   El Dorado Chemical Company   Project   Reference:   Daily - Permit AR0000752   Project   MATRIX   O   V   V   V   V   V   V   V   V   V		<del></del>																		PAGE	1 OF 1
Project   Reference:   Daily - Permit AR0000752   MATRIX   Daily - Permit AR0000752   Project   Manager:   MS. Larken Pennington   W   T   S   S   T   S   S   T   S   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   S   T   T	Oliverty FI Boundards 1 1 2				PO I	PO No.				ANALYSES REQUESTED AIC											
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Container Type   P P P   On @ Buffer:  G = Glass   P = Plastic   V = VOA vials   H = HCl to pH2   T = Sodium Thiosulfate   NO = none   S = Sulfuric acid pH2   N = Nitric acid pH2   N = Nitric acid pH2   N = Nitric acid pH2   B = NaOH to pH12   T = Sodium Thiosulfate   Z = Zinc acetate   NCRMAL or EXPEDITED IN DAYS   Expedited results requested by:  Who should AIC contact with questions: Phone 870-312-1752 Fax: Report Attention to: Ms. Larken Pennington   Received   By:	a	010	9/2013 9:55am	×		х		1		х											-
Container Type Preservative Preservative NO = none S = Sulfuric acid pH2  Turnaround Time Requested: (Please circle) NORMAL or EXPEDITED IN DAYS Expedited results requested by: Who should AIC contact with questions: Phone 870-312-1752 Fax: Report Attention to: Ms. Larken Pennington Report Address to: Post Office Box 231 EI Dorado, AR 71731 Lpennington@edc-ark.com  Eind pH calibration On@	1	010	4/19/3-9/20/13 9:55an-9:55an		×	х		1			х										
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NORMAL or EXPEDITED IN DAYS  Expedited results requested by:  Who should AIC contact with questions:  Phone 870-312-1752 Fax:  Report Attention to:  Report Address to:  Post Office Box 231  EI Dorado, AR 71731  Lpennington@edc-ark.com  By:	<b>*</b>	NO = n	one S = Sulfu	ric aci	d p⊦	12	_ N =									2					
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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 21, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey aboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 21, 2013 Daily - Permit AR0000752 P.O. No. 357042

## **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

# **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time Notes	<b>;</b>
170791-1	010 9/20/13 9:55am - 9/21/13 9:55am	21-Sep-2013 0955	NATION AND ADDRESS OF THE PARTY
170791-2	010 9/21/13 9:55am	21-Sep-2013 0955	

## Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



# **ANALYTICAL RESULTS**

**AIC No.** 170791-1

Sample Identification: 010 9/20/13 9:55am - 9/21/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 23-Sep-2013 1513 by 308	<b>0.48</b> Analyzed: 23-S	0.1 ep-2013 1807 by 308	mg/l Batch: W44998	
Carbonaceous BOD 5-day SM 5210 B	Prep: 21-Sep-2013 1427 by 285	< 2 Analyzed: 26-S	2 ep-2013 1034 by 271	<b>mg/l</b> Batch: W44990	
<b>Total Suspended Solids</b> USGS 3765	Prep: 24-Sep-2013 1418 by 302	<b>9.6</b> Analyzed: 25-S	4 ep-2013 0929 by 302	<b>mg/l</b> Batch: W45020	
Phosphorus EPA 200.7	Prep: 23-Sep-2013 1102 by 271	<b>0.12</b> Analyzed: 23-S	0.02 ep-2013 2004 by 305	<b>mg/l</b> Batch: S35446	

**AIC No.** 170791-2

Sample Identification: 010 9/21/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	650	50	/100ml	D
SM 9222 D	Analyzed: 21-Sep-	-2013 1410 by 295	Batch: M3971	Dil: 50



# **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170795-1	< 2 mg/l			21Sep13 1427 by 285	26Sep13 1022 by 271		
	Batch: W44990	Duplicate	< 2 mg/l	0.00	20.0	21Sep13 1427 by 285	26Sep13 1025 by 271		
Total Suspended Solids		170791-1	9.6 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		
	Batch: W45020	Duplicate	11 mg/l	11.8	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		
Total Suspended Solids		170792-1	< 4 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		
	Batch: W45020	Duplicate	< 4 mg/l	0.00	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		

# **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	104	80.0-120			W44998	23Sep13 1513 by 308	23Sep13 1726 by 308		- —
Carbonaceous BOD 5-day	200 mg/l	111	84.5-115			W44990	21Sep13 1427 by 285	26Sep13 1020 by 271		
Phosphorus	5 mg/l	110	85.0-115			S35446	23Sep13 1102 by 271	23Sep13 1954 by 305		

# **MATRIX SPIKE SAMPLE RESULTS**

	S	pike							
Analyte	Sample A	mount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	170749-1 1	mg/l	89.6	80.0-120	W44998	23Sep13 1513 by 308	23Sep13 1730 by 308		
	170749-1 1	mg/l	89.3	80.0-120	W44998	23Sep13 1513 by 308	23Sep13 1731 by 308		
	Relative Perce	nt Difference:	0.258	25.0	W44998				
Phosphorus	170791-1 5	mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 1957 by 305		
	170791-1 5	mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 2001 by 305		
	Relative Percer	nt Difference:	0.00907	20.0	S35446				

# **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44998-1	23Sep13 1513 by 308	23Sep13 1724 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44990-1	21Sep13 1427 by 285	26Sep13 1019 by 271	
Total Suspended Solids	< 4 mg/l	4	4	W45020-1	24Sep13 1418 by 302	25Sep13 0929 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35446-1	23Sep13 1102 by 271	23Sep13 1951 by 305	
Fecal Coliform	< 1 /100ml	1	1	M3971-1		21Sep13 1410 by 295	



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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 22, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey | Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



September 30, 2013 Control No. 170799 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

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Two (2) water sample(s) received on September 22, 2013 Daily - Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

# Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170799-1	010 9/21/13 9:55am - 9/22/13 9:55am	22-Sep-2013 0955	
170799-2	010 9/22/13 9:55am	22-Sep-2013 0955	

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

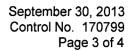
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).





### **ANALYTICAL RESULTS**

**AIC No.** 170799-1

Sample Identification: 010 9/21/13 9:55am - 9/22/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N SM 4500-NH3 G	Prep: 23-Sep-2013 1514 by 308	1.8 Analyzed: 24-Sep	0.1 0-2013 0807 by 308	<b>mg/l</b> Batch: W44999	
Carbonaceous BOD 5-day SM 5210 B	Prep: 23-Sep-2013 1415 by 285	< 2 Analyzed: 28-Sep	2 -2013 1015 by 285	<b>mg/l</b> Batch: W44997	
Total Suspended Solids USGS 3765	Prep: 24-Sep-2013 1418 by 302	<b>10</b> Analyzed: 25-Sep	4 -2013 0929 by 302	<b>mg/l</b> Batch: W45020	
Phosphorus EPA 200.7	Prep: 23-Sep-2013 1102 by 271	<b>0.12</b> Analyzed: 23-Sep	0.02 -2013 2039 by 305	<b>mg/l</b> Batch: S35446	

**AIC No.** 170799-2

Sample Identification: 010 9/22/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	85	1	/100ml	
SM 9222 D	Analyzed: 22-Sep-	2013 1400 by 304	Batch: M3972	



September 30, 2013 Control No. 170799 Page 4 of 4

# **DUPLICATE RESULTS**

Analysia		AIC No	Danult	222	RPD	Barranetica Bata	Aurabia ta Basa		
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170798-1	< 2 mg/l			23Sep13 1415 by 285	28Sep13 1011 by 285		
	Batch: W44997	Duplicate	< 2 mg/l	0.00	20.0	23Sep13 1415 by 285	28Sep13 1012 by 285		
Total Suspended Solids		170791-1	9.6 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		
	Batch: W45020	Duplicate	11 mg/l	11.8	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		
Total Suspended Solids		170792-1	< 4 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		
	Batch: W45020	Duplicate	< 4 mg/l	0.00	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		

# **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	108	80.0-120		-	W44999	23Sep13 1514 by 308	23Sep13 1815 by 308		
Carbonaceous BOD 5-day	200 mg/l	113	84.5-115			W44997	23Sep13 1415 by 285	28Sep13 1009 by 285		
Phosphorus	5 mg/l	110	85.0-115			S35446	23Sep13 1102 by 271	23Sep13 1954 by 305		

# **MATRIX SPIKE SAMPLE RESULTS**

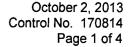
Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Quai
Ammonia as N	170799-1	1 mg/l	83.5	80.0-120	W44999	23Sep13 1514 by 308	24Sep13 0809 by 308	2	D
	170799-1	1 mg/l	100	80.0-120	W44999	23Sep13 1514 by 308	24Sep13 0811 by 308	2	D
	Relative Pe	rcent Difference:	6.10	25.0	W44999				D
Phosphorus	170791-1	5 mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 1957 by 305		
	170791-1	5 mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 2001 by 305		
	Relative Pe	rcent Difference:	0.00907	20.0	S35446				

# **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.1 mg/l	0.1	0.1	W44999-1	23Sep13 1514 by 308	23Sep13 1814 by 308	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W44997-1	23Sep13 1415 by 285	28Sep13 1008 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45020-1	24Sep13 1418 by 302	25Sep13 0929 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35446-1	23Sep13 1102 by 271	23Sep13 1951 by 305	
Fecal Coliform	< 1 /100ml	1	1	M3972-1		22Sep13 1400 by 304	



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Report Address to: Post Office Box 231						ħ	Comm	nents:				<u> </u>					Valen	VCZ)	///	(1),	ᅱ		
El Dorado, AR 71731						[																	
		Lpennington@edc-a	ark.c	om																			





El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 23, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey | Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



## **SAMPLE INFORMATION**

# **Project Description:**

Two (2) water sample(s) received on September 23, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

## Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
170814-1	010 9/22/13-9/23/13 9:55am-9:55am	23-Sep-2013 0955
170814-2	010 9/23/13 9:55am	23-Sep-2013 0955

## Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



# **ANALYTICAL RESULTS**

**AIC No.** 170814-1

Sample Identification: 010 9/22/13-9/23/13 9:55am-9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distillat SM 4500-NH3 B,G	tion Prep: 01-Oct-2013 0918 by 93	<b>1.9</b> Analyzed: 01-0	0.5 oct-2013 1816 by 93	mg/l Batch: W45104	D Dil: 5
Carbonaceous BOD 5-day SM 5210 B	Prep: 25-Sep-2013 0822 by 285	< 2 Analyzed: 30-S	2 ep-2013 1332 by 285	<b>mg/l</b> Batch: W45028	
Total Suspended Solids USGS 3765	Prep: 24-Sep-2013 1418 by 302	<b>9.6</b> Analyzed: 25-S	4 ep-2013 0929 by 302	<b>mg/l</b> Batch: W45020	
<b>Phosphorus</b> EPA 200.7	Prep: 23-Sep-2013 1632 by 305	<b>0.11</b> Analyzed: 24-S	0.02 ep-2013 1222 by 305	<b>mg/l</b> Batch: S35446	
Nitrate as N EPA 300.0	Prep: 23-Sep-2013 1432 by 302	<b>8.3</b> Analyzed: 23-S	0.05 ep-2013 2114 by 07	<b>mg/l</b> Batch: C16059	

**AIC No.** 170814-2

Sample Identification: 010 9/23/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	50	50	/100ml	D
SM 9222 D	Analyzed: 23-Sep-2	2013 1402 by 295	Batch: M3973	Dil: 50



# **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Total Suspended Solids		170791-1	9.6 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		- —
	Batch: W45020	Duplicate	11 mg/l	11.8	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		
Total Suspended Solids		170792-1	< 4 mg/l			24Sep13 1418 by 302	25Sep13 0929 by 302		
	Batch: W45020	Duplicate	< 4 mg/l	0.00	20.0	24Sep13 1418 by 302	25Sep13 0929 by 302		
Carbonaceous BOD 5-day		170814-1	< 2 mg/l			25Sep13 0822 by 285	30Sep13 1332 by 285		
	Batch: W45028	Duplicate	< 2 mg/l	0.00	20.0	25Sep13 0822 by 285	30Sep13 1334 by 285		

# **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	103	80.0-120			W45104	01Oct13 0919 by 93	01Oct13 1727 by 93		
Carbonaceous BOD 5-day	200 mg/l	114	84.5-115			W45028	25Sep13 0822 by 285	30Sep13 1331 by 285		
Phosphorus	5 mg/l	110	85.0-115			S35446	23Sep13 1102 by 271	23Sep13 1954 by 305		
Nitrate as N	4 mg/l	92.8	90.0-110			C16059	23Sep13 1432 by 302	23Sep13 1927 by 07		

# **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	171074-1	1 mg/l	99.5	80.0-120	W45104	01Oct13 0919 by 93	01Oct13 1730 by 93		
	171074-1	1 mg/l	99.2	80.0-120	W45104	01Oct13 0919 by 93	01Oct13 1732 by 93		
	Relative Pe	rcent Difference:	0.239	25.0	W45104				
Phosphorus	170791-1	5 mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 1957 by 305		
	170791-1	5 mg/l	110	75.0-125	S35446	23Sep13 1102 by 271	23Sep13 2001 by 305		
	Relative Pe	rcent Difference:	0.00907	20.0	S35446				
Nitrate as N	170810-1	4 mg/l	97.5	80.0-120	C16059	23Sep13 1432 by 302	23Sep13 1954 by 07		
	170810-1	4 mg/l	102	80.0-120	C16059	23Sep13 1432 by 302	23Sep13 2021 by 07		
	Relative Pe	rcent Difference:	5.00	10.0	C16059		•		

# **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45104-1		01Oct13 1725 by 93	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45028-1	25Sep13 0822 by 285	30Sep13 1330 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45020-1	24Sep13 1418 by 302	25Sep13 0929 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35446-1	23Sep13 1102 by 271	23Sep13 1951 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16059-1	23Sep13 1432 by 302	23Sep13 1900 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3973-1		23Sep13 1403 by 304	



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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 24, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc:

El Dorado Chemical Company ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 24, 2013 Daily, Weekly-Permit AR0000752 P.O. No. 357042

### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with shipping documentation.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

## **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170861-1	010 9/23/13-9/24/13 9:55am-9:55am	24-Sep-2013 0955	
170861-2	010 9/24/13 9:55am	24-Sep-2013 0955	

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



# **ANALYTICAL RESULTS**

AIC No. 170861-1

Sample Identification: 010 9/23/13-9/24/13 9:55am-9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distillat SM 4500-NH3 B,G	tion Prep: 26-Sep-2013 1505 by 93	<b>2.0</b> Analyzed: 27-S	0.5 Sep-2013 0947 by 302	mg/l Batch: W45052	D Dil: 5
Carbonaceous BOD 5-day SM 5210 B	Prep: 25-Sep-2013 0822 by 285	< 2 Analyzed: 30-S	2 Sep-2013 1346 by 285	<b>mg/l</b> Batch: W45028	
Total Suspended Solids USGS 3765	Prep: 25-Sep-2013 1412 by 285	11 Analyzed: 26-S	4 Sep-2013 1104 by 285	<b>mg/l</b> Batch: W45035	
Phosphorus EPA 200.7	Prep: 24-Sep-2013 1648 by 311	<b>0.11</b> Analyzed: 25-S	0.02 Sep-2013 1819 by 305	<b>mg/l</b> Batch: S35461	

AIC No. 170861-2

Sample Identification: 010 9/24/13 9:55am

Analyte		Result	RL	Units	Qualifier
Total Dissolved Solids SM 2540 C	Prep: 25-Sep-2013 1625 by 302	<b>200</b> Analyzed: 26-S	10 Sep-2013 1555 by 302	mg/l Batch: W45040	
Chloride EPA 300.0	Prep: 24-Sep-2013 1633 by 07	<b>17</b> Analyzed: 24-S	0.2 Sep-2013 2256 by 07	<b>mg/l</b> Batch: C16063	
Sulfate EPA 300.0	Prep: 24-Sep-2013 1633 by 07	<b>31</b> Analyzed: 24-S	0.2 Sep-2013 2256 by 07	<b>mg/l</b> Batch: C16063	
Oil and Grease EPA 1664A	Prep: 25-Sep-2013 1103 by 295	< 5 Analyzed: 25-S	5 sep-2013 1408 by 295	<b>mg/l</b> Batch: B8570	
Fecal Coliform SM 9222 D		<b>750</b> Analyzed: 24-S	50 ep-2013 1545 by 295	<b>/100ml</b> Batch: M3974	D Dil: 50



# **DUPLICATE RESULTS**

•					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dii	Qual
Carbonaceous BOD 5-day		170814-1	< 2 mg/l			25Sep13 0822 by 285	30Sep13 1332 by 285		
	Batch: W45028	Duplicate	< 2 mg/l	0.00	20.0	25Sep13 0822 by 285	30Sep13 1334 by 285		
Total Suspended Solids		170845-1	< 4 mg/l			25Sep13 1412 by 285	26Sep13 1104 by 285		
	Batch: W45035	Duplicate	< 4 mg/l	0.00	20.0	25Sep13 1412 by 285	26Sep13 1104 by 285		
Total Suspended Solids		170845-2	< 4 mg/l			25Sep13 1412 by 285	26Sep13 1104 by 285		
	Batch: W45035	Duplicate	< 4 mg/l	0.00	20.0	25Sep13 1412 by 285	26Sep13 1104 by 285		
Total Dissolved Solids		170861-2	200 mg/l			25Sep13 1625 by 302	26Sep13 1555 by 302		
	Batch: W45040	Duplicate	190 mg/l	3.12	10.0	25Sep13 1625 by 302	26Sep13 1555 by 302		

# **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	0/	Limits	RPD	1 !!4	D-4-b	Danagaratian Data	Amakusta Bata	5	<b>A</b>
		<u> %</u>		KPU	_ <u>Limit</u>	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	110	80.0-120			W45052	26Sep13 1056 by 93	27Sep13 0847 by 302		
Carbonaceous BOD 5-day	200 mg/l	114	84.5-115			W45028	25Sep13 0822 by 285	30Sep13 1331 by 285		
Phosphorus	5 mg/l	106	85.0-115			S35461	24Sep13 1649 by 311	25Sep13 1758 by 305		
Chloride	20 mg/l	99.7	90.0-110			C16063	24Sep13 1634 by 07	24Sep13 2015 by 07		
Sulfate	20 mg/l	104	90.0-110			C16063	24Sep13 1634 by 07	24Sep13 2015 by 07		
Oil and Grease	40 mg/l	94.0	78.0-114			B8570	25Sep13 1104 by 295	25Sep13 1408 by 295		
	40 mg/l	92.5	78.0-114	1.61	20.0	B8570	25Sep13 1104 by 295	25Sep13 1408 by 295		

# MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Quai
Ammonia as N with Distillation	170860-1 170860-1 Relative Pe	1 mg/l 1 mg/l rcent Difference:	120 120 0.425	80.0-120 80.0-120 25.0	W45052 W45052 W45052	26Sep13 1056 by 93 26Sep13 1056 by 93	27Sep13 1017 by 302 27Sep13 1018 by 302	· <del>- ·</del>	
Phosphorus	170854-1 170854-1 Relative Per	5 mg/l 5 mg/l rcent Difference:	106 108 0.950	75.0-125 75.0-125 20.0	S35461 S35461 S35461	24Sep13 1649 by 311 24Sep13 1649 by 311	25Sep13 1802 by 305 25Sep13 1806 by 305		
Chloride	170860-2 170860-2 Relative Per	20 mg/l 20 mg/l rcent Difference:	97.7 100 2.16	80.0-120 80.0-120 10.0	C16063 C16063 C16063	24Sep13 1634 by 07 24Sep13 1634 by 07	24Sep13 2041 by 07 24Sep13 2108 by 07		
Sulfate	170860-2 170860-2 Relative Per	20 mg/l 20 mg/l cent Difference:	99.9 102 2.19	80.0-120 80.0-120 10.0	C16063 C16063 C16063	24Sep13 1634 by 07 24Sep13 1634 by 07	24Sep13 2041 by 07 24Sep13 2108 by 07		



# **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	<b>Preparation Date</b>	Analysis Date	Qual
Total Dissolved Solids	< 10 mg/l	10	10	W45040-1	25Sep13 1625 by 302	26Sep13 1555 by 302	
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45052-1	26Sep13 1056 by 93	27Sep13 0845 by 302	
Carbonaceous BOD 5-day	< 2 mg/l	2	. 2	W45028-1	25Sep13 0822 by 285	30Sep13 1330 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45035-1	25Sep13 1412 by 285	26Sep13 1104 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35461-1	24Sep13 1649 by 311	25Sep13 1754 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16063-1	24Sep13 1634 by 07	24Sep13 1948 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16063-1	24Sep13 1634 by 07	24Sep13 1948 by 07	
Oil and Grease	< 5 mg/l	5	5	B8570-1	25Sep13 1104 by 295	25Sep13 1408 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3974-1		24Sep13 1314 by 295	

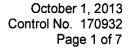


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El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 25, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

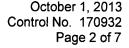
PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com





## **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 25, 2013 Daily / Monthly - Permit AR0000752 P.O. No. 357042

### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

## Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
170932-1	010 9/24/13 9:55am 9/25/13 9:55am	25-Sep-2013 0955	<u></u>
170932-2	010 9/25/13 9:55am	25-Sep-2013 0955	

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

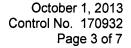
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

"Standard Methods for the Examination of Water and Wastewaters", 21st edition.

"American Society for Testing and Materials" (ASTM).

"Association of Analytical Chemists" (AOAC).





# **ANALYTICAL RESULTS**

**AIC No.** 170932-1

Sample Identification: 010 9/24/13 9:55am 9/25/13 9:55am

Analyte		Result	RL	Units	Qualifier
Chromium, Hexavalent SM 3500-Cr B	Prep: 26-Sep-2013 0907 by 308	< 0.007 Analyzed: 26-Sep	0.007 -2013 1030 by 308	mg/l Batch: W45050	
Ammonia as N with Distillati SM 4500-NH3 B,G	ion Prep: 26-Sep-2013 1505 by 93	2.3 Analyzed: 27-Sep	0.5 -2013 0949 by 302	<b>mg/l</b> Batch: W45052	D Dil: 5
Carbonaceous BOD 5-day SM 5210 B	Prep: 26-Sep-2013 0842 by 285	< 2 Analyzed: 01-Oct-	2 2013 0929 by 285	<b>mg/l</b> Batch: W45048	
Total Suspended Solids USGS 3765	Prep: 28-Sep-2013 1026 by 285	<b>12</b> Analyzed: 01-Oct-	4 2013 0831 by 285	<b>mg/l</b> Batch: W45081	
Phosphorus EPA 200.7	Prep: 25-Sep-2013 1611 by 305	<b>0.095</b> Analyzed: 26-Sep-	0.02 2013 1906 by 305	<b>mg/l</b> Batch: S35471	
Mercury, low level EPA 245.7	Prep: 27-Sep-2013 1433 by 311	<b>0.0062</b> Analyzed: 27-Sep-	0.0050 2013 1640 by 311	<b>ug/l</b> Batch: S35490	,
Nitrate as N EPA 300.0	Prep: 25-Sep-2013 1509 by 07	< 0.05 Analyzed: 26-Sep-	0.05 2013 1410 by 07	<b>mg/l</b> Batch: C16066	
Total Recoverable Trivalent Calculation	<b>Chromium</b> Prep: 25-Sep-2013 1506 by 305	< 0.007 Analyzed: 25-Sep-	0.007 2013 1735 by 305	<b>mg/l</b> Batch: \$35470	
Total Recoverable Nickel EPA 200.7	Prep: 25-Sep-2013 1506 by 305	< 0.01 Analyzed: 26-Sep-	0.01 2013 1906 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Zinc EPA 200.7	Prep: 25-Sep-2013 1506 by 305	<b>0.39</b> Analyzed: 26-Sep-	0.002 2013 1906 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Cadmium EPA 200.8	Prep: 25-Sep-2013 1506 by 305	< 0.0001 Analyzed: 25-Sep-	0.0001 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Copper EPA 200.8	Prep: 25-Sep-2013 1506 by 305	<b>0.0055</b> Analyzed: 25-Sep-	0.001 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Lead EPA 200.8	Prep: 25-Sep-2013 1506 by 305	0.0042 Analyzed: 25-Sep-	0.001 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Nickel EPA 200.8	Prep: 25-Sep-2013 1506 by 305	< 0.01 Analyzed: 25-Sep-	0.01 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Selenium EPA 200.8	Prep: 25-Sep-2013 1506 by 305	< 0.002 Analyzed: 25-Sep-	0.002 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Silver EPA 200.8	Prep: 25-Sep-2013 1506 by 305	< 0.0002 Analyzed: 25-Sep-	0.0002 2013 1735 by 305	<b>mg/l</b> Batch: S35470	
Total Recoverable Zinc EPA 200.8	Prep: 25-Sep-2013 1506 by 305	0.35 Analyzed: 25-Sep-	0.002 2013 1735 by 305	<b>mg/l</b> Batch: S35470	

**AIC No.** 170932-2

Sample Identification: 010 9/25/13 9:55am

Analyte		Result	RL	Units	Qualifier
Total Cyanide		< 0.01	0.01	mg/l	
SM 4500-CN C,E	Prep: 26-Sep-2013 0827 by 308	Analyzed: 26-Sep-2	2013 1559 by 308	Batch: W45046	



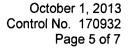
October 1, 2013 Control No. 170932 Page 4 of 7

El Dorado Chemical Company 4500 North West Avenue El Dorado, AR 71730

# **ANALYTICAL RESULTS**

AIC No. 170932-2 (Continued) Sample Identification: 010 9/25/13 9:55am

Analyte	Result R	L Units	Qualifier
Fecal Coliform	<b>450</b> 50	/100mi	D
SM 9222 D	Analyzed: 25-Sep-2013	1508 by 295 Batch: M397	77 Dil: 50



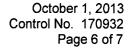


# **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170926-1	< 2 mg/l			26Sep13 0842 by 285	01Oct13 0903 by 285		
	Batch: W45048	Duplicate	< 2 mg/l	0.00	20.0	26Sep13 0842 by 285	01Oct13 0905 by 285		
Total Suspended Solids		170932-1	12 mg/l			28Sep13 1026 by 285	01Oct13 0831 by 285		
	Batch: W45081	Duplicate	12 mg/l	0.00	20.0	28Sep13 1027 by 285	01Oct13 0831 by 285		
Total Suspended Solids		170941-3	3900 mg/l			28Sep13 1026 by 285	01Oct13 0831 by 285		
	Batch: W45081	Duplicate	3900 mg/l	0.513	20.0	28Sep13 1027 by 285	01Oct13 0831 by 285		

# **LABORATORY CONTROL SAMPLE RESULTS**

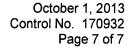
Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Chromium, Hexavalent	0.05 mg/l	118	80.0-120			W45050	26Sep13 0907 by 308	26Sep13 1030 by 308		
Total Cyanide	0.1 mg/l	86.2	85.0-115			W45046	26Sep13 0827 by 308	26Sep13 1548 by 308		
Ammonia as N with Distillation	1 mg/l	110	80.0-120			W45052	26Sep13 1056 by 93	27Sep13 0847 by 302		
Carbonaceous BOD 5-day	200 mg/l	102	84.5-115			W45048	26Sep13 0842 by 285	01Oct13 0901 by 285		
Phosphorus	5 mg/l	109	85.0-115			S35471	25Sep13 1611 by 305	26Sep13 1755 by 305		
Mercury, low level	0.01 ug/l	103	76.0-113			S35490	27Sep13 1434 by 311	27Sep13 1558 by 311		
Nitrate as N	4 mg/l	99.7	90.0-110			C16066	25Sep13 1509 by 07	26Sep13 1222 by 07		
Total Recoverable Cadmium	0.05 mg/l	95.7	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		
Total Recoverable Copper	, 0.05 mg/l	104	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305	`	
Total Recoverable Lead	0.05 mg/l	97.4	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		
Total Recoverable Nickel	0.05 mg/l	97.8	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		
Total Recoverable Selenium	0.05 mg/l	97.6	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		
Total Recoverable Silver	0.02 mg/l	92.5	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		
Total Recoverable Zinc	0.05 mg/l	103	85.0-115			S35470	25Sep13 1421 by 305	25Sep13 1611 by 305		





# MATRIX SPIKE SAMPLE RESULTS

Analyte	Spike Sample Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Chromium, Hexavalent	170930-1 0.05 mg/l 170930-1 0.05 mg/l Relative Percent Difference:	118 120	76.5-146 76.5-146 25.0	W45050 W45050 W45050	26Sep13 0907 by 308	26Sep13 1030 by 308 26Sep13 1030 by 308	DII	. Quai
Total Cyanide	170920-1 0.1 mg/l 170920-1 0.1 mg/l Relative Percent Difference:	98.2 95.7 2.56	75.0-125 75.0-125 20.0	W45046 W45046 W45046	26Sep13 0827 by 308 26Sep13 0827 by 308	26Sep13 1552 by 308 26Sep13 1554 by 308		
Ammonia as N with Distillation	170860-1 1 mg/l 170860-1 1 mg/l Relative Percent Difference:	120 120 0.425	80.0-120 80.0-120 25.0	W45052 W45052 W45052	26Sep13 1056 by 93 26Sep13 1056 by 93	27Sep13 1017 by 302 27Sep13 1018 by 302		
Phosphorus	170908-1 5 mg/l 170908-1 5 mg/l Relative Percent Difference:	109 110 0.489	75.0-125 75.0-125 20.0	S35471 S35471 S35471	25Sep13 1611 by 305 25Sep13 1611 by 305	26Sep13 1758 by 305 26Sep13 1803 by 305		
Mercury, low level	170973-1 0.01 ug/l 170973-1 0.01 ug/l Relative Percent Difference:	89.8 83.8 3.41	63.0-111 63.0-111 18.0	S35490 S35490 S35490	27Sep13 1434 by 311 27Sep13 1434 by 311	27Sep13 1603 by 311 27Sep13 1608 by 311		
Nitrate as N	170932-1 4 mg/l 170932-1 4 mg/l Relative Percent Difference:	93.6 93.9 0.245	80.0-120 80.0-120 10.0	C16066 C16066 C16066	25Sep13 1509 by 07 25Sep13 1509 by 07	26Sep13 1249 by 07 26Sep13 1316 by 07		
Total Recoverable Cadmium	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	93.4 93.3 0.126	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Copper	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	94.6 95.1 0.549	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Lead	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	96.4 97.0 0.668	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Nickel	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	81.6 82.0 0.477	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Selenium	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	94.3 93.8 0.604	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Silver	170875-2 0.02 mg/l 170875-2 0.02 mg/l Relative Percent Difference:	86.9 87.3 0.458	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		
Total Recoverable Zinc	170875-2 0.05 mg/l 170875-2 0.05 mg/l Relative Percent Difference:	96.3 98.3 1.84	75.0-125 75.0-125 20.0	S35470 S35470 S35470	25Sep13 1421 by 305 25Sep13 1421 by 305	25Sep13 1616 by 305 25Sep13 1622 by 305		





# **LABORATORY BLANK RESULTS**

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Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Chromium, Hexavalent	< 0.007 mg/l	0.007	0.007	W45050-1	26Sep13 0907 by 308	26Sep13 1030 by 308	
Total Cyanide	< 0.01 mg/l	0.01	0.01	W45046-1	26Sep13 0827 by 308	26Sep13 1546 by 308	
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45052-1	26Sep13 1056 by 93	27Sep13 0845 by 302	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45048-1	26Sep13 0842 by 285	01Oct13 0900 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45081-1	28Sep13 1027 by 285	01Oct13 0831 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35471-1	25Sep13 1611 by 305	26Sep13 1751 by 305	
Mercury, low level	< 0.0018 ug/l	0.0018	0.0050	S35490-1	27Sep13 1434 by 311	27Sep13 1538 by 311	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16066-1	25Sep13 1509 by 07	26Sep13 1156 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3977-1		25Sep13 1128 by 295	
Total Recoverable Cadmium	< 0.0001 mg/l	0.0001	0.0001	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Copper	< 0.001 mg/l	0.001	0.001	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Lead	< 0.001 mg/l	0.001	0.001	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Nickel	< 0.01 mg/l	0.01	0.01	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Selenium	< 0.002 mg/l	0.002	0.002	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Silver	< 0.0002 mg/l	0.0002	0.0002	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	
Total Recoverable Zinc	< 0.002 mg/l	0.002	0.002	S35470-1	25Sep13 1421 by 305	25Sep13 1605 by 305	

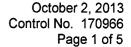




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		El Dorado, AR 711																				
		Lpennington@edc	-ark.c	com																		





El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 26, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey Laboratory Directør

This document has been distributed to the following:

PDF cc: EI Dc

El Dorado Chemical Company ATTN: Ms. Larken Pennington lpennington@edc-ark.com

El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



October 2, 2013 Control No. 170966 Page 2 of 5

El Dorado Chemical Company 4500 North West Avenue El Dorado, AR 71730

## **SAMPLE INFORMATION**

#### **Project Description:**

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Two (2) water sample(s) received on September 26, 2013 Daily, Weekly-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time N	lotes
170966-1	010 9/25/13 9:55am 9/26/13 9:55am	26-Sep-2013 0955	
170966-2	010 9/26/13 9:55am	26-Sep-2013 0955	

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



October 2, 2013 Control No. 170966 Page 3 of 5

# **ANALYTICAL RESULTS**

AIC No. 170966-1

Sample Identification: 010 9/25/13 9:55am 9/26/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distillat SM 4500-NH3 B,G	tion Prep: 26-Sep-2013 1505 by 93	<b>2.1</b> Analyzed: 27-S	0.5 ep-2013 0950 by 302	mg/l Batch: W45052	D Dil: 5
Carbonaceous BOD 5-day SM 5210 B	Prep: 27-Sep-2013 0827 by 285	< <b>2</b> Analyzed: 02-0	2 ct-2013 0946 by 285	<b>mg/l</b> Batch: W45064	
Total Suspended Solids USGS 3765	Prep: 28-Sep-2013 1026 by 285	<b>12</b> Analyzed: 01-O	4 ct-2013 0831 by 285	<b>mg/l</b> Batch: W45081	
<b>Phosphorus</b> EPA 200.7	Prep: 27-Sep-2013 1042 by 271	<b>0.11</b> Analyzed: 27-Se	0.02 ep-2013 1729 by 305	<b>mg/l</b> Batch: S35485	

AIC No. 170966-2

Sample Identification: 010 9/26/13 9:55am

Analyte		Result	RL	Units	Qualifier
<b>Total Dissolved Solids</b> SM 2540 C	Prep: 27-Sep-2013 1642 by 285	240 Analyzed: 29-Se	10 p-2013 1738 by 285	<b>mg/l</b> Batch: W45079	
Chloride EPA 300.0	Prep: 26-Sep-2013 1613 by 07	<b>15</b> Analyzed: 26-Se	0.2 p-2013 1940 by 07	<b>mg/l</b> Batch: C16070	
Sulfate EPA 300.0	Prep: 26-Sep-2013 1613 by 07	<b>26</b> Analyzed: 26-Se	0.2 p-2013 1940 by 07	<b>mg/l</b> Batch: C16070	
<b>Oil and Grease</b> EPA 1664A	Prep: 27-Sep-2013 1042 by 295	< 5 Analyzed: 27-Se	5 p-2013 1612 by 295	<b>mg/l</b> Batch: B8574	
Fecal Coliform SM 9222 D		<b>520</b> Analyzed: 26-Se	1 p-2013 1443 by 295	<b>/100ml</b> Batch: M3986	



October 2, 2013 Control No. 170966 Page 4 of 5

# **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Oil and Grease		170927-2	< 5 mg/l			27Sep13 1042 by 295	27Sep13 1612 by 295		
	Batch: B8574	Duplicate	< 5 mg/l	0.00	20.0	27Sep13 1043 by 295	27Sep13 1612 by 295		
Carbonaceous BOD 5-day		170966-1	< 2 mg/l			27Sep13 0827 by 285	02Oct13 0946 by 285		
	Batch: W45064	Duplicate	< 2 mg/l	0.00	20.0	27Sep13 0827 by 285	02Oct13 0947 by 285		
Total Dissolved Solids		170944-1	< 10 mg/l			27Sep13 1642 by 285	29Sep13 1738 by 285		
	Batch: W45079	Duplicate	< 10 mg/l	0.00	10.0	27Sep13 1642 by 285	29Sep13 1738 by 285		
Total Suspended Solids		170932-1	12 mg/l			28Sep13 1026 by 285	01Oct13 0831 by 285		
	Batch: W45081	Duplicate	12 mg/l	0.00	20.0	28Sep13 1027 by 285	01Oct13 0831 by 285		
Total Suspended Solids	•	170941-3	3900 mg/l			28Sep13 1026 by 285	01Oct13 0831 by 285		
	Batch: W45081	Duplicate	3900 mg/l	0.513	20.0	28Sep13 1027 by 285	01Oct13 0831 by 285		

# **LABORATORY CONTROL SAMPLE RESULTS**

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	110	80.0-120			W45052	26Sep13 1056 by 93	27Sep13 0847 by 302		
Carbonaceous BOD 5-day	200 mg/l	105	84.5-115			W45064	27Sep13 0827 by 285	02Oct13 0944 by 285		
Phosphorus	5 mg/l	107	85.0-115			S35485	27Sep13 1042 by 271	27Sep13 1717 by 305		
Chloride	20 mg/l	104	90.0-110			C16070	26Sep13 1613 by 07	26Sep13 1705 by 07		
Sulfate	20 mg/l	104	90.0-110			C16070	26Sep13 1613 by 07	26Sep13 1705 by 07		
Oil and Grease	40 mg/l 40 mg/l	89.5 97.5	78.0-114 78.0-114	8.56	20.0	B8574 B8574	27Sep13 1043 by 295 27Sep13 1043 by 295	27Sep13 1612 by 295 27Sep13 1612 by 295		

# **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	170860-1 170860-1 Relative Per	1 mg/l 1 mg/l cent Difference:	120 120 0.425	80.0-120 80.0-120 25.0	W45052 W45052 W45052	26Sep13 1056 by 93 26Sep13 1056 by 93	27Sep13 1017 by 302 27Sep13 1018 by 302		
Phosphorus	170966-1 170966-1 Relative Per	5 mg/l 5 mg/l cent Difference:	109 109 0.0768	75.0-125 75.0-125 20.0	S35485 S35485 S35485	27Sep13 1042 by 271 27Sep13 1042 by 271	27Sep13 1721 by 305 27Sep13 1725 by 305		
Chloride	170961-1 170961-1 Relative Per	20 mg/l 20 mg/l cent Difference:	96.2 97.3 1.20	80.0-120 80.0-120 10.0	C16070 C16070 C16070	26Sep13 1613 by 07 26Sep13 1613 by 07	26Sep13 1731 by 07 26Sep13 1757 by 07		
Sulfate	170961-1 170961-1 Relative Per	20 mg/l 20 mg/l cent Difference:	93.9 95.4 1.51	80.0-120 80.0-120 10.0	C16070 C16070 C16070	26Sep13 1613 by 07 26Sep13 1613 by 07	26Sep13 1731 by 07 26Sep13 1757 by 07		



October 2, 2013 Control No. 170966 Page 5 of 5

# **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Total Dissolved Solids	< 10 mg/l	10	10	W45079-1	27Sep13 1642 by 285	29Sep13 1738 by 285	
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45052-1	26Sep13 1056 by 93	27Sep13 0845 by 302	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45064-1	27Sep13 0827 by 285	02Oct13 0943 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45081-1	28Sep13 1027 by 285	01Oct13 0831 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35485-1	27Sep13 1042 by 271	27Sep13 1714 by 305	
Chloride	< 0.2 mg/l	0.2	0.2	C16070-1	26Sep13 1613 by 07	26Sep13 1639 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C16070-1	26Sep13 1613 by 07	26Sep13 1639 by 07	
Oil and Grease	< 2 mg/l	2	5	B8574-1	27Sep13 1043 by 295	27Sep13 1612 by 295	
Fecal Coliform	< 1 /100ml	1	1	M3986-1		26Sep13 1444 by 295	



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Project Reference: Daily - Permit AR0000752 Project Manager: Ms. Larken Pennington Sampled By: R O T O L No. Identification Collected B P R L S  OF  MATRIX OF  MATRI	AIC PROPOSAL NO:
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Expedited results requested by:	9/26/13 10:00am By:
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Phone 870-312-1752 Fax: By:	187: 1/ A A.Z6-13
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Report Address to: Post Office Box 231 Comments: El Dorado, AR 71731	
Lpennington@edc-ark.com	



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October 2, 2013 Control No. 171021 Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 27, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Jøhn Overbey Laboratory Directør

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



October 2, 2013 Control No. 171021 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 27, 2013 Daily-Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with a custody seal intact and signed

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### **Sample Identification:**

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
171021-1	010 9/26/13 9:55am 9/27/13 9:55am	27-Sep-2013 0955
171021-2	010 9/27/13 9:55am	27-Sep-2013 0955

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

<sup>&</sup>quot;Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



October 2, 2013 Control No. 171021 Page 3 of 4

## **ANALYTICAL RESULTS**

**AIC No.** 171021-1

Sample Identification: 010 9/26/13 9:55am 9/27/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distillat SM 4500-NH3 B,G	tion Prep: 30-Sep-2013 0933 by 93	<b>2.2</b> Analyzed: 01-0	0.5 oct-2013 1252 by 93	mg/l Batch: W45085	D Dil: 5
Carbonaceous BOD 5-day SM 5210 B	Prep: 27-Sep-2013 1556 by 285	< 2 Analyzed: 02-0	2 Oct-2013 1052 by 285	<b>mg/l</b> Batch: W45064	
Total Suspended Solids USGS 3765	Prep: 30-Sep-2013 1415 by 302	13 Analyzed: 01-0	4 0ct-2013 0959 by 302	<b>mg/l</b> Batch: W45094	
Phosphorus EPA 200.7	Prep: 30-Sep-2013 0901 by 271	<b>0.094</b> Analyzed: 01-0	0.02 oct-2013 1230 by 305	<b>mg/l</b> Batch: S35491	
Nitrate as N EPA 300.0	Prep: 27-Sep-2013 1627 by 07	<b>9.4</b> Analyzed: 27-S	0.05 ep-2013 2018 by 07	<b>mg/l</b> Batch: C16076	

AIC No. 171021-2

Sample Identification: 010 9/27/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	33	1	/100ml	
SM 9222 D	Analyzed: 27-Sep-2	013 1422 by 304	Batch: M3990	



October 2, 2013 Control No. 171021 Page 4 of 4

## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		170966-1	< 2 mg/l			27Sep13 0827 by 285	02Oct13 0946 by 285		
	Batch: W45064	Duplicate	< 2 mg/l	0.00	20.0	27Sep13 0827 by 285	02Oct13 0947 by 285		
Total Suspended Solids		170982-1	< 4 mg/l			30Sep13 1415 by 302	01Oct13 0959 by 302		
	Batch: W45094	Duplicate	< 4 mg/l	0.00	20.0	30Sep13 1415 by 302	01Oct13 0959 by 302		
Total Suspended Solids		170983-1	16 mg/l			30Sep13 1415 by 302	01Oct13 0959 by 302		
	Batch: W45094	Duplicate	16 mg/l	2.53	20.0	30Sep13 1415 by 302	01Oct13 0959 by 302		

## **LABORATORY CONTROL SAMPLE RESULTS**

	Spike									
Analyte	Amount	<u>%</u>	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	101	80.0-120			W45085	30Sep13 0934 by 93	01Oct13 1154 by 93		
Carbonaceous BOD 5-day	200 mg/l	105	84.5-115			W45064	27Sep13 0827 by 285	02Oct13 0944 by 285		
Phosphorus	5 mg/l	102	85.0-115			S35491	30Sep13 0901 by 271	01Oct13 1152 by 305		
Nitrate as N	4 mg/l	100	90.0-110			C16076	27Sep13 1628 by 07	27Sep13 1710 by 07		

## **MATRIX SPIKE SAMPLE RESULTS**

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	171006-2	1 mg/l	107	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1158 by 93	. —	
	171006-2	1 mg/l	108	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1159 by 93		
	Relative Pe	rcent Difference:	0.779	25.0	W45085				
Phosphorus	171022-2	5 mg/l	101	75.0-125	S35491	30Sep13 0901 by 271	01Oct13 1155 by 305		
	171022-2	5 mg/l	101	75.0-125	S35491	30Sep13 0901 by 271	01Oct13 1158 by 305		
	Relative Pe	rcent Difference:	0.179	20.0	S35491				
Nitrate as N	171021-1	4 mg/l	87.3	80.0-120	C16076	27Sep13 1628 by 07	27Sep13 1737 by 07		
	171021-1	4 mg/l	91.0	80.0-120	C16076	27Sep13 1628 by 07	27Sep13 1804 by 07		
	Relative Pe	rcent Difference:	3.32	10.0	C16076				

## **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45085-1	30Sep13 0934 by 93	01Oct13 1152 by 93	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45064-1	27Sep13 0827 by 285	02Oct13 0943 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45094-1	30Sep13 1415 by 302	01Oct13 0959 by 302	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35491-1	30Sep13 0901 by 271	01Oct13 1149 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16076-1	27Sep13 1628 by 07	27Sep13 1644 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3990-1		27Sep13 1422 by 295	



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October 3, 2013 Control No. 171050 Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 28, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

**Deputy Laboratory Director** 

This document has been distributed to the following:

3.

PDF cc: El Dorado Chemical Company ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

> El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

> El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



October 3, 2013 Control No. 171050 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

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Two (2) water sample(s) received on September 28, 2013 Daily-Permit AR0000752 P.O. No. 357042

## **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest. Ice chest #1 was delivered with shipping documentation.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes	
171050-1	010 9-28-13 0950	28-Sep-2013 0950	
171050-2	010 9-28-13 0950	28-Sep-2013 0950	

#### Qualifiers:

D Result is from a secondary dilution factor

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



October 3, 2013 Control No. 171050 Page 3 of 4

#### **ANALYTICAL RESULTS**

**AIC No.** 171050-1

Sample Identification: 010 9-28-13 0950

oumpio idonamodation.	0 20 10 0000				
Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distilla SM 4500-NH3 B,G	tion Prep: 30-Sep-2013 1444 by 93	2.0 Analyzed: 01-Oct-	0.1 -2013 1217 by 93	mg/l Batch: W45085	
Carbonaceous BOD 5-day SM 5210 B	Prep: 28-Sep-2013 1305 by 285	< 2 Analyzed: 03-Oct-	2 -2013 0941 by 285	<b>mg/l</b> Batch: W45088	
Total Suspended Solids USGS 3765	Prep: 01-Oct-2013 1113 by 285	14 Analyzed: 01-Oct-	4 -2013 1442 by 285	<b>mg/l</b> Batch: W45108	
Phosphorus EPA 200.7	Prep: 30-Sep-2013 1135 by 271	<b>0.096</b> Analyzed: 01-Oct-	0.02 -2013 1016 by 305	<b>mg/l</b> Batch: S35495	

**AIC No.** 171050-2

Sample Identification: 010 9-28-13 0950

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	690	3	/100ml	
SM 9222 D	Analyzed: 28-Sep-2	013 1500 by 307	Batch: M3992	Dil: 3



October 3, 2013 Control No. 171050 Page 4 of 4

## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		171052-1	< 2 mg/l			28Sep13 1305 by 285	03Oct13 0931 by 285		
	Batch: W45088	Duplicate	< 2 mg/l	0.00	20.0	28Sep13 1305 by 285	03Oct13 0933 by 285		
Total Suspended Solids		171044-1	< 4 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	< 4 mg/l	0.00	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		
Total Suspended Solids		171047-1	21 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	20 mg/l	3.92	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		

## LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	101	80.0-120		-	W45085	30Sep13 0934 by 93	01Oct13 1154 by 93		
Carbonaceous BOD 5-day	200 mg/l	105	84.5-115			W45088	28Sep13 1305 by 285	03Oct13 0930 by 285		
Phosphorus	5 mg/l	105	85.0-115			S35495	30Sep13 1135 by 271	01Oct13 0952 by 305		

## MATRIX SPIKE SAMPLE RESULTS

		Spike							
Analyte	Sample	Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	171006-2	1 mg/l	107	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1158 by 93		
	171006-2	1 mg/l	108	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1159 by 93		
	Relative Pe	rcent Difference:	0.779	25.0	W45085				
Phosphorus	171048-1	5 mg/l	103	75.0-125	S35495	30Sep13 1135 by 271	01Oct13 0955 by 305		
	171048-1	5 mg/l	103	75.0-125	S35495	30Sep13 1135 by 271	01Oct13 0958 by 305		
	Relative Pe	rcent Difference:	0.344	20.0	S35495				

## **LABORATORY BLANK RESULTS**

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45085-1	30Sep13 0934 by 93	01Oct13 1152 by 93	-
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45088-1	28Sep13 1305 by 285	03Oct13 0929 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45108-1	01Oct13 1114 by 285	01Oct13 1442 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35495-1	30Sep13 1135 by 271	01Oct13 0950 by 305	
Fecal Coliform	< 1 /100ml	1	1	M3992-1		28Sep13 1500 by 307	



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October 7, 2013 Control No. 171049 Page 1 of 4

El Dorado Chemical Company ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 29, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington lpennington@edc-ark.com

El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



October 7, 2013 Control No. 171049 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 29, 2013 Daily - Permit AR0000752 P.O. No. 357042

## **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time Notes
171049-1	010 9-29-13 950	29-Sep-2013 0950
171049-2	010 9-29-13 950	29-Sep-2013 0950

## Case Narrative:

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).

October 7, 2013 Control No. 171049 Page 3 of 4

## **ANALYTICAL RESULTS**

**AIC No.** 171049-1

Sample Identification: 010 9-29-13 950

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distilla SM 4500-NH3 B,G	tion Prep: 30-Sep-2013 1444 by 93	1.8 Analyzed: 01-C	0.1 oct-2013 1215 by 93	mg/l Batch: W45085	
Carbonaceous BOD 5-day SM 5210 B	Prep: 30-Sep-2013 1636 by 302	<b>2.0</b> Analyzed: 05-0	2 oct-2013 1803 by 302	<b>mg/l</b> Batch: W45097	,
Total Suspended Solids USGS 3765	Prep: 01-Oct-2013 1113 by 285	<b>14</b> Analyzed: 01-0	4 oct-2013 1442 by 285	<b>mg/l</b> Batch: W45108	
<b>Phosphorus</b> EPA 200.7	Prep: 30-Sep-2013 1135 by 271	<b>0.095</b> Analyzed: 01-0	0.02 ct-2013 1014 by 305	<b>mg/l</b> Batch: S35495	
Nitrate as N EPA 300.0	Prep: 30-Sep-2013 1552 by 07	<b>8.5</b> Analyzed: 30-S	0.05 ep-2013 1836 by 07	<b>mg/l</b> Batch: C16078	

**AIC No.** 171049-2

Sample Identification: 010 9-29-13 950

Analyte	Result	RL	Units	Qualifier
Fecal Coliform	92	1	/100ml	
SM 9222 D	Analyzed: 29-Sep	o-2013 1330 by 307	Batch: M3993	



October 7, 2013 Control No. 171049 Page 4 of 4

## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Qual
Carbonaceous BOD 5-day		171049-1	2.0 mg/l			30Sep13 1636 by 302	05Oct13 1803 by 302		
	Batch: W45097	Duplicate	2.1 mg/l	5.33	20.0	30Sep13 1636 by 302	05Oct13 1806 by 302		
Total Suspended Solids		171044-1	< 4 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	< 4 mg/l	0.00	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		
Total Suspended Solids		171047-1	21 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	20 mg/l	3.92	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

Analuta	Spike	07	1.1	<b>DDD</b>		<b>.</b>				
Analyte	Amount	_ %	_ Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	101	80.0-120			W45085	30Sep13 0934 by 93	01Oct13 1154 by 93		- —
Carbonaceous BOD 5-day	200 mg/l	109	84.5-115			W45097	30Sep13 1636 by 302	05Oct13 1801 by 302		
Phosphorus	5 mg/l	105	85.0-115			S35495	30Sep13 1135 by 271	01Oct13 0952 by 305		
Nitrate as N	4 mg/l	93.3	90.0-110			C16078	30Sep13 1553 by 07	30Sep13 1627 by 07		

## **MATRIX SPIKE SAMPLE RESULTS**

Analyte		Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	171006-2	1 mg/l	107	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1158 by 93		
	171006-2	1 mg/l	108	80.0-120	W45085	30Sep13 0934 by 93	01Oct13 1159 by 93		
	Relative Perce	ent Difference:	0.779	25.0	W45085				
Phosphorus	171048-1	5 mg/l	103	75.0-125	S35495	30Sep13 1135 by 271	01Oct13 0955 by 305		
	171048-1	5 mg/l	103	75.0-125	S35495	30Sep13 1135 by 271	01Oct13 0958 by 305		
	Relative Perce	ent Difference:	0.344	20.0	S35495				
Nitrate as N	171080-1	4 mg/l	95.7	80.0-120	C16078	30Sep13 1553 by 07	30Sep13 1653 by 07		
		4 mg/l ent Difference:	94.9 0.892	80.0-120 10.0	C16078 C16078	30Sep13 1553 by 07	30Sep13 1719 by 07		

## **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45085-1	30Sep13 0934 by 93	01Oct13 1152 by 93	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45097-1	30Sep13 1636 by 302	05Oct13 1800 by 302	
Total Suspended Solids	< 4 mg/l	4	4	W45108-1	01Oct13 1114 by 285	01Oct13 1442 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35495-1	30Sep13 1135 by 271	01Oct13 0950 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16078-1	30Sep13 1553 by 07	30Sep13 1601 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3993-1		29Sep13 1330 by 307	



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Phone 870-312-1752 Fax:								Ву:	•						By:	ZK.		
	Report Attention to: Ms. Larken Pennington Report Address to: Post Office Box 231						L								1		> M	9/24/13 1240
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·		El Dorado, AR 717. Lpennington@edc-a		<u>m</u>													- 1	

FORM 0060



October 7, 2013 Control No. 171073 Page 1 of 4

ATTN: Ms. Larken Pennington 4500 North West Avenue El Dorado, AR 71730

This report contains the analytical results and supporting information for samples submitted on September 30, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: El Dorado Chemical Company

ATTN: Ms. Larken Pennington Ipennington@edc-ark.com

El Dorado Chemical Company ATTN: Mr. David Sartain dsartain@edc-ark.com

El Dorado Chemical Company ATTN: Mr. Kyle Wimsett kwimsett@edc-ark.com

GBMc & Associates, Inc. ATTN: Mr. Russell McLaren rmclaren@gbmcassoc.com

GBMc & Associates, Inc. ATTN: Ms. Amanda Gallagher agallagher@gbmcassoc.com



October 7, 2013 Control No. 171073 Page 2 of 4

#### **SAMPLE INFORMATION**

#### **Project Description:**

Two (2) water sample(s) received on September 30, 2013 Daily - Permit AR0000752 P.O. No. 357042

#### **Receipt Details:**

A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

#### Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
171073-1	010 9/29/13 9:55am - 9/30/13 9:55am	30-Sep-2013 0955	
171073-2	010 9/29/13 9:55am - 9/30/13 9:55am	30-Sep-2013 0955	

## Case Narrative:

There were no qualifiers for this data and all samples met quality control criteria.

#### References:

"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.

<sup>&</sup>quot;Standard Methods for the Examination of Water and Wastewaters", 21st edition.

<sup>&</sup>quot;American Society for Testing and Materials" (ASTM).

<sup>&</sup>quot;Association of Analytical Chemists" (AOAC).



October 7, 2013 Control No. 171073 Page 3 of 4

#### **ANALYTICAL RESULTS**

**AIC No.** 171073-1

Sample Identification: 010 9/29/13 9:55am - 9/30/13 9:55am

Analyte		Result	RL	Units	Qualifier
Ammonia as N with Distilla SM 4500-NH3 B,G	tion Prep: 01-Oct-2013 0918 by 93	<b>1.8</b> Analyzed: 01-0	0.1 Oct-2013 1737 by 93	mg/l Batch: W45104	
Carbonaceous BOD 5-day SM 5210 B	Prep: 02-Oct-2013 0808 by 285	< 2 Analyzed: 07-C	2 Oct-2013 1124 by 285	<b>mg/l</b> Batch: W45114	
Total Suspended Solids USGS 3765	Prep: 01-Oct-2013 1113 by 285	<b>12</b> Analyzed: 01-C	4 Oct-2013 1442 by 285	<b>mg/l</b> Batch: W45108	
<b>Phosphorus</b> EPA 200.7	Prep: 01-Oct-2013 1337 by 271	<b>0.10</b> Analyzed: 02-C	0.02 oct-2013 1543 by 305	<b>mg/l</b> Batch: S35503	
<b>Nitrate as N</b> EPA 300.0	Prep: 30-Sep-2013 1552 by 07	<b>9.1</b> Analyzed: 30-S	0.05 ep-2013 2019 by 07	<b>mg/l</b> Batch: C16078	

AIC No. 171073-2

Sample Identification: 010 9/29/13 9:55am - 9/30/13 9:55am

Analyte	Result	RL	Units	Qualifier
Fecal Coliform SM 9222 D	19	1	/100ml	
SIVI BZZZ D	Analyzed: 30-Sep-	2013 1502 by 295	Batch: M3994	



October 7, 2013 Control No. 171073 Page 4 of 4

## **DUPLICATE RESULTS**

					RPD				
Analyte		AIC No.	Result	RPD	Limit	Preparation Date	Analysis Date	Dil	Quai
Total Suspended Solids		171044-1	< 4 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	< 4 mg/l	0.00	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		
Total Suspended Solids		171047-1	21 mg/l			01Oct13 1113 by 285	01Oct13 1442 by 285		
	Batch: W45108	Duplicate	20 mg/l	3.92	20.0	01Oct13 1114 by 285	01Oct13 1442 by 285		
Carbonaceous BOD 5-day		171073-1	< 2 mg/l			02Oct13 0808 by 285	07Oct13 1124 by 285		
	Batch: W45114	Duplicate	< 2 mg/l	0.00	20.0	02Oct13 0808 by 285	07Oct13 1126 by 285		

## **LABORATORY CONTROL SAMPLE RESULTS**

	Spike									
Analyte	Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	1 mg/l	103	80.0-120			W45104	01Oct13 0919 by 93	01Oct13 1727 by 93		
Carbonaceous BOD 5-day	200 mg/l	104	84.5-115			W45114	02Oct13 0808 by 285	07Oct13 1123 by 285		
Phosphorus	5 mg/l	102	85.0-115			S35503	01Oct13 1337 by 271	02Oct13 1517 by 305		
Nitrate as N	4 mg/l	93.3	90.0-110			C16078	30Sep13 1553 by 07	30Sep13 1627 by 07		

## MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N with Distillation	171074-1	1 mg/l	99.5	80.0-120	W45104	01Oct13 0919 by 93	01Oct13 1730 by 93		
	171074-1	1 mg/l	99.2	80.0-120	W45104	01Oct13 0919 by 93	01Oct13 1732 by 93		
	Relative Per	rcent Difference:	0.239	25.0	W45104				
Phosphorus	171073-1	5 mg/l	104	75.0-125	S35503	01Oct13 1337 by 271	02Oct13 1521 by 305		
	171073-1	5 mg/l	106	75.0-125	S35503	01Oct13 1337 by 271	02Oct13 1539 by 305		
	Relative Per	cent Difference:	1.62	20.0	S35503				
Nitrate as N	171080-1	4 mg/l	95.7	80.0-120	C16078	30Sep13 1553 by 07	30Sep13 1653 by 07		
	171080-1 Relative Per	4 mg/l cent Difference:	94.9 0.892	80.0-120 10.0	C16078 C16078	30Sep13 1553 by 07	30Sep13 1719 by 07		

## **LABORATORY BLANK RESULTS**

				QC			
Analyte	Result	RL	PQL	Sample	Preparation Date	Analysis Date	Qual
Ammonia as N with Distillation	< 0.1 mg/l	0.1	0.1	W45104-1	01Oct13 0919 by 93	01Oct13 1725 by 93	
Carbonaceous BOD 5-day	< 2 mg/l	2	2	W45114-1	02Oct13 0808 by 285	07Oct13 1122 by 285	
Total Suspended Solids	< 4 mg/l	4	4	W45108-1	01Oct13 1114 by 285	01Oct13 1442 by 285	
Phosphorus	< 0.02 mg/l	0.02	0.02	S35503-1	01Oct13 1337 by 271	02Oct13 1513 by 305	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C16078-1	30Sep13 1553 by 07	30Sep13 1601 by 07	
Fecal Coliform	< 1 /100ml	1	1	M3994-1		30Sep13 1349 by 295	



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