EL DORADO CHEMICAL COMPANY
A SUBSIDIARY OF LSB INDUSTRIES

4500 NORTH WEST AVE. • P. O. BOX 231 • EL DORADO, AR 71731 • (870) 863-1400 • FAX: (870) 863-1426

January 31, 2020

Ms. Linda Hanson P.G.
Office of Water Quality
Arkansas Energy and Environment

RE: El Dorado Chemical Company AFIN: 70-00040
2019 Annual Groundwater Monitoring Report

Ms. Hanson,

Please find the enclosed El Dorado Chemical Company 2019 Annual Groundwater Monitoring Report. This report is being submitted in accordance with CAO LIS No. 06-1563.

Should you have any questions regarding this matter, you may contact me by phone at 870-312-1397 or via email at dsartain@edc-ark.com. We appreciate your consideration of this request.

Respectfully,

David Sartain

David Sartain
Environmental Coordinator
El Dorado Chemical Company

GBMc & ASSOCIATES

El Dorado Chemical Company 2019 Annual Groundwater Monitoring Report

January 31, 2020

GBMc & ASSOCIATES
STRATEGIC ENVIRONMENTAL CONSULTING

2019 Annual Groundwater Monitoring Report

Prepared for:

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

Prepared by:

GBM^{c} & Associates
219 Brown Lane
Bryant, AR 72022

January 31, 2020

CONTENTS

TABLES

APPENDICES

Groundwater Monitoring Report Certification

I, Charles D. Campbell, have prepared this Groundwater Monitoring Report based upon an evaluation of the groundwater data and information provided to me by El Dorado Chemical Company. As required by Arkansas Regulation 22 (22.1203(k)), certification of the Groundwater Monitoring Report must be provided by a qualified groundwater scientist, as defined in 22.1201(f). The certification is contingent upon the fact that all information supplied, up to the date of this certification, is unquestionably accurate and was provided in good faith.

1/31/20

Charles D. Campbell, PE Date
Arkansas No. 6857

1.0 INTRODUCTION

El Dorado Chemical Company (EDCC) has monitored groundwater on a routine basis since 2001 (analysis for this report included one 1996 sample). In 2006 EDCC entered into CAO LIS 06-153 which required semiannual monitoring of 22 groundwater wells located throughout the property (CAO LIS 06-153 Condition No. 3). Information collected during the groundwater monitoring has been submitted annually to ADEQ on or before April 1 as directed by CAO LIS 06-153 Condition No. 4. In November of 2018, EDCC entered into CAO LIS 18-085. CAO LIS 18-085 incorporates the conditions identified in CAO LIS No. 06-153 for assessing and remediating the groundwater as well as the Remedial Action Plan developed and approved pursuant to CAO LIS 06-153.

This Groundwater Monitoring Report has been written with the intent to fulfill conditions of the CAO. Condition No. 4 of CAO LIS No. 18-085 states that each annual report should include the location, potentiometric and constituent concentration maps, and trend analyses. Additionally, the CAO requires an evaluation of the effectiveness of the remedial activities in reaching the target goals and any additional information needed by ADEQ to properly evaluate the groundwater. The primary remediation activities at EDCC include operation of a groundwater recovery system and monitored natural attenuation. Trend analyses (linear regressions) for ammonia, nitrate and sulfate were completed for all groundwater wells to evaluate the effectiveness of the remediation activities.

1.1 Site Location

The EDCC facility is located in Sections 6 and 7, Township 17 South, Range 15 West on the north side of El Dorado approximately 1 mile west of Highway 7 Spur in Union County, Arkansas. There are 22 groundwater monitoring wells: 3 control wells (ECMW-1 through ECMW-3), 10 production wells (ECMW-4 through ECMW-13), 3 mid-gradient wells (ECMW-14 through ECMW-16), and 6 downgradient wells (ECMW-17 through ECMW-22).

Groundwater recovery wells (ECRW-1 and ECRW-2) are located near ECMW-6 and ECMW-7. A site and potentiometric surface map are provided in Appendix A.

2.0 GROUNDWATER SAMPLING

2.1 Sample Methodology

EDCC currently monitors 22 groundwater wells for the constituents presented in Table 2.1 at the indicated frequencies. ADEQ provided approval of the current sampling constituents and frequency in CAO LIS No. 06-153 and subsequent correspondence. Several of the monitoring constituents originally listed in CAO LIS No. 06-153 were removed from the monitoring program through ADEQ approval due to low concentrations or proving not necessary for tracking the effectiveness of the November 16, 2007 Remedial Action Plan.

Table 2.1. Groundwater Monitoring Constituents and Sampling Frequency.[1]

Well	NH_4	NO_3	SO_4	PB		CR		pH
				Dissolved	Total	Dissolved	Total	
ECMW-1	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-2	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-3	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-4	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-5	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-6	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-7	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-8	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-9	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-10	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-11	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-12	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-13	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-14	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-15	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-16	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-17	SA	SA	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-18	SA-Even	SA	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-19	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA

Well	NH_4	NO_3	SO_4	PB		CR		pH
				Dissolved	Total	Dissolved	Total	
ECMW-20	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-21	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA
ECMW-22	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA-Even	SA

[1]SA: Semi-Annual and SA-Even: Semi-Annual Even Years

Sampling events for the 2019 monitoring year occurred in January for the first half and in July for the second half. Samples, field parameters, and depth to water measurements were collected by GBMc personnel. Depths to water surface were measured from the top of the well casing using an electronic water level indicator. Depth to water surface measurements were used to develop potentiometric maps for each sampling event. Prior to sampling, the respective wells were purged using either a submersible or peristaltic pump until parameter stabilization had occurred for at least 3 consecutive readings and with minimal water level drawdown to ensure samples originated from the aquifer and not influenced by the open atmosphere within the well. Samples were collected for each well in appropriately preserved containers using a low flow rate with either the submersible or peristaltic pump. Sample containers were placed on ice and delivered to an ADEQ certified laboratory for analysis. Field parameters were measured at the time of sample collection with an appropriate handheld in-situ meter.

2.2 Groundwater Elevation Survey Results

Water levels for the potentiometric maps were collected during the January and July 2019 sampling events and are shown in Table 2.2. The potentiometric surface map for the 2019 annual report is included in Appendix A.

Table 2.2. Monitoring well reference point elevations.

Well	Top of casing elevation (ft above mean sea level)	January 2019		July 2019	
		Depth to water (ft from top of casing)	Ground water elevation (ft above MSL)	Depth to water (ft from top of casing)	Ground water elevation (ft above MSL)
ECMW-1	213.38	7.98	205.40	10.62	202.76
ECMW-2	196.25	0.00	196.25	0.00	196.25
ECMW-3	192.11	8.46	183.65	9.02	183.09
ECMW-4	194.84	8.20	186.64	8.03	186.81
ECMW-5	182.69	3.23	179.46	2.73	179.96
ECMW-6	191.87	4.14	187.73	3.88	187.99
ECMW-7	195.88	7.02	188.86	6.13	189.75
ECMW-8	197.34	6.64	190.70	6.13	191.21
ECMW-9	198.39	8.33	190.06	9.11	189.28
ECMW-10	205.75	12.50	193.25	12.13	193.62
ECMW-11	201.65	9.91	191.74	9.83	191.82
ECMW-12	184.97	5.88	179.09	5.14	179.83
ECMW-13	177.26	4.79	172.47	4.84	172.42
ECMW-14*	178.48	--	--	4.77	173.71
ECMW-15	180.84	3.15	177.69	3.08	177.76
ECMW-16	180.14	2.57	177.57	2.29	177.85
ECMW-17	185.40	26.73	158.67	27.04	158.36
ECMW-18	155.46	4.53	150.93	4.77	150.69
ECMW-19	150.41	1.69	148.72	1.65	148.76
ECMW-20	192.77	26.26	166.51	24.17	168.60
ECMW-21	176.29	17.05	159.24	15.82	160.47
ECMW-22	173.55	4.00	169.55	3.99	169.56

* - Depth to water was not measured at ECMW-14 during the January 2019 sampling event because unable to access due to high water levels

The groundwater flow direction at the site was generally in a southeast direction. The hydraulic gradient was calculated between ECMW-8 and ECMW-19 using the following equation (RCRA Groundwater Monitoring: Draft Technical Guidance, EPA/530-R-93-001):

$$i = \Delta H/L$$

i = hydraulic gradient (unitless)

ΔH = difference in hydraulic head (ft)

L = distance between monitoring wells (ft)

The difference in hydraulic head between monitoring wells ECMW-8 and ECMW-19 was 41.98 ft and 42.45 ft for the first and second half of 2019, respectively. The distance between the monitoring wells is 4,267 ft. The resulting hydraulic gradients of 9.83×10^{-3} for the first half and 9.94×10^{-3} for the second half were used to calculate the average linear velocity of groundwater flow in the following equation (RCRA Groundwater Monitoring: Draft Technical Guidance, EPA/530-R-93-001):

$$V = Ki/n_e$$

V = average linear velocity (cm/s)
K = hydraulic conductivity (cm/s)
i = hydraulic gradient (unitless)
n_e = effective porosity (unitless)

Based on slug tests performed in 1997 on ECMW-4, ECMW-13, and ECMW-18 the Cockfield Formation in the EDCC area has an average hydraulic conductivity of 6.61×10^{-4} cm/s. An effective porosity value of 0.30 was reported by Woodward-Clyde in 1997 for the EDCC area. Using these values, the equation resulted in an average linear velocity of 2.17×10^{-5} cm/s for the first half of 2019 and an average linear velocity of 2.19×10^{-5} cm/s for the second half of 2019.

2.3 Groundwater Analytical Results

Field measurements and groundwater samples were collected by GBMc personnel and delivered to an ADEQ certified commercial laboratory for analysis of the parameters listed in Table 2.1. Laboratory reports and groundwater sampling field records for the January and July 2019 sampling events are included in Appendix B. Constituent concentration maps are located in Appendix C. Appendix D contains tabularized parameter data for each of the wells.

The analytical results are numerically similar to previous sampling events. The production area wells contained the highest concentrations of ammonia, nitrate, and

sulfate with the monitoring wells located nearest to the recovery wells (ECMW-6, ECMW-7, and ECMW-8) displaying the highest concentrations for nitrogen compounds. Ammonia concentrations in the production area ranged from less than the detection limit (0.1 mg/L) to 6,900 mg/L The target ammonia concentration of 0.55 mg/L, determined in the 2007 Human Health Risk Assessment Report and implemented in the Remedial Action Plan, was exceeded during the first half 2019 sampling event at the sampled downgradient well ECMW-17. The target ammonia concentration has historically been exceeded in all the downgradient wells with recent exceedances in wells ECMW-17, ECMW-18, and ECMW-22; however wells ECMW-18 through 22 are sampled in alternating years and were not analyzed for ammonia in 2019 Ammonia concentrations in the sampled mid-gradient wells were less than the target ammonia concentration.

Nitrate concentrations were highest in the wells nearest the recovery wells with concentrations ranging from 2,500 mg/L to 9,700 mg/L. Nitrate concentrations in the mid-gradient and downgradient wells sampled during the 2019 year ranged from 0.21 mg/L at ECMW-18 to 13 mg/L at ECMW-16.

Sulfate concentrations were elevated within the production area and ranged from 36 mg/L at ECMW-5 to 930 mg/L at ECMW-4. Sulfate concentrations in the sampled mid-gradient and downgradient wells ranged from 11 mg/L to 19 mg/L at ECMW-17.

The pH measurements ranged from 3.52 su at ECMW-1 to 5.97 su at ECMW-3. The pH values of the production wells, the midgradient wells and the downgradient wells were numerically similar to the upgradient wells.

3.0 STATISTICAL ANALYSIS RESULTS AND DISCUSSION

Statistical comparisons of parameter concentrations in upgradient and downgradient wells for the EDCC groundwater monitoring program were performed in 2005. Following the statistical comparison analysis and pursuant to CAO LIS No. 18-085, a trend analysis approach was implemented for evaluating the effectiveness of the groundwater remediation program. Linear regression analyses were performed for ammonia, nitrate, and sulfate to determine if the data exhibited any trends and to test for

statistical significance of potential trends. Linear regressions were not performed for pH. As discussed in Section 2.3, pH values were numerically similar and displayed varying degrees of fluctuation for all of the wells. Table 3.1 summarizes the statistical results of the linear regression trend analysis. Statistical analysis result reports are presented in Appendix D.

Table 3.1. Summary of the regression statistical results comparing control and monitoring wells.

Monitoring Well[1]	Ammonia		Nitrate		Sulfate	
	Regression significant?	Increasing or decreasing trend?	Regression significant?	Increasing or decreasing trend?	Regression significant?	Increasing or decreasing trend?
ECMW-1	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-2	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-3	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-4	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-5	Not significant	N/A	**Significant**	**Increasing**	**Significant**	**Decreasing**
ECMW-6	**Significant**	**Increasing**	**Significant**	**Increasing**	Not Significant	N/A
ECMW-7	**Significant**	**Increasing**	**Significant**	**Increasing**	Not significant	N/A
ECMW-8	**Significant**	**Increasing**	**Significant**	**Increasing**	Not significant	N/A
ECMW-9	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-10	Not significant	N/A	**Significant**	**Decreasing**	**Significant**	**Increasing**
ECMW-11	Not significant	N/A	**Significant**	**Increasing**	**Significant**	**Decreasing**
ECMW-12	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-13	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-14	Not significant	N/A	**Significant**	**Decreasing**	**Significant**	**Decreasing**
ECMW-15	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-16	**Significant**	**Decreasing**	**Significant**	**Decreasing**	Not significant	N/A
ECMW-17	Not significant	N/A	**Significant**	**Decreasing**	Not significant	N/A
ECMW-18	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-19	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-20	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-21	Not significant	N/A	Not significant	N/A	Not significant	N/A
ECMW-22	Not significant	N/A	Not significant	N/A	Not significant	N/A

[1]Black indicates the control wells, red indicates production area wells; yellow indicates mid-gradient wells; blue indicates downgradient wells.

Statistically significant increasing trends in ammonia concentration over time were observed in ECMW-6, ECMW-7, and ECMW-8. A significant decreasing trend was observed for ECMW-16. The remaining wells did not display a statistically significant trend in ammonia over time. Significant increasing trends were expected for ECMW-6 through ECMW-8 as they near the groundwater recovery wells. These results indicate that ammonia is being drawn to the recovery wells. The significant decreasing trend in ammonia concentration at ECMW-16 indicates that ammonia is not migrating from the production area and natural attenuation is occurring.

Statistically significant increasing trends in nitrate concentration over time were observed in ECMW-5, ECMW-6, ECMW-7, ECMW-8, and ECMW-11. Significant decreasing trends in nitrate concentrations were observed in ECMW-10 and ECMW-14, ECMW-14, and ECMW-17. The remaining wells did not display a significant trend in nitrate concentrations. As with ammonia, significant increasing nitrate concentration trends at ECMW-5 through ECMW-8 indicate that nitrate is being drawn to the recovery wells. Monitoring well ECMW-13 is on the perimeter of the production area, ECMW-14 is a mid-gradient well, and ECMW-17 is a downgradient well. Decreasing trends at these wells indicate that nitrate is not migrating out of the production area and natural attenuation is occurring.

Statistically significant increasing trends for sulfate concentration over time was observed in ECMW-10.Significant decreasing trends were observed in ECMW-5, ECMW-11, and ECMW-14.Significant decreasing trends in sulfate concentration for the production and mid-gradient wells indicate that sulfate is not migrating from the production areas and that natural attenuation is occurring.

4.0 SUMMARY

The data reported for the EDCC groundwater wells suggest that the elevated constituent concentrations in the production area are being contained within the production area and preventing migration offsite. This is supported by significantly increasing trends in parameter concentrations in monitoring wells near the groundwater

recovery wells. Significant decreasing or no trends in downgradient wells indicate that nitrogen and sulfate are not migrating from the production area and that natural attenuation is effective in reducing concentrations in these areas.

While the target ammonia concentration of 0.55 mg/L has not successfully been achieved consistently at the downgradient wells, concentrations remain relatively low in relation to concentrations in the production area. Significant decreasing trends in ammonia in ECMW-16 and in nitrate in all the mid-gradient wells and ECMW-17 indicate that overall nitrogen concentrations are decreasing in wells outside of the production area.

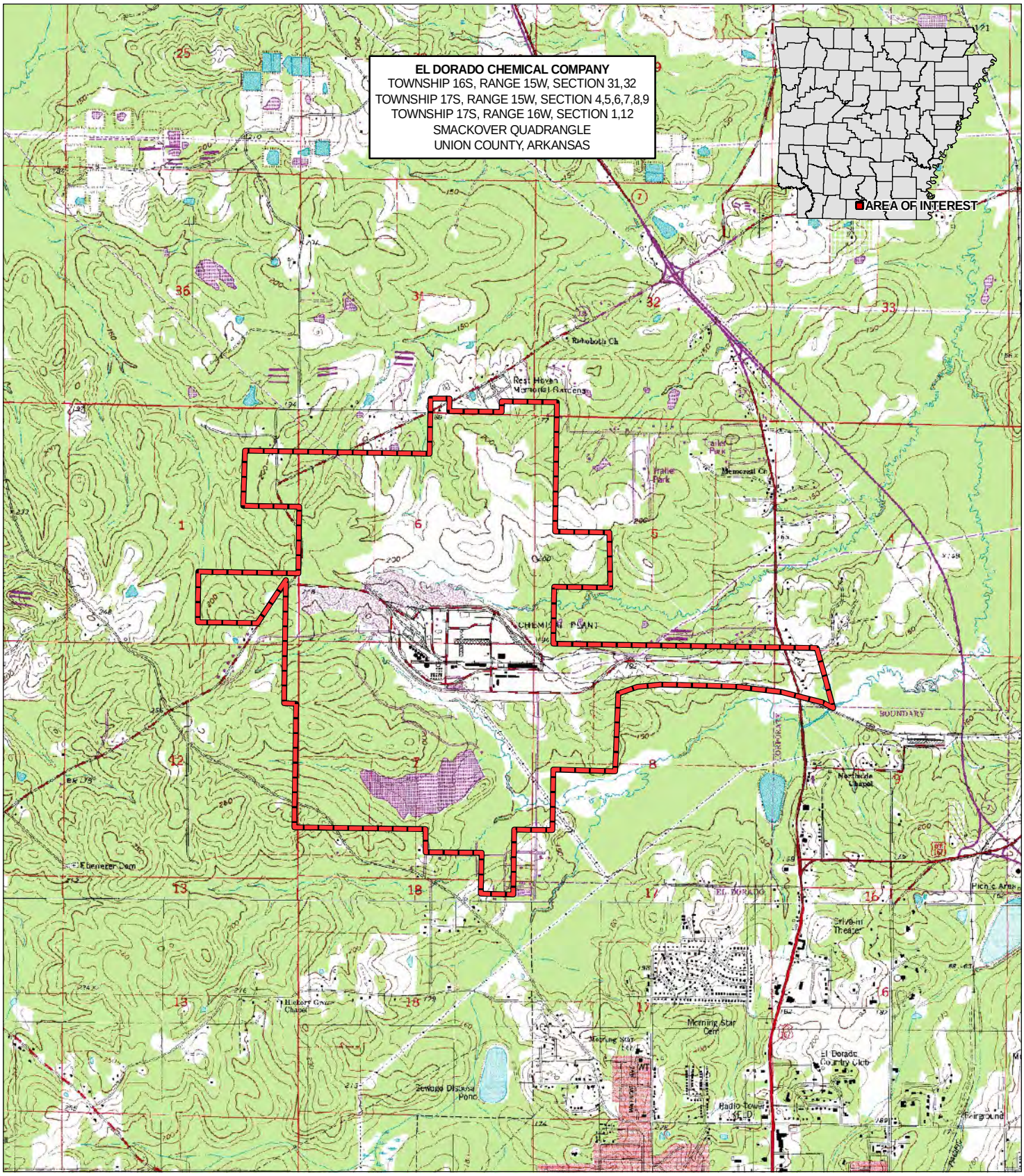
The recovery well system at EDCC has been successful in removing contaminants from the uppermost saturated layer of the Cockfield Formation and has proven to be a component in reducing potential exposure risk at the site. Both recovery wells were successfully remediated in May 2019 to improve the inflow and recovery of groundwater from the production area. Continued operation of the recovery well system and groundwater monitoring is recommended to assess the effectiveness of the groundwater remediation activities at EDCC.

5.0 REFERENCES CITED

Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. March 2009. EPA 530/R-09-007. https://www.itrcweb.org/gsmc-1/Content/Resources/Unified_Guidance_2009.pdf

APPENDIX A
Site Maps

Location Map



N
W E
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0.5
MILES

PROPERTY BOUNDARY

2042.000.G1

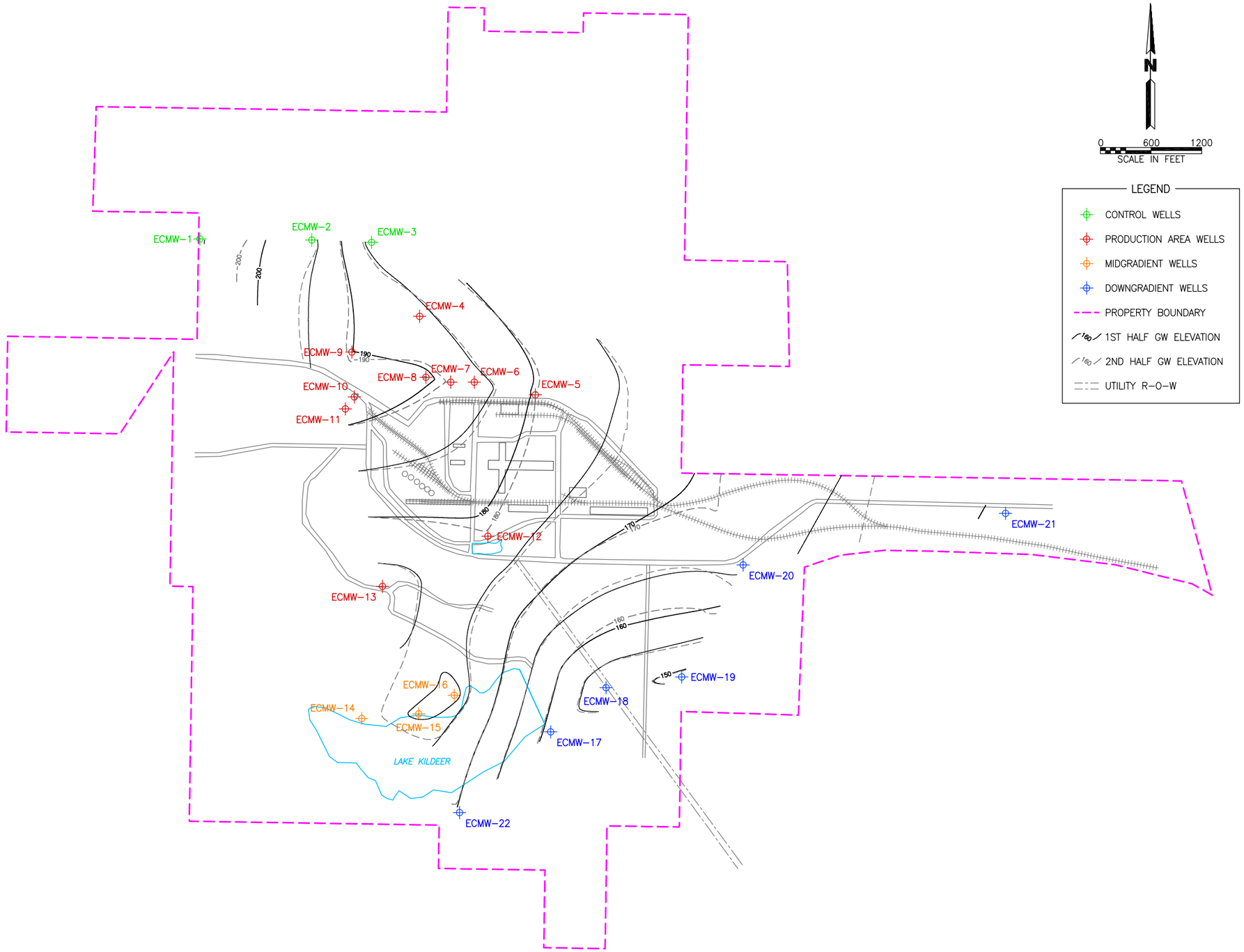
TOPOGRAPHIC LOCATION MAP

EL DORADO CHEMICAL COMPANY
EL DORADO, ARKANSAS

Approved by:	RJS	Project No.:	2042-99-010
Checked by:	RJS	Date:	01/14/2020
Drawn by:	IT	Scale:	SHOWN

GBMC
STRATEGIC ENVIRONMENTAL SERVICES
219 Brown Lane
Bryant, Arkansas 72022

Potentiometric Surface Map



NO	DATE	REVISION	BY	CK.	APPR.

DESIGNED BY CDC
CHECKED BY RJS
APPR. BY RJS
DRAWN BY IT

GBMc
Strategic Environmental Services
219 Brown Lane
Bryant, Arkansas 72022

SHEET TITLE
2019 GROUNDWATER ELEVATION

JOB NAME
2019 GROUNDWATER REPORT
EL DORADO CHEMICAL COMAPNY
EL DORADO, ARKANSAS

PROJECT NO. 2042-99-010
DATE 01/14/2020
SCALE SHOWN
REV. NO.
DWG. NO.

APPENDIX B

Laboratory Reports and Sampling Logs

Laboratory Reports

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for samples received on July 18, 2019. 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 Chief Operating Officer or a qualified designee.

Steve Bradford
Deputy Laboratory Director

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Ryan Stoner
rstoner@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
Eight (8) water sample(s) received on July 18, 2019
El Dorado Chemical Company
Monitoring Well Sampling

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
236389-1	MW4	17-Jul-2019 1111	
236389-2	MW4D	17-Jul-2019 1113	
236389-3	MW5	17-Jul-2019 1642	
236389-4	MW6	17-Jul-2019 1030	
236389-5	MW7	17-Jul-2019 0914	
236389-6	MW8	17-Jul-2019 0946	
236389-7	MW9	17-Jul-2019 1151	
236389-8	MW18	18-Jul-2019 0844	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 236389-1
Sample Identification: MW4 17-Jul-2019 1111

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.50**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1110 by 326		Batch: W68809	
Nitrate as N		**0.17**	0.05	**mg/l**	
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 2020 by 07		Batch: C22424	
Sulfate		**740**	20	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1041 by 07		Batch: C22424	Dil: 100

AIC No. 236389-2
Sample Identification: MW4D 17-Jul-2019 1113

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.56**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1113 by 326		Batch: W68809	
Nitrate as N		**0.16**	0.05	**mg/l**	
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 2043 by 07		Batch: C22424	
Sulfate		**740**	20	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1105 by 07		Batch: C22424	Dil: 100

AIC No. 236389-3
Sample Identification: MW5 17-Jul-2019 1642

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.39**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1115 by 326		Batch: W68809	
Nitrate as N		**110**	5	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 2257 by 07		Batch: C22424	Dil: 100
Sulfate		**36**	0.2	**mg/l**	
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 2107 by 07		Batch: C22424	

AIC No. 236389-4
Sample Identification: MW6 17-Jul-2019 1030

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**6900**	500	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1347 by 326		Batch: W68809	Dil: 4500
Nitrate as N		**9700**	50	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1037 by 07		Batch: C22424	Dil: 1000
Sulfate		**52**	2	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 1709 by 07		Batch: C22424	Dil: 10

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 236389-5
Sample Identification: MW7 17-Jul-2019 0914

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**3700**	300	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1349 by 326		Batch: W68809	Dil: 3000
Nitrate as N		**2500**	50	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1101 by 07		Batch: C22424	Dil: 1000
Sulfate		**210**	2	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 1733 by 07		Batch: C22424	Dil: 10

AIC No. 236389-6
Sample Identification: MW8 17-Jul-2019 0946

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**4500**	300	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1351 by 326		Batch: W68809	Dil: 3000
Nitrate as N		**4600**	50	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1125 by 07		Batch: C22424	Dil: 1000
Sulfate		**110**	2	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 18-Jul-2019 1757 by 07		Batch: C22424	Dil: 10

AIC No. 236389-7
Sample Identification: MW9 17-Jul-2019 1151

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**< 0.1**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1127 by 326		Batch: W68809	
Nitrate as N		**28**	0.5	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1148 by 07		Batch: C22424	Dil: 10
Sulfate		**640**	20	**mg/l**	D
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 0032 by 07		Batch: C22424	Dil: 100

AIC No. 236389-8
Sample Identification: MW18 18-Jul-2019 0844

Analyte		Result	RL	Units	Qualifier
Nitrate as N		**0.21**	0.05	**mg/l**	
EPA 9056A	Prep: 18-Jul-2019 1549 by 07	Analyzed: 19-Jul-2019 1212 by 07		Batch: C22424	

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	107	80.0-120			W68809	19Jul19 0925 by 326	19Jul19 1436 by 326		
Nitrate as N	5 mg/l	100	90.0-110			C22424	18Jul19 1313 by 07	18Jul19 1345 by 07		
Sulfate	25 mg/l	98.3	90.0-110			C22424	18Jul19 1313 by 07	18Jul19 1345 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	236344-1	1 mg/l	104	80.0-120	W68809	19Jul19 0925 by 326	19Jul19 1439 by 326		
	236344-1	1 mg/l	103	80.0-120	W68809	19Jul19 0925 by 326	19Jul19 1441 by 326		
	Relative Percent Difference:		0.658	25.0	W68809				
Nitrate as N	236362-1	5 mg/l	100	80.0-120	C22424	18Jul19 1313 by 07	18Jul19 1409 by 07		
	236362-1	5 mg/l	100	80.0-120	C22424	18Jul19 1313 by 07	18Jul19 1433 by 07		
	Relative Percent Difference:		0.00	10.0	C22424				
Sulfate	236362-1	25 mg/l	97.5	80.0-120	C22424	18Jul19 1313 by 07	18Jul19 1409 by 07		
	236362-1	25 mg/l	98.4	80.0-120	C22424	18Jul19 1313 by 07	18Jul19 1433 by 07		
	Relative Percent Difference:		0.629	10.0	C22424				

LABORATORY BLANK RESULTS

Analyte	Result	RL	LOQ	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.09 mg/l	0.09	0.1	W68809-1	19Jul19 0925 by 326	19Jul19 1434 by 326	
Nitrate as N	< 0.03 mg/l	0.03	0.05	C22424-1	18Jul19 1313 by 07	18Jul19 1321 by 07	
Sulfate	< 0.1 mg/l	0.1	0.2	C22424-1	18Jul19 1313 by 07	18Jul19 1321 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: El Dorado Chemical Comapny

Project Reference: Monitoring Well Sampling

Project Manager: Brad Phillips

Sampled By: RJS, WHG

PO No.:

AIC CONTROL NO: 236389

AIC PROPOSAL NO:

Carrier:

Received Temperature C: 1.2

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	Matrix: WATER	Matrix: SOIL		NO OF BOTTLES	NH4	NO3	SO4	Remarks
1	MW4	7/17/19:1111	X		X			2	X	X	X	
2	MW4D	7/17/19:1113	X		X			2	X	X	X	
3	MW5	7/17/19:1642	X		X			2	X	X	X	
4	MW6	7/17/19:1030	X		X			2	X	X	X	
5	MW7	7/17/19:0914	X		X			2	X	X	X	
6	MW8	7/17/19:0946	X		X			2	X	X	X	
7	MW9	7/17/19:1151	X		X			2	X	X	X	Field pH calibration
		Container Type							P	P	P	on ______ @ ______
		Preservative							I	I, S	I	Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate I=Ice
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
NORMAL (circled) or EXPEDITED IN ____ DAYS
Expedited results requested by: ____________
Who should AIC contact with questions:
Phone: ________ Fax: Phone: 501-847-7077
Report Attention to: Brad Phillips
Report Address to: 219 Brown Lane
Bryant, AR 72022
Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/18/19 : 0800		
Relinquished By:	Date/Time	Received in Lab By: D. BROWN	Date/Time 7-18-19 1410

Comments:
Email results to rstoner@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014 FORM 0060

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 1

Client: El Dorado Chemical Comapny
Project Reference: Monitoring Well Sampling
Project Manager: Brad Phillips
Sampled By: RJS, WHG
PO No.

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	MATRIX WATER	MATRIX SOIL	NO OF BOTTLES	NH4	NO3	SO4
8	MW18	7/18/19: 0844	X		X		1	X	X	X
			X		X		2	X	X	X
			X		X		2	X	X	X
			X		X		2	X	X	X
			X		X		2	X	X	X
			X		X		2	X	X	X
			X		X		2	X	X	X
		Container Type						P	P	P
		Preservative						I	I,S	I

RJ1 RJ2 RJ3 RJ4 RJ5 RJ6

ANALYSES REQUESTED

AIC CONTROL NO: 236389
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 1.2
Remarks
Field pH calibration on _____ @ _____ Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate I=Ice
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions:
Phone:_____ Fax: Phone: 501-847-7077
Report Attention to: Brad Phillips
Report Address to: 219 Brown Lane, Bryant, AR 72022
Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/18/19: 0940		
Relinquished By:	Date/Time	Received in Lab By: D. BROWN	Date/Time 7-18-19 1410

Comments:
Email results to rstoner@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014

FORM 0060

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for samples received on July 17, 2019. 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 Chief Operating Officer or a qualified designee.

Steve Bradford
Deputy Laboratory Director

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Ryan Stoner
rstoner@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
Five (5) water sample(s) received on July 17, 2019
Monitoring Well Sampling

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
236344-1	MW10	16-Jul-2019 1232	
236344-2	MW10D	16-Jul-2019 1234	
236344-3	MW11	16-Jul-2019 1150	
236344-4	MW14	16-Jul-2019 1626	
236344-5	MW16	16-Jul-2019 1433	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 236344-1
Sample Identification: MW10 16-Jul-2019 1232

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**< 0.1**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1438 by 326		Batch: W68809	
Nitrate as N		**69**	0.5	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2126 by 07		Batch: C22417	Dil: 10
Sulfate		**71**	2	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2126 by 07		Batch: C22417	Dil: 10

AIC No. 236344-2
Sample Identification: MW10D 16-Jul-2019 1234

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**< 0.1**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1019 by 326		Batch: W68809	
Nitrate as N		**69**	0.5	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2150 by 07		Batch: C22417	Dil: 10
Sulfate		**71**	2	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2150 by 07		Batch: C22417	Dil: 10

AIC No. 236344-3
Sample Identification: MW11 16-Jul-2019 1150

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**11**	3	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1346 by 326		Batch: W68809	Dil: 26
Nitrate as N		**31**	0.5	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2214 by 07		Batch: C22417	Dil: 10
Sulfate		**180**	2	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2214 by 07		Batch: C22417	Dil: 10

AIC No. 236344-4
Sample Identification: MW14 16-Jul-2019 1626

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.52**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1023 by 326		Batch: W68809	
Nitrate as N		**4.0**	0.05	**mg/l**	
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 1914 by 07		Batch: C22417	
Sulfate		**130**	2	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2238 by 07		Batch: C22417	Dil: 10

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 236344-5
Sample Identification: MW16 16-Jul-2019 1433

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.33**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 19-Jul-2019 0924 by 326	Analyzed: 19-Jul-2019 1025 by 326		Batch: W68809	
Nitrate as N		**13**	0.5	**mg/l**	D
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 2302 by 07		Batch: C22417	Dil: 10
Sulfate		**16**	0.2	**mg/l**	
EPA 300.0	Prep: 17-Jul-2019 1517 by 07	Analyzed: 17-Jul-2019 1938 by 07		Batch: C22417	

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	107	80.0-120			W68809	19Jul19 0925 by 326	19Jul19 1436 by 326		
Nitrate as N	5 mg/l	100	90.0-110			C22417	17Jul19 1011 by 07	17Jul19 1131 by 07		
Sulfate	25 mg/l	100	90.0-110			C22417	17Jul19 1011 by 07	17Jul19 1131 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	236344-1	1 mg/l	104	80.0-120	W68809	19Jul19 0925 by 326	19Jul19 1439 by 326		
	236344-1	1 mg/l	103	80.0-120	W68809	19Jul19 0925 by 326	19Jul19 1441 by 326		
	Relative Percent Difference:		0.658	25.0	W68809				
Nitrate as N	236317-1	5 mg/l	98.9	80.0-120	C22417	17Jul19 1011 by 07	17Jul19 1154 by 07		
	236317-1	5 mg/l	99.1	80.0-120	C22417	17Jul19 1011 by 07	17Jul19 1218 by 07		
	Relative Percent Difference:		0.138	10.0	C22417				
Sulfate	236317-1	25 mg/l	99.3	80.0-120	C22417	17Jul19 1011 by 07	17Jul19 1154 by 07		
	236317-1	25 mg/l	99.5	80.0-120	C22417	17Jul19 1011 by 07	17Jul19 1218 by 07		
	Relative Percent Difference:		0.147	10.0	C22417				

LABORATORY BLANK RESULTS

Analyte	Result	RL	LOQ	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.09 mg/l	0.09	0.1	W68809-1	19Jul19 0925 by 326	19Jul19 1434 by 326	
Nitrate as N	< 0.03 mg/l	0.03	0.05	C22417-1	17Jul19 1011 by 07	17Jul19 1107 by 07	
Sulfate	< 0.1 mg/l	0.1	0.2	C22417-1	17Jul19 1011 by 07	17Jul19 1107 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 1

Client: El Dorado Chemical Comapny

Project Reference: Monitoring Well Sampling

Project Manager: Brad Phillips

Sampled By: RJS, WHG

PO No.

AIC CONTROL NO: 236344

AIC PROPOSAL NO:

Carrier: RUSH

Received Temperature C: 0.2

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	MATRIX WATER	MATRIX SOIL	NO OF BOTTLES	NH4	NO3	SO4	Remarks
1	MU10	7/16/19 1232	x		x		2	X	X	X	
2	MU10D	7/16/19 1234	x		x		2	X	X	X	
3	MU11	7/16/19 1150	x		x		2	X	X	X	
4	MU14	7/16/19 1626	x		x		2	X	X	X	
5	MU16	7/16/19 1433	x		x		2	X	X	X	
			x		x		2	X	X	X	
			x		x		2	X	X	X	Field pH calibration
		Container Type						P	P	P	on _____ @ _____
		Preservative						I	I, S	I	Buffer:

G = Glass, NO = none; P = Plastic, S = Sulfuric acid pH2; V = VOA vials, N = Nitric acid pH2; H = HCl to pH2, B = NaOH to pH12; T = Sodium Thiosulfate, Z = Zinc acetate; I=Ice, A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
[NORMAL] or EXPEDITED IN ____ DAYS

Expedited results requested by: _____

Who should AIC contact with questions:

Phone:_____ Fax: Phone: 501-847-7077

Report Attention to: Brad Phillips

Report Address to: 219 Brown Lane, Bryant, AR 72022

Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
RJS	7/17/19 : 0730		
Relinquished By:	Date/Time	Received in Lab By: D-BROWN	Date/Time 7-17-19 1415

Comments: Email results to rstoner@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014

FORM 0060

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for the sample received on July 16, 2019. 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 Chief Operating Officer or a qualified designee.

Steve Bradford
Deputy Laboratory Director

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Ryan Stoner
rstoner@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
One (1) water sample(s) received on July 16, 2019
El Dorado Chemical Company
Monitoring Well Sampling

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
236300-1	MW17	15-Jul-2019 1841	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 236300-1
Sample Identification: MW17 15-Jul-2019 1841

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.22**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 17-Jul-2019 1344 by 326	Analyzed: 17-Jul-2019 1554 by 326		Batch: W68789	
Nitrate as N		**7.8**	0.05	**mg/l**	
EPA 300.0	Prep: 16-Jul-2019 1535 by 07	Analyzed: 16-Jul-2019 2008 by 07		Batch: C22416	
Sulfate		**11**	0.2	**mg/l**	
EPA 300.0	Prep: 16-Jul-2019 1535 by 07	Analyzed: 16-Jul-2019 2008 by 07		Batch: C22416	

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	115	80.0-120			W68789	17Jul19 1345 by 326	17Jul19 1721 by 326		
Nitrate as N	5 mg/l	100	90.0-110			C22416	16Jul19 1313 by 07	16Jul19 1346 by 07		
Sulfate	25 mg/l	98.0	90.0-110			C22416	16Jul19 1313 by 07	16Jul19 1346 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	236328-1	1 mg/l	104	80.0-120	W68789	17Jul19 1345 by 326	17Jul19 1724 by 326		
	236328-1	1 mg/l	98.6	80.0-120	W68789	17Jul19 1345 by 326	17Jul19 1725 by 326		
	Relative Percent Difference:		5.27	25.0	W68789				
Nitrate as N	236273-1	5 mg/l	98.5	80.0-120	C22416	16Jul19 1313 by 07	16Jul19 1410 by 07		
	236273-1	5 mg/l	98.5	80.0-120	C22416	16Jul19 1313 by 07	16Jul19 1434 by 07		
	Relative Percent Difference:		0.0366	10.0	C22416				
Sulfate	236273-1	25 mg/l	98.7	80.0-120	C22416	16Jul19 1313 by 07	16Jul19 1410 by 07		
	236273-1	25 mg/l	98.8	80.0-120	C22416	16Jul19 1313 by 07	16Jul19 1434 by 07		
	Relative Percent Difference:		0.115	10.0	C22416				

LABORATORY BLANK RESULTS

Analyte	Result	RL	LOQ	QC Sample	Preparation Date	Analysis Date	Qual
Ammonia as N	< 0.09 mg/l	0.09	0.1	W68789-1	17Jul19 1345 by 326	17Jul19 1719 by 326	
Nitrate as N	< 0.03 mg/l	0.03	0.05	C22416-1	16Jul19 1313 by 07	16Jul19 1323 by 07	
Sulfate	< 0.1 mg/l	0.1	0.2	C22416-1	16Jul19 1313 by 07	16Jul19 1323 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 1

Client: El Dorado Chemical Comapny

Project Reference: Monitoring Well Sampling

Project Manager: Brad Phillips

Sampled By: RJS, WHG

PO No.

AIC CONTROL NO: 236300

AIC PROPOSAL NO:

Carrier: RUSH

Received Temperature C: 1.3

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	MATRIX: WATER	MATRIX: SOIL	NO OF BOTTLES	NH4	NO3	SO4	Remarks
1	MW17	7/15/19:1841	X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
		Container Type						P	P	P	Field pH calibration
		Preservative						I	I, S	I	on _____ @ _____ Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate I=Ice

NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)

NORMAL or EXPEDITED IN ____ DAYS

Expedited results requested by: _____

Who should AIC contact with questions:

Phone:_____ Fax: Phone: 501-847-7077

Report Attention to: Brad Phillips

Report Address to: 219 Brown Lane, Bryant, AR 72022

Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
	7/16/19 0730		
Relinquished By:	Date/Time	Received in Lab By: D-BROWN	Date/Time 7-16-19 1435

Comments:

Email results to rstoner@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014

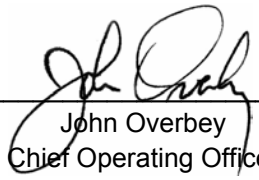
FORM 0060

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for samples received on January 25, 2019. 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 Chief Operating Officer or a qualified designee.



by LP

John Overbey
Chief Operating Officer

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Jonathan Brown
jbrown@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
Five (5) water sample(s) received on January 25, 2019
Monitoring Well Sampling
P.O. No. 17001028

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
231024-1	MW-8	24-Jan-2019 1645	
231024-2	MW-9	24-Jan-2019 1552	
231024-3	MW-11	24-Jan-2019 1025	
231024-4	MW-11	24-Jan-2019 0911	
231024-5	MW-11D	24-Jan-2019 0912	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 231024-1
Sample Identification: MW-8 24-Jan-2019 1645

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**4100**	300	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 29-Jan-2019 1028 by 342		Batch: W66878	Dil: 2250
Nitrate as N		**4800**	50	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 25-Jan-2019 1856 by 07		Batch: C21912	Dil: 1000
Sulfate		**150**	2	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0005 by 07		Batch: C21912	Dil: 10

AIC No. 231024-2
Sample Identification: MW-9 24-Jan-2019 1552

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.11**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 28-Jan-2019 1431 by 342		Batch: W66878	
Nitrate as N		**31**	0.5	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0029 by 07		Batch: C21912	Dil: 10
Sulfate		**670**	20	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 25-Jan-2019 2119 by 07		Batch: C21912	Dil: 100

AIC No. 231024-3
Sample Identification: MW-11 24-Jan-2019 1025

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.21**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 28-Jan-2019 1433 by 342		Batch: W66878	
Nitrate as N		**76**	0.5	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0053 by 07		Batch: C21912	Dil: 10
Sulfate		**98**	2	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0053 by 07		Batch: C21912	Dil: 10

AIC No. 231024-4
Sample Identification: MW-11 24-Jan-2019 0911

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**18**	3	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 29-Jan-2019 0915 by 342		Batch: W66878	Dil: 26
Nitrate as N		**36**	0.5	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0117 by 07		Batch: C21912	Dil: 10
Sulfate		**190**	2	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0117 by 07		Batch: C21912	Dil: 10

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 231024-5
Sample Identification: MW-11D 24-Jan-2019 0912

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**19**	3	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 29-Jan-2019 0917 by 342		Batch: W66878	Dil: 26
Nitrate as N		**37**	0.5	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0141 by 07		Batch: C21912	Dil: 10
Sulfate		**190**	2	**mg/l**	D
EPA 300.0	Prep: 25-Jan-2019 1514 by 07	Analyzed: 26-Jan-2019 0141 by 07		Batch: C21912	Dil: 10

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	112	80.0-120			W66878	28Jan19 0830 by 342	28Jan19 1400 by 342		
Nitrate as N	5 mg/l	101	90.0-110			C21912	25Jan19 1514 by 07	25Jan19 1545 by 07		
Sulfate	25 mg/l	99.9	90.0-110			C21912	25Jan19 1514 by 07	25Jan19 1545 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	231011-1	1 mg/l	84.9	80.0-120	W66878	28Jan19 0830 by 342	28Jan19 1404 by 342		
	231011-1	1 mg/l	87.7	80.0-120	W66878	28Jan19 0830 by 342	28Jan19 1406 by 342		
	Relative Percent Difference:		2.85	25.0	W66878				
Nitrate as N	231039-1	5 mg/l	105	80.0-120	C21912	25Jan19 1514 by 07	25Jan19 1609 by 07		
	231039-1	5 mg/l	105	80.0-120	C21912	25Jan19 1514 by 07	25Jan19 1633 by 07		
	Relative Percent Difference:		0.132	10.0	C21912				
Sulfate	231039-1	25 mg/l	105	80.0-120	C21912	25Jan19 1514 by 07	25Jan19 1609 by 07		
	231039-1	25 mg/l	105	80.0-120	C21912	25Jan19 1514 by 07	25Jan19 1633 by 07		
	Relative Percent Difference:		0.0592	10.0	C21912				

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	W66878-1	28Jan19 0830 by 342	28Jan19 1357 by 342	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C21912-1	25Jan19 1514 by 07	25Jan19 1521 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C21912-1	25Jan19 1514 by 07	25Jan19 1521 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: El Dorado Chemical Comapny
Project Reference: Monitoring Well Sampling
Project Manager: Brad Phillips
Sampled By: RJS, WHG

PO No.

AIC CONTROL NO: 231024
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 1.6

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	MATRIX: WATER	MATRIX: SOIL	NO OF BOTTLES	NH4	NO3	SO4	Remarks
	MW-8	1/24/19:1645	x		x		2	X	X	X	
	MW-9	1/24/19:1552	x		x		2	X	X	X	
	MW-10	1/24/19:1025	x		x		2	X	X	X	IDAS: MW11
	MW-11	1/24/19:0911	x		x		2	X	X	X	
	MW-110	1/24/19:0912	x		x		2	X	X	X	
			x		x		2	X	X	X	
			x		x		2	X	X	X	
		Container Type						P	P	P	Field pH calibration
		Preservative						I	I,S	I	on _____ @ _____
											Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate I=Ice
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions:
Phone:_____ Fax: Phone: 501-847-7077
Report Attention to: Brad Phillips
Report Address to: 219 Brown Lane, Bryant, AR 72022
Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
Relinquished By:	Date/Time: 1/25/19 0945	Received in Lab By: AC341	Date/Time: 01/25/19 0945

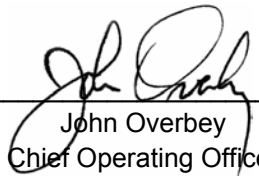
Comments:
Email results to jbrown@gbmcassoc.com and bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for samples received on January 24, 2019. 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 Chief Operating Officer or a qualified designee.



by LP

John Overbey
Chief Operating Officer

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Jonathan Brown
jbrown@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
Four (4) water sample(s) received on January 24, 2019
El Dorado Chemical Company
Monitoring Well Sampling
P.O. No. 17001028

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
231011-1	Equipment Blank	23-Jan-2019 1109	
231011-2	MW-4	23-Jan-2019 1836	
231011-3	MW-6	23-Jan-2019 1734	
231011-4	MW-7	23-Jan-2019 1558	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 231011-1
Sample Identification: Equipment Blank 23-Jan-2019 1109

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.12**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 28-Jan-2019 1402 by 342		Batch: W66878	
Nitrate as N		**< 0.05**	0.05	**mg/l**	
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 24-Jan-2019 2206 by 07		Batch: C21906	
Sulfate		**< 0.2**	0.2	**mg/l**	
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 24-Jan-2019 2206 by 07		Batch: C21906	

AIC No. 231011-2
Sample Identification: MW-4 23-Jan-2019 1836

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.27**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 28-Jan-2019 1408 by 342		Batch: W66878	
Nitrate as N		**0.15**	0.05	**mg/l**	
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 24-Jan-2019 2253 by 07		Batch: C21906	
Sulfate		**930**	20	**mg/l**	D
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 25-Jan-2019 1106 by 07		Batch: C21906	Dil: 100

AIC No. 231011-3
Sample Identification: MW-6 23-Jan-2019 1734

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**6200**	400	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 29-Jan-2019 1025 by 342		Batch: W66878	Dil: 3600
Nitrate as N		**9300**	50	**mg/l**	D
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 25-Jan-2019 1130 by 07		Batch: C21906	Dil: 1000
Sulfate		**57**	2	**mg/l**	D
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 24-Jan-2019 2317 by 07		Batch: C21906	Dil: 10

AIC No. 231011-4
Sample Identification: MW-7 23-Jan-2019 1558

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**2600**	300	**mg/l**	D
SM 4500-NH3 G 2011	Prep: 28-Jan-2019 0829 by 342	Analyzed: 29-Jan-2019 1027 by 342		Batch: W66878	Dil: 2250
Nitrate as N		**2500**	50	**mg/l**	D
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 25-Jan-2019 1154 by 07		Batch: C21906	Dil: 1000
Sulfate		**370**	2	**mg/l**	D
EPA 300.0	Prep: 24-Jan-2019 1620 by 07	Analyzed: 25-Jan-2019 0005 by 07		Batch: C21906	Dil: 10

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	1 mg/l	112	80.0-120			W66878	28Jan19 0830 by 342	28Jan19 1400 by 342		
Nitrate as N	5 mg/l	101	90.0-110			C21906	24Jan19 1620 by 07	24Jan19 1720 by 07		
Sulfate	25 mg/l	100	90.0-110			C21906	24Jan19 1620 by 07	24Jan19 1720 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	231011-1	1 mg/l	84.9	80.0-120	W66878	28Jan19 0830 by 342	28Jan19 1404 by 342		
	231011-1	1 mg/l	87.7	80.0-120	W66878	28Jan19 0830 by 342	28Jan19 1406 by 342		
	Relative Percent Difference:		2.85	25.0	W66878				
Nitrate as N	230991-1	5 mg/l	93.9	80.0-120	C21906	24Jan19 1620 by 07	24Jan19 1744 by 07		
	230991-1	5 mg/l	94.8	80.0-120	C21906	24Jan19 1620 by 07	24Jan19 1808 by 07		
	Relative Percent Difference:		0.931	10.0	C21906				
Sulfate	230991-1	25 mg/l	94.7	80.0-120	C21906	24Jan19 1620 by 07	24Jan19 1744 by 07		
	230991-1	25 mg/l	95.7	80.0-120	C21906	24Jan19 1620 by 07	24Jan19 1808 by 07		
	Relative Percent Difference:		0.865	10.0	C21906				

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	W66878-1	28Jan19 0830 by 342	28Jan19 1357 by 342	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C21906-1	24Jan19 1620 by 07	24Jan19 1656 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C21906-1	24Jan19 1620 by 07	24Jan19 1656 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 1

Client: El Dorado Chemical Comapny
Project Reference: Monitoring Well Sampling
Project Manager: Brad Phillips
Sampled By: RJS, WHG

PO No.

AIC CONTROL NO: 23101
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 2.9

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	MATRIX WATER	MATRIX SOIL	NO OF BOTTLES	NH4	NO3	SO4	Remarks
	Equipment Blank	1/23/19: 1109	X		X		2	X	X	X	
	MW-4	1/23/19: 1836	X		X		2	X	X	X	
	MW-6	1/23/19: 1734	X		X		2	X	X	X	
	MW-7	1/23/19: 1558	X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
		Container Type						P	P	P	
		Preservative						I	I, S	I	

Field pH calibration on _____ @ _____ Buffer:

G = Glass, P = Plastic, V = VOA vials, H = HCl to pH2, T = Sodium Thiosulfate, I=Ice
NO = none, S = Sulfuric acid pH2, N = Nitric acid pH2, B = NaOH to pH12, Z = Zinc acetate, A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions:
Phone:_____ Fax: Phone: 501-847-7077
Report Attention to: Brad Phillips
Report Address to: 219 Brown Lane, Bryant, AR 72022
Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
Relinquished By:	Date/Time	Received in Lab By: OR336	Date/Time 1-24-19 10:15

Comments:
Email results to jbrown@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014

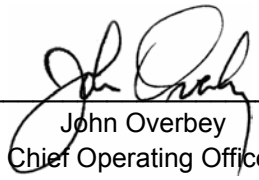
FORM 0060

GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
219 Brown Lane
Bryant, AR 72022

This report contains the analytical results and supporting information for samples received on January 23, 2019. 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 Chief Operating Officer or a qualified designee.



by LP

John Overbey
Chief Operating Officer

This document has been distributed to the following:

PDF cc: GBMc & Associates, Inc.
ATTN: Mr. Brad Phillips
bphillips@gbmcassoc.com

GBMc & Associates, Inc.
ATTN: Mr. Jonathan Brown
jbrown@gbmcassoc.com

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

SAMPLE INFORMATION

Project Description:
Five (5) water sample(s) received on January 23, 2019
El Dorado Chemical Company
Monitoring Well Sampling

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
230955-1	MW-5	22-Jan-2019 1552	
230955-2	MW-16	22-Jan-2019 1216	
230955-3	MW-16D	22-Jan-2019 1217	
230955-4	MW-17	22-Jan-2019 1829	
230955-5	MW-18	22-Jan-2019 0913	

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", (SM).
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 230955-1
Sample Identification: MW-5 22-Jan-2019 1552

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.12**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 24-Jan-2019 0839 by 342	Analyzed: 25-Jan-2019 0930 by 342		Batch: W66847	
Nitrate as N		**91**	0.5	**mg/l**	D
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1654 by 07		Batch: C21898	Dil: 10
Sulfate		**45**	0.2	**mg/l**	
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1853 by 07		Batch: C21898	

AIC No. 230955-2
Sample Identification: MW-16 22-Jan-2019 1216

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.33**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 24-Jan-2019 0839 by 342	Analyzed: 25-Jan-2019 0932 by 342		Batch: W66847	
Nitrate as N		**12**	0.5	**mg/l**	D
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1718 by 07		Batch: C21898	Dil: 10
Sulfate		**18**	0.2	**mg/l**	
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1917 by 07		Batch: C21898	

AIC No. 230955-3
Sample Identification: MW-16D 22-Jan-2019 1217

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**0.32**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 24-Jan-2019 0839 by 342	Analyzed: 25-Jan-2019 0934 by 342		Batch: W66847	
Nitrate as N		**12**	0.5	**mg/l**	D
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1742 by 07		Batch: C21898	Dil: 10
Sulfate		**18**	0.2	**mg/l**	
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 2052 by 07		Batch: C21898	

AIC No. 230955-4
Sample Identification: MW-17 22-Jan-2019 1829

Analyte		Result	RL	Units	Qualifier
Ammonia as N		**1.4**	0.1	**mg/l**	
SM 4500-NH3 G 2011	Prep: 24-Jan-2019 0839 by 342	Analyzed: 25-Jan-2019 0936 by 342		Batch: W66847	
Nitrate as N		**12**	0.5	**mg/l**	D
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 1805 by 07		Batch: C21898	Dil: 10
Sulfate		**19**	0.2	**mg/l**	
EPA 9056A	Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 2116 by 07		Batch: C21898	

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

ANALYTICAL RESULTS

AIC No. 230955-5
Sample Identification: MW-18 22-Jan-2019 0913

Analyte	Result	RL	Units	Qualifier
Nitrate as N	**0.56**	0.05	**mg/l**	
EPA 9056A Prep: 23-Jan-2019 1623 by 07	Analyzed: 23-Jan-2019 2140 by 07		Batch: C21898	

AMERICAN INTERPLEX CORPORATION LABORATORIES

GBMc & Associates, Inc.
219 Brown Lane
Bryant, AR 72022

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			W66847	24Jan19 0840 by 342	25Jan19 0907 by 342		
Nitrate as N	5 mg/l	98.0	90.0-110			C21898	23Jan19 1031 by 07	23Jan19 1103 by 07		
Sulfate	25 mg/l	96.9	90.0-110			C21898	23Jan19 1031 by 07	23Jan19 1103 by 07		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	230854-1	1 mg/l	91.3	80.0-120	W66847	24Jan19 0840 by 342	25Jan19 1126 by 342		
	230854-1	1 mg/l	90.4	80.0-120	W66847	24Jan19 0840 by 342	25Jan19 1054 by 342		
	Relative Percent Difference:		0.542	25.0	W66847				
Nitrate as N	230937-1	5 mg/l	90.0	80.0-120	C21898	23Jan19 1031 by 07	23Jan19 1127 by 07		
	230937-1	5 mg/l	89.7	80.0-120	C21898	23Jan19 1031 by 07	23Jan19 1151 by 07		
	Relative Percent Difference:		0.318	10.0	C21898				
Sulfate	230937-1	25 mg/l	88.9	80.0-120	C21898	23Jan19 1031 by 07	23Jan19 1127 by 07		
	230937-1	25 mg/l	88.9	80.0-120	C21898	23Jan19 1031 by 07	23Jan19 1151 by 07		
	Relative Percent Difference:		0.00624	10.0	C21898				

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	W66847-1	24Jan19 0840 by 342	25Jan19 0905 by 342	
Nitrate as N	< 0.05 mg/l	0.05	0.05	C21898-1	23Jan19 1031 by 07	23Jan19 1039 by 07	
Sulfate	< 0.2 mg/l	0.2	0.2	C21898-1	23Jan19 1031 by 07	23Jan19 1039 by 07	

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE | OF |

Client: El Dorado Chemical Comapny
Project Reference: Monitoring Well Sampling
Project Manager: Brad Phillips
Sampled By: RJS, WHG

PO No.

MATRIX

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	NO OF BOTTLES	NH4	NO3	SO4	Remarks
1	MW-5	1/22/19: 1552	X		X		2	X	X	X	
2	MW-16	1/22/19: 1216	X		X		2	X	X	X	
3	MW-16D	1/22/19: 1217	X		X		2	X	X	X	
4	MW-17	1/22/19: 1829	X		X		2	X	X	X	
5	MW-18	1/22/19: 0913	X		X		2	X	X	X	
			X		X		2	X	X	X	
			X		X		2	X	X	X	
		Container Type						P	P	P	
		Preservative						I, S	I, B	I	

AIC CONTROL NO: 230955
AIC PROPOSAL NO:
Carrier: RUSH
Received Temperature C: 0.2
Field pH calibration on _____ @ _____
Buffer:

G = Glass, NO = none; P = Plastic, S = Sulfuric acid pH2; V = VOA vials, N = Nitric acid pH2; H = HCl to pH2, B = NaOH to pH12; T = Sodium Thiosulfate, Z = Zinc acetate; I=Ice, A=$(NH_4)_2SO_4$, NH_4OH

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions:
Phone:_____ Fax: Phone: 501-847-7077
Report Attention to: Brad Phillips
Report Address to: 219 Brown Lane, Bryant, AR 72022
Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
	1/23/19: 0927		
Relinquished By:	Date/Time	Received in Lab By: D. BROWN	Date/Time 1-23-19 1416

Comments:
Email results to jbrown@gbmcassoc.com and bphillips@gbmcassoc.com

9/2014

FORM 0060

Sampling Logs

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-1	SAMPLE ID: MW-1	DATE: 7/17/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/4	WELL SCREEN INTERVAL DEPTH: 12.1 feet to 22.2 feet	STATIC DEPTH TO WATER (feet): 10.62	PURGE PUMP TYPE OR BAILER: ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.2 feet – 10.62 feet) X 0.65 gallons/foot = 7.53 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 17.1	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 17.1	PURGING INITIATED AT: 1408	PURGING ENDED AT: 1439	TOTAL VOLUME PURGED (gallons): 3.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1406				8.35							
1418	1.0	1.0	0.1	8.9	2.72	19.51	51	2.01	217.5	none	none
1423	0.5	1.5	0.1	8.92	3.0	19.74	48	1.68	201.8	none	
1428	0.5	2.0	0.1	8.95	3.28	19.39	48	1.60	193.9	none	
1433	0.5	2.5	0.1	8.99	3.42	19.38	48	1.46	180.3	none	
1436	0.5	3.00	0.17	9.0	3.51	19.29	48	1.45	175.5	none	
1439	0.5	3.50	0.17	9.0	3.52	19.29	47	1.46	173.5	none	
1442											

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan T Stone / GCM	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1440	SAMPLING ENDED AT: 1442
PUMP OR TUBING DEPTH IN WELL (feet): 17.1	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW1					pH= 3.52	1.9		APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-2	SAMPLE ID:	MW-2
DATE:	7/17/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	DEPTH: 10.2 feet to 20.2 feet	0	RF ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (20.2 feet – 0 feet) x 0.65 gallons/foot = 13.13 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
15.2	15.2	1445	1519	4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1445				0.0							
1500	1.5	1.5	0.10	0.80	4.25	19.34	240	0.94	134.9	non.	non.
1505	2.00	2.00	0.10	1.05	4.56	19.45	240	0.69	120.1	non.	
1510	0.5	2.5	0.10	1.3	4.68	19.6	241	0.49	114.	non	
1513	0.5	3.0	0.10	1.42	4.83	19.91	242	0.41	106.2	non.	
1516	0.5	3.5	0.17	1.5	4.84	19.89	242	0.41	105.8	non	
1519	0.5	4.00	0.17	1.6	4.83	19.91	242	0.44	106.5	non.	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
[illegible] GDM		1520	1523

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
15.2	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW2					pH= 4.83	4.5		APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-3	SAMPLE ID: MW-3	DATE: 7/17/15

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	DEPTH: 17.1 feet to 27.1 feet	9.02	~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (27.1 feet – 9.02 feet) X 0.65 gallons/foot = 11.75 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
22.1	22.1	1530	1555	3.0

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1530			9.05	9.05							
1545	2.0	2.0	0.13	11.32	5.05	19.8	202	0.50	94.3	none	none
1550	0.5	2.5	0.1	11.67	5.15	19.81	201	0.42	89.1	none	↓
1555	0.5	3.0	0.1	12.05	5.15	15.86	202	0.37	87.0	none	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Stone / GRAPE	Ryan J	1556	1558

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
22.1	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
~~Equip Blank~~	1	PP	~~150 mL~~		RSJ		~~NO3; SO4~~	ESP	~~<200~~
~~Equip Blank~~	1	PP	~~300 mL~~	H2SO4	RSJ		NH4	ESP	~~<200~~
MW3					pH= 5.15	2.2		PP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-4	SAMPLE ID: MW-4	DATE: 7/17/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	DEPTH: 12.1 feet to 22.1 feet	8.03	PP, ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.1 feet – 8.03 feet) X 0.65 gallons/foot = 9.15 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
17.1	17.1	1045	1110	4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1045				7.9							
1055	1.25	1.25	0.05	10.94	3.57	20.91	6522	2.48	173.7	none	none
1100	1.00	2.25	0.2	11.33	3.65	21.62	6119	2.33	169.9	none	↓
1105	1.00	3.25	0.2	12.65	3.65	21.82	6032	2.48	167.5	none	
1110	0.75	4.0	0.15	13.14	3.73	21.82	6022	2.54	166.6	none	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
RVCA JJ Shaw		1111	1116

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
17.1	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
1111 MW4	1	PP	150 mL				NO3; SO4	~~ESP~~ APP	<200
MW4	1	PP	300 mL	H2SO4			NH4	~~ESP~~ APP	<200
					pH= 3.73	1.79			
1113 MW4D	1	PP	150mL				NO3; SO4	APP	<200
MW4D	1	PP	300mL	H2SO4			NH4	APP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: El Dorado Chemical Company		SITE LOCATION: 4500 North West Avenue, El Dorado, AR	
WELL NO: MW-5	SAMPLE ID: MW-5	DATE: 7/17/19	

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 7.7 feet to 17.7 feet	STATIC DEPTH TO WATER (feet): 2.73	PURGE PUMP TYPE OR BAILER: ~~ESP~~ P

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17.7 feet – 2.73 feet) x 0.65 gallons/foot = 9.73 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
12.7	12.7	1615	1641	4.0

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1615				2.5							
1630	3.0	3.0	0.2	3.95	4.15	21.44	985	0.97	143.6	none	none
1635	0.25	3.25	0.05	4.05	4.13	21.44	980	0.69	144.2	none	"
1638	0.21	3.5	0.05	3.98	4.20	21.51	984	0.72	140.9	none	"
1641	0.5	4.0	0.10	3.9	4.22	21.49	986	0.66	139.9	none	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1942	SAMPLING ENDED AT: 1944
PUMP OR TUBING DEPTH IN WELL (feet): 12.7	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW5	1	PP	150 mL				NO3; SO4	RP, ~~ESP~~ APP	<200
MW5	1	PP	300 mL	H2SO4			NH4	~~ESP~~APP	<200
					pH= 4.22	0.75			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-6	SAMPLE ID:	MW-6
DATE:	7/17/19		

PURGING DATA

WELL DIAMETER (inches):	4	TUBING DIAMETER (inches):	3/8	WELL SCREEN INTERVAL DEPTH:	12 feet to 22 feet	STATIC DEPTH TO WATER (feet):	3.88	PURGE PUMP TYPE OR BAILER:	~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)

= (22 feet – 3.88 feet) x 0.65 gallons/foot = 11.78 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	17	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	17	PURGING INITIATED AT:	1000	PURGING ENDED AT:	1029	TOTAL VOLUME PURGED (gallons):	2.75

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				3.70							
1000	1.0	1.0		3.70							
1010	~~0.50~~	~~0.50~~	0.1	4.35	3.71	21.44	54547	0.66	166.7	non	non
1015	~~0.25~~	~~0.75~~ 1.5	0.1	4.34	3.74	21.39	59111	0.68	165.2	non	non
1020	0.5	2.0	0.1	4.42	3.76	21.21	62500	0.88	163.8	non	non
1023	0.25	2.25	0.08	4.53	3.76	21.18	62830	0.42	163.8	non	non
1026	0.25	2.50	0.08	4.60	3.78	21.13	63464	0.43	163.8	non	non
1029	0.25	2.75	0.08	4.62	3.77	21.12	63716	0.38	163.8	non	non

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	Brian Shaw	SAMPLER(S) SIGNATURE(S):		SAMPLING INITIATED AT:	1030	SAMPLING ENDED AT:	1032
PUMP OR TUBING DEPTH IN WELL (feet):	17	TUBING MATERIAL CODE:	PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:		FILTER SIZE: ____ µm	

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW6	1	PP	150 mL				NO3; SO4	~~ESP~~ APP	<200
MW6	1	PP	300 mL	H2SO4			NH4	~~ESP~~ APP	<200
					pH= 3.77	1.98		~~ESP~~ APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-7	SAMPLE ID:	MW-7
DATE:	7/12/18		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	13.9 feet to 23.9 feet	6.13	A, ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (23.9 feet – 6.13 feet) X 0.65 gallons/foot = 11.55 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
18.9	18.9	0840	0913	6.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
0840				6.20							
0851	2.00	2.00	0.18	6.52	5.06	20.56	19224	0.65	94.3	none	none
0856	1.00	3.00	0.2	6.52	5.04	20.54	18365	0.74	95.7	none	
0901	1.00	4.00	0.2	6.52	5.02	20.53	18069	0.52	96.6	none	
0904	0.5	4.5	0.17	6.52	5.02	20.53	18153	0.65	96.4	none	
0907	0.5	5.0	0.17	6.52	4.98	20.53	17360	0.3	98.5	none	
0910	0.5	5.5	0.17	6.52	5.02	20.45	18060	0.25	96.3	none	
0913	0.5	6.0	0.17	6.52	5.02	20.5	18720	0.25	95.28	none	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0914	SAMPLING ENDED AT: 0916
PUMP OR TUBING DEPTH IN WELL (feet): 18.9	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity			
MW7	1	PP	150 mL				NO3; SO4	~~ESP~~ PP	<200
MW7	1	PP	300 mL	H2SO4			NH4	~~ESP~~ PP	<200
					pH= 2.03	3.19		~~ESP~~ PP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-8	SAMPLE ID: MW-8	DATE: 7/17/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 19.9 feet to 29.9 feet	STATIC DEPTH TO WATER (feet): 6.13	PURGE PUMP TYPE OR BAILER: ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (29.9 feet – 6.13 feet) X 0.65 gallons/foot = 15.45 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 24.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 24.5	PURGING INITIATED AT: 0925	PURGING ENDED AT: 0945	TOTAL VOLUME PURGED (gallons): 2.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
925		0		6.25							
0935	1.5	1.5	0.15	6.34	3.73	20.18	34795	0.44	165.0	non	non
0940	0.5	2.0	0.10	6.4	3.74	20.08	35020	0.46	164.3	non	↓
0945	0.5	2.5	0.10	6.42	3.74	20.03	35113	0.50	164.1	non	↓

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: [illegible] / GBM	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0946	SAMPLING ENDED AT: 0948
PUMP OR TUBING DEPTH IN WELL (feet): 24.5	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW8	1	PP	150 mL				NO3; SO4	~~ESP~~ APP	<200
MW8	1	PP	300 mL	H2SO4			NH4	~~ESP~~ APP	<200
					pH= 3.74	1.29		~~ESP~~ APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-9	SAMPLE ID:	MW-9
DATE:	7/17/19		

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 20 feet to 30 feet	STATIC DEPTH TO WATER (feet): 9.11	PURGE PUMP TYPE OR BAILER: RP, ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (30 feet – 9.11 feet) X 0.65 gallons/foot = 13.58 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 25	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 25	PURGING INITIATED AT: 1130	PURGING ENDED AT: 1150	TOTAL VOLUME PURGED (gallons): 4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1130				9.00							
1140	2.00	2.00	0.2	9.45	4.76	20.36	2237	0.67	110.4	non	non
1145	1.00	3.00	0.2	10.05	4.83	20.27	2235	0.66	106.1	non	↓
1150	1.00	4.0	0.2	10.2	4.86	20.22	2233	0.70	102.9	non	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan S Stea / GBMC	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1151	SAMPLING ENDED AT: 1153
PUMP OR TUBING DEPTH IN WELL (feet): 25	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW9	1	PP	150 mL				NO3; SO4	~~ESP~~ APP	<200
MW9	1	PP	300 mL	H2SO4			NH4	RP ~~ESP~~ APP	<200
					pH= 4.86	2.03		~~ESP~~ APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-10	SAMPLE ID:	MW-10
DATE:	7/16/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	12.6 feet to 22.6 feet	12.13	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.6 feet – 12.13 feet) X 0.65 gallons/foot = 6.8 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
17.6	17.6	1205	1230	2.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1205		0		12.11		~~21.67~~					
1215	1.0	1.0	0.1	13.29	7.66	21.63	793	1.51	166.5	non.	non.
1220	0.5	1.5	0.1	13.35	7.81	21.76	793	1.22	158.7	non.	↓
1225	0.5	2.0	0.1	13.51	7.84	21.71	793	1.19	157.2	non.	
1230	0.5	2.5	0.1	13.72	7.87	21.77	794	1.06	155.2	non.	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Stone / GRM,		1232	1236

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
17.6	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW10	1	PP	150 mL				NO3; SO4	A ~~ESP~~ PP	<200
MW10	1	PP	300 mL	H2SO4			NH4	A ESP ~~PP~~	<200
					pH= 3.87	0.77		~~A ESP PP~~	
mw100	1	PP	150				NO3; SO4	APP	<200
mw100	1	PP	300	H2SO4			NH4	APP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-11	SAMPLE ID:	MW-11
DATE:	7/16/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4		9.8 feet to 19.8 feet	9.83	ESP PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.8 feet – 9.83 feet) X 0.65 gallons/foot = 6.48 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
14.8	14.8	1115	1150	4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1115				9.83							
1130	1.5	1.5	0.1	10.63	3.81	21.60	705	0.42	158.2	none	none
1135	0.5	2.0	0.1	10.72	3.88	21.57	731	0.38	154.5	none	
1145	1.0	3.0	0.2	10.75	3.92	21.46	740	0.38	152.7	none	
1150	1.0	4.0	0.2	10.78	3.93	21.39	743	0.48	152.0	none	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Stone		1151	1153

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
14.8	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW11	1	PP	150 mL				NO3; SO4	A ESP PP	<200
MW11	1	PP	300 mL	H2SO4			NH4	A ESP PP	<200
					pH= 3.93	1.93		A ESP PP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-12	SAMPLE ID: MW-12	DATE: 7/16/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 9.9 feet to 19.9 feet	STATIC DEPTH TO WATER (feet): 5.14	PURGE PUMP TYPE OR BAILER: PP ~~ESP~~

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.9 feet – 5.14 feet) x 0.65 gallons/foot = 9.59 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 14.9	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 14.9	PURGING INITIATED AT: 1020	PURGING ENDED AT: 1050	TOTAL VOLUME PURGED (gallons): 4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1020				5.10							
1040	2.00	2.00	0.2	7.10	5.57	22.02	684	0.30	64.4	non.	non.
1045	1.00	3.00	0.2	7.50	5.50	22.09	674	0.32	63.2	non.	non.
1050	1.00	4.00	0.2	7.62	5.58	22.06	683	0.26	64.0	non	non.

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1051	SAMPLING ENDED AT: 1052
PUMP OR TUBING DEPTH IN WELL (feet): 14.9	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW12					pH= 5.58	15.1		PP ~~ESP~~	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-13	SAMPLE ID:	MW-13
DATE:	7/15/19		

PURGING DATA

WELL DIAMETER (inches):	4	TUBING DIAMETER (inches):	3/4	WELL SCREEN INTERVAL DEPTH:	9.8 feet to 19.8 feet	STATIC DEPTH TO WATER (feet):	4.84	PURGE PUMP TYPE OR BAILER:	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.8 feet – 4.84 feet) X 0.65 gallons/foot = 9.7 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	14.8	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	14.8	PURGING INITIATED AT:	1650	PURGING ENDED AT:	1733	TOTAL VOLUME PURGED (gallons):	4.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1650				4.78							
1705	1.5	1.5	0.1	7.04	4.49	20.18	566	0.82	118.0	None	None
1710	0.5	2.0	0.1	8.05	4.81	20.37	567	1.64	102.7	"	"
1715	0.5	2.5	0.1	8.52	4.97	20.58	566	1.43	96.5	"	"
1720	0.5	3.0	0.1	9.35	5.03	20.78	563	1.39	93.8	"	"
1726	1.0	4.0	0.17	9.76	4.98	20.68	562	1.36	95.6		
1733	0.5	4.5	0.08	10.41	4.93	20.68	560	1.33	98.3		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	Ryan Stone / GBMC	SAMPLER(S) SIGNATURE(S):		SAMPLING INITIATED AT:	1734	SAMPLING ENDED AT:	1735
PUMP OR TUBING DEPTH IN WELL (feet):	14.8	TUBING MATERIAL CODE:	PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:		FILTER SIZE: ____ µm	

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW13					pH= 4.93	6.19		ESP APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: El Dorado Chemical Company	SITE LOCATION: 4500 North West Avenue, El Dorado, AR
WELL NO: MW14	SAMPLE ID: MW14
DATE: 7/16/19	

PURGING DATA

WELL DIAMETER (inches): 2 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 8.2 feet to 18.2 feet	STATIC DEPTH TO WATER (feet): 4.5	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)

= (18.2 feet – 4.5 feet) X 0.65 gallons/foot = 8.91 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
13.2	13.2	1600	1625	3.75

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1600		0		4.38							
1615	2.25	2.25	0.15	5.16	4.10	24.21	556	0.59	144.1	non.	
1620	0.75	3.00	0.15	5.24	4.16	24.01	556	0.56	141.9	non.	
1625	0.75	3.75	0.15	5.31	4.19	23.94	558	0.53	140.1	non.	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1626	SAMPLING ENDED AT: 1628
PUMP OR TUBING DEPTH IN WELL (feet): 13.2	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING (Y) N (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW14	1	PP	150 mL	N/A			DO 3.30	APP	<200
MW14	1	PP	300mL	H_2SO_4			NH3	APP	<200
					pH = 4.15	0.23		APP	<200
						0.23			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-15	SAMPLE ID:	MW-15
DATE:	7/16/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	7 feet to 17 feet	3.08	~~ESP~~

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17 feet – 3.08 feet) x 0.65 gallons/foot = 9.05 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
12	12	1455	1520	4.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				~~2.16~~							
1455				2.83							
1505	1.5	1.5	0.1	3.48	3.86	23.6	86	0.45	155.4	non-	non.
1510	1.0	2.50	0.2	3.54	4.02	23.8	86	0.41	147.8	non.	
1515	1.00	3.50	0.2	3.5	4.08	23.8	86	0.485	145.5	non.	
1520	1.00	4.50	0.2	3.5	4.11	23.9	86	0.49	143.2	non.	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
		1521	1522

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
12	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW15					pH= 4.11	0.7		~~ESP~~ APP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential**: ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-16	SAMPLE ID:	MW-16
DATE:	7/16/19		

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 9.3 feet to 19.3 feet	STATIC DEPTH TO WATER (feet): 2.29	PURGE PUMP TYPE OR BAILER: ~~ESP~~ PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

= (19.3 feet – 2.29 feet) X 0.65 gallons/foot = 11.06 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 14.3	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 14.3	PURGING INITIATED AT: 1405	PURGING ENDED AT: 1432	TOTAL VOLUME PURGED (gallons): 5.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1405				2.16	3.47	22.24	174	0.40	177.2		
1417	2.5	2.5	0.21	↓2.80	↓	↓	↓	↓	↓	none	none
1422	1.0	3.5	0.2	2.81	3.78	22.19	175	0.33	160.1	none	↓
1427	1.0	4.5	0.2	2.83	3.86	22.14	175	0.26	157.9	none	
1432	1.0	5.5	0.2	2.83	3.94	22.11	175	0.21	151.9	none	↓

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan Ryan	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1433	SAMPLING ENDED AT: 1434
PUMP OR TUBING DEPTH IN WELL (feet): 14.3	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW16	1	PP	150 mL				NO3; SO4	A ~~ESP~~ PP	<200
MW16	1	PP	300 mL	H2SO4			NH4	A ~~ESP~~ PP	<200
					pH= 3.94	1.49		A ~~ESP~~ PP RC	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-17	SAMPLE ID:	MW-17
DATE:	7/15/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/4	DEPTH: 24.7 feet to 34.7 feet	27.05	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.7 feet – 27.05 feet) X 0.65 gallons/foot = 4.97 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
29.7	29.7	1817	1840	3.25

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1817				26.92							
1830	1.50	1.5	0.12	27.24	3.74	20.99	134	3.46	159.1	non.	non.
1835	1.00	2.5	0.2	27.51	3.76	20.43	136	3.66	161.5	non.	non.
1840	0.75	3.25	0.15	27.53	3.67	20.05	136	3.78	165.0	non.	non.

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Shaw		1841	1843

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
29.7	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW17	1	PP	150 mL			—	NO3; SO4	ESP	<200
MW17	1	PP	300 mL	H2SO4		—	NH4	ESP	<200
MW17					pH= 3.67	~~3.67~~	RI	ESP	
						3.24			
						1			
						turbidity			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-18	SAMPLE ID:	MW-18
DATE:	7/18/19		

PURGING DATA

WELL DIAMETER (inches):	4	TUBING DIAMETER (inches):	3/8	WELL SCREEN INTERVAL DEPTH:	7.2 feet to 17.2 feet	STATIC DEPTH TO WATER (feet):	4.77	PURGE PUMP TYPE OR BAILER:	ESP PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17.2 feet – 4.77 feet) x 0.65 gallons/foot = 8.08 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	12.2	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	12.2	PURGING INITIATED AT:	0818	PURGING ENDED AT:	0843	TOTAL VOLUME PURGED (gallons):	4.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
0818				5.02							
0828	2.5	2.5	0.25	5.22	4.26	21.90	73	2.60	140.4	non	turbid
0832	0.5	3.0	0.1	5.96	4.25	21.68	71	2.61	123.4	non	
0837	0.5	3.5	0.1	6.13	4.25	21.55	73	2.60	113.5	non	
0840	0.5	4.0	0.1	6.52	4.68	21.72	72	2.61	120.9	non	
0843	0.5	4.5	0.1	7.25	4.68	21.84	71	2.54	121.8	non	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	Ryan J Trail / GNMC	SAMPLER(S) SIGNATURE(S):		SAMPLING INITIATED AT:	0844	SAMPLING ENDED AT:	0846
PUMP OR TUBING DEPTH IN WELL (feet):	12.2	TUBING MATERIAL CODE:	PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:		FILTER SIZE: ____ µm	

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW18					pH= 4.68	327		ESP PP	
MW18	1	PP	150 mL	NA			NO3	ESP PP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: **1. The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-19	SAMPLE ID:	MW-19
DATE:	7/18/19		

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2		51.5 feet to 61.5 feet	1.65	ESP PP RS

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (61.5 feet – 1.65 feet) x 0.16 gallons/foot = 9.58 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
56.5	56.5	0900	0931	2.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
0907				1.96	4.36	19.11	85	0.74	134.7	RS.	
0915	1.5	1.5	0.10	2.95	4.36	19.11	85	0.74	134.7	non.	non.
0920	0.25	1.75	0.05	2.95	4.62	19.07	85	0.56	121.1	non	
0925	0.25	2.00	0.05	2.95	4.91	19.14	84	0.53	107.1	non.	
0928	0.25	2.25	0.05	2.95	4.95	19.13	84	0.49	104.0	non.	
0931	0.25	2.5	0.05	3.00	4.95	19.09	84	0.50	103.7	non.	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Thom.		0932	0933

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
56.5	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW19					pH= 4.95	7.02		ESP PP	< 200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential**: ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-20	SAMPLE ID: MW-20	DATE: 7-16-19

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/4	WELL SCREEN INTERVAL DEPTH: 44.5 feet to 54.5 feet	STATIC DEPTH TO WATER (feet): 24.17	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (54.5 feet – 24.17 feet) X 0.16 gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 49.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 49.5	PURGING INITIATED AT: 1507	PURGING ENDED AT: 1541	TOTAL VOLUME PURGED (gallons): 2.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1507		0		26.97				#			
1522	0.75	0.75	0.05	30.64	4.44	22.76	76	1.58 2	126.7	non.	non.
1527	0.25	1.00	0.05	32.2	4.23	22.11	81	2.83	127.0	non.	" "
1532	0.25	1.25	0.05	32.9	4.87	22.87	83	3.23	101.3	non.	" "
1535	0.25	1.50	0.05	33.6	5.07	24.39	84	1.56	92.1	non.	" "
1538	0.50	2.0	0.05	34.2	5.12	24 42	85	1.36	85.2	non.	" "
1541	0.50	2.5	0.1	35.0	5.15	24.42	85	1.51	85.2	non.	" "

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan J JTOOS	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1542	SAMPLING ENDED AT: 1543
PUMP OR TUBING DEPTH IN WELL (feet): 49.5	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW20					pH= 5.15	71.2		ESP	∠200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-21	SAMPLE ID: MW-21	DATE: 7/16/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
1	3/8	DEPTH: 24.9 feet to 34.9 feet	15.82	PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.9 feet – 15.82 feet) X 0.04 gallons/foot = 0.76 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
34.9	34.9	1755	1819	1.25

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1755		0									
1805	1/4	1/4	0.03		3.72	22.54	64	3.38	163.1	Cloudy	Non
1810	1/4	1/2	0.03		3.82	22.49	64	3.42	157.8	"	"
1813	1/4	3/4	0.03		4.03	22.25	65	3.39	147.1	"	"
1816	1/4	1	0.03		4.01	22.19	64	3.80	147.7	Less Cloudy	"
1819	1/4	1.25	0.03		4.06	22.23	65	3.62	144.6	"	"
				1" Well water level to pump depth							

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Stamm / GSME		1820	1821

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
34.9	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW21					pH= 4.06	18.1		APP	200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-22	SAMPLE ID:	MW-22
DATE:	7/15/19		

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 69.8 feet to 79.8 feet	STATIC DEPTH TO WATER (feet): 3.95	PURGE PUMP TYPE OR BAILER: PP ~~ESP~~

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (79.8 feet – 3.95 feet) x 0.16 gallons/foot = 12.13 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 74.8	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 74.8	PURGING INITIATED AT: 1910	PURGING ENDED AT: 1940	TOTAL VOLUME PURGED (gallons): 5.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1910		0		3.82							
1920	1.5	1.5	0.15	5.13	4.82	19.87	194	1.3	103.0	none	none
1925	2.5	2.5	0.2	5.13	5.03	19.73	183	1.03	87.7	none	
1930	1.0	3.5	0.2	5.10	5.27	19.72	186	1.03	79.7	none	
1935	1.0	4.5	0.2	5.09	5.30	19.70	186	1.05	75.5	none	
1940	1.0	5.5	0.2	5.00	5.37	19.80	186	1.03	73.9	none	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan J Stone	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1941	SAMPLING ENDED AT: 1942
PUMP OR TUBING DEPTH IN WELL (feet): 74.8	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW22					pH= 5.37	5.60		RP ~~ESP~~ APP	≤200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-1	SAMPLE ID:	DATE: 1/23/15

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 12.1 feet to 22.2 feet	STATIC DEPTH TO WATER (feet): 7.98	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.2 feet – 7.98 feet) X 0.65 gallons/foot = 9.24 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 12.1	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 12.1	PURGING INITIATED AT: 1240	PURGING ENDED AT: 1254	TOTAL VOLUME PURGED (gallons): 2.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				6.41							
Pre Purge 1240				6.18							
1254	2.00	2.00	0.14	6.72	4.33	14.55	47	8.00	137.7	clear	
1259	2.50	0.5	0.10	6.72	4.30	15.27	47	4.97	139.1	clear	
1304	2.75	0.25	0.05	6.69	4.26	15.20	47	4.69	140.9	clear	
	5 w.t.v.										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan T Stone	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: N/A	SAMPLING ENDED AT: N/A
PUMP OR TUBING DEPTH IN WELL (feet): 12.1	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
—	—	—	—	1305	pH = 4.29	1.99	—	—	—

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-2	SAMPLE ID:	DATE: 1/23/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	10.2 feet to 20.2 feet	0.00	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (20.2 feet – 0.00 feet) X 0.65 gallons/foot = 13.01 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
15.2	15.2	1145	1155	4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				0.00							
Pre Purge 1145				0.00							
1155	1.50	1.50	0.15	0.78	5.28	15.57	254	0.25	90.3	clear	
1200	2.50	1.00	0.2	0.98	5.33	16.57	253	0.15	89.9	clear	
1205	3.00	0.50	0.2	0.99	5.20	15.36	254	0.21	94.6	clear	
1210	3.50	0.5	0.2	0.99	5.15	15.36	253	0.21	97.0	clear	
1215	4.0	0.5	0.2	0.99	5.19	15.42	252	0.19	94.6	clear	
	↑	↑									
	Switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
	Ryan J Flynn	N/A	N/A

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
15.2	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
—	—	—	—	—	pH: 5.19	16.7	—	—	—

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-3	SAMPLE ID:	DATE: 1/23/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 17.1 feet to 27.1 feet	STATIC DEPTH TO WATER (feet): 8.46	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (27.1 feet – 8.46 feet) X 0.65 gallons/foot = 12.30 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 22.1	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 22.1	PURGING INITIATED AT: 1040	PURGING ENDED AT: 1105	TOTAL VOLUME PURGED (gallons): 2.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Pre Purge				8.28							
1040				8.02							
1055	1.5	1.5	0.10	10.40	5.90	16.21	236	3.05	59.3	clear	
1100	2.0	0.5	0.10	10.72	5.92	15.94	236	2.87	58.6	clear	
1105	2.5	0.5	0.10	10.92	5.94	16.14	235	2.90	57.7	clear	
	↑	↑									
	switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan J Stone	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1106	SAMPLING ENDED AT: 1109
PUMP OR TUBING DEPTH IN WELL (feet): 22.1	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
Grab	1	PP	150 mL	—	pH = 5.97	1.46	NO_3 : SO_4	ESP	<200
Equipment Blank	1	PP	300 mL	H_2SO_4			NH	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-4	SAMPLE ID:	DATE: 1/23/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/4	12.1 feet to 22.1 feet	8.20	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.1 feet – 8.20 feet) X 0.65 gallons/foot = 8.97 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
17.1	17.1	1808	1827	2.00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				8.02							
1808				7.78							
1817	1.00	1.00	0.11	9.84	3.84	16.71	7075	3.63	162.7	clear	
1822	1.50	0.50	0.10	10.25	3.80	16.88	6979	3.96	164.6	clear	
1827	2.00	0.50	0.10	11.69	3.82	16.91	7009	3.82	163.5	clear	
	↖ 71										
	Switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Stone		1828	1830

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
17.1	PP		

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW4	1	PP	150mL	—	—	1.41	NO_3; SO_4	ESP	<200mL
MW4	1	PP	300mL	H_2SO_4	—	—	NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO: MW5	SAMPLE ID:	DATE:	1/22/19

PURGING DATA

WELL DIAMETER (inches): 4"	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 7.7 feet to 17.7 feet	STATIC DEPTH TO WATER (feet): 3.23	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17.7 feet – 3.23 feet) X 0.65 gallons/foot = 9.4 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 12.7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 12.7	PURGING INITIATED AT: 1530	PURGING ENDED AT: 1550	TOTAL VOLUME PURGED (gallons): 3.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				3.25							
1530				3.10							
1545	2.00	2.00	0.13	4.41	4.29	16.67	880	0.37	125.4	non	
1550	2.50	0.5	0.10	4.42	4.27	16.64	878	0.32	126.2	non	
1550	3.5	1.0	0.20	4.41	~~4.27~~	~~16.71~~	876	0.32	126.2	non	

Switch

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: RJT RSM	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1551	SAMPLING ENDED AT: 1552
PUMP OR TUBING DEPTH IN WELL (feet): 12.7	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW5	1	PP	150 mL	NA		9.05	NO_3 SO_4	ESP	<200
MW5	1	PP	300 mL	H_2SO_4	~~H_2SO_4~~		NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: El Dorado Chemical Company		SITE LOCATION: 4500 North West Avenue, El Dorado, AR	
WELL NO: MW-6	SAMPLE ID:		DATE: 1/22/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 7/8	WELL SCREEN INTERVAL DEPTH: 12 feet to 22 feet	STATIC DEPTH TO WATER (feet): 4.14	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: **1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22 feet – 4.14 feet) X 0.65 gallons/foot = 11.6 gallons

EQUIPMENT VOLUME PURGE: **1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 17	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 17	PURGING INITIATED AT: 1700	PURGING ENDED AT: 1731	TOTAL VOLUME PURGED (gallons): 6.50

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
pre				4.12							
1700	~~2.5~~			3.98							
1711	2.5	2.5	0.23	5.14	3.84	26.20	39795	0.0	167.5	clear	DO -4.02
1716	3.0	0.5	0.10	5.14	4.06	31.35	36012	0.0	154.2	clear	DO - 5.02
1719	4.0	1.0	0.2	5.14	4.33	25.94	50123	0.0	139.2	clear	DO -36.02
1722	Change YSI Battery Start Over										
1725	6.0	2.0		5.19	3.71	18.08	61625	0.30	169.8	clear	
1728	6.25	0.25	0.08	5.20	3.71	18.08	61204	0.26	169.8	clear	
1731	6.50	0.25	0.08	5.21	3.71	18.09	61266	0.26	169.8	clear	
	switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016
PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan / FTN	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT: 1732	SAMPLING ENDED AT: 1734
PUMP OR TUBING DEPTH IN WELL (feet): 17	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-6	1	PP	150 mL	—	pH = 3.71	8.95	NO_3 : SO_4	ESP	<200
MW-6	1	PP	300 mL	H_2SO_4		—	NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential**: ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME: El Dorado Chemical Company	SITE LOCATION: 4500 North West Avenue, El Dorado, AR	
WELL NO: MW7	SAMPLE ID: Drawdown	DATE:

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1605	Pump on high			6.68							
1606				8.89							
1607				10.19							
1608				11.00							
1609				11.18							
1610				11.29							
1611				11.38							
1612				11.49							
1613				11.57							
1614				11.66							
1615				11.73							

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-7	SAMPLE ID:	DATE: 1/23/15

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	13.5 feet to 23.5 feet	7.02	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (23.9 feet – 7.02 feet) X 0.65 gallons/foot = 10.97 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
18.9	18.9	1518	1533	7.25

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				6.60							
1518				6.55							
1528	1.50	1.50	0.15	6.88	5.03	18.40	19285	0.54	104.1	none	
1533	2.00	0.5	0.10	6.92	5.03	17.35	20671	0.07	102.3	none	DO reading 22
1538	3.00	1	0.2	6.94	5.03	19.89	18592	0.0	104.1	none	(-35.45)
1543	5.00	2	0.4	7.00	5.08	24.03	16420	0.0	103.2	none	(-32.01)
1549	6.50	1.5	0.3	6.94	5.16	29.84	14009	0.0	100.5	none	(-42.15)
1551	7.00	0.5	0.25	6.96	5.20	30.94	13628	0.0	96.5	none	(-40.05)
1554	7.25	0.25	0.08	6.94	5.24	28.54	14120	0.0	92.6	none	(-43.83)
		switch									

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Storm		1557	1558

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
18.9	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW7	1	PP	150 mL	—	pH = 5.24	0.49	SO_4 : NO_3	ESP	<200
MW7	1	PP	300 mL	H_2SO_4	—	—	NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-8	SAMPLE ID:	DATE: 1/24/15

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	19.9 feet to 29.9 feet	6.64	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)

= (29.9 feet – 6.64 feet) X 0.65 gallons/foot = 15.11 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
24.5	24.5	1617	1642	2.25

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				6.52							
Pre Purge 1617			0.14	6.51							
1628	1.25	1.25	6.65	6.61	3.87	17.73	34495	0.71	167.9	clear	
1632	1.50	0.25	0.06	6.65	3.86	17.63	34646	0.48	169.4	clear	
1637	2.00	0.50	0.1	6.68	3.85	18.09	34905	0.41	169.1	clear	
1642	2.25	0.25	0.05	6.69	3.85	17.54	35104	0.39	169.2	clear	
	Switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Shon		1643	1645

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
24.5	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-8	1	PP	150 mL	—	~~pH<2 3.85~~	0.49	NO3, SO4	ESP	<200
MW-8	1	PP	300mL	H2SO4	~~H2SO4~~		NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-9	SAMPLE ID:	DATE: 1/24/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 20 feet to 30 feet	STATIC DEPTH TO WATER (feet): 8.33	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (30 feet – 8.33 feet) X 0.65 gallons/foot = 14.09 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 25	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 25	PURGING INITIATED AT: 1530	PURGING ENDED AT: 1550	TOTAL VOLUME PURGED (gallons): RT 1.75

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				8.12							
Pump. 1530				7.89							
1540	1.0	1.0	0.1	8.20	5.66	18.24	2301	2.61	78.5	clear	
1545	1.5	0.5	0.1	8.25	5.67	18.16	2304	2.47	78.2	clear	
1550	1.75	0.25	0.05	8.24	5.65	18.03	2299	2.54	79.3	clear	
	↑ Switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan Stone	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1551	SAMPLING ENDED AT: 1552
PUMP OR TUBING DEPTH IN WELL (feet): 25	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW9	1	PP	150 mL	—	pH= 5.65	1.74	SO_4, NO_3	ESP	<200
MW9	1	PP	300 mL	H_2SO_4	—	—	NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-10	SAMPLE ID:	DATE: 1/24/15

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	12.6 feet to 22.6 feet	12.50	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (22.6 feet – 12.50 feet) X 0.65 gallons/foot = 6.57 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
17.6	17.6	0940	0955	1.25

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				12.15							
940				11.95							
955	.75	0.75	0.05	13.28	4.94	19.27	799	1.82	114.6	Clear	
1000	1.0	~~1.00~~ 1.00	0.05	13.49	4.92	18.70	801	1.79	116.1	"	"
1005	1.25	~~1.25~~ 1.25	0.05	13.64	4.93	18.79	800	1.77	115.5	"	"
1022	↓	↓		13.21	Sampl.	←	Water depth Stabilized here (no more changes in depth)				
	Swtl										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Stone		1024	1025

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
17.6	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW10	1	PP	150 mL	—	pH: 4.93	0.76	NO3 SO4	ESP	<100
MW10	1	PP	300 mL	H_2SO_4			NH4	ESP	<100

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-11	SAMPLE ID:	DATE: 1/24/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	9.8 feet to 19.8 feet	9.91	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.8 feet – 9.91 feet) X 0.65 gallons/foot = 6.43 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
14.8	14.8	0848	0858	2.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Pre				9.61							
Purge 0845				9.8		~~17.95~~		~~0.4~~			
0852	1.50	1.5	0.15	10.53	4.31	17.84	718	0.39	143.8	clear	
0903	2.00	0.5	0.10	10.4	4.34	17.47	717	0.34	144.5	clear	
0908	2.50	0.5	0.10	10.35	4.30	17.47	716	0.39	146.0	clear	
	switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Firby		0909	0911

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
14.8	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
0911 MW11	1	PP	150 mL	—	pH 4.30		NO3,SO4	ESP	<200
0911 MW11	1	PP	300 mL	H2SO4	—	—	NH4	ESP	<200
0912 MW10	1	PP	150 mL	—			NO3, SO4	ESP	<200
0912 MW10	1	PP	300 mL	H2SO4	—	—	NH4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-12	SAMPLE ID:	DATE: 1/21/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4		9.9 feet to 19.9 feet	5.72	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.9 feet − 5.72 feet) x 0.65 gallons/foot = 9.72 x 3 = 27.7 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
15	15	1521	1623	

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Pre purge Pump start											
1521		(not)		5.72							
1530				5.59							
1533				5.95							
1543	1.75	→ 1.75	0.13	6.97	5.41	17.53	603	0.83	69.5	rust tint	
1550	2.25	→ 0.50	0.11	7.55	5.41	17.58	604	6.53	69.8	rust	
1555		0.875	0.175	7.6	5.39	17.3	603	0.79	70.6		
1600	4.0	→ 0.875	0.175	7.95	5.41	17.56	605	1.11	~~69.8~~ 70.2		
1605		0.75	0.15	8.05	5.39	17.47	608	0.91	71.1		
1613	5.5	→ 0.75	0.15	8.09	5.40	17.52	605	~~0.78~~ 0.72	70.6		
1619		NB: ~~0.50~~ 0.9	0.18	8.14	5.40	17.53	606	0.82	70.4		
1623		~~0.75~~ 0.6	0.15	8.14	5.41	17.68	607	0.71	69.8		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
BJP/WHG/RJS		1625	1675

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
15	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity			
MW-12	—	—	—			90	pH 5.41	ESP	—

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW2-13	SAMPLE ID:	DATE: 1/22/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4"	3/8"	9.8 feet to 19.8 feet	5.88	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (19.8 feet – 5.88 feet) X 0.65 gallons/foot = 9.05 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
14.8	14.8	1645	1727	2.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				4.76							
1645			4.49	4.99							
1717	1.5	1.5	0.05	78.55	4.56	16.73	1025	0.75	112.2	none	
1722	2.0	0.5	0.10	7.72	4.54	16.65	1026	0.70	113.2	none	
1727	2.5	0.5	0.10	7.85	4.54	16.65	1027	0.69	112.9	none	
	switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Stone			

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
14.8	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
					pH=4.54	2.98			

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW15	SAMPLE ID:	DATE: 1/21/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	7 feet to 17 feet		ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17 feet – 3.15 feet) X 0.65 gallons/foot = 9 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
12	12	1718	1753	3.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Pump 1715				3.15							
1725				2.99							
Start 1726				3.35	4.8	15.03	86	13.7%	120.9		
1731	1.00	1.00	0.2	3.62	4.37	15.69	81	9.2%	121.9		
1738	2.00	1.00	0.2	3.63	4.17	15.80	81	7.6%	131.5		
1743	2.50	0.50	0.1	3.53	4.13	15.69	81	0.73	132.6		
1748	3.00	0.50	0.1	3.59	4.08	15.68	81	0.68	135.0		
1753	3.50	0.50	0.1	3.59	4.06	15.66	81	0.65	136.7		
	Switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Stone			

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
12	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-15	—	—	—	—	pH = 4.06	2.08	pH -> 4.06		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-16	SAMPLE ID:	DATE: 1/22/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/4	9.3 feet to 19.3 feet	2.57	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
10.88 RJC = (19.3 feet − 2.57 feet) X 0.65 gallons/foot = 10.88 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
14.3	14.3	1135	1210	3.5

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				2.57							
				2.57							
1135				2.43							
1145	1.0	1.0	0.10	2.94	4.07	16.2	154	0.62	135.8	clear	
1151	1.5	0.5	0.08	2.88	4.08	16.24	157	1.83	135.1	clear	
1156	2.0	0.5	0.1	2.84	4.08	16.25	158	0.68	135.60	clear	
1203	2.5	0.5	0.1	2.85	4.09	16.35	156	0.74	135.2	clear	
1210	3.5	1	0.2	2.88	4.09	16.37	159	0.75	132.9	clear	
	↑	↑									
	5 Vol										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan Hicks		1214	1216

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ µm
14.3	PP		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: (Y) N 1217

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-16	2	PP	150 mL	HNO3	pH = 4.09	2.79	NO3, SO4	ESP	<200
MW-16	2	PP	500 mL	SO4	<2	—	NH4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-17	SAMPLE ID:	DATE: 1/22/15

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 24.7 feet to 34.7 feet	STATIC DEPTH TO WATER (feet): 26.73	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.7 feet – 26.73 feet) X 0.65 gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 29.7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 29.7	PURGING INITIATED AT: 1400	PURGING ENDED AT: 1827	TOTAL VOLUME PURGED (gallons): 3.50

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Pre-purge				26.45							
Purge 1800				26.47							
1813	1.75	1.75	0.13	26.80	3.92	19.22	196	0.75	145.2	clear	
1818	2.25	0.5	0.10	26.80	3.86	19.34	203	0.52	147.9	clear	
1823	3.00	0.75	0.15	26.82	3.86	19.29	207	0.48	148.6	clear	
1827	3.50	0.5	0.13	26.88	3.84	19.30	206	0.45	149.1	clear	
	switch										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1824	SAMPLING ENDED AT: 1829
PUMP OR TUBING DEPTH IN WELL (feet): 29.7	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-17	1	PP	150 mL	—	~~pH = 3.84~~	2.07	SO_4; NO_3	ESP	<200
MW-17	1	PP	300 mL	H_2SO_4			NH_4	ESP	<200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO: MW18	SAMPLE ID:	DATE:	1/22/19

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4	3/8	7.2 feet to 17.2 feet	4.53	ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (17.2 feet – 4.53 feet) X 0.65 gallons/foot = 8.24 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
12.2	12.2	0840	0910	2.0

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or mS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Start				4.53							
0825				4.55							
Purge Start 0835				4.40							
0840				5.1							
0845	0.25	0.25	0.15	5.25	4.21	13.69	93	6.69	126.8	clear	
0850	1.00	0.25	0.05	5.37	4.29	13.66	84	6.52	123.2	clear	
0855		0.125	0.025	5.44	4.36	13.67	84	6.97	120.6	clear	
0900	1.25	0.125	0.025	5.45	4.44	13.63	77	6.36	116.4	cloudy	
0905	1.50	0.25	0.05	5.51	4.41	13.20	75	6.84	114.5	clear	
0910	2.00	0.5	0.1	5.54	4.39	13.20	74	6.71	110.3	clear	
		Total									

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
Ryan J Stone		0912	0913

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
12.2	PE		

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
0913 MW18	1	HP	150 mL	NA	pH = 4.39	354	NO3	ESP	< 200

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-19	SAMPLE ID:	DATE: 1/22/19

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 51.5 feet to 61.5 feet	STATIC DEPTH TO WATER (feet): 1.69	PURGE PUMP TYPE OR BAILER: TSP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (61.5 feet – 1.69 feet) X 0.16 gallons/foot = 9.6 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 56.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 56.5	PURGING INITIATED AT: 0950	PURGING ENDED AT: 1040	TOTAL VOLUME PURGED (gallons): 4.00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
Start				1.69							
Q=1.6				1.66							
Q=1.6				1.67							
0950											
1005	1.5	1.5	0.1	3.5	5.28	17.05	89	0.93	76.8	Cloudy	
1015	2.0	0.5	0.1	1.7	5.19	16.62	87	0.88	80.5	Cloudy	
1020	2.5	0.5	0.1	2.45	5.26	17.14	86	0.55	76.6	Slightly cloudy	
1025	3.0	0.5	0.1	1.98	5.17	16.88	86	1.01	81.2	" "	
1030	3.5	0.5	0.1	2.02	5.24	16.96	86	0.83	78.3	" "	
1035	3.75	0.25	0.05	1.96	5.22	16.93	86	0.87	78.8	" "	
1040	4.00	0.25	0.05	2.05	5.20	16.97	86	0.81	79.5	clear	Petrol
					5.20						

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan Stone	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: N/A	SAMPLING ENDED AT: N/A
PUMP OR TUBING DEPTH IN WELL (feet): 56.5	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
N/A	N/A	N/A	N/A	N/A	N/A pH= 5.2	9.06	N/A	N/A	N/A

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-20	SAMPLE ID:	MW-20
DATE:	1/21/19		

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 5/8	WELL SCREEN INTERVAL DEPTH: 44.5 feet to 54.4 feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER: Sub. Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (54.4 feet – 27.09 feet) X 0.16 gallons/foot = 4.4 X 3 = 13.1 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 50	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 50	PURGING INITIATED AT: 1326	PURGING ENDED AT: 1417	TOTAL VOLUME PURGED (gallons): 4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
before pump 1316	0	0	—	27.09	—	—	—	—	—	—	—
Pump in 1324	0	0	—	25.85							
Start pump 1326											
1339	1.0	1.0	100 ml/min	37.0	5.03	17.71	50	0.64	90.3		
1351	1.0	2.0	100 ml/min	40.85	4.95	17.5	80	0.51	92.5		
1401			100 ml/min	42.05	4.90	17.37	80	0.51	91.5		
1407		3.0		43.96	4.95	18.06	81	0.66	92.0		
1412				44.5	4.95	17.9	82	0.60	92.6		
1417		4.0		44.91	4.98	17.7	82	0.70	91.6		
					4.98					turb	88.3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: BSP	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1420	SAMPLING ENDED AT: 1420
PUMP OR TUBING DEPTH IN WELL (feet): 50'	TUBING MATERIAL CODE: HDPE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: — µm
FIELD DECONTAMINATION: PUMP Y N	TUBING (Y) N (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
MW-20	—		—	—	4.98=pH	88.3	—	—	—

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0 5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential**: ± 10 millivolts

Turbidity meter standards
Std 4 → read 4.23
Std 47 → read 45.8

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-21	SAMPLE ID:	MW-21
DATE:	1/21/19		1145 1200 - 1300

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
1		24.9 feet to 34.9 feet	17.05	(BAILER)

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.9 feet − 15.80 feet) X 0.04 gallons/foot = 0.76 X3 = 2.3 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
N/A = gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
—	—	1207	1256	2.45

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
1207	1gal	1gal		17.05							
1221	0.5gal	1.5			4.21	15.6	77	4.43	125.5	Clear	None
1228	0.25	1.75			4.48	15.6	65	4.37	115.1	"	"
1235	0.25	2.0			4.42	16.4	64	4.77	115.3	Turbid	None
1243	0.25	2.25			4.2	15.75	64	5.35	125.	turbid	
1249	0.25	2.50			4.02	15.68	62	5.40	145	turbid	None
1256	0.25	2.45			~~4.31~~ 4.91	15.8	59	4.7	126		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y ~~N~~ Filtration Equipment Type:	FILTER SIZE: ____ µm
Bail	Bail		

FIELD DECONTAMINATION: PUMP ~~Y~~ ~~N~~ TUBING ~~Y~~ ~~N~~ (replaced) DUPLICATE: ~~Y~~ ~~N~~

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity			
MW21	—	—	—	—	pH = 4.91 on 1/22/19	90.2	—	—	—

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

GROUNDWATER SAMPLING LOG

SITE NAME:	El Dorado Chemical Company	SITE LOCATION:	4500 North West Avenue, El Dorado, AR
WELL NO:	MW-22	SAMPLE ID:	DATE: 1/22/19

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 65 feet to 79.8 feet	STATIC DEPTH TO WATER (feet): 4.00	PURGE PUMP TYPE OR BAILER: ESP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (74.8 feet – 4.00 feet) X 0.16 gallons/foot = 12.13 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 74.8	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 74.8	PURGING INITIATED AT: 1245	PURGING ENDED AT: 1313	TOTAL VOLUME PURGED (gallons): 3.25

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	Redox (mV)	COLOR (describe)	ODOR (describe)
				3.80							
Purge 1245				3.76				0.55 R.U			
1258	1.50	1.50	0.12	4.45	5.45	17.95	178	~~0.68~~	67.9	clear	
1303	2.00	0.5	0.1	4.53	5.38	17.94	176	0.40	71.1	clear	
1308	2.50	0.5	0.1	4.41	5.40	17.71	174	0.32	70.6	clear	
1313	3.25	0.75	0.15	4.8	5.43	18.08	173	0.30	68.4	clear	
1315				4.25							

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1313	SAMPLING ENDED AT: 1314
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PP	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	Turbidity	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
N/A	N/A	N/A	N/A	N/A	N/A pH= 5.47	9.51	N/A	N/A	N/A

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **HDPE** = High Density Polyethylene; **LDPE** = Low Density Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

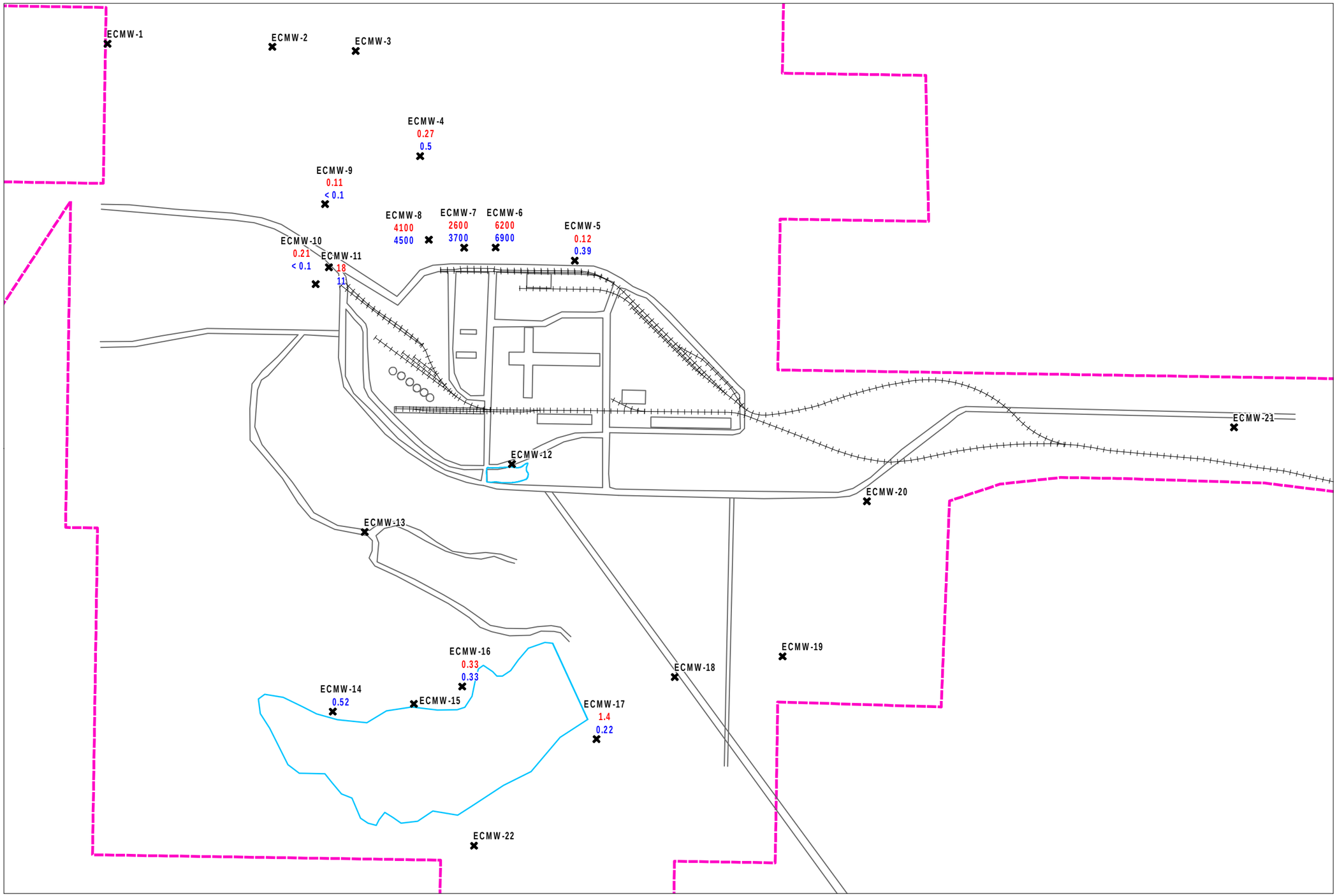
SAMPLING EQUIPMENT CODES: **APP** = After (Through) Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.1 units **Temperature:** ± 3% **Specific Conductance:** ± 3% **Dissolved Oxygen:** (10% for values greater than 0.5 mg/L, if three dissolved oxygen values are less than 0.5 mg/L, consider the values as stabilized) **Turbidity:** (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized) **Oxidation/Reduction Potential:** ± 10 millivolts

APPENDIX C
Constituent Concentration Maps



NO	DATE	REVISION	BY	CK.	APPR.

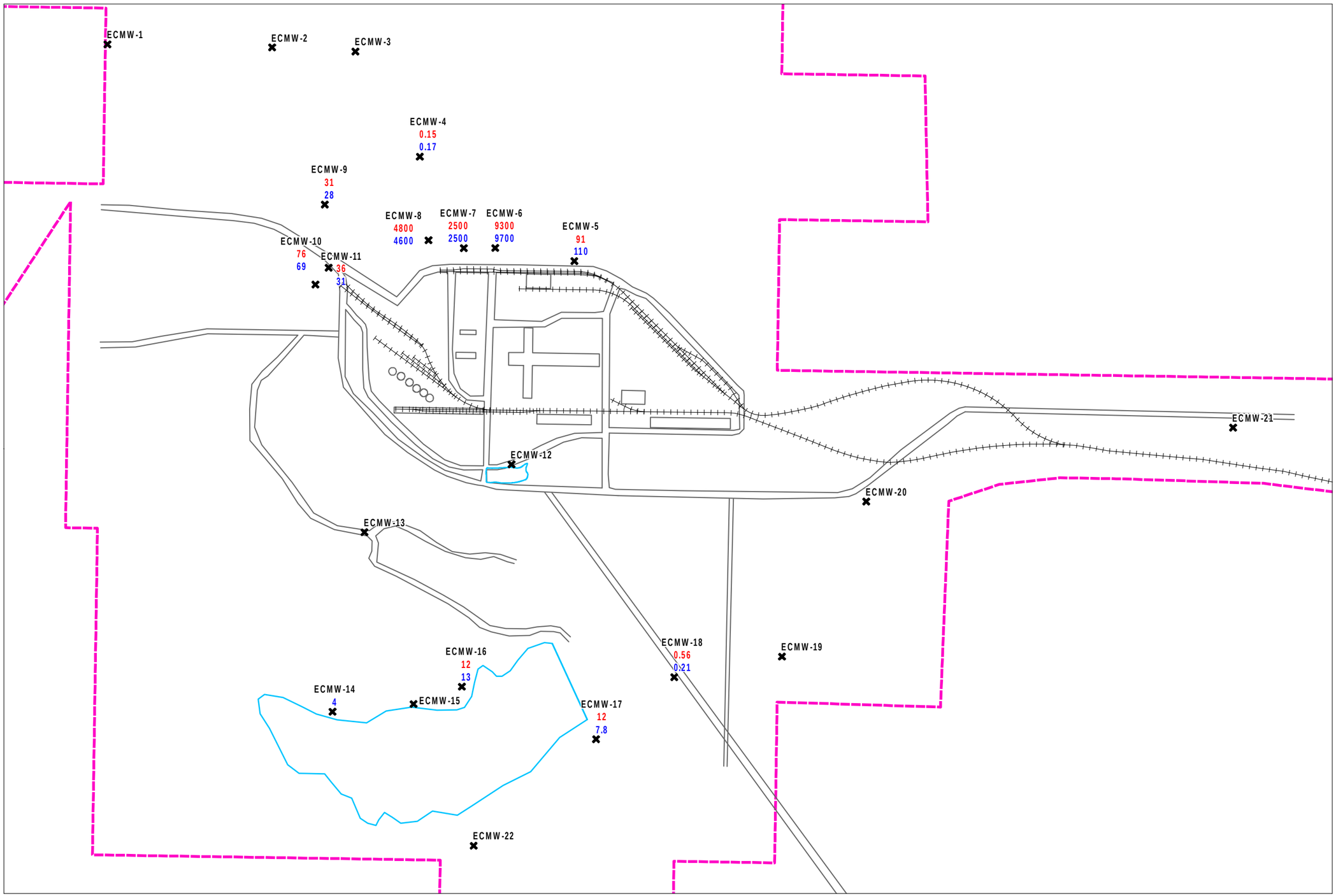
DESIGNED BY	RJS
CHECKED BY	ENJ
APPR. BY	BJP
DRAWN BY	ALB

GBMc & ASSOCIATES

SHEET TITLE
2019 GROUNDWATER WELL AMMONIA-N CONCENTRATION

JOB NAME
2019 GROUNDWATER REPORT
EL DORADO CHEMICAL COMPANY
UNION COUNTY, ARKANSAS

PROJECT NO.	2042-99-010
DATE	01/15/2020
SCALE	SHOWN
REV. NO	
DWG. NO.	



NO	DATE	REVISION	BY	CK.	APPR.

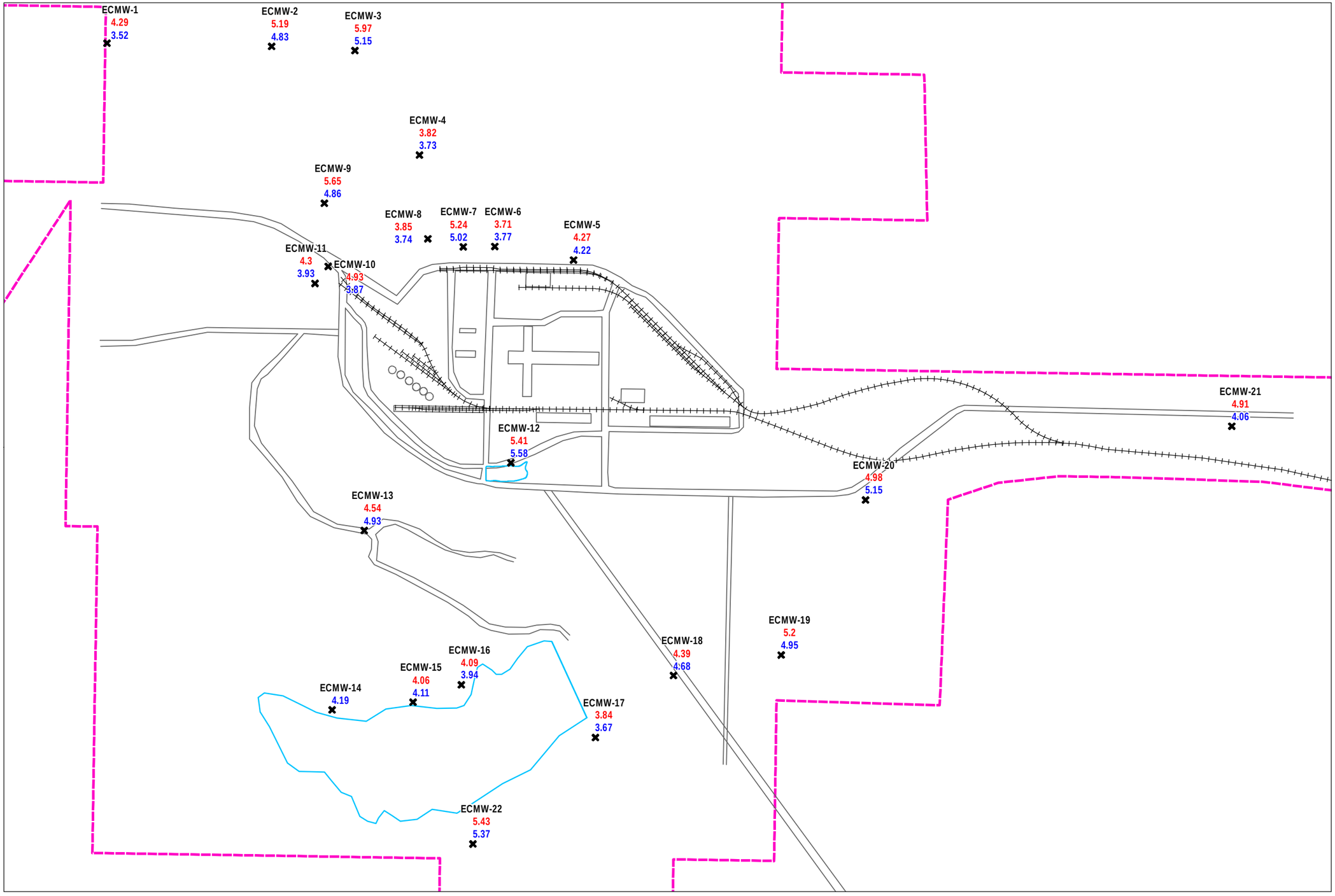
DESIGNED BY	RJS
CHECKED BY	ENJ
APPR. BY	BJP
DRAWN BY	ALB

GBMc & ASSOCIATES

SHEET TITLE
2019 GROUNDWATER WELL NITRATE-N CONCENTRATION

JOB NAME
2019 GROUNDWATER REPORT
EL DORADO CHEMICAL COMPANY
UNION COUNTY, ARKANSAS

PROJECT NO.	2042-99-010
DATE	01/15/2020
SCALE	SHOWN
REV. NO	
DWG. NO.	



NO	DATE	REVISION	BY	CK.	APPR.

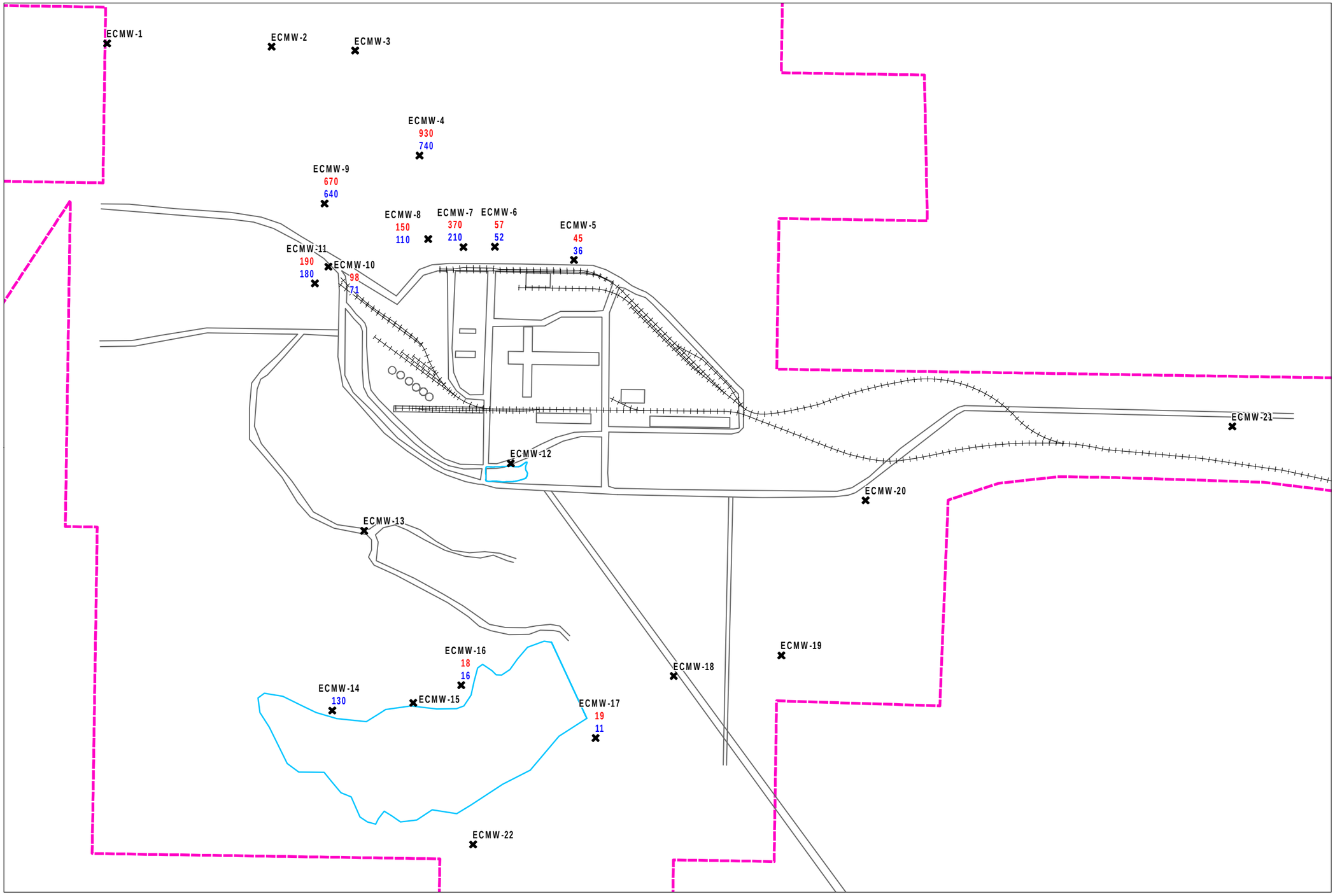
DESIGNED BY RJS
CHECKED BY ENJ
APPR. BY BJP
DRAWN BY ALB

GBMc & ASSOCIATES

SHEET TITLE
2019 GROUNDWATER WELL PH

JOB NAME
2019 GROUNDWATER REPORT
EL DORADO CHEMICAL COMPANY
UNION COUNTY, ARKANSAS

PROJECT NO. 2042-99-010
DATE 01/24/2020
SCALE SHOWN
REV. NO
DWG. NO.



NO	DATE	REVISION	BY	CK.	APPR.

DESIGNED BY	RJS
CHECKED BY	ENJ
APPR. BY	BJP
DRAWN BY	ALB

GBMc & ASSOCIATES

SHEET TITLE
2019 GROUNDWATER WELL SULFATE CONCENTRATION

JOB NAME
2019 GROUNDWATER REPORT
EL DORADO CHEMICAL COMPANY
UNION COUNTY, ARKANSAS

PROJECT NO.	2042-99-010
DATE	01/15/2020
SCALE	SHOWN
REV. NO	
DWG. NO.	

APPENDIX D

Historical Data and Statistical Analysis

Historical Data

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/14/1996	ECMW-1		0.005	0.005	0.002	0.0037	1.7		4.1
5/29/2001	ECMW-1	0.5		0.02		0.04	1.83	5.1	3.67
11/1/2001	ECMW-1	0.5		0.02		0.04	2.74	4.8	3.34
6/3/2002	ECMW-1	0.5	0.02	0.02	0.02	0.02	2.01	5.5	4.66
10/30/2002	ECMW-1	0.66	0.02	0.02	0.015	0.015	1.56	5.6	4.63
12/10/2002	ECMW-1	0.5	0.02	0.02	0.015	0.015	1.8	6.1	6.73
7/24/2003	ECMW-1	0.5	0.02	0.02	0.015	0.015	2.55	7.1	5.05
11/19/2003	ECMW-1	0.5	0.02	0.02	0.015	0.015	1.47	5.11	5.85
1/28/2004	ECMW-1	0.56	0.02	0.02	0.015	0.015	1.6	5.25	6.19
3/16/2004	ECMW-1	0.5	0.02	0.02	0.015	0.015	2.73	5.59	4.22
5/18/2004	ECMW-1	0.5	0.02	0.02	0.015	0.015	4.79	5.51	6.57
7/13/2004	ECMW-1	0.5	0.02	0.02	0.015	0.015	3.68	6.16	3.88
9/14/2004	ECMW-1	0.76	0.02	0.02	0.015	0.015	4.26	5.65	3.48
11/16/2004	ECMW-1	0.5	0.02	0.02	0.015	0.015	3.81	5.11	3.9
1/25/2005	ECMW-1	0.5	0.02	0.02	0.015	0.015	2.88	5.43	6.69
5/24/2005	ECMW-1	0.55	0.02	0.02	0.015	0.015	2.45	5.73	4.39
10/18/2005	ECMW-1							3.61	
4/11/2006	ECMW-1							4.73	
11/1/2006	ECMW-1							4.98	
5/23/2007	ECMW-1							5.24	
11/6/2007	ECMW-1							4.77	
5/21/2008	ECMW-1	0.5	0.02	0.02		0.015	1.57	7.91	4.23
11/5/2008	ECMW-1	0.5		0.02		0.015	0.732	4.63	4.34
4/22/2009	ECMW-1							4.57	
10/20/2009	ECMW-1							4.68	
4/13/2010	ECMW-1	0.5		0.02		0.015	0.5	4.53	6.46
11/2/2010	ECMW-1	0.5		0.01		0.015	1.31	7.69	5.55
4/26/2011	ECMW-1							5.04	
5/2/2012	ECMW-1	0.5	0.02	0.01	0.015	0.015	2.07	5.48	3.35
11/7/2012	ECMW-1	0.5	0.02	0.01	0.015	0.015	0.866	6.43	5.94
5/15/2013	ECMW-1							5.03	
11/4/2013	ECMW-1							5.21	
6/3/2014	ECMW-1	0.5	0.021	0.0104	0.016	0.0156	0.986	4.74	3.98
11/4/2014	ECMW-1	0.5	0.02	0.0104	0.015	0.0156	0.674	3.97	6.29
5/22/2015	ECMW-1							4.83	
11/18/2015	ECMW-1							5.57	
5/24/2016	ECMW-1	0.5	0.021	0.0104	0.016	0.0156	1.79	4.46	5.56
11/10/2016	ECMW-1	0.5	0.0104	0.0104	0.0156	0.0156	0.951	6.84	5.41
3/22/2017	ECMW-1							4.05	
9/13/2017	ECMW-1							4.82	
4/11/2018	ECMW-1	0.5	0.0125	0.0125	0.0156	0.0156	1.13	4.36	5.12
9/12/2018	ECMW-1	0.5	0.0125	0.0248	0.0156	0.0713	0.45	4.47	4.65
1/23/2019	ECMW-1							4.26	
7/17/2019	ECMW-1							3.52	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
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CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/14/1996	ECMW-2		0.005	0.0342	0.002	0.018	0.2		17
5/29/2001	ECMW-2	0.5		0.032		0.04	0.5	5.4	19.6
11/1/2001	ECMW-2	0.5		0.02		0.04	0.5	5.3	22.9
6/3/2002	ECMW-2	0.5	0.02	0.02	0.02	0.02	0.5	6	20
10/30/2002	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	6.1	25.7
12/10/2002	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	6.7	24
7/24/2003	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	7.26	22.9
11/19/2003	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.42	28.2
1/28/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.2	25.3
3/16/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.47	20.9
5/18/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.4	24
7/13/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.68	22.4
9/14/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.44	24.3
11/16/2004	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	6.12	21.5
1/25/2005	ECMW-2	0.5	0.02	0.02	0.015	0.015	0.5	5.38	20.8
5/24/2005	ECMW-2	0.79	0.02	0.02	0.015	0.015	0.5	5.87	22.9
10/18/2005	ECMW-2						0.5	5.15	
4/11/2006	ECMW-2						0.5	5.56	
11/1/2006	ECMW-2							5.2	
5/23/2007	ECMW-2							5.29	
11/6/2007	ECMW-2							5.17	
5/21/2008	ECMW-2	0.5		0.02		0.015	0.5	7.04	20.1
11/5/2008	ECMW-2	0.5		0.02		0.015	0.5	5.47	15.4
4/22/2009	ECMW-2							5.41	
10/20/2009	ECMW-2							5.48	
4/13/2010	ECMW-2	0.5		0.02		0.015	0.5	5.23	16.9
11/2/2010	ECMW-2	0.5		0.01		0.015	0.5	8.28	22.6
4/26/2011	ECMW-2							5.51	
5/2/2012	ECMW-2	0.5	0.02	0.01	0.015	0.015	0.5	5.76	18.7
11/7/2012	ECMW-2	0.5	0.02	0.01	0.015	0.015	0.5	6.57	22
5/15/2013	ECMW-2							5.75	
11/4/2013	ECMW-2							5.91	
6/3/2014	ECMW-2	0.5	0.021	0.0104	0.016	0.0156	3.95	5.1	30.7
11/4/2014	ECMW-2	0.5	0.02	0.0104	0.015	0.0156	0.635	4.45	21.9
5/22/2015	ECMW-2							5.43	
11/18/2015	ECMW-2							5.84	
5/24/2016	ECMW-2	1.37	0.021	0.0104	0.016	0.0156	0.645	5.15	19.8
11/10/2016	ECMW-2	0.5	0.0104	0.0212	0.0156	0.0156	0.25	6.55	22.2
3/22/2017	ECMW-2							5.45	
9/13/2017	ECMW-2							5.26	
4/11/2018	ECMW-2	0.5	0.0125	0.0125	0.0156	0.0156	0.25	5.43	19.4
9/12/2018	ECMW-2	0.5	0.0125	0.0153	0.0156	0.0347	0.25	5.35	24.4
1/23/2019	ECMW-2							5.19	
7/17/2019	ECMW-2							4.83	

El Dorado Chemical Company
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3/14/1996	ECMW-3		0.005	0.005	0.002	0.0027	0.2		10
5/29/2001	ECMW-3	0.5		0.02		0.04	0.5	6.2	10.6
11/1/2001	ECMW-3	0.5		0.02		0.04	0.5	5.4	22.5
6/3/2002	ECMW-3	0.5	0.02	0.02	0.02	0.02	0.5	6.4	11.4
10/30/2002	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	6.5	21.6
12/10/2002	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	6	16.4
7/24/2003	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	6.23	11.8
11/19/2003	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.81	23.5
1/28/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.59	26.9
3/16/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.94	11.2
5/18/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.86	9.75
7/13/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.92	13
9/14/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.74	18.3
11/16/2004	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	5.96	18.8
1/25/2005	ECMW-3	0.5	0.02	0.02	0.015	0.015	0.5	6.33	15.8
5/24/2005	ECMW-3	0.98	0.02	0.02	0.015	0.015	0.5	6.05	11.8
10/18/2005	ECMW-3						0.5	6.04	
4/12/2006	ECMW-3						0.5	6.39	
11/1/2006	ECMW-3							5.37	
5/23/2007	ECMW-3							5.92	
11/6/2007	ECMW-3							4.85	
5/21/2008	ECMW-3	0.5		0.02		0.015	0.5	7.96	10.5
11/5/2008	ECMW-3	0.5		0.02		0.015	0.5	4.86	9.65
4/22/2009	ECMW-3							5.76	
10/21/2009	ECMW-3							5.83	
4/13/2010	ECMW-3	0.5		0.02		0.015	0.5	6.2	9.39
11/2/2010	ECMW-3	0.5		0.01		0.015	0.5	6.97	17.5
4/26/2011	ECMW-3							6.19	
5/3/2012	ECMW-3	0.5	0.02	0.01	0.015	0.015	0.5	6.28	8.87
11/7/2012	ECMW-3	0.5	0.02	0.01	0.015	0.0169	0.5	6.74	13.4
5/15/2013	ECMW-3							6.29	
11/4/2013	ECMW-3							5.72	
6/3/2014	ECMW-3	0.5	0.021	0.0104	0.016	0.0156	0.25	5.86	9.14
11/4/2014	ECMW-3	0.5	0.02	0.0104	0.015	0.0156	0.239	4.97	12.8
5/22/2015	ECMW-3							6.18	
11/18/2015	ECMW-3							6.11	
5/24/2016	ECMW-3	0.5	0.021	0.0104	0.016	0.0156	0.252	6.26	9.88
11/10/2016	ECMW-3	0.5	0.0104	0.0104	0.0156	0.0156	0.25	6.45	16.2
3/22/2017	ECMW-3							5.91	
9/13/2017	ECMW-3							5.66	
4/11/2018	ECMW-3	0.5	0.0125	0.0125	0.0156	0.0156	0.25	5.73	9.27
9/12/2018	ECMW-3	0.5	0.0125	0.0125	0.0156	0.0156	0.25	5.67	19.1
1/23/2019	ECMW-3							5.97	
7/17/2019	ECMW-3							5.15	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/14/1996	ECMW-4		0.005	0.005	0.002	0.0025	1.3		728
8/8/2001	ECMW-4	0.66		0.02		0.04	0.5	4.1	925
10/30/2001	ECMW-4	0.5		0.04		0.06	0.5	4.3	936
6/3/2002	ECMW-4	0.5	0.02	0.02	0.02	0.02	0.5	5.2	979
10/30/2002	ECMW-4	0.5	0.02	0.02	0.015	0.02	0.62	4.8	756
12/10/2002	ECMW-4	0.5	0.02	0.02	0.015	0.015	2.4	4.4	976
7/24/2003	ECMW-4	0.5	0.02	0.02	0.015	0.015	0.5	9.08	978
11/19/2003	ECMW-4	0.5	0.02	0.02	0.015	0.015	2.05	4.13	848
1/28/2004	ECMW-4	0.5	0.02	0.02	0.015	0.015	6.39	3.88	1040
3/16/2004	ECMW-4	0.5	0.02	0.02	0.015	0.015	0.5	4.1	919
5/19/2004	ECMW-4	0.5	0.02	0.02	0.015	0.015	1.45	4.05	1040
7/13/2004	ECMW-4	0.5	0.02	0.02	0.015	0.015	0.5	4.35	973
9/14/2004	ECMW-4	0.68	0.02	0.02	0.015	0.015	0.5	4.44	943
11/16/2004	ECMW-4	0.5	0.02	0.02	0.015	0.015	0.5	4.26	874
1/25/2005	ECMW-4	0.64	0.02	0.02	0.015	0.015	8.5	4.63	805
5/24/2005	ECMW-4	2.14	0.02	0.02	0.015	0.015	0.997	4.77	1020
10/18/2005	ECMW-4						0.517	4.06	
4/12/2006	ECMW-4						0.5	4.12	
11/1/2006	ECMW-4							3.69	
5/23/2007	ECMW-4	0.5					0.099	4.13	779
11/6/2007	ECMW-4	0.5					0.5	3.76	1020
5/21/2008	ECMW-4	0.5		0.02		0.017	0.5	3.89	896
11/5/2008	ECMW-4	0.5		0.02		0.015	0.5	3.87	758
4/22/2009	ECMW-4	0.5					0.5	4.17	68.3
10/20/2009	ECMW-4	0.5					0.5	3.62	830
4/13/2010	ECMW-4	0.5		0.02		0.029	0.5	3.75	655
11/2/2010	ECMW-4	0.5		0.01		0.015	0.5	6.57	745
4/27/2011	ECMW-4	1.02					0.5	3.91	845
11/30/2011	ECMW-4	0.5					0.5	3.72	930
5/3/2012	ECMW-4	0.5	0.02	0.01	0.015	0.015	0.5	4.12	865
11/7/2012	ECMW-4	0.5		0.01	0.015	0.015	0.5	6.17	890
5/15/2013	ECMW-4	2.12					0.37	4.03	856
11/5/2013	ECMW-4	2.03	0.02				0.752	4.63	609
6/3/2014	ECMW-4	0.5	0.021	0.0104	0.016	0.0156	0.431	4.5	737
11/4/2014	ECMW-4	1.31	0.02	0.0104	0.015	0.0156	1.29	3.01	772
5/20/2015	ECMW-4	3.5					1.6	3.29	915
11/18/2015	ECMW-4	1.13					0.332	4.04	722
5/24/2016	ECMW-4	0.5	0.021	0.0104	0.016	0.0156	0.666	3.83	843
11/10/2016	ECMW-4	0.5	0.0104	0.014	0.0156	0.0156	0.25	3.75	973
3/21/2017	ECMW-4	0.5					0.25	4.46	954
9/12/2017	ECMW-4	0.5					0.25	3.59	758
6/6/2018	ECMW-4	0.5	0.0125	0.0125	0.0156	0.0156	0.25	3.94	984
9/12/2018	ECMW-4	0.5	0.0125	0.0125	0.0156	0.016	0.25	3.84	979
1/23/2019	ECMW-4	0.27					0.15	3.82	930
7/17/2019	ECMW-4	0.5					0.17	3.73	740

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-5		0.005	0.005	0.002	0.002	4.4		441
8/8/2001	ECMW-5	0.5		0.02		0.04	3.54	4.6	657
10/30/2001	ECMW-5	0.5		0.02		0.04	3.27	4.7	526
6/3/2002	ECMW-5	0.5	0.02	0.02	0.02	0.02	3.35	6.3	650
10/30/2002	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.66	5.4	582
12/10/2002	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.26	5.2	489
7/24/2003	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.47	6.85	546
11/19/2003	ECMW-5	0.5	0.02	0.02	0.015	0.015	2.4	4.79	416
1/28/2004	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.19	5.03	476
3/16/2004	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.6	5.13	472
5/19/2004	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.41	5.85	455
7/13/2004	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.75	4.96	511
9/14/2004	ECMW-5	0.59	0.02	0.02	0.015	0.015	3.75	6.7	515
11/16/2004	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.33	5.28	502
1/25/2005	ECMW-5	0.5	0.02	0.02	0.015	0.015	3.18	6.36	461
5/24/2005	ECMW-5	3.62	0.02	0.02	0.015	0.015	3.21	6.42	547
10/19/2005	ECMW-5						3.53	4.96	
4/12/2006	ECMW-5							4.39	
11/1/2006	ECMW-5							4.42	
5/23/2007	ECMW-5	0.5					3.32	5.18	476
11/7/2007	ECMW-5	0.5					4.17	4.64	464
5/21/2008	ECMW-5	0.5		0.02		0.015	4.15	6.45	308
11/12/2008	ECMW-5	0.55		0.02		0.015	7.81	2.4	163
4/22/2009	ECMW-5	0.5					7.58	5.06	133
6/3/2009	ECMW-5							5.92	
10/20/2009	ECMW-5	0.5					8.82	4.98	93.4
4/13/2010	ECMW-5	0.5		0.02		0.015	7.96	4.75	105
11/2/2010	ECMW-5	0.5		0.01		0.015	11	5.64	94.7
4/27/2011	ECMW-5	1.08					15	5.03	92.4
11/30/2011	ECMW-5	0.5					19	4.67	94.4
5/3/2012	ECMW-5	0.5	0.02	0.01	0.015	0.015	23.5	5.13	59.6
11/7/2012	ECMW-5	0.5		0.01	0.015	0.015	26.6	6.43	74.6
5/15/2013	ECMW-5	0.5					32.8	5.07	60.7
11/5/2013	ECMW-5	0.56	0.02				34.7	7.23	66.5
6/3/2014	ECMW-5	0.5	0.021	0.0104	0.016	0.0156	38	7.26	65
11/4/2014	ECMW-5	1	0.02	0.0104	0.015	0.0156	43.4	4.13	55.6
5/20/2015	ECMW-5	1.27					44.6	5.27	54.5
11/18/2015	ECMW-5	0.73					27	5.59	61.2
5/24/2016	ECMW-5	0.5	0.021	0.0104	0.016	0.0156	41.9	5.3	49.4
11/10/2016	ECMW-5	0.5	0.0104	0.0104	0.0156	0.0156	47.2	5.6	59
3/21/2017	ECMW-5	0.5					42.9	4.55	54.8
9/12/2017	ECMW-5	9.58					56.3	4.41	43.8
4/12/2018	ECMW-5	3.28	0.0125	0.0125	0.0156	0.0156	56.5	4.68	64.9
9/13/2018	ECMW-5	0.5	0.0125	0.0125	0.0156	0.0156	74.1	4.43	53.2
1/22/2019	ECMW-5	0.12					91	4.27	45
7/17/2019	ECMW-5	0.39					110	4.22	36

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

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3/13/1996	ECMW-6		0.005	0.005	0.002	0.0026	51.1		24
8/8/2001	ECMW-6	0.5		0.02		0.04	298	4.3	18.3
10/30/2001	ECMW-6	0.5		0.02		0.04	326	4.3	15.7
6/3/2002	ECMW-6	0.5	0.02	0.02	0.02	0.02	459	6.1	12.1
10/30/2002	ECMW-6	0.51	0.02	0.02	0.015	0.015	661	5	8.13
12/10/2002	ECMW-6	0.5	0.02	0.02	0.015	0.015	580	4.6	7.15
7/24/2003	ECMW-6	1.09	0.02	0.02	0.015	0.015	681	7.41	15
11/19/2003	ECMW-6	5.72	0.02	0.02	0.015	0.015	865	4.53	10.7
1/28/2004	ECMW-6	12.3	0.02	0.02	0.015	0.015	835	4.36	17.2
3/16/2004	ECMW-6	13	0.02	0.02	0.015	0.015	826	4.4	17.2
5/19/2004	ECMW-6	21.4	0.02	0.02	0.015	0.015	915	5.04	13.4
7/13/2004	ECMW-6	17.9	0.02	0.02	0.015	0.015	995	4.74	11.7
9/14/2004	ECMW-6	20	0.02	0.02	0.015	0.015	1130	5.51	3.84
11/16/2004	ECMW-6	37.6	0.02	0.02	0.015	0.015	1140	4.59	4.4
1/25/2005	ECMW-6	43.1	0.02	0.02	0.015	0.015	1130	5.36	3.14
5/24/2005	ECMW-6	68.2	0.02	0.02	0.015	0.015	1410	4.57	5.19
10/18/2005	ECMW-6	110					1350	4.43	
4/11/2006	ECMW-6	154					1680	4.45	
11/1/2006	ECMW-6	170					2390	3.94	
5/23/2007	ECMW-6	63.3					3550	6.46	44.9
11/6/2007	ECMW-6	35.7					941	5.15	54.1
5/21/2008	ECMW-6	59.1		0.02		0.015	1130	4.5	23.7
11/5/2008	ECMW-6	103		0.02		0.015	1060	3.89	26.1
4/21/2009	ECMW-6	135					1070	4.47	148
10/20/2009	ECMW-6	181					1330	4.16	24.7
4/13/2010	ECMW-6	92.8		0.02		0.015	1660	4.04	29.2
7/22/2010	ECMW-6	246		0.02		0.015	1940	4.14	42.3
11/2/2010	ECMW-6	311		0.011		0.015	1460	5.71	29.6
4/27/2011	ECMW-6	371					1680	4.3	46.8
6/15/2011	ECMW-6	393					1620		207
11/30/2011	ECMW-6	445		0.01			1970	3.88	60.5
5/3/2012	ECMW-6	344	0.02	0.01	0.032	0.0312	1850	4.28	456
11/7/2012	ECMW-6	620			0.017	0.0185	2520	6.2	112
5/15/2013	ECMW-6	521					3120	4.15	37.7
11/5/2013	ECMW-6	935	0.02				3380	4.49	28.5
6/3/2014	ECMW-6	1110	0.021	0.0104	0.034	0.0339	3560	3.99	28.9
11/4/2014	ECMW-6	1110	0.02	0.0104	0.031	0.036	3550	3.29	33.7
5/20/2015	ECMW-6	2550					2960	3.91	39.8
11/18/2015	ECMW-6	2280					3930	3.96	40.2
5/24/2016	ECMW-6	1390	0.021	0.0104	0.038	0.0379	4120	3.83	30.8
11/10/2016	ECMW-6	1890	0.0104	0.0104	0.0634	0.058	5780	3.71	62.6
3/21/2017	ECMW-6	1680					5160	2.61	119
5/1/2017	ECMW-6	3500					6590	3.79	449
9/12/2017	ECMW-6	895					5710	3.42	49.2
4/12/2018	ECMW-6	1530	0.0125	0.0125	0.0655	0.065	5580	3.55	45.2
9/12/2018	ECMW-6	737	0.0125	0.0125	0.0773	0.0809	6320	3.04	60.6
1/23/2019	ECMW-6	6200					9300	3.71	57
7/17/2019	ECMW-6	6900					9700	3.77	52

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-7		0.005	0.0078	0.0185	0.0221	282		380
8/8/2001	ECMW-7	184		0.02		0.04	336	9.7	316
10/30/2001	ECMW-7	0.5	0.02	0.02		0.04	189	3.5	322
6/3/2002	ECMW-7	190	0.02	0.02	0.015	0.031	361	4.4	363
10/30/2002	ECMW-7	167	0.02	0.02	0.015	0.017	294	4.2	345
12/10/2002	ECMW-7	180	0.02	0.02	0.016	0.015	344	3.7	275
7/24/2003	ECMW-7	95.1	0.02	0.02	0.015	0.015	141	7.05	378
11/19/2003	ECMW-7	124	0.02	0.02	0.015	0.015	152	4.03	476
1/28/2004	ECMW-7	147	0.02	0.02	0.015	0.018	300	3.99	644
3/16/2004	ECMW-7	190	0.02	0.02	0.017	0.018	310	3.98	496
5/19/2004	ECMW-7	204	0.02	0.02	0.015	0.015	337	3.95	524
7/13/2004	ECMW-7	73.4	0.02	0.02	0.015	0.015	150	3.99	498
9/14/2004	ECMW-7	26.5	0.02	0.02	0.015	0.015	75.5	4.45	142
11/16/2004	ECMW-7	219	0.02	0.02	0.015	0.015	370	3.97	428
1/25/2005	ECMW-7	281	0.02	0.02	0.015	0.016	480	4.08	312
5/24/2005	ECMW-7	323	0.02	0.02	0.017	0.022	595	4.21	349
10/18/2005	ECMW-7	14.3			0.015	0.015	91.6	3.9	
4/11/2006	ECMW-7	267			0.015	0.017	516	4.36	
11/1/2006	ECMW-7	57.4				0.015	105	3.34	
5/23/2007	ECMW-7	96					181	4.3	798
11/6/2007	ECMW-7	49.9					85.3	3.58	906
5/21/2008	ECMW-7	55.2		0.02		0.015	153	2.81	936
11/5/2008	ECMW-7	115		0.02		0.015	237	3.4	962
4/21/2009	ECMW-7	77.8					126	4.13	895
10/20/2009	ECMW-7	51.2					49.9	3.55	1090
4/13/2010	ECMW-7	1000		0.02		0.06	1080	3.53	214
7/22/2010	ECMW-7	43.2		0.02		0.015	103	3.67	3490
11/2/2010	ECMW-7	107		0.01		0.015	155	4.92	156
4/27/2011	ECMW-7	1630					2640	4.47	248
6/15/2011	ECMW-7	56.6					227		899
11/30/2011	ECMW-7	132					192	4.18	259
5/3/2012	ECMW-7	132	0.02	0.01	0.015	0.015	161	4.82	761
11/7/2012	ECMW-7	187		0.01	0.015	0.015	153	6.31	692
5/15/2013	ECMW-7	105					141	5.09	930
11/5/2013	ECMW-7	132	0.02				156	5.81	927
6/3/2014	ECMW-7	100	0.021	0.0104	0.016	0.0156	169	5.24	858
11/4/2014	ECMW-7	77	0.02	0.0104	0.015	0.0156	99.6	4.56	816
5/20/2015	ECMW-7	61					63.6	4.06	866
11/18/2015	ECMW-7	66.2					104	5.31	758
5/24/2016	ECMW-7	91.1	0.021	0.0104	0.016	0.0156	135	5.3	740
11/10/2016	ECMW-7	1450	0.0104	0.0104	0.0156	0.0156	2300	4.92	165
3/21/2017	ECMW-7	6950					12100	5.46	134
5/1/2017	ECMW-7	947					1910	5.51	998
9/12/2017	ECMW-7	1060					10400	5.46	184
4/12/2018	ECMW-7	2310	0.0125	0.0125	0.0156	0.0156	542	5.77	983
9/13/2018	ECMW-7	231	0.0125	0.0125	0.0156	0.0156	413	6	222
1/23/2019	ECMW-7	2600					2500	5.24	370
7/17/2019	ECMW-7	3700					2500	5.02	210

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

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3/13/1996	ECMW-8		0.005	0.005	0.0238	0.0234	1010		68.3
10/30/2001	ECMW-8	0.94		0.02		0.04	1030	3.9	81.1
6/3/2002	ECMW-8	551	0.02	0.02	0.02	0.02	1070	5.4	77.8
10/30/2002	ECMW-8	406	0.02	0.02	0.015	0.015	1330	4.4	151
12/10/2002	ECMW-8	220	0.02	0.02	0.015	0.015	1080	4	46.2
7/24/2003	ECMW-8	179	0.02	0.02	0.015	0.015	472	6.04	904
11/19/2003	ECMW-8	206	0.02	0.02	0.015	0.015	464	4.99	738
1/28/2004	ECMW-8	45.7	0.02	0.02	0.015	0.015	142	4.29	854
3/16/2004	ECMW-8	88	0.02	0.02	0.015	0.015	203	4.18	805
5/19/2004	ECMW-8	120	0.02	0.02	0.015	0.015	298	4.07	789
7/13/2004	ECMW-8	120	0.02	0.02	0.015	0.015	354	4.48	767
9/14/2004	ECMW-8	107	0.02	0.02	0.015	0.015	392	3.99	743
11/16/2004	ECMW-8	82.1	0.02	0.02	0.015	0.015	304	4.01	808
1/25/2005	ECMW-8	48.9	0.02	0.02	0.015	0.015	126	4.09	1200
5/24/2005	ECMW-8	79.6	0.02	0.02	0.015	0.015	225	6.12	1220
10/18/2005	ECMW-8	84.8					246	4.03	
4/11/2006	ECMW-8	53.5					194	3.78	
11/1/2006	ECMW-8	74.5					224	3.44	
5/23/2007	ECMW-8	122					0.5	4.11	971
11/6/2007	ECMW-8	96.2					340	3.7	816
5/21/2008	ECMW-8	56.8		0.02		0.015	171	3.42	1000
11/5/2008	ECMW-8	70		0.02		0.015	181	3.61	719
4/21/2009	ECMW-8	53.6					108	4.88	839
10/20/2009	ECMW-8	45.8					116	3.79	937
4/13/2010	ECMW-8	62.1		0.02		0.015	52.2	4.56	737
11/2/2010	ECMW-8	63.4		0.01		0.015	163	6.35	860
4/27/2011	ECMW-8	1980					3310	3.85	106
6/29/2011	ECMW-8	175					350		
11/30/2011	ECMW-8	120					401	3.44	727
5/3/2012	ECMW-8	122	0.02	0.01	0.015	0.0159	296	3.97	754
11/7/2012	ECMW-8	193	0.02	0.01	0.015	0.0166	429	5.99	814
5/15/2013	ECMW-8	172					551	3.97	614
11/5/2013	ECMW-8	150					584	4.06	642
6/3/2014	ECMW-8	157	0.021	0.0104	0.016	0.0156	712	4.33	516
11/4/2014	ECMW-8	198	0.02	0.0104	0.015	0.0156	697	3.09	466
5/20/2015	ECMW-8	158					791	4.56	470
11/18/2015	ECMW-8	143					751	3.7	431
5/24/2016	ECMW-8	2020	0.021	0.0104	0.065	0.065	4060	3.61	81
8/4/2016	ECMW-8	2270	0.021	0.0104	0.065	0.0686	4310	3.74	83.6
11/10/2016	ECMW-8	1020	0.0104	0.0104	0.0313	0.0341	1830	3.61	270
3/21/2017	ECMW-8	877					2210	3.61	157
5/1/2017	ECMW-8	1320					2430	3.7	1400
9/12/2017	ECMW-8	654					3490	3.5	83.4
4/12/2018	ECMW-8	626	0.0125	0.0125	0.0676	0.0689	2890	3.64	128
9/13/2018	ECMW-8	556	0.0125	0.0125	0.0636	0.0156	2790	3.95	145
1/24/2019	ECMW-8	4100					4800	3.85	150
7/17/2019	ECMW-8	4500					4600	3.74	110

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

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3/14/1996	ECMW-9		0.005	0.005	0.002	0.004	37.3		621
6/27/2001	ECMW-9	0.5		0.02		0.04	28.8	5.4	520
10/30/2001	ECMW-9	0.5		0.02		0.04	26.7	5.5	514
6/3/2002	ECMW-9	0.5	0.02	0.02	0.02	0.02	24.4	6	639
10/30/2002	ECMW-9	18.8	0.02	0.02	0.015	0.015	59	6	655
12/10/2002	ECMW-9	0.7	0.02	0.02	0.015	0.015	28.1	5.2	556
7/24/2003	ECMW-9	0.5	0.02	0.02	0.015	0.015	28.4	7.05	547
11/19/2003	ECMW-9	0.5	0.02	0.02	0.015	0.015	28	5.72	532
1/28/2004	ECMW-9	0.5	0.02	0.02	0.015	0.015	29.2	5.53	575
3/16/2004	ECMW-9	0.5	0.02	0.02	0.015	0.015	30.6	5.88	528
5/19/2004	ECMW-9	0.5	0.02	0.02	0.015	0.015	27.4	5.47	517
7/13/2004	ECMW-9	0.5	0.02	0.02	0.015	0.015	24.6	6.87	588
9/14/2004	ECMW-9	1.14	0.02	0.02	0.015	0.015	25.3	5.04	548
11/16/2004	ECMW-9	0.7	0.02	0.02	0.015	0.015	24	5.67	549
1/25/2005	ECMW-9	0.5	0.02	0.02	0.015	0.015	26.3	5.57	518
5/24/2005	ECMW-9	0.5	0.02	0.02	0.015	0.018	27.4	5.77	600
10/18/2005	ECMW-9						29.9	5.64	
4/11/2006	ECMW-9						29.5	5.83	
11/1/2006	ECMW-9						40.2	5	
5/23/2007	ECMW-9	2.91					32.8	5.57	420
11/6/2007	ECMW-9	3.59					30.6	4.94	642
5/21/2008	ECMW-9	0.5		0.02		0.015	31.7	6.04	522
11/5/2008	ECMW-9	0.5		0.02		0.015	23.7	4.41	391
4/21/2009	ECMW-9	0.5					28	5.91	501
10/20/2009	ECMW-9	2.31					21	5.41	505
4/13/2010	ECMW-9	0.5		0.02		0.015	16.8	5.44	462
11/2/2010	ECMW-9	0.5		0.01		0.015	20	7.04	684
4/27/2011	ECMW-9	2.96					32.1	5.74	542
11/30/2011	ECMW-9	0.7					28.5	5.37	650
5/3/2012	ECMW-9	0.5	0.02	0.01	0.015	0.015	25.5	5.71	520
11/7/2012	ECMW-9	0.68	0.02	0.01	0.015	0.015	32.5	6.5	568
5/15/2013	ECMW-9	0.5					30.1	5.68	514
11/5/2013	ECMW-9	17					53.9	5.51	545
6/3/2014	ECMW-9	3.23	0.021	0.0104	0.016	0.0156	35.6	5.47	525
11/4/2014	ECMW-9	4.61	0.02	0.0104	0.015	0.0156	37.6	4.81	484
5/20/2015	ECMW-9	4.13					31.9	5.52	540
11/18/2015	ECMW-9	2.36					32.7	5.36	526
5/24/2016	ECMW-9	0.888	0.021	0.0104	0.016	0.0156	29.1	5.32	581
11/10/2016	ECMW-9	4.08	0.0104	0.0104	0.0156	0.0156	29.1	5.87	616
3/21/2017	ECMW-9	1.5					32	6.17	531
9/12/2017	ECMW-9	0.5					27.3	5.05	463
4/11/2018	ECMW-9	0.5	0.0125	0.0125	0.0156	0.0156	26.9	5.48	589
9/12/2018	ECMW-9	0.5	0.0125	0.0125	0.0156	0.0156	27.6	5.43	675
1/24/2019	ECMW-9	0.11					31	5.65	670
7/17/2019	ECMW-9	< 0.1					28	4.86	640

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-10		0.005	0.005	0.0039	0.0052	257		89
6/27/2001	ECMW-10	0.5		0.025		0.04	156	4.4	100
10/30/2001	ECMW-10	0.5		0.04		0.04	153	3.9	134
6/3/2002	ECMW-10	0.5	0.02	0.02	0.02	0.02	138	5.3	84.9
10/30/2002	ECMW-10	1.84	0.02	0.02	0.015	0.015	137	5.6	140
12/10/2002	ECMW-10	0.5	0.02	0.02	0.015	0.015	70.4	4.5	52.2
7/24/2003	ECMW-10	0.5	0.02	0.02	0.015	0.015	118	5.56	108
11/19/2003	ECMW-10	0.5	0.02	0.02	0.015	0.015	119	4.38	104
1/28/2004	ECMW-10	0.5	0.02	0.02	0.015	0.015	126	4.6	129
3/16/2004	ECMW-10	0.5	0.02	0.02	0.015	0.015	135	5.01	128
5/18/2004	ECMW-10	0.5	0.02	0.02	0.015	0.015	123	5.07	139
7/13/2004	ECMW-10	0.5	0.02	0.02	0.015	0.015	114	4.54	112
9/14/2004	ECMW-10	0.77	0.02	0.02	0.015	0.015	123	4.7	137
11/16/2004	ECMW-10	0.5	0.02	0.02	0.015	0.015	94.4	4.79	71.1
1/25/2005	ECMW-10	0.5	0.02	0.02	0.015	0.015	115	4.63	114
5/25/2005	ECMW-10	1.45	0.02	0.02	0.015	0.015	120	4.93	142
10/18/2005	ECMW-10						97.7	4.3	
4/11/2006	ECMW-10					0.015	97.5	4.4	
11/1/2006	ECMW-10						71	3.83	
5/23/2007	ECMW-10	0.79					79.9	4.18	109
11/6/2007	ECMW-10	0.5					65.9	3.97	121
5/21/2008	ECMW-10	0.5		0.02		0.015	69.2	5.11	153
11/5/2008	ECMW-10	0.5		0.02		0.015	40.9	4.06	105
4/21/2009	ECMW-10	12.7					48.9	4.58	155
6/3/2009	ECMW-10	0.5						6.35	
10/20/2009	ECMW-10	0.5					53.5	4.57	136
4/13/2010	ECMW-10	0.8		0.02		0.015	44.7	4.08	170
11/2/2010	ECMW-10	0.5		0.01		0.015	41.9	6.42	164
4/27/2011	ECMW-10	3.18					54.1	4.3	166
11/30/2011	ECMW-10	0.5					49.2	3.97	94.8
5/3/2012	ECMW-10	0.5	0.02	0.01	0.015	0.015	38.4	4.39	158
11/7/2012	ECMW-10	0.5		0.01	0.015	0.015	44.4	6.13	152
5/15/2013	ECMW-10	0.5					42.1	4.44	163
11/5/2013	ECMW-10	0.5	0.02				47.8	4.91	153
6/3/2014	ECMW-10	2.2	0.021	0.0104	0.016	0.0156	50.6	4.93	136
11/4/2014	ECMW-10	0.5	0.02	0.0104	0.015	0.0156	39.8	3.07	172
5/20/2015	ECMW-10	1.91					50	4.65	148
11/18/2015	ECMW-10	0.5					61.2	4.22	99.9
5/25/2016	ECMW-10	0.5	0.021	0.0104	0.016	0.0156	51.2	3.99	134
11/10/2016	ECMW-10	0.5	0.0104	0.0104	0.0156	0.0156	44.1	4.25	141
3/21/2017	ECMW-10	0.5					43.5	4.65	170
9/12/2017	ECMW-10	0.601					47.2	4.26	140
4/11/2018	ECMW-10	0.5	0.0125	0.0125	0.0156	0.0156	43.3	3.88	152
9/13/2018	ECMW-10	1.15	0.0125	0.0125	0.0156	0.0654	47.4	4.45	181
1/24/2019	ECMW-10	0.21					76	4.93	98
7/16/2019	ECMW-10	< 0.1					69	3.87	71

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-11		0.005	0.005	0.002	0.002	22.1		578
8/8/2001	ECMW-11	4.21		0.02		0.04	7.99	4.3	611
10/30/2001	ECMW-11	0.5		0.02		0.04	21.9	4	334
6/3/2002	ECMW-11	0.5	0.02	0.02	0.02	0.02	6.46	5.4	565
10/30/2002	ECMW-11	18	0.02	0.02	0.015	0.015	9.22	4.8	362
12/10/2002	ECMW-11	10.73	0.02	0.02	0.015	0.015	6.12	4.5	414
7/24/2003	ECMW-11	25.6	0.02	0.02	0.015	0.015	6.68	6.66	278
11/19/2003	ECMW-11	12	0.02	0.02	0.015	0.015	6.26	4.61	289
1/28/2004	ECMW-11	19.6	0.02	0.02	0.015	0.015	6.72	5.04	303
3/16/2004	ECMW-11	15	0.02	0.02	0.015	0.015	9.63	5	262
5/18/2004	ECMW-11	19.9	0.02	0.02	0.015	0.015	13.5	5.17	228
7/13/2004	ECMW-11	17.4	0.02	0.02	0.015	0.015	13.6	4.53	222
9/14/2004	ECMW-11	14.5	0.02	0.02	0.015	0.015	9.85	4.61	247
11/17/2004	ECMW-11	19.1	0.02	0.02	0.015	0.015	11.1	4.86	209
1/25/2005	ECMW-11							4.64	
5/25/2005	ECMW-11	20.6	0.02	0.02	0.015	0.015	1.12	5.05	3.58
10/18/2005	ECMW-11	10.6					2.02	4.42	
4/11/2006	ECMW-11	10.9					6.01	4.63	
11/1/2006	ECMW-11	4.88					1.43	4.06	
5/23/2007	ECMW-11	25.4					29.2	4.23	137
11/6/2007	ECMW-11	8.01					9.75	3.94	223
5/21/2008	ECMW-11	19.5		0.02		0.015	18.9	5.26	208
11/5/2008	ECMW-11	18.4		0.02		0.015	16.9	4.34	98.6
4/21/2009	ECMW-11	0.5					14	4.09	119
6/3/2009	ECMW-11	17.7						6.1	
10/20/2009	ECMW-11	18.2					9.44	4.28	125
4/13/2010	ECMW-11	32.6		0.02		0.015	7.78	4.32	135
11/2/2010	ECMW-11	3.17		0.01		0.015	4.52	5.67	325
4/27/2011	ECMW-11	47					15.8	4.57	146
11/30/2011	ECMW-11	2.19					3.56	4.11	318
5/3/2012	ECMW-11	14.5	0.02	0.01	0.015	0.015	29.4	4.73	95.6
11/7/2012	ECMW-11	33.2	0.02	0.01	0.015	0.015	23.8	5.92	161
5/15/2013	ECMW-11	17					45.4	4.58	98
11/5/2013	ECMW-11	0.5					30.5	4.48	125
6/3/2014	ECMW-11	26	0.021	0.0104	0.016	0.0156	30.7	4.18	105
11/4/2014	ECMW-11	13.9	0.02	0.0104	0.015	0.0156	30.5	3.08	117
5/20/2015	ECMW-11	3.12					28.8	4.19	134
11/18/2015	ECMW-11	39					35.7	4.13	93.4
5/25/2016	ECMW-11	5.86	0.021	0.0104	0.016	0.0156	19.5	4.04	233
11/10/2016	ECMW-11	3.86	0.0104	0.0104	0.0156	0.0156	18.3	4.42	245
3/21/2017	ECMW-11	5.87					16.7	4.07	268
9/12/2017	ECMW-11	4.08					16	4.03	266
4/10/2018	ECMW-11	6.15	0.0125	0.0125	0.0156	0.0156	14.7	5.37	246
9/13/2018	ECMW-11	4.76	0.0125	0.0125	0.0156	0.0156	29.9	4.34	202
1/24/2019	ECMW-11	18					36	4.3	190
7/16/2019	ECMW-11	11					31	3.93	180

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-12		0.005	0.005	0.002	0.002	0.2		9.6
6/27/2001	ECMW-12	2.2		0.02		0.04	0.5	5.9	13
6/4/2002	ECMW-12	1.4	0.02	0.02	0.02	0.02	0.5	6	4.85
10/30/2002	ECMW-12	4.2	0.02	0.02	0.015	0.015	0.5	6.1	21.6
12/10/2002	ECMW-12	2.3	0.02	0.02	0.015	0.015	0.5	5.8	12.5
7/24/2003	ECMW-12	1.74	0.02	0.02	0.015	0.015	0.5	4.76	18.7
11/19/2003	ECMW-12	1.83	0.02	0.02	0.015	0.015	0.5	5.79	30.6
1/28/2004	ECMW-12	1.87	0.02	0.02	0.015	0.015	0.5	6.44	6.76
3/16/2004	ECMW-12	2.2	0.02	0.02	0.015	0.015	0.5	5.96	4.04
5/19/2004	ECMW-12	1.94	0.02	0.02	0.015	0.015	0.5	5.8	5.11
7/13/2004	ECMW-12	1.2	0.02	0.02	0.015	0.015	0.5	6.78	7.18
9/15/2004	ECMW-12	2.38	0.02	0.02	0.015	0.015	0.5	5.8	23
11/16/2004	ECMW-12	1.55	0.02	0.02	0.015	0.015	0.5	5.73	18.5
1/26/2005	ECMW-12	1.98	0.02	0.02	0.015	0.015	0.5	5.91	4.88
5/25/2005	ECMW-12	1.02	0.02	0.02	0.015	0.015	0.5	5.96	11.2
10/20/2005	ECMW-12	1.06						5.3	
4/11/2006	ECMW-12	1.58						6.12	
11/1/2006	ECMW-12	1.37						5.3	
5/23/2007	ECMW-12							5.66	
11/6/2007	ECMW-12							5.11	
5/21/2008	ECMW-12	1.67		0.02		0.015	0.5	7.53	7.14
11/7/2008	ECMW-12	1.17		0.02		0.015	0.5	5.75	8.74
4/21/2009	ECMW-12							6.52	
10/21/2009	ECMW-12							7.08	
4/13/2010	ECMW-12	5.56		0.02		0.015	0.5	5.95	2.14
11/3/2010	ECMW-12	1.44		0.01		0.015	0.5	6.64	21.5
4/27/2011	ECMW-12							5.67	
5/3/2012	ECMW-12	1.81	0.02	0.01	0.015	0.015	0.5	6.02	17
11/7/2012	ECMW-12	3.55	0.02	0.01	0.015	0.015	0.5	6.49	21.5
5/15/2013	ECMW-12							6.02	
11/4/2013	ECMW-12							5.84	
6/3/2014	ECMW-12	3.11	0.021	0.0104	0.016	0.0156	0.334	5.56	5.04
11/4/2014	ECMW-12	2.15	0.02	0.0104	0.015	0.0156	0.25	4.53	20.6
5/22/2015	ECMW-12							6.02	
11/18/2015	ECMW-12							5.73	
5/25/2016	ECMW-12	2.24	0.021	0.0104	0.016	0.0156	0.25	5.58	17
11/10/2016	ECMW-12	2.22	0.0104	0.0104	0.0156	0.0156	0.25	5.18	33
3/22/2017	ECMW-12							5.9	
9/13/2017	ECMW-12							5.97	
6/6/2018	ECMW-12	1.05	0.0125	0.0125	0.0156	0.0156	0.25	5.86	16.5
9/13/2018	ECMW-12	1.74	0.0125	0.0125	0.0156	0.0156	1.33	5.66	34.6
1/21/2019	ECMW-12							5.41	
7/16/2019	ECMW-12							5.58	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-13		0.005	0.005	0.002	0.002	0.2		809
6/5/2001	ECMW-13	0.5		0.02		0.04	0.5	5.6	538
10/30/2001	ECMW-13	0.5		0.02		0.04	0.5	5.3	606
6/4/2002	ECMW-13	0.5	0.02	0.02	0.02	0.02	0.5	5.7	372
10/30/2002	ECMW-13	1.28	0.02	0.02	0.015	0.015	0.5	6.1	538
12/10/2002	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	5.5	598
7/23/2003	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	6.05	358
11/19/2003	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.62	4.91	310
1/28/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	5.02	565
3/16/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	5.19	550
5/18/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	5.27	296
7/13/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	6.02	510
9/14/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	5.03	416
11/16/2004	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.5	4.83	250
1/26/2005	ECMW-13	0.5	0.02	0.02	0.015	0.015	0.72	4.86	564
5/25/2005	ECMW-13	0.54	0.02	0.02	0.015	0.015	0.5	5.07	302
10/19/2005	ECMW-13							4.19	
4/12/2006	ECMW-13							4.97	
11/2/2006	ECMW-13							4.71	
5/23/2007	ECMW-13							4.97	
11/7/2007	ECMW-13							4.64	
5/21/2008	ECMW-13	0.5		0.02		0.015	0.5	5.85	399
11/7/2008	ECMW-13	0.5		0.02		0.015	0.5	5.01	346
4/21/2009	ECMW-13							4.77	
10/21/2009	ECMW-13						0.5	4.63	
4/14/2010	ECMW-13	0.5		0.02		0.015	0.5	4.75	470
11/3/2010	ECMW-13	0.5		0.01		0.015		6.44	589
12/21/2010	ECMW-13								
4/26/2011	ECMW-13							4.68	
11/30/2011	ECMW-13								
5/2/2012	ECMW-13	0.5	0.02	0.01	0.015	0.015	0.5	5.23	505
11/6/2012	ECMW-13	0.5	0.02	0.01	0.015	0.015	0.5	6.25	593
5/15/2013	ECMW-13							5.19	
11/4/2013	ECMW-13							4.83	
6/4/2014	ECMW-13	0.5	0.021	0.0104	0.016	0.0156	0.255	5.33	374
11/5/2014	ECMW-13	0.5	0.02	0.0104	0.015	0.015	0.25	4.03	425
5/22/2015	ECMW-13							5.2	
11/18/2015	ECMW-13							4.68	
5/25/2016	ECMW-13	0.5	0.021	0.0104	0.016	0.016	0.25	4.39	529
11/9/2016	ECMW-13	0.5	0.0104	0.0104	0.0156	0.0156	0.25	5.06	439
3/22/2017	ECMW-13							4.8	
9/13/2017	ECMW-13							5.04	
4/11/2018	ECMW-13	0.5	0.0125	0.0125	0.0156	0.0156	0.25	4.57	364
9/12/2018	ECMW-13	0.5	0.0125	0.0125	0.0156	0.0156	0.25	4.56	496
1/22/2019	ECMW-13							4.54	
7/15/2019	ECMW-13							4.93	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-14		0.005	0.005	0.002	0.002	11.9		139
8/8/2001	ECMW-14	0.5		0.02		0.04	75	4.3	175
10/30/2001	ECMW-14	0.5		0.02		0.04	25.2	4.5	211
6/4/2002	ECMW-14	0.5	0.02	0.02	0.02	0.02	26.5	5.6	187
10/30/2002	ECMW-14	5.32	0.02	0.02	0.015	0.015	17	6.3	288
12/10/2002	ECMW-14	0.5	0.02	0.02	0.015	0.015	23.4	5.3	230
7/23/2003	ECMW-14	0.5	0.02	0.02	0.015	0.015	23.1	4.62	221
11/19/2003	ECMW-14	0.5	0.02	0.02	0.015	0.015	16.1	4.92	227
1/28/2004	ECMW-14	0.5	0.02	0.02	0.015	0.028	24.5	5.19	5.41
3/16/2004	ECMW-14	0.5	0.02	0.02	0.015	0.015	33.4	5.34	211
5/18/2004	ECMW-14	0.5	0.02	0.02	0.015	0.015	32.6	5.23	234
7/13/2004	ECMW-14	0.5	0.02	0.02	0.015	0.015	45.7	5.05	226
9/14/2004	ECMW-14	0.5	0.02	0.02	0.015	0.015	57.7	4.72	232
11/16/2004	ECMW-14	0.5	0.02	0.02	0.015	0.015	21.7	4.88	168
1/26/2005	ECMW-14	0.5	0.02	0.02	0.015	0.015	62.4	4.89	204
5/25/2005	ECMW-14	0.5	0.02	0.02	0.015	0.015	31	5.06	204
10/19/2005	ECMW-14						36	4.96	
4/12/2006	ECMW-14						48.2	4.72	
11/2/2006	ECMW-14						13.6	4.15	
5/23/2007	ECMW-14	0.5					25.5	4.6	233
11/7/2007	ECMW-14	0.5					12.6	4.24	229
5/21/2008	ECMW-14	0.5		0.02		0.015	22.5	5.69	224
11/5/2008	ECMW-14	0.5		0.02		0.015	11.1	4.35	137
4/21/2009	ECMW-14	0.72					13.2	4.36	200
12/16/2009	ECMW-14	0.5					15.7	5.53	212
4/14/2010	ECMW-14	0.5		0.02		0.015	24.3	4.54	166
12/21/2010	ECMW-14	0.5		0.01		0.015	12.7	5.68	152
4/26/2011	ECMW-14	0.5					10.7	5.04	159
11/30/2011	ECMW-14	0.5					8.09	4.5	156
5/2/2012	ECMW-14	0.5		0.01	0.015	0.015	17.4	5.2	139
11/6/2012	ECMW-14	0.5		0.01	0.015	0.015	8.03	6.25	140
5/15/2013	ECMW-14	0.5	0.02				6.17	5.2	108
11/5/2013	ECMW-14	7.52	0.02				6.92	5.46	91.6
6/4/2014	ECMW-14	0.5	0.021	0.0104	0.016	0.0156	4.31	5.73	54.2
11/5/2014	ECMW-14	0.5	0.02	0.0104	0.015	0.0156	5.12	4.09	98.3
9/8/2015	ECMW-14	0.5					9.58	4.89	77.8
11/18/2015	ECMW-14	0.63					17.2	5.15	45.6
7/6/2016	ECMW-14	0.5	0.021	0.0104	0.016	0.0156	8.76	4.93	91.2
11/9/2016	ECMW-14	0.5	0.0104	0.0104	0.0156	0.0156	4.4	5.37	116
3/21/2017	ECMW-14	0.782					5.3	5.43	102
9/12/2017	ECMW-14	0.5					2.76	4.62	123
6/6/2018	ECMW-14	0.5	0.0125	0.0125	0.0156	0.0156	5.98	4.91	136
9/12/2018	ECMW-14	0.5	0.0125	0.0125	0.0156	0.0156	4.8	4.71	143
1/21/2019	ECMW-14	Flooded							
7/16/2019	ECMW-14	0.52					4	4.19	130

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-15		0.005	0.005	0.002	0.002	34.5		4.4
8/8/2001	ECMW-15	0.5		0.02		0.04	19.1	4.3	7.8
10/30/2001	ECMW-15	0.5		0.02		0.04	12.6	4.3	10.2
6/4/2002	ECMW-15	0.5	0.02	0.02	0.02	0.02	10.7	5.4	11.1
10/30/2002	ECMW-15	1.16	0.02	0.02	0.015	0.015	18.2	5.4	9.22
12/10/2002	ECMW-15	0.5	0.02	0.02	0.015	0.015	12.2	5.8	10.8
7/23/2003	ECMW-15	0.5	0.02	0.02	0.015	0.015	7.63	4.77	12.8
11/19/2003	ECMW-15	0.5	0.02	0.02	0.015	0.015	9.81	4.89	12.6
1/28/2004	ECMW-15	3.96	0.02	0.02	0.015	0.015	4.52	5.56	18.6
3/16/2004	ECMW-15	0.5	0.02	0.02	0.015	0.015	7.66	5.68	13.9
5/18/2004	ECMW-15	0.5	0.02	0.02	0.015	0.015	6.82	5.75	15.2
7/13/2004	ECMW-15	0.5	0.02	0.02	0.015	0.015	9.52	5.39	11
9/14/2004	ECMW-15	0.61	0.02	0.02	0.015	0.015	8.22	4.67	13.2
11/16/2004	ECMW-15	0.5	0.02	0.02	0.015	0.015	7.42	4.92	11.8
1/25/2005	ECMW-15	0.5	0.02	0.02	0.015	0.015	7.62	4.68	11.8
5/25/2005	ECMW-15	0.5	0.02	0.02	0.015	0.015	5.79	4.94	16.1
10/19/2005	ECMW-15						5.63	4.77	
4/11/2006	ECMW-15						1.6	4.95	
11/2/2006	ECMW-15						2.54	4.17	
11/2/2006	ECMW-15								
5/23/2007	ECMW-15							4.43	
11/7/2007	ECMW-15							4.06	
5/21/2008	ECMW-15	0.5		0.02		0.015	1.52	7.35	15.9
11/5/2008	ECMW-15	0.5		0.02		0.015	2.32	5.18	8.79
4/21/2009	ECMW-15							4.53	
10/20/2009	ECMW-15							4.36	
4/14/2010	ECMW-15	0.5		0.02		0.015	2.99	4.39	10.7
11/3/2010	ECMW-15	0.5		0.01		0.015	1.9	5.3	13.2
4/26/2011	ECMW-15							4.86	
5/2/2012	ECMW-15	0.5	0.02	0.01	0.015	0.015	1.08	4.88	13.9
11/6/2012	ECMW-15	0.5	0.02	0.01	0.015	0.015	1.26	6.22	13
5/15/2013	ECMW-15							6.21	
11/4/2013	ECMW-15							4.56	
6/4/2014	ECMW-15	0.5	0.021	0.0122	0.016	0.0156	1.74	5.36	12.4
11/5/2014	ECMW-15	0.5	0.02	0.0104	0.015	0.0156	3.07	2.75	9.58
5/22/2015	ECMW-15							4.68	
11/18/2015	ECMW-15							5.14	
5/25/2016	ECMW-15	0.5	0.021	0.0104	0.016	0.0156	4.52	4.29	9.67
11/9/2016	ECMW-15	0.5	0.0104	0.0104	0.0156	0.0156	4.07	5.04	9.96
3/22/2017	ECMW-15							4.67	
9/13/2017	ECMW-15							4.54	
4/10/2018	ECMW-15	0.5	0.0125	0.0125	0.0156	0.0156	1.55	5.67	12.6
9/12/2018	ECMW-15	0.5	0.0125	0.0125	0.0156	0.0156	2.21	4.87	15.6
1/21/2019	ECMW-15							4.06	
7/16/2019	ECMW-15							4.11	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-16		0.005	0.005	0.0034	0.0036	137		4.6
6/5/2001	ECMW-16	4.61		0.02		0.04	134	4.3	5.09
10/30/2001	ECMW-16	0.5		0.02		0.04	58.4	3.9	6.44
6/4/2002	ECMW-16	6.2	0.02	0.02	0.02	0.02	72.5	5	7.19
10/30/2002	ECMW-16	11.6	0.02	0.02	0.015	0.015	72	5	9.21
12/10/2002	ECMW-16	2.99	0.02	0.02	0.015	0.015	89.4	5.9	5.64
7/23/2003	ECMW-16	6.45	0.02	0.02	0.015	0.015	72.3	4.81	7.15
11/19/2003	ECMW-16	8.61	0.02	0.02	0.015	0.015	44.3	4.99	9.78
1/28/2004	ECMW-16	5.66	0.02	0.02	0.015	0.015	59	5.61	9.84
3/16/2004	ECMW-16	8.39	0.02	0.02	0.015	0.015	34.8	5.83	11.2
5/18/2004	ECMW-16	10.4	0.02	0.02	0.015	0.015	31.9	5.95	13.3
7/13/2004	ECMW-16	9.35	0.02	0.02	0.015	0.015	40.2	5.5	7.7
9/14/2004	ECMW-16	8.57	0.02	0.02	0.015	0.015	47.1	4.49	7.83
11/16/2004	ECMW-16	6.49	0.02	0.02	0.015	0.015	38.2	5.08	8.11
1/25/2005	ECMW-16	4.15	0.02	0.02	0.015	0.015	43.1	4.54	8.13
5/25/2005	ECMW-16	7.62	0.02	0.02	0.015	0.015	26.8	4.62	10.2
10/19/2005	ECMW-16	6.28					17	4.66	
4/11/2006	ECMW-16	2.01					17	4.79	
11/2/2006	ECMW-16	2.16					24.8	4.27	
5/23/2007	ECMW-16	2.21					12.8	4.25	14.4
11/7/2007	ECMW-16	1.77					19.6	4.3	12.6
5/21/2008	ECMW-16	3.35		0.02		0.015	14.8	6.08	15.9
11/5/2008	ECMW-16	1.92		0.02		0.015	11.4	6.5	10.4
4/21/2009	ECMW-16	3.25					8.85	4.66	14.5
10/21/2009	ECMW-16	0.88					13.1	4.38	12.1
4/14/2010	ECMW-16	2.38		0.02		0.015	4.73	4.42	15.3
11/3/2010	ECMW-16	0.96		0.01		0.015	19.2	5.98	13.4
4/26/2011	ECMW-16	3.56					7.5	4.5	15.8
11/30/2011	ECMW-16	0.84					11.6	4.12	17.9
5/2/2012	ECMW-16	0.81	0.02	0.01		0.015	10.7	4.66	15.4
11/6/2012	ECMW-16	1.19		0.01		0.015	9.94	6.09	14.6
5/15/2013	ECMW-16	3.91			0.015		12.2	4.79	13
11/5/2013	ECMW-16	1.58	0.02		0.015		10.3	4.6	13.3
6/4/2014	ECMW-16	1.8	0.021	0.0104	0.016	0.0156	10.9	5.07	10.7
11/5/2014	ECMW-16	1.27	0.02	0.0104	0.015	0.0156	9.2	2.64	11.2
5/20/2015	ECMW-16	6.2					8.65	4.54	12.9
11/18/2015	ECMW-16	0.5					8.43	4.64	15.9
5/25/2016	ECMW-16	0.5	0.021	0.0104	0.016	0.0156	10.2	4.28	15.4
11/9/2016	ECMW-16	0.5	0.0104	0.0104	0.0156	0.0156	8.86	5.3	13.6
3/21/2017	ECMW-16	0.5					7.88	4.44	15.3
9/12/2017	ECMW-16	0.5					8.74	4.13	12.1
4/10/2018	ECMW-16	0.5	0.0125	0.0125	0.0156	0.0156	8.13	5.75	15.6
9/12/2018	ECMW-16	0.5	0.0125	0.0125	0.0156	0.0156	8.46	4.22	9.85
1/22/2019	ECMW-16	0.33					12	4.09	18
7/16/2019	ECMW-16	0.33					13	3.94	16

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-17		0.005	0.005	0.002	0.002	45		145
6/5/2001	ECMW-17	1.16		0.02		0.04	54.2	4.4	87.7
10/30/2001	ECMW-17	0.5		0.02		0.04	106	4.1	11.5
6/4/2002	ECMW-17	0.5	0.02	0.02	0.02	0.02	83.4	5.1	8.04
10/30/2002	ECMW-17	2.36	0.02	0.02	0.015	0.015	92	5.1	9.53
12/10/2002	ECMW-17	1.22	0.02	0.02	0.015	0.015	101	5.6	28.2
7/23/2003	ECMW-17	0.58	0.02	0.02	0.015	0.015	74.7	4.74	9.31
11/19/2003	ECMW-17	0.55	0.02	0.02	0.015	0.015	77.3	5.28	11.8
1/28/2004	ECMW-17	0.5	0.02	0.02	0.015	0.015	81.3	6.54	42.8
3/16/2004	ECMW-17	8.14	0.02	0.02	0.015	0.015	129	6.62	64
5/18/2004	ECMW-17	8.05	0.02	0.02	0.015	0.015	134	6.73	60.1
7/13/2004	ECMW-17	0.5	0.02	0.02	0.015	0.015	67.6	6.57	6.54
9/14/2004	ECMW-17	1.42	0.02	0.02	0.015	0.015	78.4	4.4	3.14
11/16/2004	ECMW-17	9.55	0.02	0.02	0.015	0.015	219	5.41	54.8
1/26/2005	ECMW-17	1.79	0.02	0.02	0.015	0.015	53.3	4.54	12.2
5/25/2005	ECMW-17	0.5	0.02	0.02	0.015	0.015	56.4	4.86	19.1
10/20/2005	ECMW-17	0.67					48.9	5.74	
4/11/2006	ECMW-17	1.15					66.6	3.35	
11/2/2006	ECMW-17	4.81					47.6	3.56	
5/23/2007	ECMW-17	1.49					58.5	4.19	12.7
11/7/2007	ECMW-17	0.64					83.3	3.7	1.27
5/21/2008	ECMW-17	1.63		0.02		0.015	63.1	4.84	63
11/5/2008	ECMW-17	1.31		0.02		0.015	34.6	3.85	17.5
4/21/2009	ECMW-17	12.2					27.1	4.25	99.9
6/3/2009	ECMW-17	3.04						5.84	
10/21/2009	ECMW-17	11.2					14.4	4.68	87.1
4/14/2010	ECMW-17	0.5		0.02		0.015	15.9	4.07	6.73
11/3/2010	ECMW-17	1.94		0.01		0.015	27.2	7.02	13.1
4/26/2011	ECMW-17	10.1					4.03	4.34	40.2
11/30/2011	ECMW-17	2.75					5.95	4.65	36.1
5/2/2012	ECMW-17	2.51	0.02	0.01	0.015	0.015	8.13	4.75	20.9
11/6/2012	ECMW-17	3.82		0.01	0.015	0.015	1.82	6.21	39.2
5/15/2013	ECMW-17	1.41					3.6	4.7	34.5
11/5/2013	ECMW-17	0.5	0.02				1.24	4.77	39.6
6/4/2014	ECMW-17	2.46	0.021	0.0104	0.016	0.0156	7.19	4.62	29.3
11/5/2014	ECMW-17	3.46	0.02	0.0104	0.015	0.0156	7.5	2.73	34.3
5/20/2015	ECMW-17	6.53					10.4	4.1	18.7
11/18/2015	ECMW-17	3.67					14.3	4.04	22.9
5/25/2016	ECMW-17	0.5	0.021	0.0104	0.016	0.0156	14.3	3.96	6.64
11/9/2016	ECMW-17	0.826	0.0104	0.0104	0.0156	0.0156	12.2	6.42	6.86
3/21/2017	ECMW-17	5.16					19.2	4.6	21.2
9/12/2017	ECMW-17	0.865					13.4	4.32	11.3
4/10/2018	ECMW-17	3.5	0.0125	0.0125	0.0156	0.0156	10.2	4.32	20.5
9/12/2018	ECMW-17	1.61	0.0125	0.0125	0.0156	0.0156	6.95	4.03	24.9
1/22/2019	ECMW-17	1.4					12	3.84	19
7/15/2019	ECMW-17	0.22					7.8	3.67	11

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
3/13/1996	ECMW-18		0.005	0.0194	0.002	0.017	0.4		3.3
10/30/2001	ECMW-18	0.5		0.05		0.04	0.5	5.4	3.74
6/4/2002	ECMW-18	0.5	0.137	0.147	0.02	0.115	0.5	6.2	8.38
10/30/2002	ECMW-18	0.43	0.02	0.02	0.015	0.018	0.5	6.3	3.22
12/10/2002	ECMW-18	0.5	0.02	0.02	0.015	0.015	0.5	6.4	5.01
7/23/2003	ECMW-18	0.5	0.02	0.047	0.015	0.029	113	5.38	115
11/19/2003	ECMW-18	0.5	0.02	0.02	0.015	0.015	0.5	5.9	9.68
1/28/2004	ECMW-18							6.17	
3/16/2004	ECMW-18	0.5	0.021	0.027	0.015	0.021	0.5	6.4	7.01
5/19/2004	ECMW-18	0.5	0.02	0.088	0.015	0.063	0.5	6.43	5.63
7/13/2004	ECMW-18	0.5	0.02	0.043	0.015	0.033	0.5	6.05	5.68
9/15/2004	ECMW-18	0.56	0.05	0.12	0.038	0.109	0.5	5.89	3.88
11/17/2004	ECMW-18	0.5	0.02	0.027	0.015	0.015	0.5	5.96	4.61
1/26/2005	ECMW-18	0.5	0.022	0.055	0.015	0.056	0.5	5.9	5.13
5/25/2005	ECMW-18	0.5	0.02	0.032	0.015	0.018	0.5	6.04	5.18
10/19/2005	ECMW-18		0.052	0.02	0.015	0.015		5.82	
4/12/2006	ECMW-18		0.065	0.02	0.016	0.015		1.34	
11/2/2006	ECMW-18			0.02		0.015		5.23	
5/23/2007	ECMW-18						0.98	5.34	
11/7/2007	ECMW-18						0.5	5.03	
5/21/2008	ECMW-18	0.5		0.028		0.02	0.567	7.82	6.57
11/7/2008	ECMW-18	0.5		0.025		0.032	0.5	5.05	1.52
4/22/2009	ECMW-18						0.5	5.42	
10/21/2009	ECMW-18						0.5	7.16	
4/14/2010	ECMW-18	0.5		0.02		0.015	0.5	5.5	2.82
11/3/2010	ECMW-18	0.5		0.01		0.015	1	8.22	3.65
4/26/2011	ECMW-18							5.77	
6/30/2011	ECMW-18						0.5		
11/30/2011	ECMW-18						0.5	5.64	
5/2/2012	ECMW-18	0.5	0.02	0.01		0.015	0.5	5.89	2.17
11/6/2012	ECMW-18	0.5		0.01		0.015	0.5	6.61	2.99
5/15/2013	ECMW-18	0.5			0.015		0.328	5.96	6.25
11/5/2013	ECMW-18	9.64	0.02		0.015		0.25	6.28	6.3
6/4/2014	ECMW-18	0.5	0.021	0.0531	0.016	0.0274	0.299	5.82	7.15
11/5/2014	ECMW-18	0.5	0.02	0.0104	0.015	0.0156	0.254	4.71	2.64
5/20/2015	ECMW-18						0.295	5.64	5.63
11/18/2015	ECMW-18						0.25	5.7	
5/25/2016	ECMW-18	0.5	0.021	0.0104	0.016	0.0167	0.25	5.33	1.78
11/10/2016	ECMW-18	0.788	0.0104	0.0104	0.0156	0.0248	0.25	6.42	1.29
3/21/2017	ECMW-18						0.25	5.35	
9/12/2017	ECMW-18	0.5					0.25	5.11	1.29
4/12/2018	ECMW-18	1.38	0.0125	0.0125	0.0156	0.0156	0.25	5.28	1.58
9/13/2018	ECMW-18	0.5	0.0125	0.0125	0.0156	0.0156	0.25	4.19	1.72
1/22/2019	ECMW-18						0.56	4.39	
7/18/2019	ECMW-18						0.21	4.68	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
1/28/2004	ECMW-19	0.64	0.077	0.077	0.045	0.122	0.5	6.73	8.32
3/16/2004	ECMW-19	0.5	0.02	0.02	0.015	0.019	0.5	6.49	6.38
5/19/2004	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	6.19	9.05
7/13/2004	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	6.37	6.85
9/15/2004	ECMW-19	0.54	0.02	0.02	0.015	0.015	0.5	6.23	4.11
11/17/2004	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	6.02	4.63
1/26/2005	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	5.82	3.67
5/25/2005	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	5.88	4.56
10/19/2005	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	6.27	
4/12/2006	ECMW-19	0.5	0.02	0.02	0.015	0.015	0.5	6.1	
11/2/2006	ECMW-19	0.5		0.02		0.015	0.5	5.51	
5/23/2007	ECMW-19							5.18	
11/7/2007	ECMW-19							8.17	
5/21/2008	ECMW-19	0.5		0.02		0.015	0.5	5.9	3.18
11/7/2008	ECMW-19	0.5		0.02		0.015	0.5	5.66	2.04
4/22/2009	ECMW-19								
10/21/2009	ECMW-19							7.82	
4/14/2010	ECMW-19	0.5		0.02		0.015	0.5	5.62	2.46
11/3/2010	ECMW-19	0.5		0.01		0.015	0.5	6.87	2.97
4/26/2011	ECMW-19							5.82	
5/2/2012	ECMW-19	0.5	0.02	0.01	0.015	0.015	0.5	5.98	2.31
11/6/2012	ECMW-19	0.5	0.02	0.01	0.015	0.015	0.5	6.68	2.88
5/14/2013	ECMW-19							6.13	
11/5/2013	ECMW-19							6.73	
6/4/2014	ECMW-19	0.5	0.021	0.0104	0.016	0.0156	0.25	5.92	2.78
11/5/2014	ECMW-19	0.5	0.02	0.0104	0.015	0.0156	0.25	5.05	2.97
5/22/2015	ECMW-19							5.95	
11/18/2015	ECMW-19							6.13	
5/25/2016	ECMW-19	0.5	0.021	0.0104	0.016	0.0156	0.25	5.06	2.26
11/9/2016	ECMW-19	0.5	0.0104	0.0104	0.0156	0.0156	0.25	6.56	2.25
3/22/2017	ECMW-19							5.52	
9/13/2017	ECMW-19							5.55	
4/12/2018	ECMW-19	0.752	0.0125	0.0125	0.0156	0.0156	0.25	5.51	3.64
9/13/2018	ECMW-19	1.21	0.0125	0.0125	0.0156	0.0156	5.27	5.07	2.79
1/22/2019	ECMW-19							5.52	
7/18/2019	ECMW-19							5.55	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
1/28/2004	ECMW-20	0.5	0.02	0.034	0.015	0.024	0.5	5.93	11.4
3/16/2004	ECMW-20	0.5	0.02	0.02	0.015	0.015	0.5	6.51	15.9
5/19/2004	ECMW-20	0.5	0.02	0.02	0.015	0.015	0.5	6.23	10.6
7/13/2004	ECMW-20	0.5	0.02	0.02	0.015	0.015	0.5	5.8	17.2
9/15/2004	ECMW-20	0.86	0.02	0.02	0.015	0.015	0.5	5.61	17.2
11/17/2004	ECMW-20	0.5	0.02	0.02	0.015	0.015	0.5	5.36	13.5
1/26/2005	ECMW-20	0.5	0.02	0.02	0.015	0.017	0.5	6.02	13.8
5/26/2005	ECMW-20	0.5	0.02	0.02	0.015	0.015	1.86	6.03	7.72
10/20/2005	ECMW-20	0.5	0.02	0.02	0.015	0.015	0.5		
4/12/2006	ECMW-20	3.58	0.02	0.02	0.015	0.015	6.29		
11/2/2006	ECMW-20	0.5		0.02		0.015	1.21	6.2	
5/23/2007	ECMW-20							6.06	
11/7/2007	ECMW-20							5.52	
5/21/2008	ECMW-20	0.5		0.02		0.015	0.5	8.6	8.94
11/7/2008	ECMW-20	0.5		0.02		0.016	0.5	6.36	7.94
4/22/2009	ECMW-20							6.22	
10/21/2009	ECMW-20					0.015		7.37	
4/14/2010	ECMW-20	0.5		0.02		0.015	0.5	5.64	10.1
12/21/2010	ECMW-20	0.5		0.01			0.5	5.02	8.95
4/26/2011	ECMW-20							6.03	
5/2/2012	ECMW-20	0.5	0.02	0.01	0.015	0.015	0.5	5.96	7.82
11/6/2012	ECMW-20	0.5	0.02	0.01	0.015	0.015	0.5	6.74	9.31
5/14/2013	ECMW-20							5.29	
11/5/2013	ECMW-20							6	
6/4/2014	ECMW-20	0.5	0.021	0.0104	0.016	0.0156	0.25	5.63	8.17
11/5/2014	ECMW-20	0.5	0.02	0.0104	0.015	0.0156	0.262	3.61	9.87
5/22/2015	ECMW-20							5.61	
11/18/2015	ECMW-20							6.08	
5/25/2016	ECMW-20	0.5	0.021	0.0104	0.016	0.0156	0.25	5.37	9.46
11/9/2016	ECMW-20	0.5	0.0104	0.0104	0.0156	0.0156	2.31	5.18	4.59
3/22/2017	ECMW-20							5.39	
9/13/2017	ECMW-20							5.28	
4/12/2018	ECMW-20	1.62	0.0125	0.0125	0.0156	0.0202	5.44	5.28	13.1
9/13/2018	ECMW-20	0.5	0.0125	0.0125	0.0156	0.0156	0.568	4.79	17.4
1/21/2019	ECMW-20							4.98	
7/16/2019	ECMW-20							5.15	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
1/28/2004	ECMW-21	0.5	0.02	0.837	0.015	0.169	1.63	5.56	8.17
3/16/2004	ECMW-21	0.5	0.02	0.028	0.015	0.015	0.54	6.34	3.62
5/19/2004	ECMW-21	0.5	0.02	0.07	0.015	0.029	2.15	6.75	4.59
7/13/2004	ECMW-21	0.5	0.02	0.056	0.015	0.032	2.5	6.39	3.74
9/15/2004	ECMW-21	0.81	0.02	0.029	0.015	0.015	4.65	5.47	4.15
11/17/2004	ECMW-21	0.5	0.02	0.047	0.015	0.015	2.97	5.96	3.14
1/26/2005	ECMW-21	4.06	0.02	0.044	0.015	0.02	3.23	5.37	2.88
5/26/2005	ECMW-21	0.5	0.02	0.265	0.015	0.063	3.17	5.69	3.64
10/20/2005	ECMW-21	0.5	0.02	0.02	0.015	0.015	4.16	4.17	
4/12/2006	ECMW-21	0.5	0.02	0.02	0.015	0.015	3.19	3.05	
11/2/2006	ECMW-21	0.5		0.02		0.015	2.23		
5/23/2007	ECMW-21							5.56	
11/7/2007	ECMW-21							5.07	
5/21/2008	ECMW-21	0.5		0.02		0.015	1.85	7.81	5.18
11/7/2008	ECMW-21	0.5		0.02		0.015	1.26	5.32	3
4/22/2009	ECMW-21							5.24	
10/21/2009	ECMW-21							5.91	
4/14/2010	ECMW-21	0.5		0.02		0.015	2.24	4.88	3.7
11/3/2010	ECMW-21	0.5		0.01		0.015	1.8	7.13	6.07
4/26/2011	ECMW-21							5.85	
5/2/2012	ECMW-21	0.5	0.02	0.01	0.015	0.015	1.4	5.68	3.94
11/6/2012	ECMW-21	0.5	0.02	0.01	0.015	0.015	1.1	6.48	6.28
5/15/2013	ECMW-21							6.09	
11/5/2013	ECMW-21							5.68	
6/4/2014	ECMW-21	0.5	0.021	0.0105	0.016	0.0156	1.63	5.22	4.57
11/5/2014	ECMW-21	0.5	0.02	0.0104	0.015	0.0156	1.62	3.81	5.25
5/22/2015	ECMW-21							5.37	
11/18/2015	ECMW-21							5.39	
5/25/2016	ECMW-21	0.5	0.021	0.0104	0.016	0.0156	2.25	4.88	3.62
11/9/2016	ECMW-21	0.5	0.0104	0.0104	0.0156	0.0156	0.25	6.25	21.4
3/22/2017	ECMW-21							4.72	
9/13/2017	ECMW-21							4.18	
6/6/2018	ECMW-21	0.5	0.0125	0.0125	0.0156	0.0156	2.45	4.49	3.95
9/13/2018	ECMW-21	0.5	0.0174	0.0174	0.0156	0.0156	2.51	5.76	4.85
1/21/2019	ECMW-21							4.91	
7/16/2019	ECMW-21							4.06	

El Dorado Chemical Company
Annual Groundwater Monitoring Report
Groundwater Monitoring Well Data
CAO LIS No. 18-085

Date	Monitoring Well	Ammonia-N (mg/L)	Chromium (Dissolved) (mg/L)	Chromium (Total) (mg/L)	Lead (Dissolved) (mg/L)	Lead (Total) (mg/L)	Nitrate- N (mg/L)	pH (s.u.)	Sulfate (mg/L)
1/28/2004	ECMW-22	0.61	0.02	0.021	0.015	0.021	0.53	7.68	6.62
3/16/2004	ECMW-22	0.5	0.02	0.02	0.015	0.015	0.66	6.65	2.88
5/18/2004	ECMW-22	0.5	0.02	0.02	0.015	0.015	0.95	6.76	3.74
7/13/2004	ECMW-22	0.5	0.02	0.02	0.015	0.015	0.5	6.74	3.8
9/14/2004	ECMW-22	0.7	0.02	0.02	0.015	0.015	0.5	5.84	2.94
11/16/2004	ECMW-22	0.5	0.02	0.02	0.015	0.015	0.5	6.95	2.51
1/26/2005	ECMW-22	0.5	0.02	0.02	0.015	0.015	1.09	5.79	3.56
5/25/2005	ECMW-22	0.5	0.02	0.02	0.015	0.015	1.12	6.46	3.61
10/19/2005	ECMW-22	0.5	0.02	0.02	0.015	0.056	0.5	6.21	
4/11/2006	ECMW-22	0.5	0.02	0.02	0.015	0.015	2.56	6.22	
11/2/2006	ECMW-22	0.5		0.02		0.015		5.37	
5/23/2007	ECMW-22							5.67	
11/7/2007	ECMW-22							5.01	7.6
5/21/2008	ECMW-22	0.5		0.02		0.015	3.65	7.93	4.7
11/5/2008	ECMW-22	0.5		0.02		0.015	1.87	5.06	
4/22/2009	ECMW-22							5.8	
10/21/2009	ECMW-22							6.15	
4/14/2010	ECMW-22	0.5		0.02		0.015	1.13	5.84	7.73
11/3/2010	ECMW-22	0.5		0.01		0.015	1.31	8.15	6.68
4/26/2011	ECMW-22							6.05	
5/2/2012	ECMW-22	0.5	0.02	0.01	0.015	0.015	1.15	6.1	4.99
11/6/2012	ECMW-22	0.5	0.02	0.01	0.015	0.015	1.74	6.73	7.01
5/14/2013	ECMW-22							6.19	
11/4/2013	ECMW-22							5.64	
6/4/2014	ECMW-22	0.5	0.021	0.0104	0.016	0.0156	1.75	5.79	5.05
11/5/2014	ECMW-22	0.61	0.02	0.0104	0.015	0.0156	2.58	4.42	5.66
5/22/2015	ECMW-22							6.28	
11/18/2015	ECMW-22							6.07	
5/25/2016	ECMW-22	1.25	0.021	0.0104	0.016	0.0156	4.37	5.5	11.8
11/9/2016	ECMW-22	0.5	0.0104	0.0104	0.0156	0.0156	0.53	6.04	5.16
3/22/2017	ECMW-22							5.64	
9/13/2017	ECMW-22							5.71	
4/10/2018	ECMW-22	0.5	0.0125	0.0125	0.0156	0.0156	0.25	5.61	0.722
9/12/2018	ECMW-22	0.583	0.0125	0.0125	0.0156	0.0156	1.79	5.69	12.8
1/22/2019	ECMW-22							5.43	
7/15/2019	ECMW-22							5.37	

Statistical Analysis

Linear Regression Friday, January 10, 2020, 11:37:38 AM

Data source: Data 1 in Data

Date = 2454418.099 + (0.954 * 6 Ammonia-N (mg/L))

N = 47 Missing Observations = 54

R = 0.692 Rsqr = 0.478 Adj Rsqr = 0.467

Standard Error of Estimate = 1464.801

	Coefficient	Std. Error	t	P
Constant	2454418.099	244.012	10058.584	<0.001
6 Ammonia-N (mg/L)	0.954	0.148	6.424	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	88537421.663	88537421.663	41.264	<0.001
Residual	45	96553880.975	2145641.799		
Total	46	185091302.638	4023723.970		

Normality Test (Shapiro-Wilk) Passed (P = 0.107)

Constant Variance Test: Passed (P = 0.892)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:38:08 AM

Data source: Data 1 in Data

Date = 2454731.276 + (0.792 * 7 Ammonia-N (mg/L))

N = 47 Missing Observations = 54

R = 0.479 Rsqr = 0.230 Adj Rsqr = 0.213

Standard Error of Estimate = 1779.846

	Coefficient	Std. Error	t	P
Constant	2454731.276	286.486	8568.410	<0.001
7 Ammonia-N (mg/L)	0.792	0.216	3.665	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	42544302.545	42544302.545	13.430	<0.001
Residual	45	142553398.732	3167853.305		
Total	46	185097701.277	4023863.071		

Normality Test (Shapiro-Wilk) Failed (P = 0.021)

Constant Variance Test: Passed (P = 0.201)

Power of performed test with alpha = 0.050: 0.934

Linear Regression Friday, January 10, 2020, 11:38:18 AM

Data source: Data 1 in Data

Date = 2454687.935 + (1.128 * 8 Ammonia-N (mg/L))

N = 46 Missing Observations = 55

R = 0.548 Rsqr = 0.300 Adj Rsqr = 0.284

Standard Error of Estimate = 1697.062

	Coefficient	Std. Error	t	P
Constant	2454687.935	285.982	8583.379	<0.001
8 Ammonia-N (mg/L)	1.128	0.259	4.345	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	54376829.281	54376829.281	18.881	<0.001
Residual	44	126720793.154	2880018.026		
Total	45	181097622.435	4024391.610		

Normality Test (Shapiro-Wilk) Passed (P = 0.065)

Constant Variance Test: Failed (P = 0.018)

Power of performed test with alpha = 0.050: 0.981

Linear Regression Friday, January 10, 2020, 11:38:27 AM

Data source: Data 1 in Data

Date = 2455251.062 - (8.381 * 11 Ammonia-N (mg/L))

N = 44 Missing Observations = 57

R = 0.0447 Rsqr = 0.00200 Adj Rsqr = 0.000

Standard Error of Estimate = 2034.719

	Coefficient	Std. Error	t	P
Constant	2455251.062	511.857	4796.755	<0.001
11 Ammonia-N (mg/L)	-8.381	28.917	-0.290	0.773

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	347805.777	347805.777	0.0840	0.773
Residual	42	173883335.382	4140079.414		
Total	43	174231141.159	4051887.004		

Normality Test (Shapiro-Wilk) Failed (P = 0.026)

Constant Variance Test: Passed (P = 0.119)

Power of performed test with alpha = 0.050: 0.047

The power of the performed test (0.047) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:38:36 AM

Data source: Data 1 in Data

Date = 2454204.839 + (155.093 * 12 Ammonia-N (mg/L))

N = 29 Missing Observations = 72

R = 0.0796 Rsqr = 0.00634 Adj Rsqr = 0.000

Standard Error of Estimate = 1955.291

	Coefficient	Std. Error	t	P
Constant	2454204.839	848.847	2891.220	<0.001
12 Ammonia-N (mg/L)	155.093	373.777	0.415	0.681

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	658236.272	658236.272	0.172	0.681
Residual	27	103225438.487	3823164.388		
Total	28	103883674.759	3710131.241		

Normality Test (Shapiro-Wilk) Failed (P = 0.008)

Constant Variance Test: Passed (P = 0.082)

Power of performed test with alpha = 0.050: 0.060

The power of the performed test (0.060) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:38:46 AM

Data source: Data 1 in Data

Date = 2456622.129 - (436.180 * 16 Ammonia-N (mg/L))

N = 44 Missing Observations = 57

R = 0.684 Rsqr = 0.467 Adj Rsqr = 0.455

Standard Error of Estimate = 1500.637

	Coefficient	Std. Error	t	P

Constant	2456622.129	338.409	7259.328	<0.001
16 Ammonia-N (mg/L)	-436.180	71.870	-6.069	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	82944389.850	82944389.850	36.833	<0.001
Residual	42	94580333.309	2251912.698		
Total	43	177524723.159	4128481.934		

Normality Test (Shapiro-Wilk) Passed (P = 0.858)

Constant Variance Test: Failed (P = 0.012)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:38:55 AM

Data source: Data 1 in Data

Date = 2455055.331 + (12.881 * 17 Ammonia-N (mg/L))

N = 45 Missing Observations = 56

R = 0.0202 Rsqr = 0.000410 Adj Rsqr = 0.000

Standard Error of Estimate = 2031.440

	Coefficient	Std. Error	t	P
Constant	2455055.331	411.466	5966.601	<0.001
17 Ammonia-N (mg/L)	12.881	97.031	0.133	0.895

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	72724.668	72724.668	0.0176	0.895
Residual	43	177450126.976	4126747.139		
Total	44	177522851.644	4034610.265		

Normality Test (Shapiro-Wilk) Failed (P = 0.015)

Constant Variance Test: Passed (P = 0.061)

Power of performed test with alpha = 0.050: 0.034

The power of the performed test (0.034) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:40:53 AM

Data source: Data 1 in Data

Date = 2453486.511 + (71.030 * 5 Nitrate- N (mg/L))

N = 43 Missing Observations = 58

R = 0.849 Rsqr = 0.721 Adj Rsqr = 0.715

Standard Error of Estimate = 1161.980

	Coefficient	Std. Error	t	P
Constant	2453486.511	232.365	10558.767	<0.001
5 Nitrate- N (mg/L)	71.030	6.893	10.304	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	143350927.803	143350927.803	106.170	<0.001
Residual	41	55358123.266	1350198.128		
Total	42	198709051.070	4731167.883		

Normality Test (Shapiro-Wilk) Failed (P = 0.006)

Constant Variance Test: Passed (P = 0.318)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:41:04 AM

Data source: Data 1 in Data

Date = 2453083.146 + (0.793 * 6 Nitrate- N (mg/L))

N = 48 Missing Observations = 53

R = 0.853 Rsqr = 0.727 Adj Rsqr = 0.721

Standard Error of Estimate = 1115.567

	Coefficient	Std. Error	t	P
Constant	2453083.146	241.161	10171.978	<0.001
6 Nitrate- N (mg/L)	0.793	0.0717	11.070	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	152512010.132	152512010.132	122.550	<0.001
Residual	46	57246527.347	1244489.725		
Total	47	209758537.479	4462947.606		

Normality Test (Shapiro-Wilk) Failed (P = 0.006)

Constant Variance Test: Passed (P = 0.950)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:41:35 AM

Data source: Data 1 in Data

Date = 2454737.300 + (0.359 * 7 Nitrate- N (mg/L))

N = 48 Missing Observations = 53

R = 0.389 Rsqr = 0.151 Adj Rsqr = 0.133

Standard Error of Estimate = 1967.176

	Coefficient	Std. Error	t	P
Constant	2454737.300	306.855	7999.660	<0.001
7 Nitrate- N (mg/L)	0.359	0.125	2.865	0.006

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	31755195.501	31755195.501	8.206	0.006
Residual	46	178009949.749	3869781.516		
Total	47	209765145.250	4463088.197		

Normality Test (Shapiro-Wilk) Passed (P = 0.136)

Constant Variance Test: Passed (P = 0.257)

Power of performed test with alpha = 0.050: 0.787

Linear Regression Friday, January 10, 2020, 11:41:51 AM

Data source: Data 1 in Data

Date = 2454099.231 + (0.966 * 8 Nitrate- N (mg/L))

N = 47 Missing Observations = 54

R = 0.619 Rsqr = 0.383 Adj Rsqr = 0.369

Standard Error of Estimate = 1684.413

	Coefficient	Std. Error	t	P
Constant	2454099.231	319.744	7675.197	<0.001
8 Nitrate- N (mg/L)	0.966	0.183	5.284	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	79215171.673	79215171.673	27.920	<0.001
Residual	45	127676103.816	2837246.751		
Total	46	206891275.489	4497636.424		

Normality Test (Shapiro-Wilk) Failed (P = 0.047)

Constant Variance Test: Failed (P = 0.021)

Power of performed test with alpha = 0.050: 0.998

Linear Regression Friday, January 10, 2020, 11:42:11 AM

Data source: Data 1 in Data

Date = 2454997.875 - (0.414 * 9 Nitrate- N (mg/L))

N = 45 Missing Observations = 56

R = 0.00140 Rsqr = 0.00000197 Adj Rsqr = 0.000

Standard Error of Estimate = 2163.471

	Coefficient	Std. Error	t	P
Constant	2454997.875	1387.874	1768.891	<0.001
9 Nitrate- N (mg/L)	-0.414	44.959	-0.00921	0.993

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	396.913	396.913	0.0000848	0.993
Residual	43	201266006.198	4680604.795		
Total	44	201266403.111	4574236.434		

Normality Test (Shapiro-Wilk) Passed (P = 0.085)

Constant Variance Test: Passed (P = 0.370)

Power of performed test with alpha = 0.050: 0.026

The power of the performed test (0.026) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:42:34 AM

Data source: Data 1 in Data

Date = 2458145.284 - (38.335 * 10 Nitrate- N (mg/L))

N = 45 Missing Observations = 56

R = 0.809 Rsqr = 0.655 Adj Rsqr = 0.647

Standard Error of Estimate = 1271.283

	Coefficient	Std. Error	t	P
Constant	2458145.284	397.945	6177.093	<0.001
10 Nitrate- N (mg/L)	-38.335	4.245	-9.030	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	131786383.933	131786383.933	81.543	<0.001
Residual	43	69494901.178	1616160.493		
Total	44	201281285.111	4574574.662		

Normality Test (Shapiro-Wilk) Failed (P = 0.020)

Constant Variance Test: Failed (P = 0.015)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:42:44 AM

Data source: Data 1 in Data

Date = 2453181.498 + (111.200 * 11 Nitrate- N (mg/L))

N = 44 Missing Observations = 57

R = 0.571 Rsqr = 0.325 Adj Rsqr = 0.309

Standard Error of Estimate = 1785.217

	Coefficient	Std. Error	t	P
Constant	2453181.498	489.564	5010.951	<0.001
11 Nitrate- N (mg/L)	111.200	24.701	4.502	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	64589001.844	64589001.844	20.266	<0.001
Residual	42	133854051.133	3187001.217		
Total	43	198443052.977	4614954.720		

Normality Test (Shapiro-Wilk) Passed (P = 0.295)

Constant Variance Test: Passed (P = 0.604)

Power of performed test with alpha = 0.050: 0.986

Linear Regression Friday, January 10, 2020, 11:42:55 AM

Data source: Data 1 in Data

Date = 2456519.727 - (79.217 * 14 Nitrate- N (mg/L))

N = 44 Missing Observations = 57

R = 0.626 Rsqr = 0.392 Adj Rsqr = 0.378

Standard Error of Estimate = 1655.731

	Coefficient	Std. Error	t	P
Constant	2456519.727	396.705	6192.315	<0.001
14 Nitrate- N (mg/L)	-79.217	15.207	-5.209	<0.001

Analysis of Variance:

	DF	SS	MS	F	P

Regression	1	74390544.108	74390544.108	27.136	<0.001
Residual	42	115140702.687	2741445.302		
Total	43	189531246.795	4407703.414		

Normality Test (Shapiro-Wilk) Failed (P = 0.044)

Constant Variance Test: Passed (P = 0.578)

Power of performed test with alpha = 0.050: 0.997

Linear Regression Friday, January 10, 2020, 11:43:05 AM

Data source: Data 1 in Data

Date = 2456532.600 - (51.936 * 16 Nitrate- N (mg/L))

N = 45 Missing Observations = 56

R = 0.767 Rsqr = 0.588 Adj Rsqr = 0.578

Standard Error of Estimate = 1389.277

	Coefficient	Std. Error	t	P
Constant	2456532.600	286.257	8581.574	<0.001
16 Nitrate- N (mg/L)	-51.936	6.632	-7.832	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	118379649.187	118379649.187	61.334	<0.001
Residual	43	82993858.724	1930089.738		
Total	44	201373507.911	4576670.634		

Normality Test (Shapiro-Wilk) Failed (P = 0.015)

Constant Variance Test: Passed (P = 0.261)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:43:15 AM

Data source: Data 1 in Data

D
ate = 2456536.746 - (33.252 * 17 Nitrate- N (mg/L))

N = 45 Missing Observations = 56

R = 0.702 Rsqr = 0.492 Adj Rsqr = 0.481

Standard Error of Estimate = 1541.914

	Coefficient	Std. Error	t	P
Constant	2456536.746	332.537	7387.261	<0.001

17 Nitrate- N (mg/L)	-33.252	5.149	-6.457	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	99135275.875	99135275.875	41.697	<0.001
Residual	43	102232412.125	2377497.956		
Total	44	201367688.000	4576538.364		

Normality Test (Shapiro-Wilk) Failed (P = 0.020)

Constant Variance Test: Passed (P = 0.423)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:46:36 AM

Data source: Data 1 in Data

Date = 2456444.592 - (1.614 * 4 Sulfate (mg/L))

N = 42 Missing Observations = 59

R = 0.121 Rsqr = 0.0147 Adj Rsqr = 0.000

Standard Error of Estimate = 2203.516

	Coefficient	Std. Error	t	P
Constant	2456444.592	1809.766	1357.327	<0.001
4 Sulfate (mg/L)	-1.614	2.086	-0.774	0.444

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	2907353.341	2907353.341	0.599	0.444
Residual	40	194219241.063	4855481.027		
Total	41	197126594.405	4807965.717		

Normality Test (Shapiro-Wilk) Passed (P = 0.075)

Constant Variance Test: Passed (P = 0.213)

Power of performed test with alpha = 0.050: 0.116

The power of the performed test (0.116) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:46:47 AM

Data source: Data 1 in Data

Date = 2457413.778 - (8.817 * 5 Sulfate (mg/L))

N = 42 Missing Observations = 59

R = 0.895 Rsqr = 0.801 Adj Rsqr = 0.796

Standard Error of Estimate = 989.040

	Coefficient	Std. Error	t	P
Constant	2457413.778	239.654	10254.014	<0.001
5 Sulfate (mg/L)	-8.817	0.695	-12.695	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	157653002.865	157653002.865	161.166	<0.001
Residual	40	39127996.111	978199.903		
Total	41	196780998.976	4799536.560		

Normality Test (Shapiro-Wilk) Passed (P = 0.064)

Constant Variance Test: Passed (P = 0.088)

Power of performed test with alpha = 0.050: 1.000

Linear Regression Friday, January 10, 2020, 11:46:54 AM

Data source: Data 1 in Data

Date = 2454842.459 + (0.503 * 7 Sulfate (mg/L))

N = 45 Missing Observations = 56

R = 0.123 Rsqr = 0.0152 Adj Rsqr = 0.000

Standard Error of Estimate = 2166.215

	Coefficient	Std. Error	t	P
Constant	2454842.459	498.476	4924.699	<0.001
7 Sulfate (mg/L)	0.503	0.617	0.816	0.419

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	3122452.140	3122452.140	0.665	0.419
Residual	43	201776895.637	4692485.945		
Total	44	204899347.778	4656803.359		

Normality Test (Shapiro-Wilk) Passed (P = 0.102)

Constant Variance Test: Failed (P = 0.008)

Power of performed test with alpha = 0.050: 0.124

The power of the performed test (0.124) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:47:04 AM

Data source: Data 1 in Data

Date = 2456058.026 - (1.413 * 8 Sulfate (mg/L))

N = 43 Missing Observations = 58

R = 0.244 Rsqr = 0.0597 Adj Rsqr = 0.0367

Standard Error of Estimate = 2146.497

	Coefficient	Std. Error	t	P
Constant	2456058.026	593.031	4141.534	<0.001
8 Sulfate (mg/L)	-1.413	0.876	-1.613	0.114

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	11986620.550	11986620.550	2.602	0.114
Residual	41	188905437.915	4607449.705		
Total	42	200892058.465	4783144.249		

Normality Test (Shapiro-Wilk) Passed (P = 0.114)

Constant Variance Test: Failed (P = <0.001)

Power of performed test with alpha = 0.050: 0.351

The power of the performed test (0.351) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:47:17 AM

Data source: Data 1 in Data

Date = 2453641.993 + (2.567 * 9 Sulfate (mg/L))

N = 42 Missing Observations = 59

R = 0.0787 Rsqr = 0.00620 Adj Rsqr = 0.000

Standard Error of Estimate = 2212.492

	Coefficient	Std. Error	t	P
Constant	2453641.993	2872.861	854.076	<0.001
9 Sulfate (mg/L)	2.567	5.139	0.499	0.620

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	1221276.993	1221276.993	0.249	0.620
Residual	40	195804832.078	4895120.802		
Total	41	197026109.071	4805514.855		

Normality Test (Shapiro-Wilk) Failed (P = 0.046)

Constant Variance Test: Failed (P = 0.020)

Power of performed test with alpha = 0.050: 0.071

The power of the performed test (0.071) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:47:44 AM

Data source: Data 1 in Data

Date = 2451414.311 + (28.267 * 10 Sulfate (mg/L))

N = 42 Missing Observations = 59

R = 0.399 Rsqr = 0.159 Adj Rsqr = 0.138

Standard Error of Estimate = 2035.344

	Coefficient	Std. Error	t	P
Constant	2451414.311	1364.646	1796.374	<0.001
10 Sulfate (mg/L)	28.267	10.278	2.750	0.009

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	31336038.522	31336038.522	7.564	0.009
Residual	40	165704952.549	4142623.814		
Total	41	197040991.071	4805877.831		

Normality Test (Shapiro-Wilk) Passed (P = 0.433)

Constant Variance Test: Passed (P = 0.180)

Power of performed test with alpha = 0.050: 0.751

Linear Regression Friday, January 10, 2020, 11:47:56 AM

Data source: Data 1 in Data

Date = 2457178.679 - (8.935 * 11 Sulfate (mg/L))

N = 41 Missing Observations = 60

R = 0.538 Rsqr = 0.289 Adj Rsqr = 0.271

Standard Error of Estimate = 1879.709

	Coefficient	Std. Error	t	P
Constant	2457178.679	596.642	4118.347	<0.001
11 Sulfate (mg/L)	-8.935	2.242	-3.985	<0.001

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	56120799.487	56120799.487	15.883	<0.001
Residual	39	137798874.611	3533304.477		
Total	40	193919674.098	4847991.852		

Normality Test (Shapiro-Wilk) Failed (P = 0.009)

Constant Variance Test: Passed (P = 0.186)

Power of performed test with alpha = 0.050: 0.960

Linear Regression Friday, January 10, 2020, 11:48:09 AM

Data source: Data 1 in Data

Date = 2456108.896 - (3.747 * 13 Sulfate (mg/L))

N = 28 Missing Observations = 73

R = 0.217 Rsqr = 0.0470 Adj Rsqr = 0.0104

Standard Error of Estimate = 2146.830

	Coefficient	Std. Error	t	P
Constant	2456108.896	1601.688	1533.450	<0.001
13 Sulfate (mg/L)	-3.747	3.309	-1.132	0.268

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	5910658.573	5910658.573	1.282	0.268
Residual	26	119830854.141	4608879.005		
Total	27	125741512.714	4657093.063		

Normality Test (Shapiro-Wilk) Failed (P = 0.007)

Constant Variance Test: Passed (P = 0.714)

Power of performed test with alpha = 0.050: 0.195

The power of the performed test (0.195) is below the desired power of 0.800.
Less than desired power indicates you are less likely to detect a difference when one actually exists.
Negative results should be interpreted cautiously.

Linear Regression Friday, January 10, 2020, 11:48:19 AM

Data source: Data 1 in Data

Date = 2458296.859 - (20.452 * 14 Sulfate (mg/L))

N = 41 Missing Observations = 60

R = 0.589 Rsqr = 0.347 Adj Rsqr = 0.330

Standard Error of Estimate = 1763.588

	Coefficient	**Std. Error**	**t**	**P**
Constant	2458296.859	776.308	3166.650	<0.001
14 Sulfate (mg/L)	-20.452	4.491	-4.554	<0.001

Analysis of Variance:

	DF	**SS**	**MS**	**F**	**P**
Regression	1	64502035.747	64502035.747	20.739	<0.001
Residual	39	121299414.351	3110241.394		
Total	40	185801450.098	4645036.252		

Normality Test (Shapiro-Wilk) Failed (P = 0.004)

Constant Variance Test: Passed (P = 0.445)

Power of performed test with alpha = 0.050: 0.986