

## Richard Healey (adpce.ad)

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**From:** Charles McDowell <CMcDowell@lsbindustries.com>  
**Sent:** Tuesday, September 5, 2023 2:22 PM  
**To:** Water-Enforcement-Report  
**Cc:** Richard Healey (adpce.ad); Keith Long; Derek Turner  
**Subject:** 9/5/2023 Weekly Update  
**Attachments:** 9-5-2023 EDC Weekly update.docx; 2023 Waste Water Data.xlsx

Please find attached the weekly update and updated 2023 water parameters for El Dorado Chemical Company.

If you have any questions or concerns, please do not hesitate to contact me.

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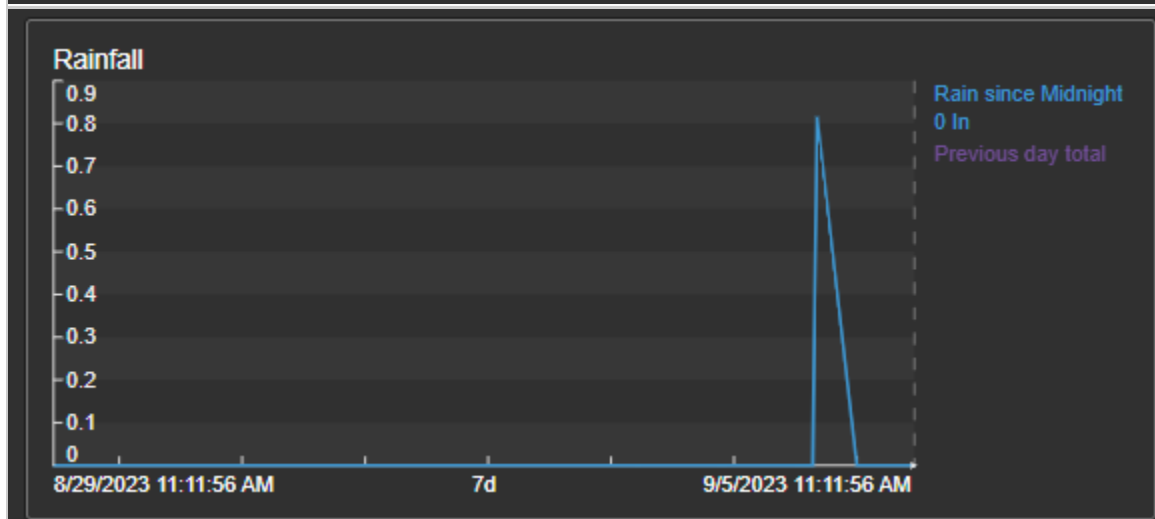
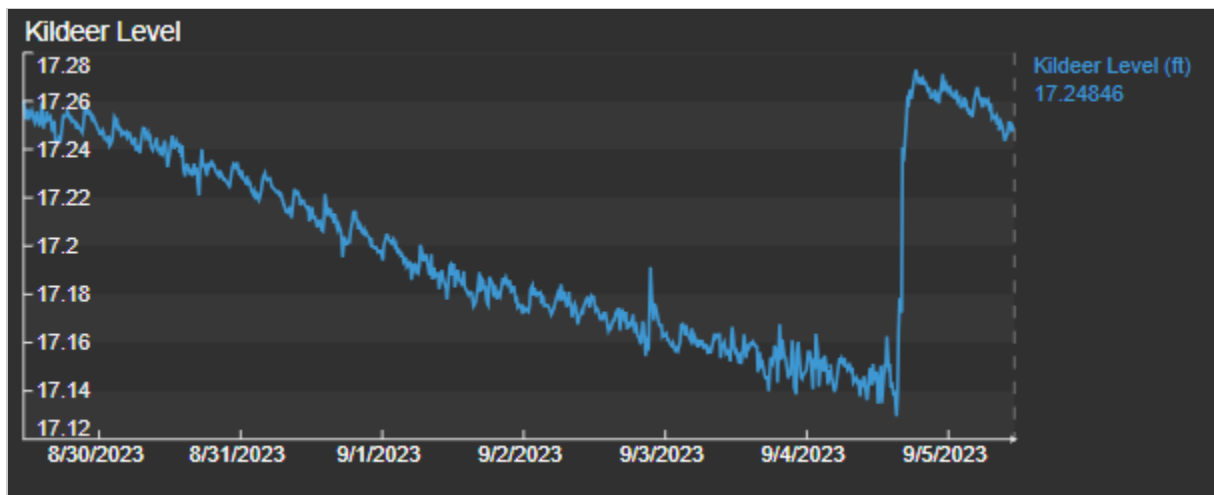
## Weekly Report Required by Interim Measures Letter dated 8/4/2023

El Dorado Chemical Company, NPDES Permit Number: AR0000752, AFIN: 70-00040

Weekly Report Date: August 29, 2023

### Discharges and Implementation of Emergency Action Plan

EDC has not discharged any water through Outfall 001, Outfall 010, or the emergency spillway between when our interim measures plan was initiated on August 9th, 2023 and the 28th. EDC opened Outfall 010 on the 28th due to having approximately 3 inches of free board at a rate of 1.0 MGD. On the 4th of September, EDC received 0.8 inches of rain. The current forecast indicates the potential for additional rainfall this week. Therefore, we increased the discharge to Outfall 010 to 2.0 MGD in accordance with the Draft Emergency Contingency Plan to address significant rain events. Lake Killdeer depth has increased and is currently at 17.25 ft, as shown in the figure, below. The top of the emergency spillway is 17.5 ft. According to our wastewater modeling, given the rate of accumulation in Lake Killdeer, the emergency spillway would have overtopped on or about the 9th of September without an increased discharge from Outfall 010. This conclusion is based upon inflow estimates and weather forecasts. EDC increased the discharge from Lake Killdeer (Outfalls 010) necessary to ensure water does not overtop the emergency spillway in accordance with the August 4, 2023 Interim Measures letter.



## Conduct Daily Sampling of Lake Lee, Lake Killdeer, and Pond 004

EDC commenced this required sampling on August 5, 2023. Updated Information is in the attached 2023 spreadsheet.

## Provide Copies of Sampling of Lake Lee, Lake Killdeer, and Pond 004 Since January 1, 2023

Please see the EDC Interim Measures response dated August 9, 2023.

## Corrective Action Plan Activities [updates from the previous week are underlined]

During our August 17<sup>th</sup> conference call we discussed that these proposed activities may trigger a communication to the ADEQ and possible permit changes. We will continue to communicate plans and improvements to obtain ADEQ's guidance on proper permitting.

## Minimize Wastewater Contaminant Loading

### Water Reuse:

EDC has evaluated its processes to assess locations where water can be reutilized in processes. Currently we are reusing as much wastewater as possible, that would otherwise flow into Pond 004, and are reusing some water from Pond 004 when the opportunity arises.

## Minimize Wastewater Inflow

EDC has diverted approximately 15% of the water flowing into Pond 004. We are currently evaluating additional steps that can be taken. However, these steps will require engineering assessments to ensure that we do not create unforeseen second-order challenges. EDC has utilized frac tanks to increase the storage capacity of Ammonia Nitrate water to reduce the overflow into Pond 004 from rain events. During the previous rain event it did not appear that any process water overflowed into 004.

## Maximize Treatment Efficiency and Capacity

### Lake Lee Ammonia Stripper

EDC continues to operate the ammonia stripper with an approximate 20% efficiency.

## Short Term Treatment of Pond 004

EDC has met with Clean Harbors to develop a short-term treatment system (approximately one year) to provide treatment pending implementation of a permanent solution. EDC has collected samples for Clean Harbors to develop a short-term biological treatment system.

EDC met with Black & Veatch, a wastewater consulting firm, to determine the best treatment possibilities for Pond 004. Based on these initial conversations a biological system seems to be the best path forward. EDC is waiting on the report from the meeting.

## Increased Efficiency in Lake Killdeer Biological Activity

Based upon discussion with supplier of nitrification/denitrification bacteria, EDC will begin dosing Lake Killdeer with calcium carbonate or magnesium carbonate to increase the available carbon and alkalinity in Lake Killdeer. Increasing available carbon should promote additional biological activity to reduce the amount of ammonia in Lake Killdeer and the effluent discharge. EDC has also ordered one ton of lime and will begin dosing Lake Lee with the lime in efforts to increase alkalinity in Lake Lee which flows into Lake Killdeer.

### Baffles in Lake Killdeer

EDC selected a vendor to install baffles in Lake Killdeer. As discussed in our August 17<sup>th</sup> conference call, this should promote longer residence time and further increase biological activity to reduce the amount of ammonia in Lake Killdeer and the effluent discharge.

### Water Quality Sampling Results

Water quality sampling required by the Interim Measures letter are included in the attached 2023 spreadsheet.

### Water Column Profile Measurements

EDC has contracted with Alliance Technology Group (formerly GBMc) to complete the profile and sampling of Pond 004, Lake Lee, and Lake Killdeer. The field work was completed on the 28th. EDC will provide the results of this profiling once we receive the report from Alliance.

### Other Actions

In this call EDC was informed we need to obtain a wastewater operator's license as quickly as possible. Charles McDowell has completed the wastewater operator course work and will be taking the wastewater operator exam on the 27<sup>th</sup> of this month, but if we encounter any delays we will look into contracting for this capability. Second, ADEQ advised that EDC should coordinate with other Joint Pipeline members regarding discharges and volumes. We have initiated this communication.

2023	Lake Killdeer (KD)									Lake Lee							Pond 004										
	KD Grab Sample	KD Grab Sample	KD Composite EDCC LAB	KD Grab Sample	KD Composite EDCC LAB	KD Composite EDCC LAB	KD Composite EDCC LAB	KD Composite EDCC LAB	KD Composite EDCC LAB	LEE Grab Sample	LEE Grab Sample	Lee Composite EDCC LAB	LEE Grab Sample	Lee Composite EDCC LAB	Lee Composite EDCC LAB	Lee Composite EDCC LAB	Lee Composite EDCC LAB	004 Grab	004 Grab	004 Grab	004 Grab	004 Grab	004 Grab	004 Grab	004 Grab		
	Date	Time of Grab	Temp °C	pH	DO, ppm	Conductivity	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	P, ppm	SO <sub>4</sub> ppm	Time of Grab	Temp °C	pH	DO, ppm	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	Phosphorous, ppm	SO <sub>4</sub> ppm	DATE/ TIME	Temp °C	DO, ppm	pH	Conductivity	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	SO <sub>4</sub> ppm	
1/1												3.82		341	301		216										
1/2			6.69			1073	54	70	0.10	107		4.00		296	298	0.36	232										
1/3												3.11		265	289		255										
1/4			7.10			1095	62	71		103		6.95		268	272		105										
1/5												7.60		195	197		121										
1/6			7.21			1114	63	75		103		7.71		178	180		108										
1/7												7.66		126	150		86										
1/8												7.70		73	82		88										
1/9			7.10			1127	64	76	0.65	100		7.42		65	69	0.76	73										
1/10												7.34		92	103		83			1/10/23		7.64	34410	4720	4741	13	
1/11			7.11			1154	71	81		102		7.69		96	101		110										
1/12												7.85		83	89		91										
1/13			7.18			1162	70	84		100		8.02		88	92		99										
1/14												8.04		83	83		72										
1/15												7.73		65	72		73										
1/16			7.25			1185	60	89	0.04	97		8.41		88	62	2.31	109										
1/17												8.21		87	53		96										
1/18			7.15			1183	70	90		98		8.36		104	53		107										
1/19												7.94		125	93		87										
1/20			7.27			1202	81	89		94		8.45		225	173		106										
1/21												8.51		234	197		122										
1/22												8.95		232	153		98										
1/23			7.49			1245	89	90	2.28	92		8.87		320	152	5.17	117										
1/24												8.81		342	128		112										
1/25			7.81			1248	82	90		82		8.67		252	158		88										
1/26												8.34		312	182		100										
1/27			7.83			1250	89	87		80		8.10		225	143		127										
1/28												7.94		161	143		100										
1/29												7.78		142	134		82										
1/30			7.78			1286	77	97	2.59	81		7.18		154	167	2.93	79										
1/31												7.45		158	171		79										
2/1			7.60			1280	94	97		76		7.30		149	158		55										
2/2												7.55		194	150		78										
2/3			7.52			1308	99	100		76		7.38		167	158		63										
2/4												7.36		169	176		71										
2/5												7.67		154	179		72										
2/6			7.35			1416	67	112	0.04	73		7.13		82	122	1.80	71										
2/7												7.50		129	121		103										
2/8			7.43			1294	98	100		75		7.52		152	120		130			02/08/23		8.05	47270	6440	6041	<1	
2/9												6.93		135	120		292										
2/10			7.46			1315	94	99		76		7.67		150	134		194										
2/11												7.72		192	191		154										
2/12												7.64		208	211		101										
2/13			7.30			1311	100	102	0.02	78		7.80		198	158	2.08	109										
2/14												7.75		207	159		82										
2/15			7.26			1340	110	106		82		7.60		255	161		84										
2/16												7.68		181	160		141										
2/17			7.39			1342	106	107		82		7.99		213	222		112										
2/18												8.53		147	100		109										
2/19												8.00		152	97		101										
2/20			7.50			1446	117	119	0.03	85		7.96		128	122	1.47	81										
2/21												7.70		115	113		93										
2/22			7.48			1438	135	115		82		7.36		105	98		125										
2/23												7.21		114	104		128										
2/24			7.47			1440	118	116		82		7.23		131	126		121										
2/25												7.36		117	152		114										
2/26												7.16		122	153		112										
2/27			7.33			1464	123	119	0.02	83		7.15		108	144	1.30	98										
2/28												6.95		105	135		145										
3/1			7.35			1460	130	116		82		6.68		80	107		151										
3/2												7.17		63	76		125										
3/3			7.26			1463	101	94		81		6.67		105	111		127										
3/4												6.27		238	167		93										
3/5												6.55		186	156		103										
3/6			7.33			1846	131	131	1.67	81		6.59		187	158	3.04	100										
3/7												7.24		173	151		100										
3/8			8.23			1874	152	146		75		6.96		109	107		101										
3/9												7.06		139	123		117			03/09/23		8.22	54800	11000	7275	26	
3/10			7.21			1672	124	137		78		7.08		136	148		131										
3/11												6.84		122	149		129										
3/12												6.92		118	144		98										
3/13			7.36			1534	130	125	1.79	76		6.57		225	196	0.14	67										
3/14												7.00		238	212		77										
3/15			7.56			1595	127	133		76		7.35		225	195		100										
3/16												7.62		144	160		111										
3/17			7.38			1599	168	135		79		7.31		154	137		108										
3/18												6.96		132	149		129										
3/19												7.17		123	154		113										
3/20			7.56			1608	135	136	3.07	80		7.33		139	144	0.21	104										
3/21												7.27		118	116		100										
3/22			7.24			1598	131	136		80		7.30		102													



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	Date	Time of Grab	Temp °C	pH	DO, ppm	Conductivity	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	P, ppm	SO <sub>4</sub> ppm	Time of Grab	Temp °C	pH	DO, ppm	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	Phosphorous, ppm	SO <sub>4</sub> ppm	DATE/ TIME	Temp °C	DO, ppm	pH	Conductivity	NH <sub>3-N</sub> , ppm	NO <sub>3-N</sub> , ppm	SO <sub>4</sub> ppm	
6/24												6.84		78	94		200										
6/25												7.14		55	69		199										
6/26			6.69			1690	119	130	1.32	143		6.72		49	54	1.27	184										
6/27												7.02		125	136		180										
6/28			6.75			1672	122	127		142		7.61		195	201		143										
6/29												7.82		192	194		146										
6/30			6.64			1720	119	133		141		7.97		132	164		167										
7/1												7.59		108	126		167										
7/2												7.23		75	100		167										
7/3			6.69			1730	120	137	1.38	144		7.09		72	86	2.21	149										
7/4												7.06		51	67		158										
7/5			6.77			1724	125	133		142		6.82		102	116		152										
7/6												6.96		188	209		172										
7/7			6.74			1720	116	132		140		7.62		186	223		161										
7/8												7.66		134	130		186										
7/9												8.21		132	126		195										
7/10			6.75			1780	130	136	5.24	140		8.16		209	231	3.83	155										
7/11												7.88		157	196		125										
7/12			6.64			1782	102	113		139		5.74		52	66		73										
7/13												8.49		136	215		75										
7/14			7.50			2240	179	69		34		8.22		281	119		36	07/14/23			9.02	24910	4320	2989	2		
7/15												8.29		278	323		109										
7/16												8.50		231	270		110										
7/17			6.98			1890	151	153	6.08	112		8.35		222	229	4.11	124										
7/18												8.03		167	189		122										
7/19			6.95			1820	143	143		104		7.92		133	143		110										
7/20												8.17		128	137		170										
7/21			6.91			1804	140	141		108		8.05		120	129		123										
7/22												7.49		95	93		113										
7/23												6.86		86	82		121										
7/24			6.90			1763	125	136	2.03	110		7.69		86	90	2.89	133										
7/25												7.38		72	79		146										
7/26			6.85			1764	126	134		110		7.22		58	72		125										
7/27												7.43		53	57		101										
7/28			6.84			1753	120	132		110		8.14		36	42		121										
7/29												8.27		16	30		107										
7/30												6.99		10	24		121										
7/31			6.83			1745	128	129	1.96	110		7.19		13	20	1.34	119										
8/1												6.92		64	75		126										
8/2			6.77			1726	114	128		111		7.09		38	51		122										
8/3												8.10		16	32		113										
8/4			6.79			1710	119	126		111		7.44		9	22		143	11:20am	34	10.63	7.26	46930	5840	6016	24		
8/5	8:53AM	28	6.79	7.65		1703	114	125			6:00AM	26	6.60	6.03	6	17	1.22	147	9:50AM	28	5.61	7.07	48920	5280	6293	25	
8/6	9:57AM	29	6.77	8.27		1676	105	123			6:00AM	25	6.45	6.12	6	15		125	10:09AM	27	6.02	6.95	49870	6200	6657	20	
8/7	8:25AM	26	6.80	6.45		1683	115	124	1.75	113	7:00AM	27	6.48	7.69	7	14		115	8:40AM	30	6.5	6.84	49750	6240	6216	33	
8/8	8:45AM	26	6.84	6.13		1678	114	124			7:00AM	26	6.81	6.08	10	18		111	8:53AM	25	5.62	6.81	34560	4260	4281	22	
8/9	8:13AM	27	7.11	7.34		1584	114	120		128	7:00AM	24	7.26	7.86	102	102		80	8:39AM	25	6.63	6.63	29930	3660	3553	18	