

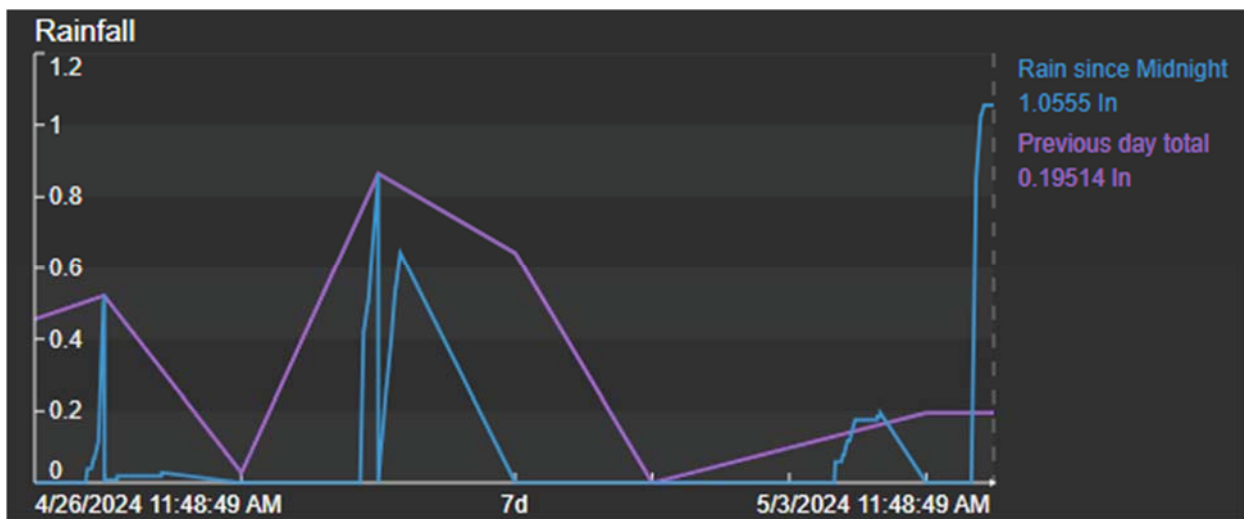
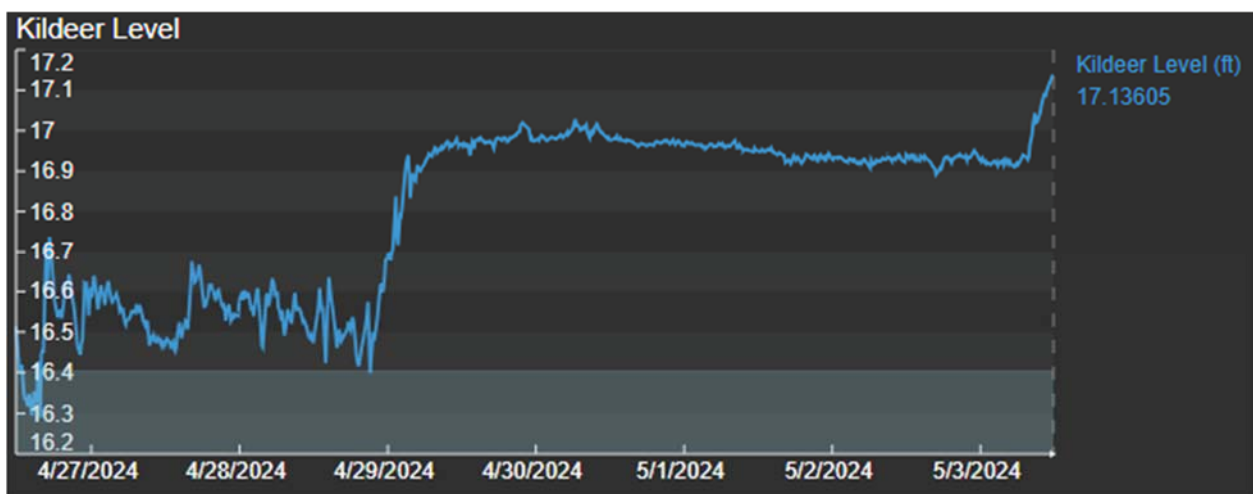
Weekly Report Required by Interim Measures Letter dated 8/4/2023

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

Weekly Report Date: 3 May 2023, Updated portions are underlined.

Discharges and Implementation of Emergency Action Plan

Over the last week, the facility received 3.3 inches of rain. Lake Kildeer is currently at 17.14 feet and rising. We have been discharging up to 2.0 MGD through Outfall 010 in anticipation of incoming rainfall and to maintain levels in Lake Kildeer. Current weather forecast indicates 1.59 inches of rain over the next 10 days. LSB may have to open Outfall 001. LSB is attempting to keep the levels of Kildeer below 17.00 feet. In the event of additional rain, LSB will manage the discharge from Kildeer as 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 Kildeer, and Pond 004

LSB commenced this required sampling on August 5, 2023.

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

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

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

During our August 17th 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:

LSB 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

The stormwater diversion project has been completed. LSB met with ADEQ on the 19th to discuss permit applicability. Based on the discussions this action will not require a construction permit. Physical work on the project has been completed and we can now divert a total of 30% of the stormwater flow from 004. This is currently a manual process, to automate additional work will be required.

Additionally, we have started an engineering study to divert additional water away from the Ammonia Nitrate facility. This project will focus on paving in and around the Ammonia Nitrate area and is upstream of any waste/process water connections and will not require a construction permit. LSB has utilized seven frac tanks to increase the storage capacity of Ammonia Nitrate water to reduce the overflow into Pond 004 from rain events.

Maximize Treatment Efficiency and Capacity

Lake Lee Ammonia Stripper

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

Treatment of Pond 004

LSB 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. The B&V report was attached in the 13 Oct 2023 report.

Based on review of the Black and Veatch data, LSB is proceeding with biological treatment of 004, but we are still assessing how to address treatment barriers such as predilution, carbon addition, and sludge generation. The design basis is complete. The Plot plan, design basis, P&IDs and Moving Bed Biofilm reactor specifications have been completed. HGA has been selected to oversee the construction and civil engineering for the facility. Hydro-excavation to locate utilities and tie in points is scheduled for next week.

Black and Veatch is developing the processes to operate the plants and develop a written plan to use these package plants in the setup they are proposing. Once the plans are developed, we can propose

permit modification to facilitate this. We are currently developing a list of longer lead time items (i.e. Transformers) to try to find alternative sources of procurement to prevent unforeseen delays. It was expected the transformer would be a potential long lead time element, with the design bases completed. The transformer has been purchased and is being stored offsite until needed. Ancillary equipment for these units is undergoing inspection and repair as needed.

Additionally, we are evaluating possibilities of reuse of the process wastewater as an input into a product.

Increased Efficiency in Lake Killdeer Biological Activity

Based upon discussion with supplier of nitrification/denitrification bacteria, LSB will begin dosing Lake Killdeer with calcium carbonate or magnesium carbonate to increase the available of 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. LSB 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. Before any dosing begins a construction permit will be submitted.

Baffles in Lake Killdeer

LSB selected a vendor to install baffles in Lake Killdeer. As discussed in our August 17th 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. Baffles have arrived onsite. Construction drawings and design basis have been submitted to apply for the construction permit. The permit application was submitted on the 24th of January. The installation is expected to be completed in the first quarter of 2024 or as soon as approval is received from the ADEQ. ADEQ submitted the public notice on the 28th of February. The 10 day comment period is closed and LSB has submitted proof of publication and payment.

Water Quality Sampling Results

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

Water Column Profile Measurements

LSB 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 September 28th.

KT French Drain

KT French Drain is located southwest of the KT plant on the west edge of the facility. Water is collected in a wet well then pumped back into the facility, much like a municipality utilized lift stations. During the previous inspection the pump was not operating and the wet well was overflowing. LSB has implemented daily inspections to ensure that the pump remains operational.

As requested, LSB collected samples from KT Wier. Samples collected on December 8th were collected based on the December 7, 2023 conversation with ADEQ and before we received the official request thus all requested in-situ parameters were not collected. Data is presented below:

Date	Temp	pH	D.O.	Cond.	Ammonia mg/l	Nitrate mg/l	Nitrite mg/l	Total – N mg/l	Nitrate + Nitrite
12-8-2023	NA	4.35	NA	79,150	6,600	10,351	0.43	16,951.4	10,351.4
12-12-2023	16	4.40	5.63	79,250	6,500	10,633	0.41	16,833.4	10,633.4
12-14-2023	18	4.37	5.16	77,440	6,350	10,669	0.46	17,019.46	10,669.46
12-19-2023	16	4.35	6.16	78630	12080	11,477	ND	23,557	11,477
12-21-2023	18	4.35	5.43	77,750	9200	11,108	ND	20,308	11,108

Other Actions

In this call LSB was informed we need to obtain a wastewater operator’s license as quickly as possible. Charles McDowell passed the advanced industrial wastewater certification on March 26th thru the 28th. LSB currently has three certified operators. Second, ADEQ advised that LSB should coordinate with other Joint Pipeline members regarding discharges and volumes. We have initiated this communication.

LSB has contracted Alliance Technology to conduct a bathometric survey of 004. The results of the study indicate that Pond 004 contains approximately 1.5 Million Gallons of water.

Date	Lake Killbuck (KD)				Lake Lab				Pond 004									
	KD Grab Sample Time of Grab	KD Composite Lab pH	KD Composite Lab DO, ppm	KD Composite Lab Conductivity	KD Composite Lab NH ₃ , ppm	KD Composite Lab P, ppm	KD Composite Lab SO ₄ , ppm	LEE Grab Sample Time of Grab	LEE Composite Lab pH	LEE Composite Lab DO, ppm	LEE Composite Lab NH ₃ , ppm	LEE Composite Lab SO ₄ , ppm	004 Grab Temp °C	004 Grab DO, ppm	004 Grab Conductivity	004 Grab NH ₃ , ppm	004 Grab NO ₃ , ppm	004 Grab SO ₄ , ppm
1/17/2023																		
1/17/2023		6.69	1073	1073	54	70	107	332	3.11	3.11	301	216						
1/17/2023		7.10	1095	1095	62	71	103	265	2.65	2.65	265	265						
1/17/2023		7.21	1114	1114	63	75	103	195	1.95	1.97	197	121						
1/18/2023								178	1.78	1.80	180	108						
1/19/2023		7.10	1127	1127	64	76	100	178	1.78	1.82	182	88						
1/19/2023		7.11	1154	1154	71	81	102	92	0.92	1.03	103	83	7.64	34410	4720	4741	13	
1/19/2023		7.18	1182	1182	70	84	100	96	0.96	1.01	101	110						
1/19/2023		7.25	1185	1185	60	89	97	88	0.88	0.92	92	79						
1/19/2023		7.15	1183	1183	70	90	98	84	0.84	0.88	88	107						
1/20/2023		7.27	1202	1202	81	89	94	104	1.04	1.05	105	87						
1/20/2023		7.48	1245	1245	89	90	92	225	2.25	1.73	173	106	11/02/23					
1/20/2023		7.81	1248	1248	82	90	82	234	2.34	1.97	197	122						
1/20/2023		7.83	1250	1250	89	87	80	85	0.85	0.93	93	109						
1/20/2023								142	1.42	1.43	143	107						
1/20/2023		7.78	1288	1288	77	97	81	142	1.42	1.34	134	82						
1/20/2023		7.60	1280	1280	94	97	76	154	1.54	1.67	167	79						
2/12/2023		7.52	1303	1303	99	100	76	158	1.58	1.69	169	71						
2/12/2023		7.43	1284	1284	98	100	75	154	1.54	1.76	176	72						
2/12/2023		7.46	1315	1315	94	99	76	154	1.54	1.79	179	72						
2/13/2023		7.30	1311	1311	100	102	78	152	1.52	1.52	152	130	8.05	47200	6440	6041	<1	
2/14/2023		7.26	1340	1340	110	106	82	150	1.50	1.54	154	194						
2/15/2023		7.30	1342	1342	106	107	82	150	1.50	1.54	154	194						
2/15/2023		7.50	1446	1446	117	119	85	150	1.50	1.54	154	194						
2/15/2023		7.48	1438	1438	135	115	82	150	1.50	1.54	154	194						
2/15/2023		7.47	1440	1440	118	116	82	150	1.50	1.54	154	194						
2/15/2023		7.33	1464	1464	123	119	83	150	1.50	1.54	154	194						
3/17/2023		7.35	1460	1460	130	116	82	150	1.50	1.54	154	194						
3/17/2023		7.28	1453	1453	101	94	81	150	1.50	1.54	154	194						
3/17/2023		7.33	1846	1846	131	131	81	150	1.50	1.54	154	194						
3/17/2023		8.23	1874	1874	152	146	75	150	1.50	1.54	154	194						
3/18/2023		7.21	1872	1872	124	137	78	150	1.50	1.54	154	194						
3/18/2023		7.36	1834	1834	130	125	76	150	1.50	1.54	154	194	8.22	54800	11800	7275	26	
3/18/2023		7.48	1995	1995	127	133	76	150	1.50	1.54	154	194						
3/18/2023		7.38	1989	1989	168	135	79	150	1.50	1.54	154	194						
3/20/2023		7.56	1808	1808	135	136	80	150	1.50	1.54	154	194						
3/22/2023		7.24	1588	1588	131	136	80	150	1.50	1.54	154	194						
3/22/2023		7.22	1595	1595	129	134	82	150	1.50	1.54	154	194						
3/22/2023		7.06	1593	1593	129	133	83	150	1.50	1.54	154	194						

Date	Lake Killebrew (KD)				Lake Lab				Pond 004					
	KD Grab Sample Time of Grab	KD Composite Lab Temp °C	KD Composite Lab pH	KD Composite Lab Conductivity	KD Composite Lab DO, ppm	KD Composite Lab EDOCC/LAB	KD Composite Lab NO ₃ -N, ppm	KD Composite Lab SO ₄ , ppm	LEE Grab Sample Time of Grab	LEE Grab Sample Temp °C	LEE Composite Lab EDOCC/LAB	LEE Grab Sample DO, ppm	LEE Composite Lab NO ₃ -N, ppm	LEE Composite Lab SO ₄ , ppm
3/26/2023														
3/30/2023			7.12	1620	131	134	83	7.13						
3/31/2023			6.98	1622	119	136	85	7.01						
4/1/2023								7.30						
4/2/2023			7.16	1588	122	134	83	7.92						
4/4/2023								7.56						
4/5/2023			7.04	1867	164	167	83	7.54						
4/6/2023			6.87	1808	159	166	72	6.95						
4/7/2023								6.78						
4/9/2023								7.22						
4/10/2023			7.04	2042	169	183	72	7.36						
4/12/2023			7.00	1614	140	162	74	6.58						
4/14/2023			6.90	1675	132	146	75	6.86						
4/15/2023								6.24						
4/16/2023			7.18	1588	131	140	81	6.56						
4/17/2023			6.75	1615	131	141	83	6.93						
4/19/2023								6.89						
4/20/2023			6.52	1580	124	137	84	6.37						
4/22/2023								5.21						
4/24/2023			7.03	1565	130	133	88	6.22						
4/25/2023			7.02	1582	121	137	88	6.95						
4/27/2023			6.93	1570	112	135	89	5.71						
4/28/2023								6.82						
4/30/2023			6.87	1611	122	139	92	5.50						
5/2/2023			6.62	1633	122	140	93	7.18						
5/3/2023								7.03						
5/5/2023			6.85	1628	120	138	94	4.68						
5/6/2023								6.94						
5/7/2023			6.88	1613	123	139	95	8.07						
5/8/2023								6.19						
5/10/2023			6.65	1588	120	132	92	7.55						
5/11/2023			6.81	1641	138	161	99	7.60						
5/12/2023								7.02						
5/13/2023			6.80	1605	142	156	86	7.19						
5/15/2023			6.86	1612	138	156	86	7.11						
5/16/2023								7.63						
5/17/2023			7.00	1625	145	160	85	7.36						
5/18/2023								6.68						
5/20/2023			6.97	1766	143	156	86	6.27						
5/22/2023			7.10	1756	117	153	87	6.51						
5/26/2023			6.73	1760	135	146	111	6.78						
5/27/2023			6.18	1740	122	146	114	3.80						
5/28/2023			6.59	1734	119	146	121	3.17						
5/30/2023			6.73	1721	120	147	126	3.67						
6/1/2023			6.68	1680	122	137	135	3.80						
6/2/2023			6.08	1674	116	135	139	3.17						
6/4/2023			6.22	1655	114	132	141	3.67						
6/10/2023			6.44	1624	116	126	142	3.80						
6/12/2023			6.55	1690	111	126	145	3.17						
6/14/2023			6.05	1695	123	139	139	3.67						
6/15/2023			6.52	1685	119	132	139	3.67						
6/16/2023								3.32						
6/17/2023								3.17						
6/19/2023								3.67						
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