

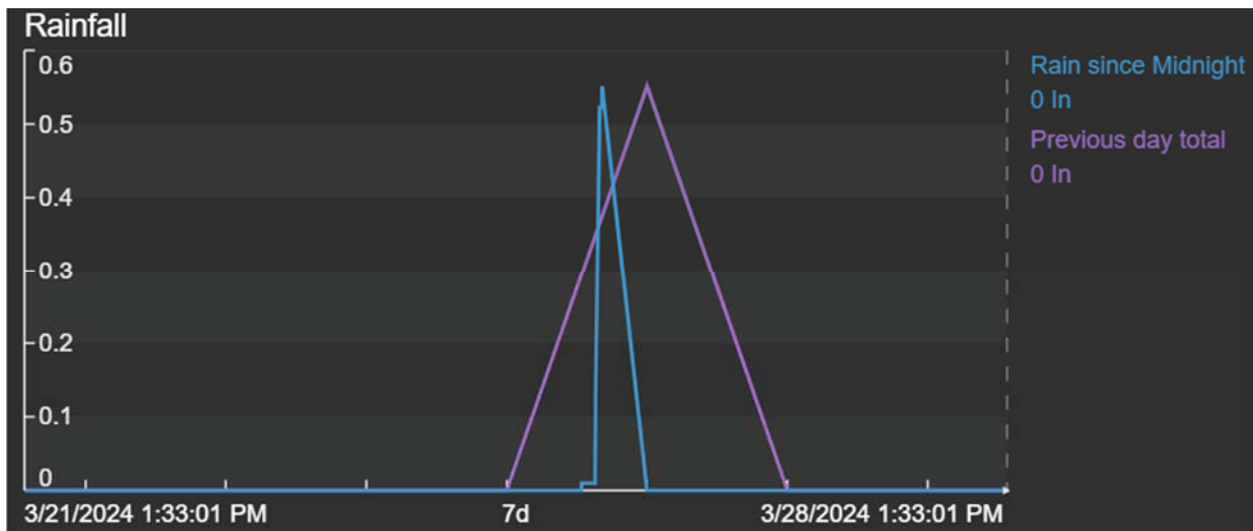
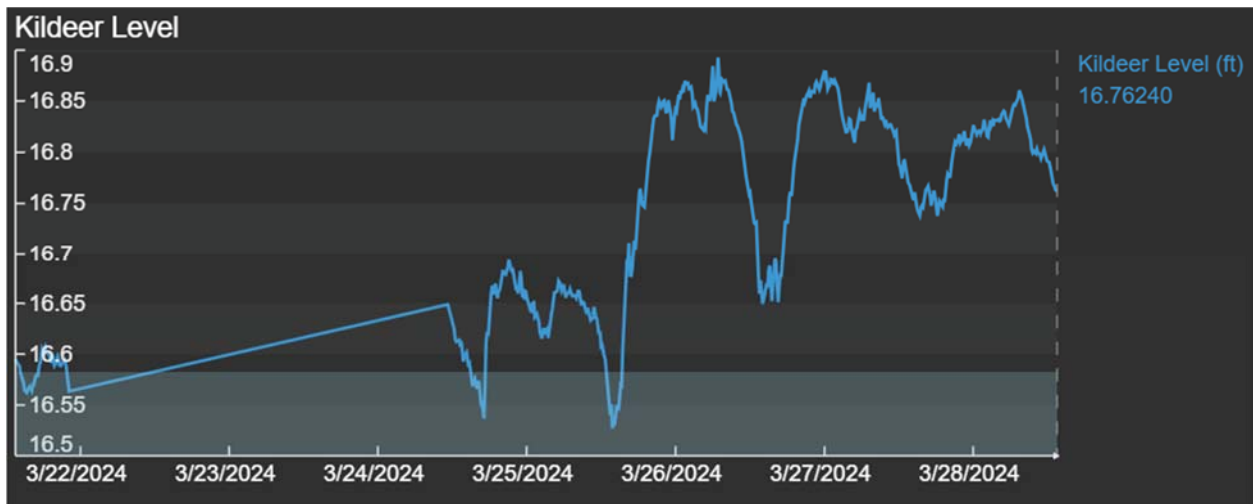
Weekly Report Required by Interim Measures Letter dated 8/4/2023

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

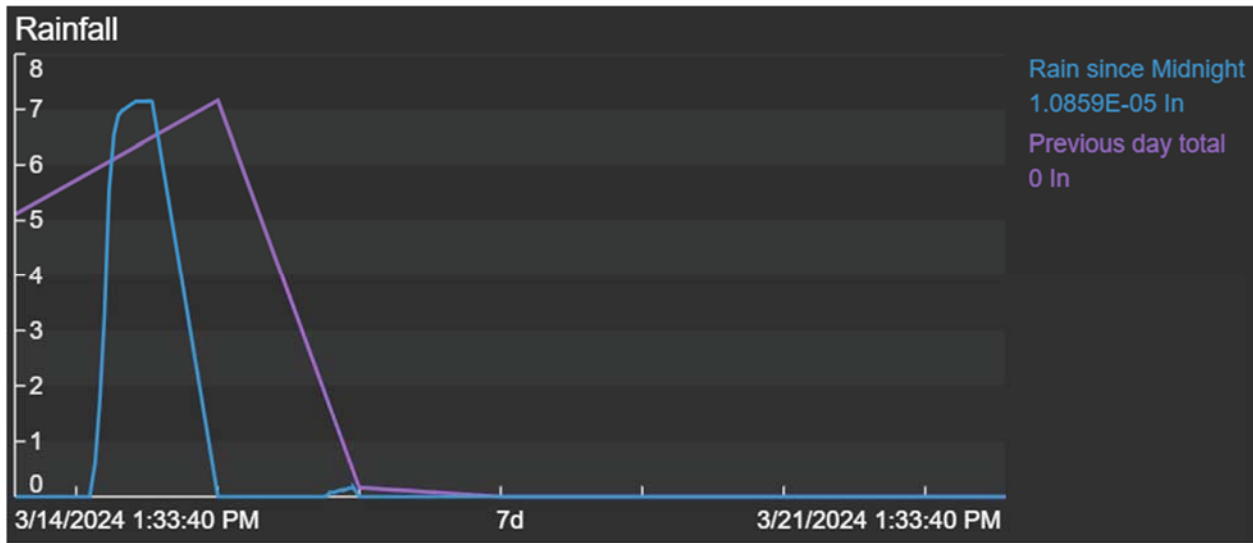
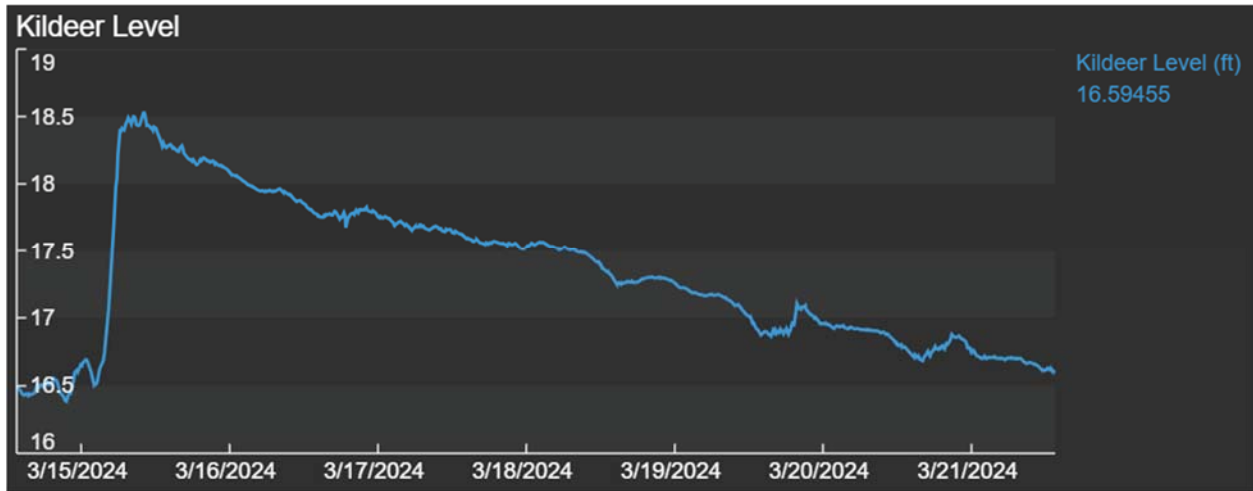
Weekly Report Date: 28 March 2023, Updated portions are underlined.

Discharges and Implementation of Emergency Action Plan

Over the last week, the facility received 0.55 inches of rain. Lake Kildeer is currently at 16.76 feet. We are currently discharging at 1.0 MGD. 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.



Weekly data for Kildeer and rainfall from the previous week.



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

LSB commenced this required sampling on August 5, 2023. We have included the data for the last two weeks in this update. On the 15th, all samples from inside the plant are grab samples and not representative of the day's flows. This is due to the excessive rain received during that day.

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. However, the stripper has to be shut down during freezing weather due to the lack of heat load on the stripper. Cold weather operation can/will cause freezing of the cooling tower.

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 design basis is under internal technical review and review from Alliance Technical Group who will be submitting the permit application. We are currently working on the P&ID's, finalizing all calculations and developing the plot plan.

The units are currently on site and are in a staging area. A construction permit will be submitted as soon as engineering is completed.

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, we have sized transformers and this appears to no longer be the critical path. Ancillary equipment for these units is undergoing inspection and repaired as needed.

LSB internal engineering is evaluating siting and location for these package plants, this has been narrowed down to two locations. LSB contracted HSG to do site investigations for the foundation and to develop the foundation plans. We have selected a site for the foundations. We are currently drafting plot plans and potential layouts for the units.

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
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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 completed the advanced industrial wastewater class 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 EDOCC LAB pH	KD Composite EDOCC LAB DO, ppm	KD Composite EDOCC LAB Conductivity	KD Composite EDOCC LAB NH ₃ , ppm	KD Composite EDOCC LAB P, ppm	KD Composite EDOCC LAB SO ₄ , ppm	LEE Grab Sample Time of Grab	LEE Composite EDOCC LAB pH	LEE Grab Sample DO, ppm	LEE Composite EDOCC LAB NH ₃ , ppm	LEE Composite EDOCC 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																		
1/22/2023		6.69	1073	1073	54	70	107		3.82	3.11	341	301						
1/24/2023		7.10	1095	1095	62	71	103		3.10	2.65	265	235						
1/26/2023		7.21	1114	1114	63	75	103		7.60	1.95	195	177						
1/29/2023									7.71	1.78	178	160						
1/30/2023									7.70	1.75	175	160						
1/31/2023									7.42	1.65	165	149						
1/10/2023		7.10	1127	1127	64	76	100		7.34	1.52	152	133						
1/11/2023		7.11	1154	1154	71	81	102		7.69	1.41	141	110						
1/12/2023									8.02	1.38	138	122						
1/13/2023		7.18	1182	1182	70	84	100		8.04	1.33	133	122						
1/14/2023									7.73	1.25	125	109						
1/15/2023		7.25	1185	1185	60	69	97		8.41	1.25	125	109						
1/16/2023									8.36	1.25	125	109						
1/18/2023		7.15	1183	1183	70	90	98		7.94	1.25	125	109						
1/19/2023		7.27	1202	1202	81	89	94		8.45	1.25	125	109						
1/20/2023									8.51	1.25	125	109						
1/21/2023									8.85	1.25	125	109						
1/23/2023		7.48	1245	1245	89	90	92		8.81	1.25	125	109						
1/24/2023									8.67	1.25	125	109						
1/25/2023		7.81	1248	1248	82	90	82		8.34	1.25	125	109						
1/26/2023		7.83	1250	1250	89	87	80		7.78	1.25	125	109						
1/28/2023									7.18	1.25	125	109						
1/29/2023		7.78	1288	1288	77	97	81		7.45	1.25	125	109						
1/30/2023		7.60	1280	1280	94	97	76		7.38	1.25	125	109						
1/31/2023									7.36	1.25	125	109						
2/1/2023		7.52	1303	1303	99	100	76		7.67	1.25	125	109						
2/4/2023									7.53	1.25	125	109						
2/5/2023		7.35	1416	1416	67	112	73		7.52	1.25	125	109						
2/6/2023		7.43	1284	1284	98	100	75		6.93	1.25	125	109						
2/9/2023		7.46	1315	1315	94	99	76		7.67	1.25	125	109						
2/10/2023									7.82	1.25	125	109						
2/13/2023		7.30	1311	1311	100	102	78		7.80	1.25	125	109						
2/14/2023		7.26	1340	1340	110	106	82		7.75	1.25	125	109						
2/15/2023		7.30	1342	1342	106	107	82		7.60	1.25	125	109						
2/16/2023									7.88	1.25	125	109						
2/18/2023		7.30	1442	1442	135	115	82		8.53	1.25	125	109						
2/19/2023									8.00	1.25	125	109						
2/20/2023		7.50	1448	1448	117	119	85		7.96	1.25	125	109						
2/21/2023		7.48	1438	1438	135	115	82		7.70	1.25	125	109						
2/23/2023		7.47	1440	1440	118	116	82		7.21	1.25	125	109						
2/25/2023									7.36	1.25	125	109						
2/26/2023		7.33	1464	1464	123	119	83		7.16	1.25	125	109						
2/28/2023		7.35	1460	1460	130	116	82		6.68	1.25	125	109						
3/2/2023		7.28	1463	1463	101	94	81		7.17	1.25	125	109						
3/5/2023									6.67	1.25	125	109						
3/6/2023		7.33	1848	1848	131	131	81		6.55	1.25	125	109						
3/7/2023		8.23	1874	1874	152	146	75		7.24	1.25	125	109						
3/10/2023		7.21	1872	1872	124	137	78		6.96	1.25	125	109						
3/11/2023		7.36	1876	1876	126	135	76		7.08	1.25	125	109						
3/12/2023		7.48	1834	1834	130	123	76		6.84	1.25	125	109						
3/13/2023									6.57	1.25	125	109						
3/15/2023		7.36	1995	1995	127	133	76		6.92	1.25	125	109						
3/16/2023		7.38	1999	1999	168	135	79		7.62	1.25	125	109						
3/18/2023									7.31	1.25	125	109						
3/20/2023		7.56	1808	1808	135	136	80		6.96	1.25	125	109						
3/22/2023		7.24	1938	1938	131	136	80		7.33	1.25	125	109						
3/23/2023		7.22	1945	1945	129	134	82		7.27	1.25	125	109						
3/26/2023									6.67	1.25	125	109						
3/27/2023		7.06	1593	1593	129	133	83		7.04	1.25	125	109						

Date	Lake Killebrew (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 NO 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 NO ₃ , ppm	LEE Composite Lab SO ₄ , ppm
6/27/2023		6.60		1688	115	131		136		7.31		141	153	201
6/28/2023		6.68		1705	115	133		141		7.17		101	110	267
6/29/2023		6.69		1690	119	130	1.32	143		7.14		55	69	199
6/30/2023		6.75		1672	122	127		142		6.72		79	116	184
6/30/2023		6.64		1720	119	133		141		7.82		132	184	146
7/1/2023		6.69		1730	120	137	1.38	144		7.59		108	126	167
7/2/2023		6.77		1724	125	133		142		7.03		72	86	149
7/3/2023		6.74		1720	116	132		140		6.96		188	209	172
7/4/2023		6.75		1780	130	136	5.24	140		6.82		134	153	181
7/5/2023		6.64		1782	102	113		139		7.88		132	128	196
7/6/2023		6.50		2240	179	69		34		8.45		209	231	155
7/7/2023		6.98		1890	151	153	6.08	112		8.22		157	196	125
7/8/2023		6.96		1820	143	143		104		8.45		136	215	75
7/9/2023		6.91		1804	140	141		106		8.29		279	323	109
7/10/2023		6.90		1763	125	136	2.03	110		8.50		231	270	110
7/11/2023		6.85		1764	126	134		110		8.35		177	209	124
7/12/2023		6.84		1753	120	132		110		7.92		133	143	110
7/13/2023		6.83		1745	128	129	1.96	110		8.17		128	137	170
7/14/2023		6.77		1726	114	126		111		8.05		120	129	123
7/15/2023		6.79		1710	119	126		111		7.89		96	83	133
7/16/2023		6.79	7:05	1703	114	125		111		7.38		72	79	146
7/17/2023		6.77	8:27	1678	105	123		113		7.22		59	72	125
7/18/2023		6.83	6:13	1673	114	124	1.75	113		7.43		58	57	101
7/19/2023		6.84	6:13	1678	114	124		113		8.27		16	30	107
7/20/2023		6.83	7:34	1584	114	120		128		6.99		10	24	121
7/21/2023		6.77		1726	114	126		111		7.19		13	20	119
7/22/2023		6.79		1710	119	126		111		6.92		58	75	126
7/23/2023		6.79		1703	114	125		111		8.10		16	32	113
7/24/2023		6.77	8:57AM	1678	105	123		113		7.44		9	22	143
7/25/2023		6.84	8:45AM	1673	114	124		113		6.60	6:03	6	17	147
7/26/2023		6.84	8:45AM	1678	114	124		113		6.45	6:12	9	15	125
7/27/2023		6.84	8:13AM	1673	114	124		113		6.81	6:08	10	18	111
7/28/2023		6.84	8:13AM	1584	114	120		128		7.26	7:26	102	102	80
7/29/2023		6.83		1745	128	129		110		6.99		10	24	121
7/30/2023		6.77		1726	114	126		111		7.19		13	20	119
7/31/2023		6.79		1710	119	126		111		6.92		58	75	126
8/1/2023		6.79		1703	114	125		111		8.10		16	32	113
8/2/2023		6.79	8:53AM	1678	105	123		113		7.44		9	22	143
8/3/2023		6.77	9:57AM	1673	114	124		113		6.60	6:03	6	17	147
8/4/2023		6.84	8:45AM	1678	114	124		113		6.45	6:12	9	15	125
8/5/2023		6.84	8:13AM	1673	114	124		113		6.81	6:08	10	18	111
8/6/2023		6.84	8:13AM	1584	114	120		128		7.26	7:26	102	102	80
8/7/2023		6.83		1745	128	129		110		6.99		10	24	121
8/8/2023		6.77		1726	114	126		111		7.19		13	20	119
8/9/2023		6.79		1710	119	126		111		6.92		58	75	126
8/10/2023		6.79	7:05	1703	114	125		111		8.10		16	32	113
8/11/2023		6.77	8:27	1678	105	123		113		7.44		9	22	143
8/12/2023		6.83	6:13	1673	114	124		113		6.60	6:03	6	17	147
8/13/2023		6.84	6:13	1678	114	124		113		6.45	6:12	9	15	125
8/14/2023		6.84	6:13	1584	114	120		128		6.81	6:08	10	18	111
8/15/2023		6.84	6:13AM	1673	114	124		113		7.26	7:26	102	102	80
8/16/2023		6.83		1745	128	129		110		6.99		10	24	121
8/17/2023		6.77		1726	114	126		111		7.19		13	20	119
8/18/2023		6.79		1710	119	126		111		6.92		58	75	126
8/19/2023		6.79	8:53AM	1678	105	123		113		7.44		9	22	143
8/20/2023		6.77	9:57AM	1673	114	124		113		6.60	6:03	6	17	147
8/21/2023		6.84	8:45AM	1678	114	124		113		6.45	6:12	9	15	125
8/22/2023		6.84	8:13AM	1673	114	124		113		6.81	6:08	10	18	111
8/23/2023		6.84	8:13AM	1584	114	120		128		7.26	7:26	102	102	80
8/24/2023		6.83		1745	128	129		110		6.99		10	24	121
8/25/2023		6.77		1726	114	126		111		7.19		13	20	119
8/26/2023		6.79		1710	119	126		111		6.92		58	75	126
8/27/2023		6.79	7:05	1703	114	125		111		8.10		16	32	113
8/28/2023		6.77	8:27	1678	105	123		113		7.44		9	22	143
8/29/2023		6.83	6:13	1673	114	124		113		6.60	6:03	6	17	147
8/30/2023		6.84	6:13	1678	114	124		113		6.45	6:12	9	15	125
8/31/2023		6.84	6:13AM	1673	114	124		113		6.81	6:08	10	18	111
9/1/2023		6.84	6:13AM	1584	114	120		128		7.26	7:26	102	102	80
9/2/2023		6.83		1745	128	129		110		6.99		10	24	121
9/3/2023		6.77		1726	114	126		111		7.19		13	20	119
9/4/2023		6.79		1710	119	126		111		6.92		58	75	126
9/5/2023		6.79	8:53AM	1678	105	123		113		7.44		9	22	143
9/6/2023		6.77	9:57AM	1673	114	124		113		6.60	6:03	6	17	147
9/7/2023		6.84	8:45AM	1678	114	124		113		6.45	6:12	9	15	125
9/8/2023		6.84	8:13AM	1673	114	124		113		6.81	6:08	10	18	111
9/9/2023		6.84	8:13AM	1584	114	120		128		7.26	7:26	102	102	80
9/10/2023		6.83		1745	128	129		110		6.99		10	24	121
9/11/2023		6.77		1726	114	126		111		7.19		13	20	119
9/12/2023		6.79		1710	119	126		111		6.92		58	75	126
9/13/2023		6.79	7:05	1703	114	125		111		8.10		16	32	113
9/14/2023		6.77	8:27	1678	105	123		113		7.44		9	22	143
9/15/2023		6.83	6:13	1673	114	124		113		6.60	6:03	6	17	147
9/16/2023		6.84	6:13	1678	114	124		113		6.45	6:12	9	15	125
9/17/2023		6.84	6:13AM	1673	114	124		113		6.81	6:08	10	18	111
9/18/2023		6.84	6:13AM	1584	114	120		128		7.26	7:26	102	102	80
9/19/2023		6.83		1745	128	129		110		6.99		10	24	121
9/20/2023		6.77		1726	114	126		111		7.19		13	20	119
9/21/2023		6.79		1710	119	126		111		6.92		58	75	126
9/22/2023		6.79	8:53AM	1678	105	123		113		7.44		9	22	143
9/23/2023		6.77	9:57AM	1673	114	124		113		6.60	6:03	6	17	147
9/24/2023		6.84	8:45AM	1678	114	124		113		6.45	6:12	9	15	125
9/25/2023		6.84	8:13AM	1673	114	124		113		6.81	6:08	10	18	111
9/26/2023		6.84	8:13AM	1584	114	120		128		7.26	7:26	102	102	80
9/27/2023		6.83		1745	128	129		110		6.99		10	24	121
9/28/2023		6.77		1726	114	126		111		7.19		13	20	119
9/29/2023		6.79		1710	119	126		111		6.92		58	75	126
9/30/2023		6.79	7:05	1703	114	125		111		8.10		16	32	113
10/1/2023		6.77	8:27	1678	105	123		113		7.44		9	22	143
10/2/2023		6.83	6:13	1673	114	124		113		6.60	6:03	6	17	147
10/3/2023		6.84	6:13	1678	114	124		113		6.45	6:12	9	15	125
10/4/2023		6.84	6:13AM	1673	114	124		113		6.81	6:08	10	18	111
10/5/2023		6.84	6:13AM	1584	114	120		128		7.26	7:26	102	102	80
10/6/2023		6.83		1745	128	129		110		6.99		10	24	121
10/7/2023		6.77		1										